CITY OF ANTIOCH
COMMUNITY DEVELOPMENT DEPARTMENT

ANTIOCH
CALIFORNIA

Delta Fair Village Project

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

May 2020

RANEY PLANNING & MANAGEMENT, INC. | 20 years
1501 Sports Drive, Suite A, Sacramento, CA 95834

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Appendices

INITIAL STUDY

May 2020

A. BACKGROUND

1.	Project Title:	Delta Fair Village Project
2.	Lead Agency Name and Address:	City of Antioch Community Development Department P.O. Box 5007 Antioch, CA 94531
3.	Contact Person and Phone Number:	Alexis Morris Planning Manager (925) 779-7035
4.	Project Location:	3000 Delta Fair Boulevard Antioch, CA 94509 Assessor's Parcel Numbers (APNs) 076-440-029, -030-, and -031
5.	Project Sponsor's Name and Address:	Gabriel Chiu Chiu Family LLC 1767 Garmano Way Pleasanton, CA 94566
6.	Existing General Plan Designation:	Somersville Road Corridor Focus Area
7.	Focus Area Designation:	Regional Commercial
7.	Proposed General Plan Designation:	Mixed Use
8.	Existing Zoning Designation:	Regional Commercial (C-3)
9.	Proposed Zoning Designation:	Planned Development
10.	Required Approvals from Other Public Agencies:	None

11. Surrounding Land Uses and Setting:

The project site consists of 13.4 acres located at 3000 Delta Fair Boulevard in the City of Antioch, northeast of the intersection of Buchanan Road and Delta Fair Boulevard. State Route (SR) 4 is located approximately 500 feet north. The site is currently developed with three commercial buildings totaling 147,081 square feet (sf) and associated parking, known as the Delta Village Shopping Center. Surrounding existing land uses include a multi-family development to the east, commercial and retail development to the north and west, and office buildings, a church, and single-family residences to the south, across Buchanan Road.

12. Project Description Summary:

    The proposed project would include demolition of 73,546 sf of the 147,081 sf Delta Fair Village Shopping Center to develop the site with approximately 210 multi-family residential units, which would be located in five four-story buildings above a single-story parking garage. The apartment complex would include a courtyard with a clubhouse, pool, and playground. Additionally, a new 4,174-sf retail building would be constructed on the western portion of the site. The new development would total 411,511 sf.

13. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1:

    In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Ione Band of Miwok Indians. The letters were distributed on April 26, 2019. Requests to consult were not received within the required response period.

B. SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study/Mitigated Negative Declaration (IS/MND):

1. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.
2. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.
3. California Department of Conservation. *Contra Costa County Important Farmland Map 2016.* Published August 2018.
4. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.
5. California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List.* Available at: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/. Accessed October 23, 2019
6. California Department of Transportation. *California Scenic Highway Mapping System*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed September 2019.
7. California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ*. November 2018.
8. City of Antioch. *2015 Urban Water Management Plan*. May 2016.
9. City of Antioch. *About APD*. Available at: http:// www.antiochca.gov/police/about-apd/. Accessed September 2019.
10. City of Antioch. *City of Antioch General Plan Update EIR.* July 2003.
11. City of Antioch. *City of Antioch General Plan*. Updated November 24, 2003.
12. City of Antioch. *Citywide Design Guidelines Manual.* October 2009.
13. City of Antioch. *Citywide Engineering and Traffic Survey.* February 6, 2015.
14. City of Antioch. *Housing Element*. Adopted April 14, 2015.
15. Contra Costa Clean Water Program. *Stormwater C.3. Guidebook, Stormwater Quality Requirements for Development Applications*. May 17, 2017.

16. Delta Diablo. *Quick Facts*. Available at: https://www.deltadiablo.org/about-us/organization/quick-facts. Accessed October 2019.
17. Contra Costa County Department of Conservation and Development. *Notice of Preparation and Public Scoping Meeting for the Supplemental Environmental Impact Report for Keller Canyon Landfill.* October 15, 2015.
18. Fehr and Peers. *Transportation Assessment Delta Fair Village.* December 2019.
19. j.c. brennan & associates, Inc. *Environmental Noise Analysis Delta Fair Village*. August 26, 2019.
20. Ridgeline Engineering. *Stormwater Control Plan: Delta Fair Village*. July 24, 2019.
21. Sam Harned Landscape Architecture. *Delta Fair Village Existing Tree Survey.* August 24, 2018.
22. San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2014-0030, NPDES No. CA00.8547.* Adopted August 13, 2014.
23. U.S. Department of Agriculture Natural Resources Conservation Service. *Web Soil Survey.* Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed October 2019.
24. U.S. Green Building Council. *Building Area Per Employee by Business Type*. May 13, 2008.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

☐	**Aesthetics**	☐	**Agriculture and Forest Resources**	✖	**Air Quality**
✖	**Biological Resources**	✖	**Cultural Resources**	☐	**Energy**
✖	**Geology and Soils**	☐	**Greenhouse Gas Emissions**	☐	**Hazards and Hazardous Materials**
✖	**Hydrology and Water Quality**	☐	**Land Use and Planning**	☐	**Mineral Resources**
✖	**Noise**	☐	**Population and Housing**	☐	**Public Services**
☐	**Recreation**	✖	**Transportation**	✖	**Tribal Cultural Resources**
☐	**Utilities and Service Systems**	☐	**Wildfire**	☐	**Mandatory Findings of Significance**

D. DETERMINATION

On the basis of this IS/MND:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

× I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

______________________________	______________________________
Signature	Date
Alexis Morris, Planning Manager	City of Antioch
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This IS/MND identifies and analyzes the potential environmental impacts of the Delta Fair Village Project (proposed project). The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures are prescribed.

The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the project, as required by CEQA. The mitigation measures would be incorporated into the project through project conditions of approval. The City would adopt findings and a Mitigation Monitoring/Reporting Program for the project in conjunction with approval of the project.

In 2003, the City of Antioch completed a comprehensive update of the City's General Plan and adopted an Environmental Impact Report (EIR) for the updated General Plan. The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 *et seq*.). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan.

The project site is located within the Somersville Road Corridor Focus Area with a Regional Commercial designation. The Somersville Road Corridor Focus Area encompasses the commercial area along Somersville Road from SR 4 north to Fourth Street, as well as the commercial areas south of the freeway along Somersville Road. The Focus Area is included as part of the General Plan to guide development of the area.

F. PROJECT DESCRIPTION

The following provides a description of the project site's current location and setting, as well as the proposed project components and the discretionary actions required for the project.

Project Location and Setting

The project site consists of approximately 13.4 acres located at 3000 Delta Fair Boulevard in the City of Antioch, Contra Costa County, California (see Figure 1 and Figure 2). Regional access to the area is provided by SR 4, located approximately 500 feet north of the project site. The site is identified by APNs 076-440-029, -030, and -031 and is zoned Regional Commercial (C-3). Per the City of Antioch General Plan, the site is located in the Somersville Road Corridor Focus Area, and is designated as Regional Commercial within the Focus Area.

Currently, the project site is developed with three commercial buildings and associated parking area, known as the Delta Village Shopping Center. The parking area contains several planter boxes containing a mixture of trees and shrubs.

The project site is bounded by Buchanan Road to the south, Delta Fair Boulevard to the west, San Jose Drive to the north, and multi-family housing to the east. Surrounding land uses also include a shopping area to the west, across Delta Fair Boulevard, and a commercial center to the north, across San Jose Drive. Commercial development also exists south of the project site, across Buchanan Road. The existing multi-family housing to the east is separated from the project site by a six-foot tall masonry wall that spans the length of the eastern project site boundary.

Figure 1
Regional Project Location

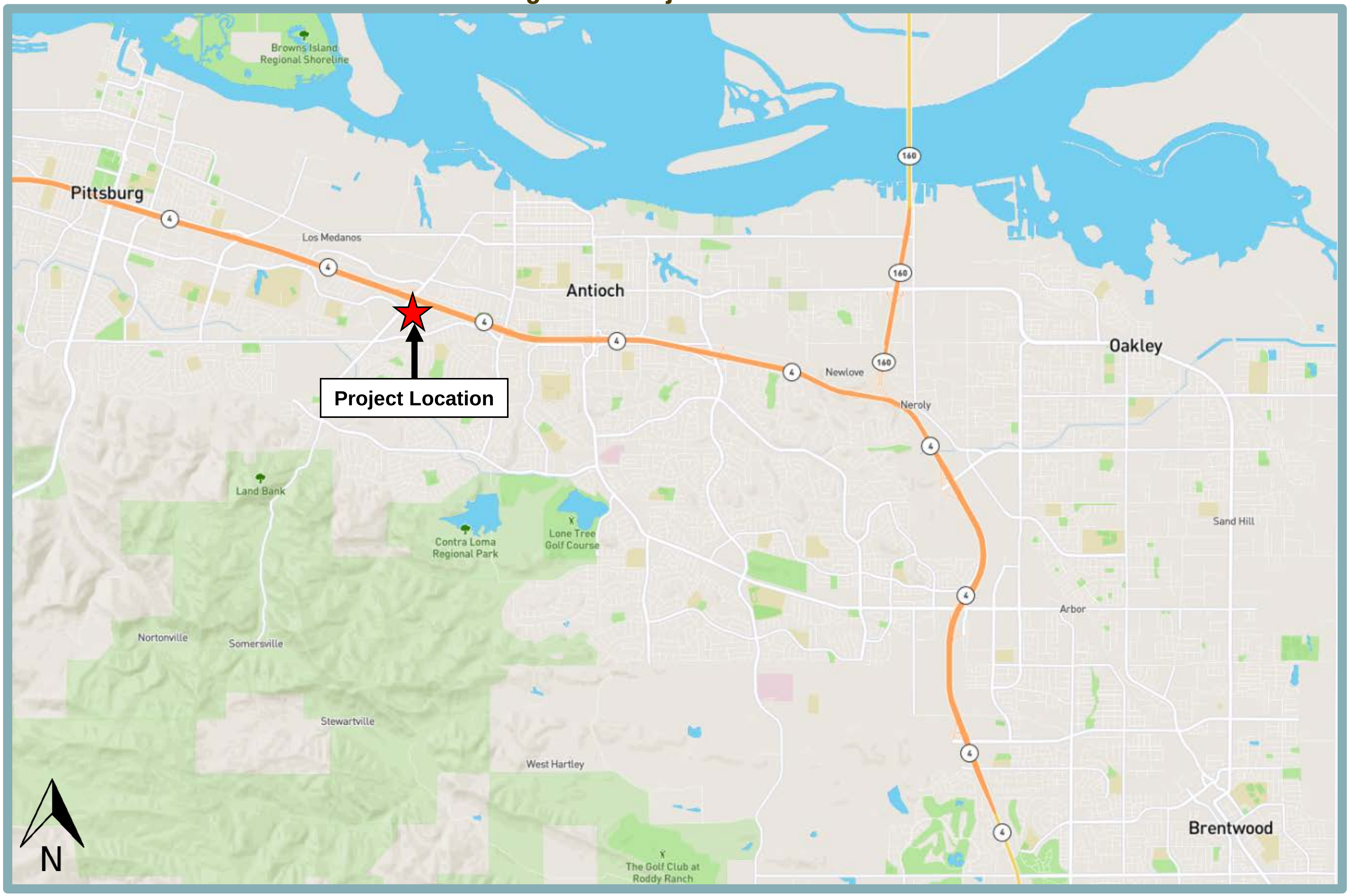


Figure 2
Project Vicinity Map

Project Components

The proposed project would include demolition of approximately 73,546 sf of the existing Delta Fair Shopping Center. The area of demolition would be developed with a 210-unit multi-family apartment complex and a new 4,174-sf retail building (see Figure 3). The apartment complex would consist of five buildings all located above a ground-level parking structure. The five buildings would be cohesively centered around a common courtyard area. The new retail building would be constructed north of the proposed apartment structure. The square footage of the proposed project would total 411,511 sf. In addition, the project would include renovation of the remaining existing 73,535 sf of retail space. The proposed project would include new drive aisles and associated improvements, such as landscaping, utility connections, and parking development. The sections below describe the following project components in further detail: apartment buildings; circulation and parking; landscaping, common area and fencing; utilities; Rezone; Use Permit and Design Review; and Discretionary Actions.

Apartment Buildings

Figure 4 designates the individual buildings within the apartment complex as Buildings A through E. Buildings A and B would be three floors above the parking garage with a maximum height of 54 feet, and Buildings C, D, and E would be four floors above the garage with a maximum height of 65 feet. Each building would have two sets of stairs, an elevator, and a trash room. The number and size of each proposed unit is listed in Table 1. Building A would contain 34 units, while Building B would contain 32 units, and Buildings C through E would contain 48 units.

Table 1
Proposed Unit Mix

Unit Type	Unit Size (sf)	Number of Units
Studio	792 or 832	36
1 Bed 1 Bath	992 or 814	82
2 Bed 2 Bath	1,200 or 1,174	66
3 Bed 2 Bath	1,451	26

Every apartment unit would have a balcony (at least 60 sf), as well as an in-unit washer and dryer. Each balcony would have a 42-inch black, wrought-iron railing and solar privacy screen. The typical balcony would be six by 12 feet, with some larger on the first floor and above pop-out areas. Additionally, the apartment complex would provide 250 sf of private storage per unit. All units with enlarged balconies would have room for storage on the balcony.

Each apartment building would be 90-feet by 200-feet. The exterior wall of the parking garage would be constructed of split-face concrete blocks with stucco stone veneer at the pop outs. The apartment buildings would have stucco exterior walls with accent stucco on some units and stucco stone on others, and the roof would be constructed of concrete tiles.

Circulation and Parking

Development of the proposed project would include new drive aisles with access to the apartment complex and circulation around the proposed retail area. Vehicle entrance to the apartment complex would be provided by existing driveways along Buchanan Road and Delta Fair Boulevard.

Figure 3
Overall Site Plan

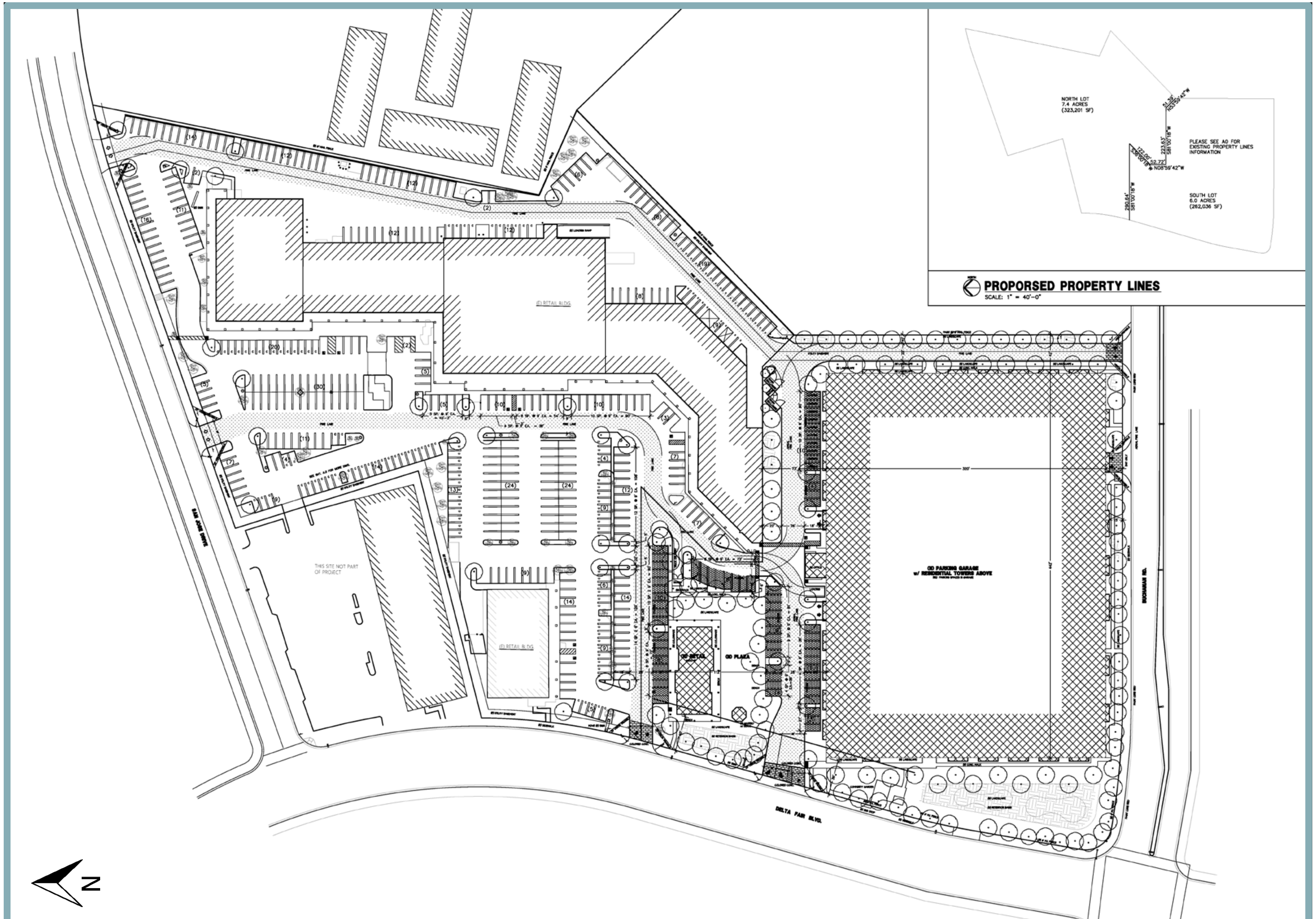
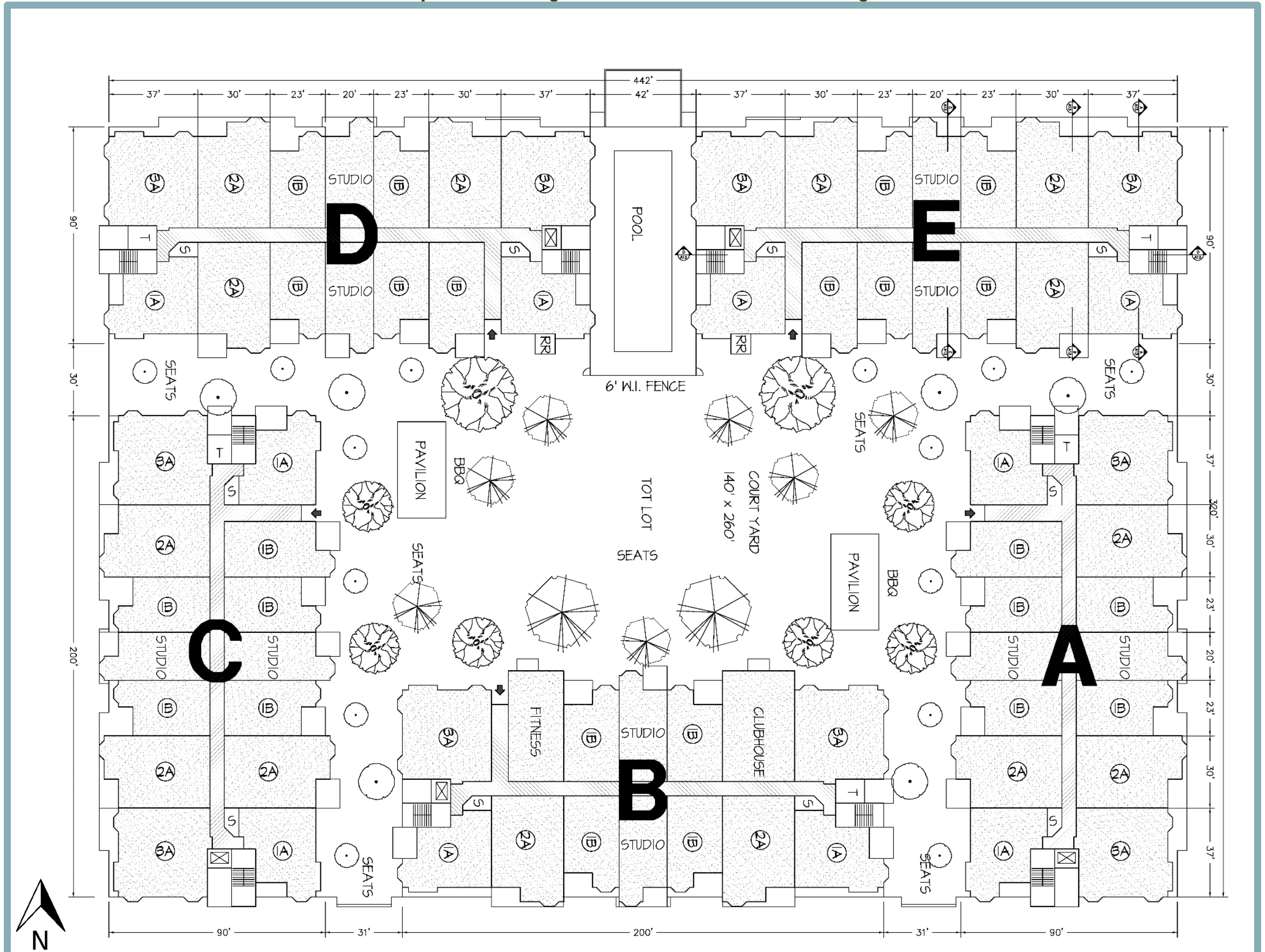


Figure 4
Proposed Arrangement of Residential Buildings



Entrance from Buchanan Road would circulate the east border of the complex and provide access to the garage, exterior guest spaces, and retail development. The two entrances from Delta Fair Boulevard would provide access to the north side of the apartment complex and also lead to the parking garage, exterior guest spaces, and retail development. Each drive aisle would then converge and move north to circulate the remainder of the existing shopping area. In addition, the existing driveways on San Jose Boulevard would be relocated to align with the parking aisles.

The proposed parking garage would provide 328 parking spaces for residents. Of the 328 spaces, 42 tandem parking spaces would be provided for the three-bedroom units and 16 for the two-bedroom units. The garage would be designed with one entrance and exit access point on the north side of the residential building, and one exit-only access point onto Buchanan Road. Ten stairwells and five elevators would provide connection to the residences. A total of 42 guest parking spaces would be provided along the exterior of the garage entrance.

Pedestrian access to the buildings would be provided by card-controlled entrances. Each entrance door would contain a phone entry system that visitors could use to contact residents. The parking garage vehicle access would be opened by a sensor in residents' cars within 20 feet. Elevator and stair access would connect the garage to the apartment buildings.

In addition, the project would include 110 bicycle parking spaces in the garage and five spaces in the courtyard area.

Landscaping, Common Area, and Fencing

Figure 5 and Figure 6 provide an overview of the proposed landscaping, common areas, and fencing elements that would be included as part of the proposed apartment complex. As shown in the figures, new trees and shrubs would be planted in the guest parking area and around the perimeter of the buildings. The existing 10-foot wide landscape along Buchanan Road and Delta Fair Boulevard would be expanded to be 15 feet. Additionally, a new lawn with a gazebo and patio-style seating would be constructed outside of the new retail building. A community garden would be located in the landscape area west of the garage, near Delta Fair Boulevard. Bioretention basins would also be designed within the landscaped area. Additional planters would be placed around the retail parking area to provide shade.

The common area of the apartment complex would consist of approximately 52,000 sf and would be surrounded by a six-foot tall fence with key card-controlled access points. The common area would include various amenities for future residents, including, but not limited to: a clubhouse, fitness center, two picnic pavilions, swimming pool, playground, barbecue grills and seating areas.

A six-foot wrought iron fence would be constructed to secure the landscape area along Delta Fair Boulevard and the courtyard. The fence would include several key card-controlled access gates. The existing six-foot tall concrete fence along the northern border of the site would remain. Security cameras and flood lighting would be provided throughout the apartment complex area.

Utilities

The proposed utility plan is shown in Figure 7. Wastewater generated at the project site would flow through a new four-inch sanitary sewer connection from the retail building and a new six-inch sanitary sewer connection from the residences to an existing eight-inch sewer line within the drive aisle along the eastern portion of the site.

Figure 5
Preliminary Landscape Plan

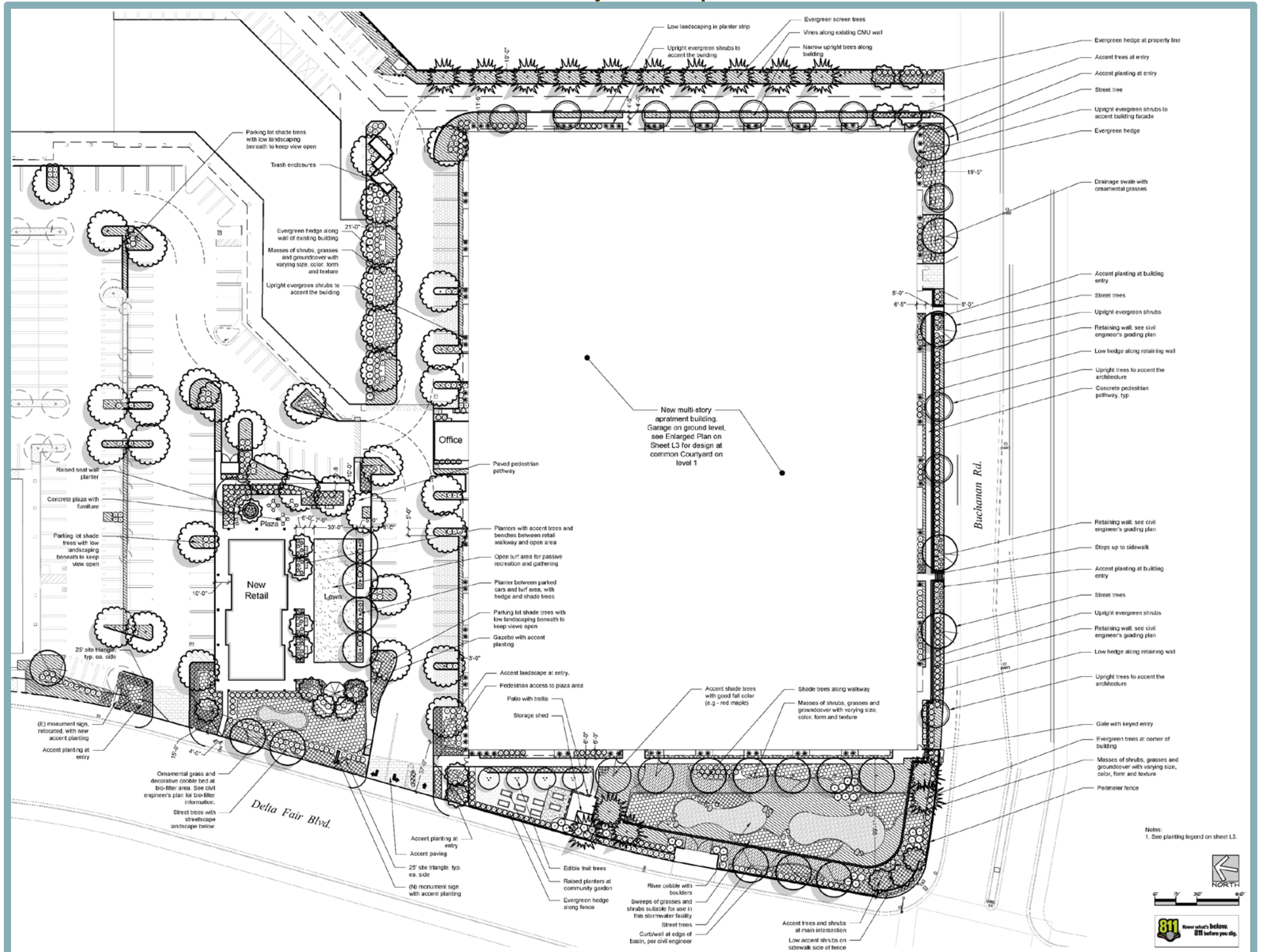


Figure 6
Landscape and Common Space Plan

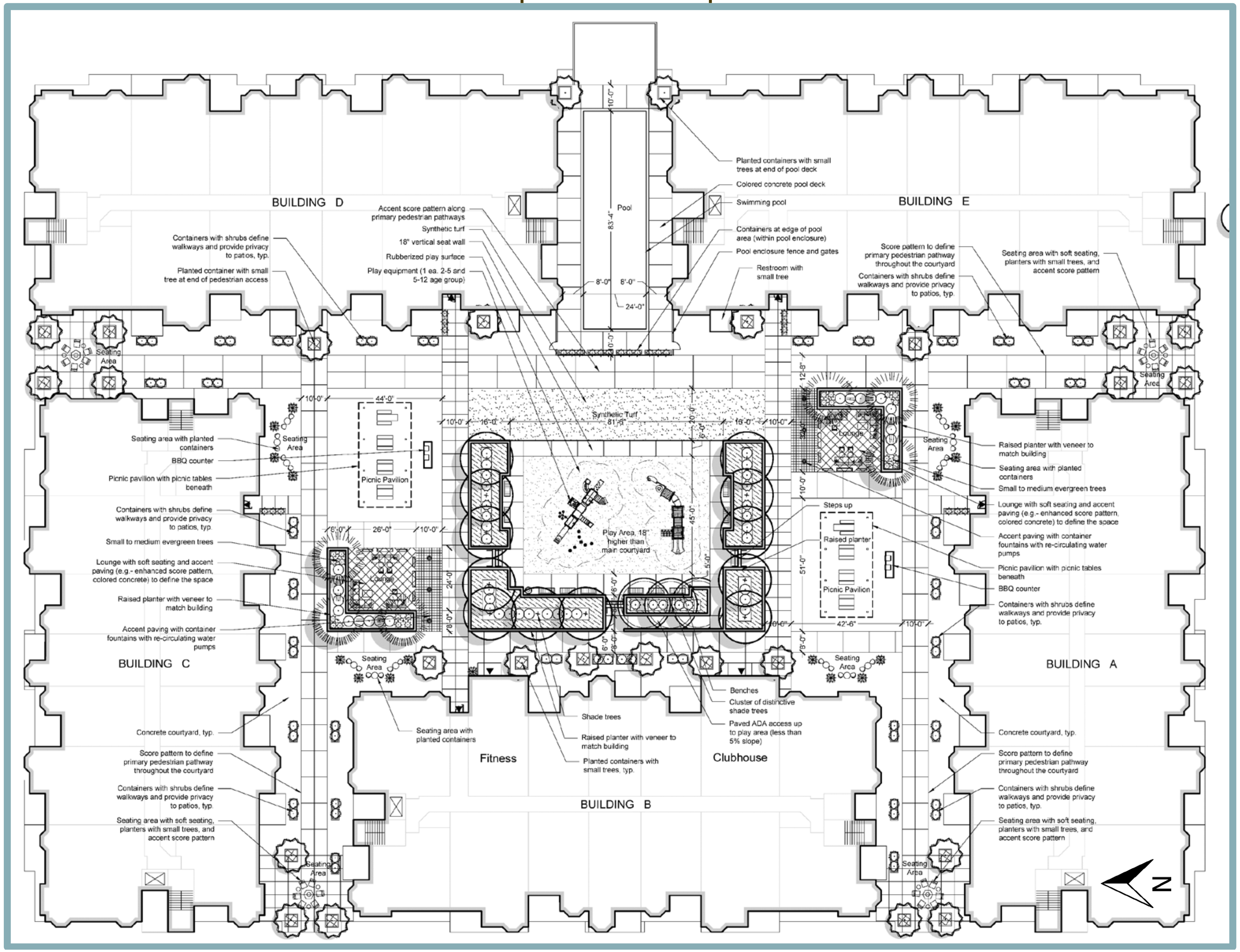
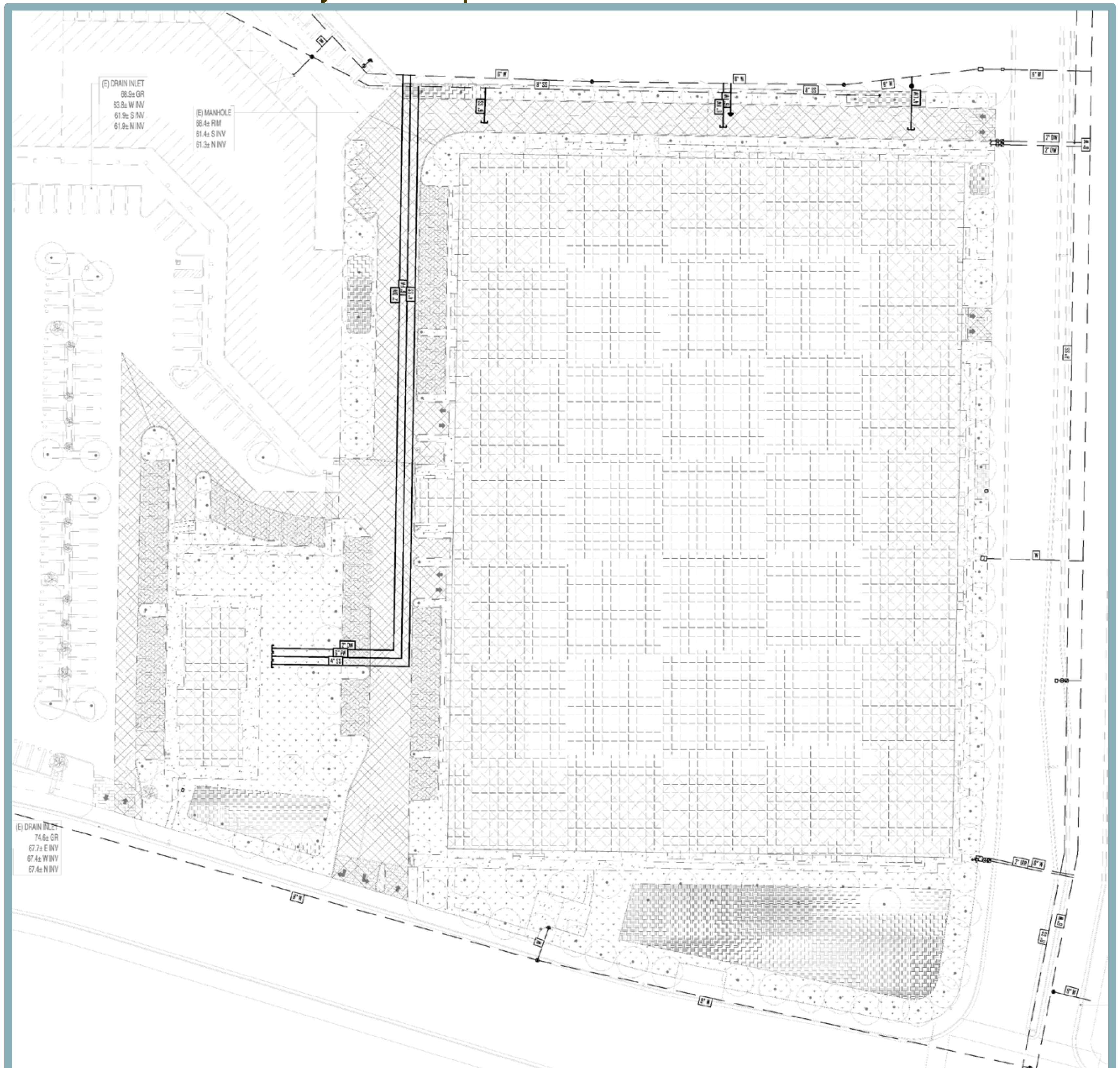


Figure 7
Utility Plan – Proposed Residential and Retail Uses



Domestic water and fire supply for the proposed development would be provided by the City by way of a new two-inch connection to service the retail building, as well as a new four-inch connection to service the residences. Both would connect to an existing eight-inch water line within the drive aisle along the eastern portion of the site.

Stormwater runoff would be routed to a series of bio-retention basins throughout the site. The bio-retention basins would remove pollutants primarily by filtering runoff slowly through an active layer of soil. Treated runoff would be captured by a perforated underdrain, which would route flows to the City's existing stormwater mains.

General Plan Amendment

A General Plan Amendment would be required for the project site to change the Focus Area designation from Regional Commercial to Mixed Use. The Mixed Use designation would allow for multi-family attached and retail use. Thus, development of the project would be in keeping with the goals of the designation.

Rezone

The proposed project would include a Rezone to change the site's zoning from C-3 to Planned Development (P-D). The P-D district is intended to accommodate a wide range of residential, commercial, and industrial land uses which are mutually supportive and compatible with existing and proposed development on surrounding properties. As per Section 9-5.2302 of the Municipal Code, a P-D district may possibly include mixed uses of residential and commercial within either the same or adjacent buildings that share a similar architectural theme and maximize pedestrian access between the two. The proposed project would include both features and be consistent with the Planned Development designation.

Use Permit and Design Review

According to Section 9-5.2607 of the Municipal Code, all new development within the City is subject to Design Review approval. The purpose of the Design Review process is to promote the orderly development of the City, encourage high quality site design and planning, protect the stability of land values and investments, and ensure consistency with the Citywide Design Guidelines. A Use Permit is required to clarify the details of each development phase in the P-D District.

Discretionary Actions

Implementation of the proposed project would require the following discretionary actions by the City of Antioch:

- General Plan Amendment to redesignate the site from Regional Commercial to Mixed Use;
- Rezone of the site from C-3 to Planned Development (P-D);
- Lot Line Adjustment; and
- Use Permit and Design Review for the development of a new retail building and a multi-family residential development at a density of 35 du/ac within a P-D zoning district.

G. ENVIRONMENTAL CHECKLIST

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are project-specific mitigation measures recommended, as appropriate, as part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

I. AESTHETICS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	✖	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	✖	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	✖	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	✖	☐

Discussion

a,b. Examples of typical scenic vistas would include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. The City's General Plan does not specifically identify any scenic vistas. In addition, the project site is located within a developed area of the City. The site is not located within the vicinity of any mountain ranges, ridgelines, or bodies of water.

According to the California Scenic Highway Mapping System, the project site is located approximately 12 miles east of the nearest officially designated State Scenic Highway, Interstate 680 (I-680). It should be noted that while not officially designated, a portion of SR 4 is designated as an Eligible State Scenic Highway.[1] However, the project site is not visible from the eligible portion of the highway. Thus, the proposed project would not impact any scenic resources within the eligible or officially designated scenic highway.

Therefore, the project site is not located within the vicinity of a designated scenic vista. In addition, the site is not located within view of any official State Scenic Highway. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, a ***less-than-significant*** impact would occur.

c. The project site is located in an urbanized area and is currently developed with existing commercial structures ranging from single-story stores and shops to two-story large warehouse structures. General Plan Policy 5.4.2.c states that view corridors from public spaces to natural ridgelines and landmarks, such as Mt. Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies (such as Sand Creek), should

1 California Department of Transportation. *California Scenic Highway Mapping System*. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed September 2018.

be preserved. Specific view corridors identified in Policy 5.4.2.c include Somersville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road. While the project site is located to the west of Somersville Road, the proposed project would not block any views of Mt. Diablo from the roadway. Additionally, the proposed project would be located behind existing development visible from Somersville Road. Furthermore, Policy 5.4.2.c also recognizes that new development will inevitably result in some loss of existing views.

In the current condition, the project site consists of several small shops as well as larger warehouse type buildings. Some of the buildings are currently vacant and not maintained, while the design of the structures is outdated. The proposed project would update the existing design of the site with modern architecture and associated landscaping, which would improve the visual quality of the site. Consistent with the City's Zoning Ordinance, landscaping would include drought-tolerant trees, shrubbery, and groundcover in order to provide for an aesthetically pleasing streetscape. Additionally, the proposed building heights would not exceed 65 feet, while under the existing C-3 zoning, buildings could reach a height of 70 feet. Finally, the project would be subject to Design Review by the City of Antioch per Section 9-5.2607 of the Municipal Code. The purpose of the Design Review process is to promote the orderly development of the City, encourage high quality site design and planning, protect the stability of land values and investments, and ensure consistency with the Citywide Design Guidelines. The Design Review process would help to ensure that the proposed residential and retail buildings would be visually compatible with the existing development in the area.

Figure 8 shows the existing views from the Buchanan Road and Delta Fair Boulevard intersection. As seen in the figure, the existing views from the intersection only consist of commercial structures. Figure 9 shows a rendering of the proposed project at the same intersection. While development of the proposed project would alter the views in the area, the development of the site with modern, well-designed architecture and well-maintained landscaping, would improve the visual character and quality of the site.

Based on the above, impacts related to degrading the existing visual character of the site and its surroundings or a conflict with applicable zoning and other regulations governing scenic quality would be ***less-than-significant***.

d. The proposed project would include construction of new residential and retail uses, which would include exterior lighting, as well as lighting from vehicles traveling to and from the project site and interior lighting spilling from windows. However, the project site is currently developed with commercial uses, which generate similar light sources related to exterior lighting. While the project would generate slightly more trips to the project site than the existing use, the incremental increase would not generate a substantial change to the existing vehicle light conditions.

Although the proposed project would develop a new residential use and generate new light sources from windows, the project site is currently bordered by existing development that generates light and glare in the area. Furthermore, exterior lights along the east and west sides of the building would be shielded by landscape or fences, and would not spill beyond the project site. Interior lighting from the apartment complex could spill from windows to the west side of the project site; however, the multi-family development would be consistent with the surrounding uses. Lighting along the southern side of the building would be separated from nearby residences by Buchanan Road.

Figure 8
Existing View of Project from Buchanan Road and Delta Fair Boulevard

Figure 9
Proposed View of Project from Buchanan Road and Delta Fair Boulevard

All components of the proposed project would be subject to Design Review by the City to ensure light and glare do not obstruct day or nighttime views in the area. Citywide design guidelines for landscaping, common space, and lighting prohibit the use of flood lights to light entire structures or yards and state that any exterior night lighting installed shall be of a low intensity, low-glare design, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto adjacent parcels.[2] Compliance with such standards would ensure that on-site lighting would be directed within the project site and would not substantially illuminate adjacent properties. Given the consistency of the proposed project with surrounding development, the evaluation of the lighting plan, and the added assurance of the Design Review process, implementation of the project would result in a ***less-than-significant*** impact with respect to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

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2 City of Antioch. *Citywide Design Guidelines Manual* [pg 6-43]. October 2009

II. AGRICULTURE AND FOREST RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	✖
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✖
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	✖
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✖
e. Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use?	☐	☐	☐	✖

Discussion

a,e. The project site is currently developed with a commercial shopping center and associated parking area. The site has not been used recently for agricultural production and is currently designated as "Urban and Built-Up Land" and "Other Land" on the Contra Costa County Important Farmland map.[3] Furthermore, the site is not zoned or designated in the General Plan for agriculture uses, and such uses would be incompatible with surrounding land uses in the area. Given the Urban and Built-Up Land and Other Land designation of the site, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use. Therefore, the proposed project would have ***no impact***.

b. The proposed project site is not under a Williamson Act contract and is not designated or zoned for agricultural uses. Therefore, buildout of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and ***no impact*** would occur.

c,d. The project area is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). In addition, the site is designated C-3 and would be rezoned to Planned Development, which is not compatible with timberland production. Therefore, the proposed project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

3 California Department of Conservation. *Contra Costa County Important Farmland Map 2016.* Published August 2018.

III. AIR QUALITY. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	✖	☐
b. 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?	☐	☐	✖	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	✖	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

Discussion

a,b. The City of Antioch is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for the State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter ($PM_{2.5}$), and State respirable particulate matter 10 microns in diameter (PM_{10}) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour $PM_{2.5}$ federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal $PM_{2.5}$ AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan (CAP), adopted on April 19, 2017. The 2017 CAP was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 CAP. The control strategy serves as the backbone of the BAAQMD's current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_x), as well as for PM_{10}, and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 2. Thus, by exceeding the BAAQMD's mass emission thresholds for operational emissions of ROG, NO_X, PM_{10}, or PM_{25} a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 2
BAAQMD Thresholds of Significance

Pollutant	Construction	Operational	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
Source: BAAQMD, CEQA Guidelines, May 2017.			

The proposed project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 - a Statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, vehicle mix, trip length, average speed, etc. Where project-specific information is available, such information should be applied in the model. Accordingly, the proposed project's modeling assumed the following:

- Land uses include Apartments Mid-Rise and Retail;
- Construction would occur over an approximately 18-month period;
- A total of 73,546 sf of existing building would be demolished;
- Four acres would be disturbed during grading;
- A total of 50 cubic yards of material would be exported during site prep and 100 cubic yards would be exported during grading;
- Average daily trip rates of 5.44 trips per residential unit and 43.78 trips per thousand sf (ksf) of retail, were assumed based on the Transportation Impact Assessment (TIA) prepared for the proposed project by Fehr & Peers;
- The nearest transit station is located 0.01-mile away; and
- Pedestrian connection is provided on-site.

The proposed project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the proposed project's contribution to cumulative air quality conditions is provided below as well. All CalEEMod results are included in Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 3. As shown in the table, the proposed project's construction emissions would be below the applicable thresholds of significance for ROG, NO_X, PM_{10}, and $PM_{2.5}$.

Table 3
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	24.39	54	**NO**
NO_X	50.40	54	**NO**
PM_{10} (exhaust)	2.20	82	**NO**
PM_{10} (fugitive)	18.22	None	**N/A**
$PM_{2.5}$ (exhaust)	2.02	54	**NO**
$PM_{2.5}$ (fugitive)	9.97	None	**N/A**

Source: CalEEMod, October 2019 (see Appendix A).

Although thresholds of significance for mass emissions of fugitive dust PM_{10} and $PM_{2.5}$ have not been identified by the City of Antioch or BAAQMD, the proposed project's estimated fugitive dust emissions have been included for informational purposes. All projects within the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's Basic Construction Mitigation Measures, which include the following:

1. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
2. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
3. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
4. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
5. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
6. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
7. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The proposed project's required implementation of the BAAQMD's Basic Construction Mitigation Measures listed above would help to further minimize construction-related emissions. Even without consideration of BAAQMD's Basic Construction Mitigation Measures, as shown in Table 3, construction of the proposed project would result in emissions of criteria air pollutants below BAAQMD's thresholds of significance.

Consequently, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans during project construction.

Operational Emissions

Operations of the existing Delta Fair Shopping Center within the project site currently involve emissions of criteria pollutants. In the absence of the proposed project, existing operations of the Delta Fair Shopping Center would be anticipated to continue, which would continue to result in emissions of criteria pollutants. The proposed project would involve redevelopment of the site for retail and residential uses. Considering that the existing operations of the Delta Fair Shopping Center involve criteria air pollutant emissions, and the emissions would continue in the absence of the proposed project, the analysis of operational emissions presented in this section focuses on the net change in emissions that would occur when emissions resulting from existing operations are compared to emissions estimated for operation of the proposed project.

Table 4 shows the emissions of the proposed project as well as the emissions from the existing Delta Fair Shopping Center. The net new emissions are compared to the BAAQMD significance threshold. As shown in the table, the proposed project's net new operational emissions would be below the applicable thresholds of significance. As such, the proposed project would not result in a significant air quality impact during operations.

Table 4
Unmitigated Maximum Operational Emissions

Pollutant	Proposed Project Emissions		Existing Delta Fair Shopping Center		Net New Emissions	
	lbs/day	tons/yr	lbs/day	tons/yr	lbs/day	tons/yr
ROG	14.5	2.43	7.35	1.25	**7.15**	**1.18**
NO_X	27.9	4.99	14.2	2.55	**13.7**	**2.44**
PM_{10} (exhaust)	0.31	0.05	0.10	0.02	**0.21**	**0.03**
PM_{10} (fugitive)	16.5	2.90	8.85	1.55	**7.65**	**1.35**
$PM_{2.5}$ (exhaust)	0.30	0.05	0.10	0.02	**0.20**	**0.03**
$PM_{2.5}$ (fugitive)	4.41	0.78	2.37	0.42	**2.04**	**0.36**
Exceeds Thresholds?					**NO**	**NO**

Source: CalEEMod, November 2019 (see Appendix A).

Cumulative Emissions

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 2 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If a project exceeds the significance thresholds presented in Table 2, the proposed project's emissions would be cumulatively considerable, resulting in significant adverse cumulative air quality impacts to the region's existing air quality conditions. As presented above, the proposed project would be below all applicable thresholds for criteria pollutants during construction and operation. Thus, the project would not result in a cumulatively considerable contribution to the region's existing air quality conditions.

Conclusion

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 CAP. Because the proposed project would not result in construction-related or operational emissions of criteria air pollutants in excess of BAAQMD's thresholds of significance, conflicts with or obstruction of implementation of the applicable regional air quality plans would not occur. In addition, the project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State AAQS. Thus, a ***less-than-significant*** impact would result.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest existing sensitive receptors would be the multi-family apartments located immediately to the east of the site. In addition, the proposed project would include the construction of housing and, thus, would be considered a sensitive receptor.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;

- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

As discussed in Section XVII, Transportation, of this IS/MND, the proposed project would not conflict with the Contra Costa Transportation Authority (CCTA) Congestion Management Program (CMP). Additionally, traffic counts completed for the City of Antioch as part of a Citywide Engineering and Traffic Survey showed that all of the City roadways experienced traffic volumes far below 44,000 vehicles per hour.[4] Thus, the proposed project would not increase traffic volumes at an affected intersection to more than 44,000 vehicles per hour. Furthermore, areas where vertical and/or horizontal mixing is limited due to tunnels, underpasses, or similar features do not exist in the project area. As such, the proposed project would not be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. DPM is the solid material in diesel exhaust, more than 90 percent of such material is less than one micrometer in diameter, and, thus, DPM is a subset of the $PM_{2.5}$ category of pollutants. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the proposed project would not generate any substantial pollutant concentrations during operations. However, short-term, construction-related activities could result in the generation of TACs, primarily DPM, from on-road haul trucks and off-road equipment exhaust emissions. Although DPM emissions from on-road haul trucks would be widely dispersed throughout the project area, as haul trucks move goods and material to and from the site, exhaust from off-road equipment would primarily occur within the project site. Consequently, the operation of off-road equipment within the project site during project construction could result in exposure of nearby residents to DPM.

BAAQMD has established thresholds for local community risk and hazard impacts that may be used when siting new sources of pollution. The BAAQMD's thresholds for analyzing health risks from new sources of emissions are presented below:

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[4] City of Antioch. *Citywide Engineering and Traffic Survey* [pg. 7]. February 6, 2015.

- Non-compliance with a qualified risk reduction plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be a cumulatively considerable contribution; or
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ would be a cumulatively considerable contribution.

As stated above, the foregoing thresholds are generally intended for use when analyzing the operation of new proposed sources of TACs. However, the proposed project would not involve the on-going operation of any permanent sources of TACs. Although the proposed project would not involve the siting or operation of any permanent sources of TACs, in the absence of specific thresholds for use when analyzing health risks from short-term projects, the foregoing BAAQMD thresholds are applied to the project, for construction specifically.

To analyze potential health risks to nearby residents that could result from DPM emissions from off-road equipment at the project site, total DPM emissions from project construction were estimated. DPM is considered a subset of $PM_{2.5}$, thus, the CalEEMod estimated $PM_{2.5}$ emissions from exhaust during construction was conservatively assumed to represent all DPM emitted on-site. The CalEEMod estimated $PM_{2.5}$ exhaust emissions were then used to calculate the concentration of DPM at the maximally exposed sensitive receptor near the project site. DPM concentrations resulting from project implementation were estimated using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD) dispersion model. The associated cancer risk and non-cancer hazard index were calculated using the CARB's Hotspot Analysis Reporting Program Version 2 (HARP 2) Risk Assessment Standalone Tool (RAST), which calculates the cancer and non-cancer health impacts using the risk assessment guidelines of the 2015 Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual for Preparation of Health Risk Assessments.[5] The modeling was performed in accordance with the USEPA's User's Guide for the AERMOD[6] and the 2015 OEHHA Guidance Manual.

Based on the foregoing methodology, and the methodology presented in response to questions 'a' and 'b' regarding the estimation of construction emissions, the cancer risk and non-cancer hazard indices were estimated and are presented in Table 5.

Table 5
Maximum Unmitigated Cancer Risk and Hazard Index Associated with Project Construction DPM

	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Construction DPM Health Risks	28.98	0.00	0.02
Thresholds of Significance	10	1.0	1.0
Exceed Thresholds?	**YES**	**NO**	**NO**

Source: AERMOD and HARP 2 RAST, December 2019 (see Appendix A).

5 Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments* [pg. 8-18]. February 2015.

6 U.S. Environmental Protection Agency. *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. December 2016.

As shown in Table 5, construction of the proposed project would not result in acute or chronic hazards in excess of BAAQMD's standards. However, project construction would conservatively have the potential to result in cancer risks in excess of BAAQMD's 10 cases per million threshold. Thus, construction of the proposed project could result in exposure of nearby receptors to substantial pollutant concentrations.

Criteria Pollutants

The BAAQMD thresholds of significance were established with consideration given to the health-based air quality standards established by the NAAQS and CAAQS, and are designed to aid the district in achieving attainment of the NAAQS and CAAQS. [7] Although the BAAQMD's thresholds of significance are intended to aid achievement of the NAAQS and CAAQS for which the SFBAAB is in nonattainment, the thresholds of significance do not represent a level above which individual project-level emissions would directly result in public health impacts. Nevertheless, a project's compliance with BAAQMD's thresholds of significance provides an indication that criteria pollutants released as a result of project implementation would not inhibit attainment of the health-based regional NAAQS and CAAQS. Because project-related emissions would not exceed the BAAQMD's thresholds, and, thus, would not inhibit attainment of regional NAAQS and CAAQS, the criteria pollutants emitted during project implementation would not be anticipated to result in measurable health impacts to sensitive receptors. Accordingly, the proposed project would not expose sensitive receptors to excess concentrations of criteria pollutants.

Conclusion

Based on the above discussion, the proposed project would not expose any sensitive receptors to excess concentrations of localized CO or criteria pollutants during construction or operation. However, construction of the project could result in exposure of nearby receptors to cancer risks in excess of the BAAQMD's standards. Consequently, the proposed project would result in a ***potentially significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

Mitigation Measure(s)

As shown in Table 6, implementation of the following mitigation measure would ensure that emissions from construction equipment do not result in increased health risks to nearby receptors in excess of BAAQMD's standards. Consequently, with implementation of the following mitigation measure, the proposed project would not have the potential to expose sensitive receptors to substantial pollutant concentrations and a *less-than-significant* impact would occur.

III-1 *Prior to approval of any grading plans, the project applicant shall demonstrate that emissions from all off-road diesel-powered equipment to be used in the construction of the project (including owned, leased, and subcontractor equipment) shall not exceed 0.038517 tons of $PM_{2.5}$ per year of construction. The Sacramento Metropolitan Air Quality Management District's (SMAQMD's) Construction Mitigation Tool, or another method deemed acceptable by the City, may be used to calculate the anticipated emissions resulting from construction of the proposed project. Emissions estimates for project construction shall be submitted for review and approval by the Planning Manager for the City of Antioch.*

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7 Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.

Table 6
Maximum Mitigated Cancer Risk and Hazard Index Associated with Project Construction DPM

	Cancer Risk (per million persons)	Acute Hazard Index	Chronic Hazard Index
Construction DPM Health Risks	9.64	0.00	0.01
Thresholds of Significance	10	1.0	1.0
Exceed Thresholds?	**NO**	**NO**	**NO**
Source: AERMOD and HARP 2 RAST, December 2019 (see Appendix A)			

SMAQMD's Construction Mitigation Tool requires the user to input the type and number of pieces of equipment used, as well as the total amount of time the equipment would be used for each day and throughout the entire construction period. During the course of project construction, should the project contractor determine that changes to the anticipated equipment list are needed, an update to the SMAQMD's Construction Mitigation Tool shall be submitted to the City demonstrating that the proposed changes to equipment usage would not result in project construction emitting in excess of 0.038517 tons of $PM_{2.5}$ per year.

In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer's specifications. Idling shall be limited to five minutes or less in accordance with the Off-Road Diesel Fueled Fleet Regulation as required by CARB.

Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.

d. Pollutants of principal concern include emissions leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in section "a" through "d" above. Therefore, the following discussion focuses on emissions of odors and dust.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[8] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and

[8] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 7-1]. May 2017.

composting facilities. The proposed project would not introduce any such land uses and is not located in the vicinity of any such existing or planned land uses.

Construction activities often include diesel fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, construction activities would be temporary and operation of construction equipment would be restricted to the hours of 7:00 AM to 6:00 PM, Monday through Friday, and 9:00 AM to 5:00 PM on weekends and holidays, per the City's Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize air pollutant emissions as well as any associated odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

It should be noted that BAAQMD regulates objectionable odors through Regulation 7, Odorous Substances, which does not become applicable until the Air Pollution Control Officer (APCO) receives odor complaints from ten or more complainants within a 90-day period. Once effective, Regulation 7 places general limitation on odorous substances and specific emission limitations on certain odorous compounds, which remain effective until such time that citizen complaints have been received by the APCO for one year. The limits of Regulation 7 become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the BAAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant.

As noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's Basic Construction Mitigation Measures. The aforementioned measures would act to reduce construction-related dust by ensuring that haul trucks with loose material are covered, reducing vehicle dirt track-out, and limiting vehicle speeds within project site, among other methods, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Following project construction, the project site would not include any exposed topsoil. Thus, project operations would not include any substantial sources of dust.

For the aforementioned reasons, construction and operation of the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would result.

IV. BIOLOGICAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	✖	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	✖
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	✖
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	☐	☐	✖	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	✖	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	✖

Discussion

a. Currently, the project site is developed with commercial uses and impervious surfaces. With the exception of landscaping, the site does not contain any vegetation. The site does not contain any wetland features or waterways.

Special-status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. In addition, plant species on California Native Plant Society (CNPS) Lists 1 and 2 are considered special-status plant species and are protected under CEQA.

A search of published records of special-status plant and wildlife species was conducted for the Antioch South USGS 7.5" quadrangle, in which the project site occurs, and for the eight surrounding quadrangles (Antioch North, Honker Bay, Jersey Island, Brentwood, Clayton, Diablo, Tassajara and Byron Hot Springs), using the California Natural Diversity Data Base (CNDDB) Rarefind 5 application. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the project area and to determine their locations relative to the project site. It should be noted that plant and wildlife species that are not considered special-status, as defined above, were excluded from the analysis, as such species are not protected under CEQA. The results of the CNDDB search and other queries are discussed below.

Special-Status Plants

Based on the results of the CNDDB search, a total of 55 special-status plant species have been recorded within the project region. Of the 55 species, most are considered absent from or unlikely to occur on the site due to a lack of suitable habitat, such as vernal pools, cismontane woodland, and chaparral. In addition, any species for which the site provides marginal habitat has never been observed in the project vicinity or have not been observed for many decades and most have been considered presumed extirpated. Finally, given that the site is covered primarily in impervious surfaces and in a developed area, special-status plants would not have the possibility of occurring on the project site.

Special-Status Wildlife

Based on the results of the CNDDB search, at total of 45 special-status wildlife species have been recorded within the project region. Of the 45 species, 43 would be absent from or unlikely to occur on the site due to a lack of suitable habitat, including grassland, riparian woodland, vernal pools, and wetlands. The remaining two special-status wildlife species may potentially be transients to the site or may occur within areas adjacent to the site. Such species include the Townsend's big-eared bat and the Swainson's hawk. In addition, ground-nesting raptors and nesting migratory birds protected under the MBTA have the potential to occur within trees on or adjacent to the site.

Townsend's Big-Eared Bat

The project site and surrounding area contain suitable trees for Townsend's big-eared bat to roost. However, the site does not contain any suitable foraging habitat. Therefore, while unlikely, special-status bat species could roost in trees within or near the project site. Thus, a significant impact related to special-status bats could occur.

Swainson's Hawk

Swainson's hawks are known to occur within approximately 0.5-mile of the site and could reside in trees on or adjacent to the project site. As suitable nesting and foraging habitat exists in the grassland approximately 0.75-mile south of the project site, Swainson's hawks could travel through the site or reside in on-site or nearby trees. Thus, construction noise on the project site could disrupt surrounding nests, and a potentially significant impact could occur.

Nesting and Migratory Birds

The grassland south of the project site may support nesting birds and ground-nesting raptors, including species protected by the MBTA. In addition, some of the trees on-site could provide roosting habitat for migratory birds. Buildout of the project during the nesting period for migratory birds (i.e., typically between February 1 to August 31), including initial site grading and soil excavation, could disrupt the travel pattern or disturb nearby nests of birds protected under the MBTA. Thus, a potentially significant impact could occur.

Conclusion

Based on the above, implementation of the proposed project could potentially affect Townsend's big-eared bat, Swainson's hawk, and nesting birds and ground-nesting raptors protected by the MBTA. Thus, the proposed project could have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Therefore, a ***potentially significant*** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level. It should be noted that in July 2007, the East Contra Costa County (ECCC) Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. Nonetheless, the mitigation measures include language to reflect the possibility that the City may, in the future, enter into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP covered species or otherwise adopt a different HCP/NCCP.

Townsend's Big-Eared Bat

IV-1 *Prior to initiation of demolition activities, the project applicant shall retain a qualified biologist to conduct a detailed bat survey of the site. If a non-breeding and non-wintering bat colony is found, the individuals shall be humanely evicted by way of the partial dismantlement (two-step removal) of the buildings or trees one to two days prior to demolition/tree removal. Partial dismantlement shall occur under the direction of a qualified biologist to ensure that no harm or "take" would occur to any bats as a result of demolition/tree removal activities. Should the biologist not be able to visually access all potential roost areas, a night emergence survey shall be required. If special-status bats are not observed during pre-construction surveys, demolition/tree removal may continue. Results of the pre-construction survey shall be submitted to the Planning Manager for the City of Antioch.*

IV-2 *If a maternity colony or overwintering colony is detected in the buildings or trees within the project site, a construction-free buffer shall be established around the structure and remain in place until it has been determined that the nursery is not active. In addition, in the event of detection, demolition shall preferably occur between March 1st and April 15th or between August 15th and October 15th.*

Swainson's Hawk

IV-3. *Prior to any project-related ground disturbance that occurs during the nesting season (March 15th to September 15th), a qualified biologist shall conduct a preconstruction survey at least two survey periods prior to the start of construction. Surveys shall follow the protocol in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory*

Committee 2000), including the survey period lengths identified therein. A written summary of the survey results shall be submitted to the Planning Manager for the City of Antioch. If Swainson's hawk are not found on-site, further mitigation is not necessary.

If an active nest is found within any off-site trees, a minimum buffer distance of 600 feet shall be established for a nest that is already active prior to construction, and a minimum buffer distance of 150 feet shall be used for a nest that starts after construction has already initiated. Such minimum distances are based on potential impact distances stated in the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (2000). Appropriate buffer distances shall be determined on the ground by a qualified biologist and shall be based on actual observations of the nest and parent behavior, the stage of nesting, and level of potential disturbance. The buffer(s) shall be identified on the ground with flagging or fencing, and shall be maintained until a qualified biologist has determined that the young have fledged and the nest is inactive. The biologist shall have the authority to stop construction if construction activities are likely to result in nest abandonment.

IV-4. *As an alternative to completion of Mitigation Measure IV-3, the project applicant could comply with one of the following:*

1) *Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
2) *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.*

Nesting Migratory Birds

IV-5. *Pre-construction surveys for nesting birds shall be conducted by a qualified biologist within on-site ground-nesting habitat and a 250-foot buffer around the project site boundaries, if feasible, not more than 14 days prior to site disturbance during the breeding season (February 1st to August 31st). Results of the survey shall be submitted to the Planning Manager for the City of Antioch. If site disturbance commences outside the breeding season, pre-construction surveys for nesting birds are not required. If active nests of migratory birds are not detected within approximately 250 feet of the project site, further mitigation is not required.*

If nesting raptors or other migratory birds are detected on or adjacent to the site during the survey, an appropriate construction-free buffer shall be established around all active nests. Actual size of buffer would be determined by the project biologist, and would depend on species, *topography, and type of activity that would occur in the vicinity of the nest. Typical buffers are 25 feet for non-raptors and up to 250 feet for raptors. The project buffer would be monitored periodically by the project biologist to ensure compliance. After the nesting is completed, as determined by the biologist, the buffer would no longer be required. Buffers shall remain in place for the duration of the breeding season or until a qualified biologist has confirmed that all chicks have fledged and are independent of their parents.*

Alternatively, the project applicant could comply with one of the following:

1) *Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
2) *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.*

b,c. The project site consists of impervious surfaces and existing structures. Thus, based on the developed nature of the site and the surrounding area, jurisdictional waters, streambeds, and sensitive plant communities do not exist on or near the site. The project site does not contain riparian habitat or other sensitive natural communities, including wetlands. Therefore, the proposed project would not have a substantial adverse effect on riparian habitat, sensitive natural communities, or State or federally protected wetlands, and ***no impact*** would occur.

d. Currently, the project site is developed with a commercial shopping center and parking areas and is surrounded by existing development. Thus, the project site does not act as a migratory wildlife corridor. As noted above, the project site does not contain streams or other waterways that could be used by migratory fish or as a wildlife corridor for other wildlife species. Because the proposed project would be generally consistent with the developed nature of the existing conditions, the development of the proposed project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Thus, a ***less-than-significant*** impact would occur.

e. Section 9-5.1205 of the City's Zoning Ordinance regulates the preservation and removal of heritage trees. Currently, the project site contains only ornamental landscaping trees located in planter boxes throughout the parking area and along the frontage of the site. A tree survey was performed on the project site to evaluate the location and sizes of existing trees, and is included in the site plans. While a total of 156 trees were inventoried within the entire project site, only approximately 50 trees would require removal as part of the project. However, as determined by the tree survey, none of the on-site trees meet the City's criteria for consideration as a landmark, indigenous, mature, or established tree. As such, a tree removal permit would not be required, and the proposed project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and a ***less-than-significant*** impact could occur.

f. As noted previously, in July 2007, the ECCC HCP/NCCP was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. While the City is currently considering drafting a new HCP/NCCP, the document has not yet been finalized or adopted. Therefore, the project site is not located in an area with an approved HCP/NCCP, or local, regional, or State habitat conservation plan. As a result, ***no impact*** would occur regarding a conflict with the provisions of such a plan.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	✖	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

a. Historical resources are features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics. Per CEQA Guidelines, buildings constructed over 50 years ago which possess architectural or historical significance may be considered historic resources. The existing building that would be demolished was constructed in 1987 as part of the Delta Fair Shopping Center. Thus, the building would not be eligible to be considered a historic resource. Therefore, the project would not cause a substantial adverse change in the significance of a historical resource, and a ***less-than-significant*** impact would occur.

b-c. The Northwest Information Center performed a search of the California Historic Resources Information System for the proposed project. During the search, the State Office of Historic Preservation Historic Property Directory, which includes listings of the California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places, did not list any recorded buildings or structures within or adjacent to the project area. Review of historical literature and maps did not give indication of the possibility of historic-period activity within the project area. Additionally, the results of the Sacred Lands File Search conducted through the Native American Heritage Commission were negative. Thus, the site has a low potential for unrecorded historic-period archaeological or cultural resources to be discovered.

Based on evaluation of the environmental setting and features associated with known sites, Native American resources in Contra Costa County have been found in areas marginal to the San Joaquin River Delta, inland ridges, and near intermittent and perennial watercourses. Given that the project site is currently developed, Native American archaeological resources would have likely been discovered during past grading and development. However, because the project site is located approximately 1.25 miles south of the San Joaquin River Delta and is in an area of alluvial fan deposits, the potential for buried unrecorded Native American resources to be discovered is moderate to high.

If previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries, during construction. Therefore, impacts could be considered ***potentially significant***.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

V-1. *In the event of the accidental discovery or recognition of any human remains, further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred, and the Community Development Department shall be notified immediately. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur until the County Coroner has been notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the Planning Manager for the City of Antioch.*

V-2. *If any prehistoric or historic artifacts, or other indications of cultural deposits, such as historic privy pits or trash deposits, are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease and the find(s) shall be immediately evaluated by a qualified archaeologist. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment to allow for implementation of avoidance measures or appropriate mitigation shall be made available (CEQA Guidelines Section 15064.5). Work may continue on other parts of the project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Sections 21083 and 21087).*

VI. ENERGY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	✖	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✖	☐

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the California Green Building Standards Code and the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations are provided below.

California Green Building Standards Code

The California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which became effective with the rest of the CBSC on January 1, 2017. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board; and
- For some single-family and low-rise residential development developed after January 1, 2020, mandatory on-site solar energy systems capable of producing 100 percent of the electricity demand created by the residence(s). Certain residential developments, including those developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC which expands upon energy-efficiency measures from the 2016 Building Energy Efficiency Standards. The 2019 Building Energy Efficiency Standards will go into effect for building permit applications submitted on or after January 1, 2020. The 2019 standards provide for additional efficiency improvements beyond the current 2016 standards. Non-residential buildings built in compliance with the 2019 standards are anticipated to use approximately 30 percent less energy compared to the 2016 standards, primarily due to lighting upgrades.[9]

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

Even during the most intense period of construction, all construction equipment and operation thereof would be regulated by the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency and reduce GHG emissions. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

The CARB has recently prepared the *2017 Climate Change Scoping Plan Update* (2017 Scoping Plan),[10] which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The regulations described above, with which the proposed project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, the proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

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9 California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ*. November 2018.
10 California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.

Operational Energy Use

Following implementation of the proposed project, PG&E would provide electricity and natural gas to the project site. Energy use associated with operation of the proposed project would be typical of residential and retail uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with vehicle trips generated by the proposed residential development.

The proposed residential portion of the project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the project by PG&E would comply with the State's Renewables Portfolio Standard (RPS), which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Thus, a portion of the energy consumed during project operations would originate from renewable sources.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this IS/MND, the project site is located within the vicinity of existing transit facilities, as well as resident-serving commercial uses. The proposed mixed use development would increase the diversity of uses on the project site. The site's proximity to existing transit facilities and commercial uses uses would reduce VMT and, consequently, fuel consumption associated with the proposed project. Furthermore, the proposed project would include connections to the existing sidewalks along Delta Fair Boulevard and Buchanan Road. Pedestrian walkways would also be provided throughout the project site. Therefore, the project would provide for increased pedestrian connectivity with the surrounding area, potentially resulting in reduced vehicle use.

Conclusion

Based on the above, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault?	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	☐	✖	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	✖	☐
iv. Landslides?	☐	☐	✖	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	✖	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	✖	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?	☐	☐	✖	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

ai-ii. According to the City of Antioch General Plan, seismicity at the proposed project site is influenced by the San Andreas Fault System, as well as the proximate Great Valley Fault System located at the eastern foot of the Coast Ranges. The Marsh Creek-Greenville-Clayton Fault is the closest active fault, located approximately three miles west of the site. Active or potentially active faults are not known to intersect with the project site. In addition, the site is not mapped within an Alquist-Priolo Earthquake Fault Zone. Thus, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development would be low.

Due to the site's proximity to the nearest active fault, the potential exists for the proposed industrial buildings to be subject to seismic ground shaking. However, the proposed buildings would be properly engineered in accordance with the California Building Code, which includes engineering standards appropriate for the seismic area in which the project site is located. Conformance with the design standards is enforced through building plan review and approval by the City of Antioch Building Division prior to the issuance of building permits. Proper engineering of the proposed project would ensure that seismic-related effects would not cause adverse impacts. Therefore, a ***less-than-significant*** impact would occur related to seismic surface rupture and strong seismic ground shaking.

aiii,aiv,
c,d. The proposed project's potential effects related to liquefaction, subsidence, landslides, lateral spreading, and expansive soils are discussed in detail below.

Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength due to pore pressure buildup under the cyclic shear stresses associated with intense earthquakes. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater).

According to the General Plan EIR, the project site is in an area of very low liquefaction risk. Additionally, the site is underlain with loamy clay soils, which would not be subject to liquefaction because clayey soils are not considered loose soil, and are not sensitive to liquefaction.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The project site is not located on or near any unstable slopes. Thus, landslides are not likely to occur on- or off-site as a result of the proposed project.

Expansive Soils

Expansive soils can undergo significant volume changes with changes in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted. If structures are underlain by expansive soils, foundation systems must be capable of withstanding the potential damaging movements of the soil. Per the U.S. Department of Agriculture Natural Resources Conservation Service, the existing on-site soils have a Plasticity Index of 6.9.[11] According to the 2016 CBSC, soils are considered expansive if the Plasticity Index is above 15. Thus, the project site does not contain expansive soil, as defined in Table 18-1B of the Uniform Building Code.

Other Unstable Soil Conditions

Lateral spreading is associated with terrain near free faces such as excavations, channels, or open bodies of water. As discussed above, liquefaction is a type of seismic-related ground failure in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Subsidence occurs when loose, sandy soils settle during earthquake shaking. The project site is currently developed with commercial uses and located in close proximity to other development. The site is not located near any open faces or bodies of water; thus, the site would not be impacted by lateral spreading. Additionally, because the project site is underlain with clay soils, which are not generally considered loose, the project site would not be likely be impacted by liquefaction or subsidence during a seismic event. Therefore, the proposed project would not expose any

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11 U.S. Department of Agriculture Natural Resources Conservation Service. *Web Soil Survey.* Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed October 2019.

people or structures to risks associated with other unstable soil conditions, including lateral spreading, subsidence, and collapse.

Conclusion

Based on the above discussion, the proposed project would not result in on- or off-site landslides, liquefaction, unstable, or expansive soils. Therefore, the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction, landslides, or being located on unstable or expansive soil. Therefore, the impact would be ***less-than-significant***.

b. During grading activities associated with development of the proposed project, and prior to overlaying of the ground with impervious surfaces and landscaping elements, topsoil would temporarily be exposed. Thus, the potential exists for wind and water to erode portions of the exposed topsoil during construction, which could adversely affect downstream storm drainage facilities. Impacts related to substantial soil erosion or the loss of topsoil during construction of the proposed project would be ***potentially significant.***

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-1. Prior to issuance of grading and building permits, the project applicant shall submit, for the review and approval by the City Engineer, an erosion control plan that utilizes standard construction practices to limit the erosion effects during construction of the proposed project. Measures shall include, but are not limited to, the following:

- *Hydro-seeding;*
- *Placement of erosion control measures within drainage ways and ahead of drop inlets;*
- *The temporary lining (during construction activities) of drop inlets with “filter fabric” (a specific type of geotextile fabric);*
- *The placement of straw wattles along slope contours;*
- *Directing subcontractors to a single designation “wash-out” location (as opposed to allowing them to wash-out in any location they desire);*
- *The use of siltation fences; and*
- *The use of sediment basins and dust palliatives.*

e. The proposed project would connect to the existing City sanitary sewer lines located in Buchanan Road and San Jose Drive. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the proposed project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. Per the City of Antioch General Plan, numerous fossils have been collected from the Antioch Planning Area. A fossil locality search was conducted at the California Academy of Sciences, Golden Gate Park (CAS). CAS identified marine pelecypod and gastropod fossils collected from almost all of the sedimentary formations located in the City. Literature review indicated that all of the formations north of Mt. Diablo contain fossils. At least eight fossil localities occur within and immediately adjacent to the City's Planning Area and another five are within a one-mile radius of the Planning Area. Fossils in the Planning Area identified by California Museum of Paleontology, UC Berkeley include mammoths, primitive horses, bison, rats, beaver-type creatures, and sloths. As noted in the General Plan EIR, buildout of vacant parcels within the City's Planning Area will involve ground-disturbing activities and, thus, could potentially destroy, directly or indirectly, unique paleontological resources or sites.

The City has not identified any unique geologic features within the Planning Area, and thus, the project site does not contain any known unique geologic features. However, based on the above, paleontological resources could exist within the project site. Should previously unknown paleontological resources exist within the project site, ground-disturbing activity, such as grading, trenching or excavating, associated with implementation of the proposed project would have the potential to disturb or destroy such features. Therefore, the proposed project could result in the direct or indirect destruction of a unique paleontological resource, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-2. *Prior to initiation of ground-disturbing activities, the applicant shall retain the services of a professional paleontologist to educate the construction crew that will be conducting grading and excavation at the project site. The education shall consist of an introduction to the geology of the project site and the kinds of fossils that may be encountered, as well as what to do in case of a discovery. Should any vertebrate fossils (e.g., teeth, bones), an unusually large or dense accumulation of intact invertebrates, or well-preserved plant material (e.g., leaves) be unearthed by the construction crew, then ground-disturbing activity shall be diverted to another part of the project site and the paleontologist shall be called on-site to assess the find and, if significant, recover the find in a timely matter. Finds determined significant by the paleontologist shall then be conserved and deposited with a recognized repository, such as the University of California Museum of Paleontology. The alternative mitigation would be to leave the significant finds in place, determine the extent of significant deposit, and avoid further disturbance of the significant deposit. Proof of the construction crew awareness training shall be submitted to the Planning Manager for the City of Antioch in the form of a copy of training materials and the completed training attendance roster.*

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	✖	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	✖	☐	☐

Discussion

a,b. Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2$*e*/yr).

The proposed project is located within the jurisdictional boundaries of BAAQMD. The BAAQMD threshold of significance for project-level operational GHG emissions is 1,100 $MTCO_2$*e*/yr or 4.6 $MTCO_2$*e*/yr per service population (population + employees). BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move towards climate stabilization. If a project would generate GHG emissions above the threshold level, the project would be considered to generate significant GHG emissions and conflict with applicable GHG regulations. It should be noted that the City of Antioch approved Community and Municipal Climate Action Plans, which include city-wide goals and strategies for the reduction of GHG emissions. However, a quantitative threshold of significance for GHG emissions for individual development projects has not been established by the City and is not set forth in the Climate Action Plans. As such, the City has determined that BAAQMD's established thresholds are appropriate for analysis of the proposed project.

The proposed project's GHG emissions were quantified with CalEEMod using the same assumptions as presented in the Air Quality section of this IS/MND, and compared to the applicable thresholds of significance. The proposed project's required compliance with the current California Building Energy Efficiency Standards Code was assumed in the modeling. In addition, the CO_2 intensity factor within the model was adjusted to reflect the Pacific Gas & Electric Company's anticipated progress towards statewide RPS goals. All CalEEMod results are included in Appendix A to this IS/MND.

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Nonetheless, the proposed project's construction-related GHG emissions have been estimated and are presented in Table 7 below. The construction modeling assumptions are described in the Air Quality section of this IS/MND and included in the appendix.

Emissions modeling for construction showed that the most intensive year of construction of the proposed development would result in GHG emission of 590.08 $MTCO_2e$/yr. Neither the City nor BAAQMD has adopted a threshold of significance for construction-related emissions. In order to provide a conservative estimate of emissions, the proposed project's construction GHG emissions have been amortized over the anticipated construction period of the project. As shown in Table 7, total amortized unmitigated construction emissions would equate to 572.9 $MTCO_2e$/yr over the assumed two year construction period of the project.

Table 7
Unmitigated Annual Project Construction GHG Emissions

Year	Annual GHG Emissions ($MTCO_2e$ / yr)
2020	590.08
2021	555.75
Total Construction Emissions	**1,145.83**
Amortized Annual Construction Emissions	**572.9**

Source: CalEEMod, November 2019 (Appendix A).

As noted previously, the BAAQMD threshold of significance for project-level operational GHG emissions is 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$/yr per service population (population + employees). According to the CalEEMod results, the proposed project would result in total annual GHG emissions as shown in Table 8, including the amortized construction emissions. Additionally, the GHG emissions associated with the current operations of the existing Delta Fair Shopping Center are also presented in the table. In the absence of the proposed project, the emissions would continue unabated. Considering that existing GHG emissions resulting from the current operations at the Delta Fair Shopping Center would continue in the absence of the proposed project, the analysis of operational GHG emissions presented in this IS/MND focuses on the net change in emissions from existing Delta Fair Shopping Center operations and the proposed project operations.

Per the City's Housing Element, the City of Antioch had an average household size of 3.15 persons per household.[12] Consequently, the proposed project could provide housing for up to approximately 661 people (210 proposed households X 3.15 persons per household = 661 new residents). In addition, because the proposed project would include retail use, the service population would also include employees working on the site. Given the square footage of the retail space, the estimated service population would include 11 employees.[13] Thus, the service population for the proposed project would total 672

12 City of Antioch. *Housing Element* [pg. 2-9]. Adopted April 14, 2015.
13 U.S. Green Building Council. *Building Area Per Employee by Business Type*. May 13, 2008.

people.

Based on the total annual GHG emissions shown in the table, including amortized annual construction emissions, and a total service population of 661 residents and 11 employees, the proposed project would result in annual per service population emissions of approximately 3.31 $MTCO_2e$/yr (2,227.2 $MTCO_2e$/yr / 672 residents and employees = 3.31 $MTCO_2e$/yr-resident and employees). Thus, implementation of the proposed project would result in emissions below the applicable 4.6 $MTCO_2e$/yr per service population threshold of significance, and the proposed project would not be expected to have a significant impact related to GHG emissions.

Table 8
Unmitigated Operational GHG Emissions Year ($MTCO_2e$/yr)

Emission Source	Proposed Project Annual GHG Emissions	Existing Delta Fair Center Annual GHG Emissions	Net New Annual GHG Emissions
Area	2.62	0.00	2.62
Energy	421.0	268.6	152.4
Mobile	3,163.6	1,686.4	1,477.2
Solid Waste	90.0	85.0	5.0
Water	44.5	27.3	17.1
Amortized Construction Emissions	572.9	-	572.9
Total Annual GHG Emissions	**4,294.6**	**2,067.3**	**2,227.2**
Total Annual GHG Emissions Per Service Population	**--**	**--**	**3.31**
BAAQMD Threshold			4.6
Exceeds Threshold?			**NO**

Source: CalEEMod, November 2019 (Appendix A).

It should be noted that the City's Climate Action Plans were established to ensure the City's compliance with the statewide GHG reduction goals required by AB 32. Although the Climate Action Plans do not include quantitative thresholds to assess a project's compliance, projects that are in compliance with the Climate Action Plans would be considered compliant with the GHG reduction goals required by AB 32. For instance, projects showing emissions reductions as required by the Climate Action Plans, or projects incorporating reduction strategies from the Climate Action Plans are understood to be in compliance with the Climate Action Plans' GHG emissions reductions goals, and, thus, in compliance with AB 32.

The proposed project would comply with several emissions reductions strategies included in the City's Community Climate Action Plans. For instance, the proposed project would include renovation of the existing structures within the project site. Such renovations are anticipated to improve the energy efficiency of the existing facilities in compliance with Strategy E3 and E14 of the Community Climate Action Plan. Furthermore, the proposed project would include planting of low-maintenance landscaping, including trees throughout the project site, which would be generally consistent with policy E4 and L5 of the Community Climate Action Plan.

Based on the above, the proposed project would not be considered to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs; and impacts would be considered ***less than significant***.

IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✖	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	☐	✖	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	✖	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	✖
e. For a project located within 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 result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	✖
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. Residential land uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Future residents may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Similarly, the retail operations associated with the project would not result in the disposal or transport of hazardous materials, but may require the use of common cleaning products. Due to the regulations governing use of such products and the amount utilized on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. The following discussion provides an analysis of potential hazards and hazardous materials associated with upset or accident conditions related to the proposed construction activities and existing on-site conditions.

Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials.

The project site is currently occupied by the Delta Fair Shopping Center. With the exception of landscaping elements throughout the existing parking areas and along the site frontages, the project site consists primarily of impervious surfaces. Features such as stressed vegetation, septic systems, wells, above-ground storage tanks (ASTs), and underground storage tanks (USTs) do not exist on the site. While the proposed project would include demolition of 73,546 sf of the existing Shopping Center, the buildings to be demolished were constructed in 1987, which is after the year that lead-based paint was banned by the Federal Government. Therefore, demolition of the structures as part of the project would not expose people to risks associated with lead-based paint. Additionally, the Code of Federal Regulations states that surface materials and thermal systems constructed after 1980 are presumed to not have any asbestos-containing materials. Because the structures were developed in 1987, the risk of asbestos exposure is low.

Given that the site is currently developed and covered in impervious surfaces, the site does not contain any known hazardous conditions, nor do the existing structures to be demolished pose a risk of exposure to hazardous materials. Additionally, hazardous materials used on the project site would be typical of residential and commercial uses and would not result in large quantities of hazardous material which could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. Therefore, a ***less-than-significant*** impact would occur.

c. The project site is located approximately 0.22-mile west of Mission Elementary School However, because the project would not involve routine disposal or transport of hazardous waste and any hazardous waste would be regulated and used according to the recommendations of the supplier, nearby schools would not be at risk of exposure to hazardous materials. Therefore, the proposed project would have a ***less-than-significant*** impact related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

d. The project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[14] Therefore, the project would not create a significant hazard to the public or the environment associated with such, and ***no impact*** would occur.

e. The nearest airport to the site is the Funny Farm private airstrip, located approximately 11 miles southeast of the site in Byron. As such, the project site is not located within two miles of any public airports or private airstrips, and does not fall within an airport land use plan

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14 California Department of Toxic Substances Control. *Hazardous Waste and Substances Site List.* Accessed October 23, 2019. Available at: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/.

area. Therefore, ***no impact*** related to a safety hazard for people residing or working in the project area related to such would occur.

f. In 1996, the City of Antioch approved an Emergency Plan that addresses response to disasters, including, but not limited to, earthquakes, floods, fires, hazardous spills or leaks, major industrial accidents, major transportation accidents, major storms, airplane crashes, environmental response, civil unrest, and national security emergencies. The plan outlines the general authority, organization, and response actions for City of Antioch staff when disasters happen. Implementation of the proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the Emergency Plan, particularly with identified emergency routes. Furthermore, the proposed project would not include land uses or operations that could impair implementation of the plan. Therefore, would not interfere with an emergency evacuation or response plan, and a ***less-than-significant*** impact would occur.

g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this IS/MND. As noted therein, according to the City of Antioch General Plan EIR, the areas of the City most susceptible to wildland fire hazards exist within the southern, unincorporated portions of the General Plan study area.[15] The project site is surrounded by existing development in all directions, and is located within a developed urban area within the City. Thus, the potential for wildland fires to reach the project site would be relatively limited. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.[16] Therefore, the proposed project would not expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

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15 City of Antioch. *General Plan Update EIR* [page 4.6-9]. July 2003.

16 California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

X. HYDROLOGY AND WATER QUALITY. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	✖	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	✖	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	☐	☐	✖	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	✖	☐
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	✖	☐
iv. Impede or redirect flood flows?	☐	☐	✖	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	✖
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	✖	☐

Discussion

a. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality during construction and operation.

Construction

During the early stages of construction activities, topsoil would be exposed due to grading and excavation of the site. After grading and prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality downstream.

The State Water Resources Control Board (SWRCB) regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The City's National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State's General Construction Permit prior to receipt of any construction permits. The State's General Construction Permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the site. A SWPPP describes Best Management Practices (BMPs) to control or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Because the proposed project would disturb greater than one acre of land, the proposed project would be subject to the requirements of the State's General Construction Permit.

Operation

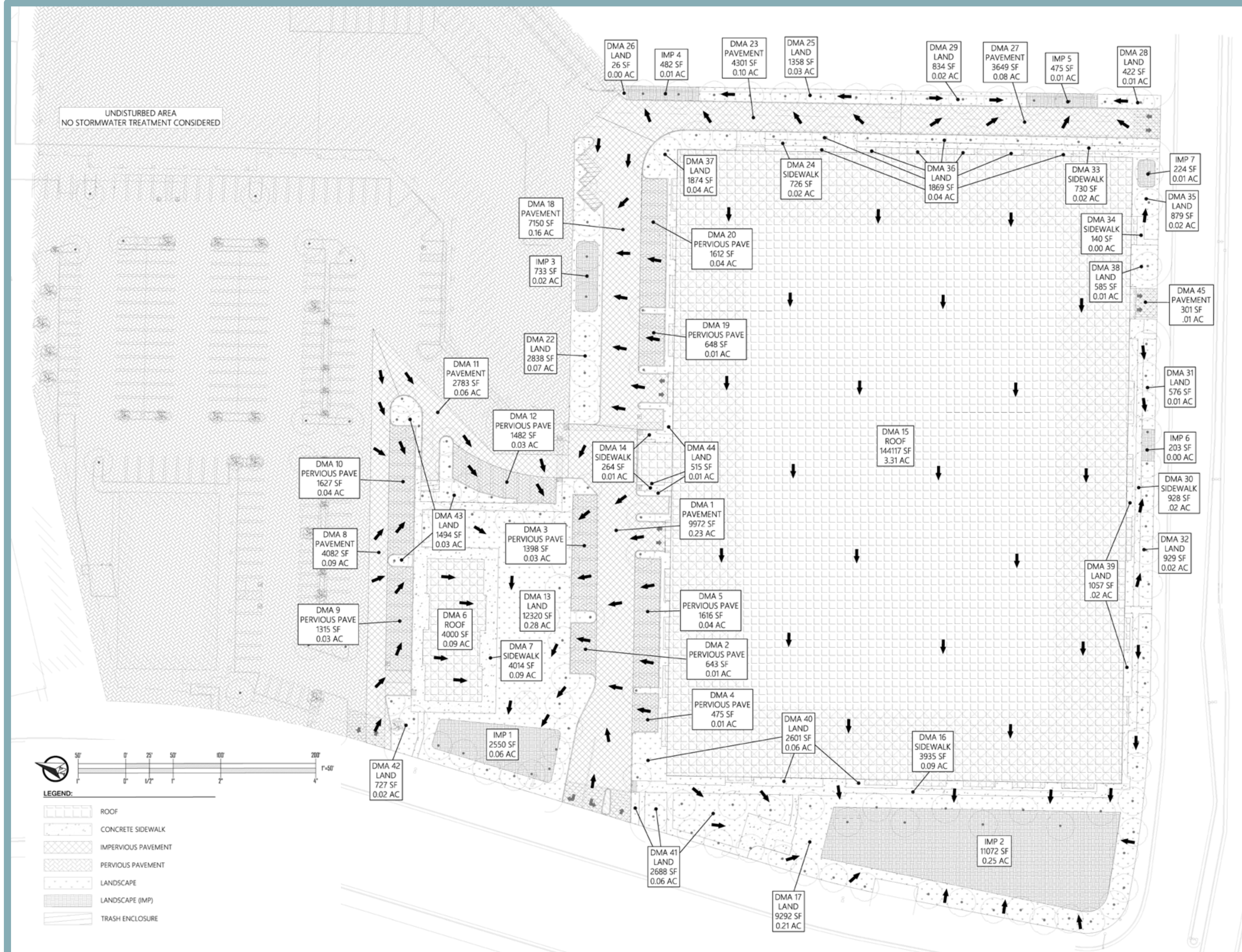
The proposed residential and retail uses would not involve operations typically associated with the generation or discharge of polluted water. Thus, typical operations on the project site would not violate any water quality standards or waste discharge requirements, nor degrade water quality. The project site is currently developed with a commercial shopping center and is mostly covered in impervious surfaces. Development of the project would result in similar or less impervious surface area coverage, and would not alter the current runoff patterns on the project site. Under current and future conditions, the project site could result in the generation of urban runoff, which could contain pollutants if the runoff comes into contact with vehicle fluids on parking surfaces and/or landscape fertilizers and herbicides. However, all municipalities within Contra Costa County (and the County itself) are required to develop more restrictive surface water control standards for new development projects as part of the renewal of the Countywide NPDES permit.

The City of Antioch has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 or more square feet of impervious area to contain and treat all stormwater runoff from the project site. Thus, the proposed project would be subject to the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), including the C.3 Standards, which are included in the City's NPDES General Permit. Compliance with such requirements would ensure that impacts to water quality standards or waste discharge requirements would not occur during operation of the proposed project.

The Stormwater Control Plan (SWCP) prepared for the proposed project conforms with the most recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements.[17] In compliance with the C.3 Guidebook, the proposed project would divide the site into 45 drainage management areas (DMAs) (see Figure 10). Runoff within each DMA would be captured by a series of new inlets and flow, by way of new underground storm drain piping, to seven bio-retention facilities within the project site. The bio-retention basins would remove pollutants primarily by filtering runoff slowly through an active layer of soil. Treated runoff would be transported through a new eight-inch storm drain line to an existing 12-inch storm drain line within the parking area north of the proposed buildings. Each bio-retention basin would be sized to meet or exceed the minimum volume requirements necessary to adequately handle all runoff from the proposed impervious surfaces and landscaping.

[17] Ridgeline Engineering. *Stormwater Control Plan: Delta Fair Village*. July 24, 2019.

Figure 10
Preliminary Stormwater Management Plan



Based on the above, the proposed project would comply with the requirements of the SWRCB and the RWQCB, and would meet or exceed C.3 Standards. Therefore, during operation, the project would comply with all relevant water quality standards and waste discharge requirements, and would not degrade water quality.

Conclusion

Based on the SWCP prepared for the proposed project, the project would comply with all applicable regulations during operation, does not involve uses associated with the generation or discharge of polluted water, and would be designed to adequately treat stormwater runoff from the site prior to discharge. However, disturbance of the on-site soils during construction activities could result in a ***potentially significant*** with regard to violation of water quality standards and degradation of water quality should adequate BMPs not be incorporated during construction in accordance with SWRCB regulations.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

X-1. Prior to issuance of grading permits, the contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The developer shall file the Notice of Intent (NOI) and associated fee to the SWRCB. The SWPPP shall serve as the framework for identification, assignment, and implementation of BMPs. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. The SWPPP shall be submitted to the Director of Public Works/City Engineer for review and approval and shall remain on the project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable.

b,e. The City of Antioch currently does not rely on groundwater for water supplies.[18] Therefore, any water demand associated with the proposed project would not result in a depletion of groundwater in the project area. It should be noted that currently, the project site consists primarily of impervious surfaces. The proposed project would result in a similar amount of on-site impervious surfaces. Thus, the proposed project would not impede groundwater recharge at the site. Additionally, the site is not located near a river, creek, or other body of water where recharge typically occurs. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Thus, a ***less-than-significant*** impact would occur.

ci-iii. The project site is currently predominately covered in impervious surfaces. Development of the proposed project would result similar coverage and development with impervious surfaces. Therefore, the proposed project would not likely result in new or worse conditions related to the runoff of stormwater.

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18 City of Antioch. *2015 Urban Water Management Plan* [pg. 6-12]. May 2016.

Furthermore, as discussed above, the project is required to comply with C.3 Standards and is proposed to include appropriate site design measures, source controls, and hydraulically-sized stormwater treatment measures to limit the rate and amount of stormwater runoff leaving the site.

Because the proposed project would not result in increased impervious surfaces, stormwater runoff would not be expected to exceed the current conditions. Thus, the proposed project would not exceed the current capacity of the City's existing stormwater infrastructure.

In order to ensure that the proposed project's stormwater treatment facilities remain adequate, long-term maintenance would be required. Routine maintenance of the facilities is necessary to ensure that infiltration of water is unobstructed, erosion is prevented, and soils are held together by biologically active plant roots. Proper operation and maintenance of the stormwater management facilities would be the sole responsibility of the property owner. The project applicant would be required to prepare and submit, for the City's review, an acceptable Stormwater Facilities Operation and Maintenance Plan prior to completion of construction. With implementation of such a plan, the bio-retention facilities would continue to properly manage runoff long after completion of construction activities.

In conclusion, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in erosion, siltation, or flooding on- or off-site, create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. Consequently, the proposed project would result in a ***less-than-significant*** impact.

civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06013C0327F, the project site is located within Zone X. FEMA defines Zone X as an area not within a 100-year or 500-year floodplain. The Contra Loma Dam is the closest dam to the project site, located approximately 3.85 miles southwest of the site. The citywide inundation map for the failure of Contra Loma Dam and Dike No. 2 (Figure 4.7-3 of the General Plan EIR) indicates that the project site is located outside of the areas that would be impacted by dam failure. It should be noted that, according to the General Plan EIR, dam failure would be an unlikely event.[19] As a result, the project would not impede or redirect flood flows, and a ***less-than-significant*** impact would result.

d. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The project area is located over 40 miles from the Pacific Ocean and tsunamis typically affect coastlines and areas up to one-quarter mile inland. Due to the project's distance from the coast, the project site would not be exposed to flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to a large closed body of water. Furthermore, as noted above, the project site is not located within a flood hazard zone. Based on the above, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and ***no impact*** would occur.

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19 City of Antioch. *General Plan Update EIR* [pg. 4.7-4]. July 2003.

XI. LAND USE AND PLANNING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	✖	☐
b. Cause a significant environmental impact due to a conflict with any land use plans, policies, or regulation adopted for the purpose of avoiding or mitigating on environmental effect?	☐	☐	✖	☐

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community, or isolate an existing land use. The project site is currently developed with commercial uses and the site is surrounded by existing development. The proposed project would not alter the existing general development trends in the area or isolate an existing land use. As such, the proposed project would not physically divide an established community and a ***less-than-significant*** impact would occur.

b. According to the Antioch General Plan, the project site is located within the Somersville Road Corridor Focus Area and is designated Regional Commercial. The site is zoned Regional Commercial (C-3). While the proposed project would require a General Plan Amendment and Rezone, the use would be consistent with other commercial and multi-family residential uses in the vicinity. The Planned Development zoning designation allows for multi-family residential and commercial development so long as the two uses are visually compatible, similarly designed, and provide pedestrian connection between the two. Per the current site plan, the project would achieve the necessary requirements of the zoning designation. In addition, the project would be required to adhere to the applicable parking requirements set forth for Planned Development. The Municipal Code requires that all development within a Planned Development zone obtain a use permit. Furthermore, per Section 9-5.2607 of the Municipal Code, all new development within the City is subject to Design Review approval.

As discussed throughout this IS/MND, the proposed project would essentially serve as an extension of the existing residential and retail development located within the vicinity of the site. The site is currently developed with commercial uses. Thus, development of the proposed project would not alter the existing use of the site in a manner that would disturb biological resources. Additionally, the proposed project would not increase air quality pollutants in excess of existing standards established by BAAQMD. As discussed in Section X, Hydrology and Water Quality, the proposed project would not alter the existing drainage pattern such that the stormwater quality would violate any City standards. Therefore, should the City of Antioch City Council approve the requested Rezone, use permit, and Design Review, the project would not cause a significant environmental impact due to a conflict with any land use plans, policies, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Furthermore, this IS/MND does not identify any significant impacts which cannot be mitigated to less-than-significant levels. As a result, the proposed project would not conflict with applicable land use plans, policies, regulations, or surrounding uses and a ***less-than-significant*** impact would occur.

XII. MINERAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	✖
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	✖

Discussion

a,b. According to the City of Antioch's General Plan EIR, areas identified in the General Plan for new and existing development do not contain known mineral resources that would be of value to the region or residents of the State.[20] Therefore, ***no impact*** to mineral resources would occur as a result of development of the project.

[20] City of Antioch. *General Plan Update EIR* [pg. 5-9]. July 2003.

XIII. NOISE. *Would the project result in:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. 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?	☐	✖	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✖	☐
c. 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?	☐	☐	☐	✖

Discussion

a. The following discussion is based on an Environmental Noise Analysis prepared for the proposed project by j.c. brennan & associates, Inc. (see Appendix B). The report analyzed construction and operational noise level increases at the project site and at existing sensitive receptors in comparison to the applicable noise level standards. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.
- Day-Night Average Level (L_{dn}): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.
- Community Noise Equivalent Level (CNEL): The average sound level over a 24-hour day, with a +5 decibel weighing applied to noise occurring during evening (7:00 PM to 10:00 PM) hours and a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.
- Equivalent Sound Level (L_{eq}): Accounts for the total energy (average) observed for an entire hour.
- Maximum sound level (L_{max}): The highest root-mean-square sound level measured over a given period of time.
- Median Noise Level (L_{50}): Represents the noise level which is exceeded 50 percent of the hour. (i.e., half of the hour ambient conditions are higher than the L_{50} and the other half conditions are lower).

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. In the vicinity of the project site, the nearest existing noise sensitive land uses include the multi-family residences located directly to the east of the site, and the church and single-family residences to the south, across Buchanan Road.

Thresholds of Significance

Based on the City's General Plan Noise Element, the proposed project could result in a potentially significant impact if the project would exceed any of the thresholds below:

- An increase in long-term ambient noise by 5 dBA CNEL/L_{dn} or more, where existing noise levels do not exceed the City's 60 dBA CNEL exterior noise level standard; or
- An increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level.

In addition, Title 24, Part 2, of the California Building Code mandates that interior noise levels attributable to exterior noise sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Accordingly, the proposed project could result in a potentially significant impact if the interior noise levels at the proposed residences would exceed 45 dB L_{dn} or CNEL.

Existing Noise Environment

The existing ambient noise environment at the project site is primarily defined by traffic on Delta Fair Boulevard, SR 4, and the Somersville Road eastbound on-ramp. To quantify the existing ambient noise environment at the project site, j.c. brennan & associates, Inc. conducted continuous (24-hour) and short-term noise level measurements at three locations on the project site on July 24 through 25, 2019 (see Figure 11). The noise level measurements were conducted to determine typical background noise levels and for comparison to the anticipated project-related noise levels.

The results of the measurements are summarized in Table 9, presented in terms of day-night average (L_{dn}) noise levels, average hourly (L_{eq}) noise levels, maximum (L_{max}) noise levels, and median value (L_{50}). All noise level values are in dB.

Table 9
Summary of Ambient Noise Monitoring Results

Continuous 24-Hour Noise Measurement Site							
Site	CNEL (dBA)	Average Measured Hourly Noise Levels (dB)					
		Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
		L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
A	56	51.9	50.7	67.5	49.1	47.5	64.0

Short-term Noise Measurement Sites						
Site	Location	Date	Time	L_{eq}	L_{50}	L_{max}
1	Southeast Portion of Project Site	July 24, 2019	12:30 PM	55.2	54.0	61.9
		July 25, 2019	7:40 PM	58.1	57.0	69.0
2	West Portion of Project Site	July 24, 2019	1:15 PM	58.9	56.5	76.5
		July 25, 2019	7:00 PM	61.1	58.1	76.1

Source: j.c. brennan & associates, Inc., 2019.

Figure 11
Noise Measurement Sites

Source: j.c. brennan & associates, Inc., 2019.

As shown in Table 9, the existing ambient noise levels at the portion of the project site proposed for residential uses do not currently exceed the City's 60 dB L_{dn} exterior noise level standard for residential land uses.

Project Construction Noise

During the demolition and construction of the proposed project, heavy equipment would be used for grading, excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used on-site. In addition, noise would also be generated during the construction phase by increased truck traffic on area roadways, including associated with transport of heavy materials and equipment to and from the construction site. Noise level increases during construction would be of short duration and would likely occur primarily during daytime hours.

The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is depicted in Table 10. The noise values represent maximum noise generation, or full-power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

As shown in Table 10, construction activities typically generate noise levels ranging from approximately 76 to 90 dB L_{max} at a distance of 50 feet. The nearest receptors are located approximately 50 feet or further from any areas of the project site that might require grading or paving. Thus, construction noise could exceed the City's 60 dB exterior noise level threshold at the nearest existing receptor. However, construction activities are conditionally exempt from the Noise Ordinance from 7:00 AM to 6:00 PM Monday through Friday, and from 9:00 AM to 5:00 PM on Saturdays. Activities occurring outside of the permitted hours would be considered to result in a significant impact to nearby sensitive receptors.

Table 10
Typical Construction Equipment Noise

Type of Equipment	Maximum Noise Level at 50 feet (dB L_{max})
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic tool	85

Source: Federal Highway Administration, January 2006.

Project Operational Noise

As noted previously, the existing noise environment in the project area is primarily defined by traffic noise. The proposed project would generate noise associated with stationary noise sources, as well as increases in traffic. The primary stationary noise source associated with the proposed project would be the parking garage, which would be located adjacent to the existing residences to the east. However, because the entrance to the garage would be located on the north side of the apartment complex, opposite from the existing residences, the majority of the noise associated with the parking garage use would be shielded. Only openings for ventilation would be located on the eastern side of the parking garage. Accordingly, stationary noise associated with the proposed project would not be considered to result in any significant increases in noise levels in the vicinity. Thus, the discussion below focuses on the proposed project's increase in traffic noise levels in the project area.

Future Traffic Noise Levels at Existing Sensitive Receptors

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA Model) was used with traffic data obtained from the TIA prepared for the proposed project to predict traffic noise levels from the surrounding roadways. Truck percentages and vehicle speeds on the local area roadways were estimated from field observations. Traffic noise levels are predicted at sensitive receptors located 75 feet from the centerline along each project area roadway segment. In some locations, sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls.

Table 11 and Table 12 present the project's increase in traffic noise levels under Existing Plus Project and Cumulative Plus Project conditions in terms of CNEL at 75 feet from the centerline of each roadway segment. The tables also list the distances to traffic noise level contours. The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, roadway grade, shielding from local topography, sound walls or structures. The distances reported are generally considered to be conservative estimates of noise exposure along the project-area roadways.

As shown in Table 11, the existing traffic noise levels in the vicinity of the project site exceed 60 dBA. Accordingly, the proposed project would be considered to result in a significant impact if the traffic generated by the proposed project would increase ambient noise levels by 3 dB CNEL or more. The proposed project would result in a maximum increase in traffic noise levels of 0.4 dB on nearby roadways, which would be below the City of Antioch standard of a 3 dB increase, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level. Similarly, as shown in Table 12, noise levels on roadways in the vicinity of the project site would continue to exceed the City's 60 dBA CNEL exterior noise level standard under Cumulative No Project conditions. Thus, the applicable threshold would be an increase in ambient noise of 3 dBA CNEL or more. The proposed project would result in a maximum increase of 0.3 dB under Cumulative Plus Project conditions, which would not exceed the 3 dB increase threshold established by the City of Antioch.

Table 11
Existing and Existing Plus Project Traffic Noise Levels

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Existing No Project	Existing + Project	Δ Change	Existing No Project (CNEL, dB)			Existing + Project (CNEL, dB)		
					70	65	60	70	65	60
Somersville	South of Buchanan	64.8	64.9	+0.1	34	73	158	34	74	158
Somersville	Buchanan to Delta Fair	65.4	65.4	0	37	80	171	37	80	172
Somersville	North of Delta Fair	68.5	68.6	+0.1	60	128	277	61	131	282
Buchanan	West of Sommersville	66.2	66.4	+0.2	42	90	193	43	93	200
Buchanan	Somersville to Delta Fair	62.5	62.7	+0.2	24	51	109	24	53	113
Buchanan	Delta Fair to San Jose	63.3	63.3	0	27	58	124	27	58	125
Buchanan	East of San Jose	63.2	63.2	0	26	57	122	26	57	123
Delta Fair	West of Somersville	64.8	64.9	+0.1	34	73	156	34	74	160
Delta Fair	Somersville to Buchanan	64.9	65.3	+0.4	34	74	159	37	79	170

Source: j.c. brennan & associates, Inc. 2019

Table 12
Cumulative and Cumulative Plus Project Traffic Noise Levels

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Cumulative No Project	Cumulative + Project	Δ Change	Cumulative No Project (CNEL, dB)			Cumulative + Project (CNEL, dB)		
					70	65	60	70	65	60
Somersville	South of Buchanan	67.2	67.2	0	49	105	226	49	106	227
Somersville	Buchanan to Delta Fair	67.5	67.6	+0.1	51	111	239	51	111	239
Somersville	North of Delta Fair	70.1	70.2	+0.1	76	164	353	77	166	357
Buchanan	West of Sommersville	67.5	67.5	0	51	110	236	51	110	238
Buchanan	Somersville to Delta Fair	63.6	63.8	+0.2	28	61	130	29	62	134
Buchanan	Delta Fair to San Jose	64.1	64.2	+0.1	30	65	141	31	66	142
Buchanan	East of San Jose	64.1	64.2	+0.1	31	66	142	31	66	143
Delta Fair	West of Somersville	65.8	65.9	+0.1	39	85	183	40	86	186
Delta Fair	Somersville to Buchanan	65.7	66.0	+0.3	39	83	179	41	88	189

Source: j.c. brennan & associates, Inc. 2019

Based on the above, the proposed project would not generate a substantial 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.

Future Traffic Noise Levels at New Sensitive Receptors

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. "[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project." (*Ballona Wetlands Land Trust v. City of Los Angeles,* (2011) 201 Cal.App.4th 455, 473 (*Ballona*).) The California Supreme Court recently held that "CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. What CEQA does mandate… is an analysis of how a project might exacerbate existing environmental hazards." (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 ["identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA's legislative purpose nor required by the CEQA statutes"], quoting *Ballona*, *supra*, 201 Cal.App.4th at p. 474.) Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project's future residents will be exposed to preexisting environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions. Nonetheless, because the proposed project includes residences, the Environmental Noise Analysis evaluated noise impacts of the surrounding area on the proposed project.

The FHWA traffic noise prediction model was used to predict cumulative traffic noise levels at the proposed residential portion of the project site. Table 13 shows the predicted traffic noise levels at the proposed residential uses adjacent to Buchanan Road and Delta Fair Boulevard. Based upon the table, traffic noise levels would exceed the 60 dBA CNEL standard at the individual patios facing the roadways. However, Noise Objective 11.6.1 of the General Plan applies the noise level standard at the exterior open space for multi-family uses. The center courtyard of the project provides the common outdoor area, and the exterior traffic noise level within that area would be 56.5 dB, which would comply with the exterior noise level standard of 60 dB CNEL.

Typical construction results in an exterior to interior noise level reduction of 25 dB, provided that air conditioning is provided to allow residents to close windows and doors for the appropriate acoustical isolation. All residences are assumed to provide air conditioning for occupants. Because the projected Cumulative Plus Project conditions would result in exterior noise levels less than 70 dBA CNEL, the interior noise levels at the project site would be expected to comply with the interior noise level standard of 45 dBA CNEL.

Therefore, the proposed project would not generate a permanent increase in ambient noise levels in the vicinity of the project site such that the noise levels would be in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Table 13
Cumulative Plus Project Transportation Noise Levels at Proposed Residences

Noise Source	Receptor Description	Approximate Distance to Center of Outdoor Activity Area (feet)[1]	ADT	Predicted Exterior Traffic Noise Levels
Buchanan Road	Building Façade/ Patios	100	11,140	64 dB
Buchanan Road	Courtyard Area	200	11,140	54.5 dB*
Delta Fair Boulevard	Building Façade/ Patios	100	17,120	66 dB
Delta Fair Boulevard	Courtyard Area	200	17,120	56.5 dB

1 Setback distances are measured in feet from centerlines of the roadways.
* Assumes a minimum of 5 dB shielding from building facades

Source: FHW-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc., 2019.

Conclusion

Based on the above, operation of the proposed project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in the City's General Plan or Noise Ordinance, or applicable standards of other agencies. However, construction noise could exceed the City's 60 dB exterior noise level threshold at the nearest existing receptor. Construction noise is conditionally exempt from 7:00 AM to 6:00 PM, Monday through Friday, and from 9:00 AM to 5:00 PM on weekends and holidays per Section 5-17.04 of the City Zoning Ordinance. In addition, noise associated with construction activities would be temporary in nature, and would be anticipated to occur during normal daytime working hours. Nonetheless, given the proximity of the nearby residential uses to the proposed construction activities, noise levels at nearby noise sensitive receptors would temporarily or periodically increase above existing levels without the project. Thus, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

XII-1. *During construction activities, the use of heavy construction equipment shall adhere to Sections 5-17.04 and 5-17.05 of the City's Municipal Code. To ensure compliance construction plans shall include, via notation, the following regulations from the City's Municipal Code:*

> *It is unlawful for any person to operate heavy construction equipment or otherwise be involved in construction activities during the hours specified below:*
>
> 1) *On weekdays prior to 7:00 AM and after 6:00 PM.*
> 2) *On weekdays within 300 feet of occupied dwelling space, prior to 8:00 AM and after 5:00 PM.*

3) *On weekends and holidays, prior to 9:00 AM and after 5:00 PM, irrespective of the distance from the occupied dwelling.*

XII-2. *The project applicant shall ensure that all on-site construction activities occur pursuant to the criteria identified in Policy 11.6.2, Temporary Construction, of the City of Antioch General Plan. Such criteria include, but are not limited to, preparation of a construction-related noise mitigation plan. The construction-related noise mitigation plan shall be submitted to the Planning Manager for the City of Antioch for review and approval prior to issuance of demolition permits for the project. Items included in the plan could contain, but would not be limited to, the following:*

- *All equipment driven by internal combustion engines shall be equipped with mufflers which are in good working condition and appropriate for the equipment;*
- *The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where the technology exists;*
- *At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practical from noise-sensitive receptors;*
- *Unnecessary idling of internal combustion engines shall be prohibited;*
- *Owners and occupants of residential and non-residential properties located with 300 feet of the construction site shall be notified of the construction schedule in writing; and*
- *The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.*

b. Vibration, like noise, involves a source, a transmission path, and a receiver. Vibration differs from noise in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 14, which was developed by Caltrans, shows the vibration levels which would normally be required to result in human annoyance or structural damage. As shown in the table, a continuous vibration level of 0.10 in/sec PPV would likely cause annoyance to sensitive receptors and a vibration level of 0.20 in/sec PPV is the threshold for architectural damage to structures.

Table 14
Effects of Various Vibration Levels on People and Buildings

Vibration Level (Peak Particle Velocity) mm/s	Vibration Level (Peak Particle Velocity) in/sec	Human Reaction	Effect on Buildings
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk of "architectural" damage to normal dwelling; houses with plastered walls and ceilings
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

Source: Caltrans, Technical Advisory: TAV-02-01-R9601, 2002.

The primary vibration-generating activities associated with the proposed project would occur during construction, particularly during grading and utility placement. During project construction, heavy equipment would be used for grading, paving, and utility placement, which would generate localized vibration in the immediate vicinity of construction. Typical vibration levels produced by construction equipment are presented in Table 15.

Table 15
Vibration Levels for Various Construction Equipment

Equipment Type	Vibration Level at 50 feet (in/sec PPV)
Large Bulldozer	0.031
Small Bulldozer	0.001
Jackhammer	0.012
Vibratory Roller	0.074
Loaded Truck	0.027
Vibratory Hammer	0.025
Auger/Drill Rigs	0.031

Source: j.c. brennan & associates, Inc., 2019.

The nearest residence is located approximately 50 feet or further from any areas of the project site that might require grading or paving. Based on the vibration levels presented in Table 15, construction-generated vibration levels associated with the proposed project are predicted to be less than the 0.10 in/sec PPV at the nearest sensitive receptors. Therefore, the project would not result in the exposure of persons to or generation of excessive groundborne vibration levels at the project site. Additionally, construction activities would be temporary in nature and would be limited to normal daytime working hours in accordance with Section 5-17.04 of the City Zoning Ordinance. Therefore, a ***less-than-significant*** impact would occur related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. The nearest airport to the site is the Funny Farm private airstrip, located approximately 11 miles southeast of the site. As such, the project site is not located within two miles of any public airports or private airstrips, and does not fall within an airport land use plan area. Therefore, ***no impact*** related to a safety hazard for people residing or working in the project area related to such would occur.

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	✖

Discussion

a. The proposed project would include development of a 210-unit multi-family apartment complex, thereby directly inducing population growth in the project area. Per the City's Housing Element, the City of Antioch had an average household size of 3.15 persons per household.[21] Consequently, the proposed project could provide housing for up to approximately 662 people (210 proposed households X 3.15 persons per household = 661.5 new residents).

The project site is located within an urbanized area within the City of Antioch and is bordered by existing development in all directions, including multi-family residential to the east. As discussed in Section XIX, Utilities and Service Systems, the proposed project includes necessary infrastructure improvements to connect to existing utility systems, and the utility systems that would serve the proposed project have adequate capacity to accommodate the additional demands from the project. The infrastructure improvements would be sized for the project only. In addition, public service providers (e.g., police and fire protection services) would be capable of accommodating the additional demands for service created by the project. Thus, the proposed project would not place an undue burden on public utilities, public recreation facilities, or any other shared public resource, as discussed throughout this IS/MND. Therefore, the proposed project would not result in more intensive population growth beyond what has been previously analyzed for the site, and a ***less than significant*** impact would occur.

b. The project site currently consists of commercial land uses and does not include existing housing or other habitable structures. As such, the proposed project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere. Therefore, ***no impact*** would occur.

[21] City of Antioch. *Housing Element* [pg. 2-9]. Adopted April 14, 2015.

XV. PUBLIC SERVICES. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a. Fire protection services for the project area are provided by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD is an "all-hazards" organization providing fire suppression, paramedic emergency medical services (EMS), technical rescue, water rescue, and fire prevention/investigation services to more than 600,000 residents across a 304 square mile coverage area. The CCCFPD operates 25 fire stations and responds to approximately 45,000 incidents annually. Four of the fire stations are located within the City of Antioch. Station 83 is located approximately 0.3-mile south of the project site.

Upon completion of the proposed residential and retail development, the CCCFPD would provide fire protection services to the project site. The proposed project would be required to pay the applicable fire protection fees per the City's Master Fee Schedule. In addition, the proposed buildings would be constructed in accordance with the fire protection requirements of the most recent California Fire Code. The CCCFPD and the City's Building Inspection Services Division would review the project building plans to ensure compliance with all code requirements. Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts.

b. The Antioch Police Department (APD) currently provides police protection services to the project site and the surrounding area. The Antioch PD operates out of the police headquarters at 300 L Street, and is currently staffed with 99 sworn and 33 non-sworn employees.[22] According to the Antioch General Plan EIR, population growth has created an increased demand for police-related services, and consequently a need for additional Antioch PD staff. The City of Antioch General Plan establishes a goal for the Antioch PD staffing ratio to be between 1.20 to 1.50 officers per 1,000 residents.[23] Per the City's Housing Element, the City of Antioch had a population of 106,455 in 2014. Thus, the current Antioch PD staffing ratio is approximately 1.0 per 1,000 residents.

The proposed project would increase the demand for police protection services at the site. However, the project applicant would be required to pay Development Impact Fees for police facilities per Section 9-3.50 of the City Municipal Code, and the project site would

22 City of Antioch. *About APD*. Available at: http:// www.antiochca.gov/police/about-apd/. Accessed December 2019.
23 City of Antioch. *City of Antioch General Plan EIR [pg. 4.11-1]*. July 2003.

be required to annex into a community facilities district (CFD) for financing police services. Therefore, the project would have a ***less-than-significant*** impact related to the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts.

c. School services in the City are provided by the Antioch Unified School District (AUSD). The proposed project would include the development of the project site with a 210-unit multi-family apartment complex and, thus, would increase demand for school facilities and services. Furthermore, the AUSD collects development fees for new residential projects on a per square foot basis. The development fees serve to offset school facility costs associated with serving new students. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act…involving …the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation."

Based on the above, because the project applicant would be required to pay development fees to the AUSD, the proposed project would result in a ***less-than-significant*** impact regarding an increase in demand for schools.

d,e. Standard 3.5.7.2 in the City of Antioch General Plan sets a standard of five acres of parks and open space per 1,000 residents.[24] The City of Antioch receives land for parks through land dedications or purchases funded through fee collection. In addition, per Section 9-5.706 of the City's Municipal Code, multi-family developments are required to provide 200 sf of private and common usable open space per unit.

The proposed project would include the construction of 210 multi-family residential units, and, thus, would increase the total acreage of parks required to meet the City's performance standard. Based on the proposed unit count, the project would be required to provide a total of 42,000 sf of common usable open space. Based on the proposed site plan, the project would include 52,000 sf of common open space in the courtyard, which would satisfy the City's requirements per Section 9-5.706 of the Municipal Code. Additionally, the proposed project would include a public open lawn in front of the retail building, as well as a private balcony on each unit. Thus, the total private and common open space provided by the project would exceed the necessary requirements. Furthermore, the project would be subject to payment of the City's Development Impact Fees, which include a parks and recreation fee levied on all new multi-family and non-residential development.

Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered parks or other public facilities, the construction of which could cause significant environmental impacts.

[24] City of Antioch. *General Plan* [pg. 3-12]. Updated November 24, 2003.

XVI. RECREATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	✖	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	✖	☐

Discussion

a,b. The proposed project would include the development of 210 residential units and retail space, and thus, would likely result in an increase in the use of existing neighborhood and regional parks and/or other recreational facilities. For example, Gentrytown Park is located approximately 0.2-mile from the project site.

However, the proposed project would provide future residents with a landscaped buffer, a community garden, a lawn and patio area with a gazebo, as well as other on-site recreational facilities, including a private pool, fitness center, clubhouse, and playground. In total, approximately 52,000 sf of open space/common area would be provided for residents, as well as a minimum of 60 sf of private patio space per unit. Thus, as discussed previously, the project would exceed the open space requirements established by Section 9-5.706 of the Municipal Code.

Therefore, the increase in population associated with the proposed project would not be expected to result in substantial physical deterioration of any existing neighborhood or regional parks or other recreational facilities, and would not result in adverse physical effects related to the construction or expansion of new facilities. Thus, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, taking into account all modes of transportation, including transit, roadway, bicycle, and pedestrian facilities?	☐	✖	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	✖	☐
c. Substantially increase hazards due to a geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✖	☐
d. Result in inadequate emergency access?	☐	✖	☐	☐

Discussion

a. The following is based on a Traffic Impact Analysis (TIA) prepared for the proposed project by Fehr and Peers.[25] The TIA evaluates the potential traffic impacts of the proposed project in accordance with the standards set forth by the City of Antioch, the Contra Costa Transportation Authority (CCTA) Congestion Management Plan (CMP) and Technical Procedures Manual (TPM), and the East County Action Plan (ECAP).

The TIA includes an analysis of the following study intersections in the project vicinity (see Figure 12):

1. Somersville Road/SR 4 Westbound (WB) Ramps;
2. Somersville Road/SR 4 Eastbound (EB) Ramps;
3. Somersville Road/Delta Fair Boulevard;
4. Somersville Road/Buchanan Road;
5. San Jose Drive/Delta Fair Boulevard;
6. Buchanan Road/Delta Fair Boulevard;
7. Buchanan Road/Lucena Way;
8. Buchanan Road/ San Jose Drive; and
9. Auto Center Drive/Century Boulevard.

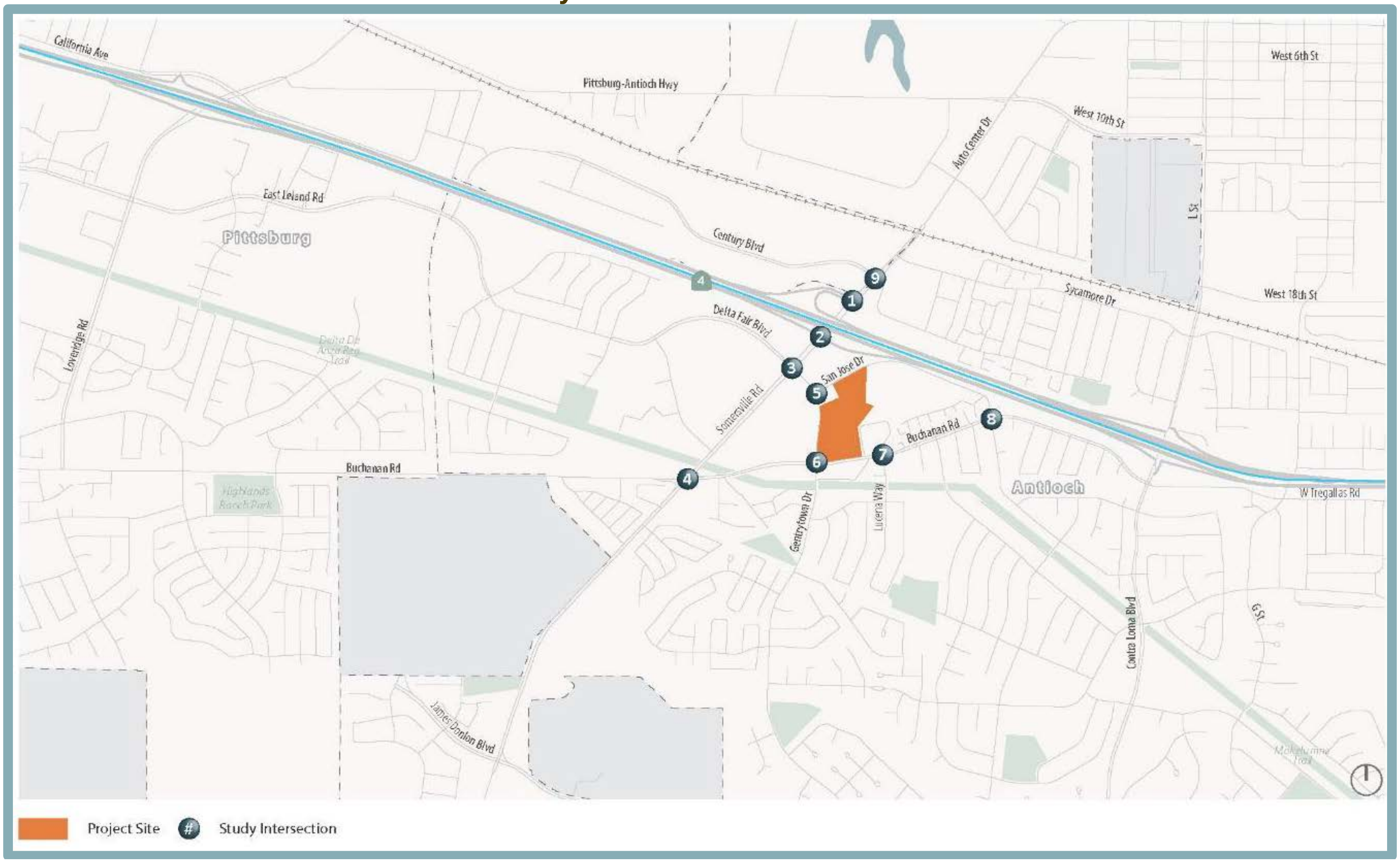
The ECAP defines certain roadways as Routes of Regional Significance. In the project area, SR 4 is a designated Route of Regional Significance, as well as Somersville Road, Auto Center Drive, Delta Fair Boulevard, and the segment of Buchanan Road west of Somersville Road.

The TIA also includes an analysis of the following freeway segments:

1. SR 4, west of Somersville Road;
2. SR 4, between Somersville Road and Contra Loma Boulevard; and
3. SR 4, east of Contra Loma Boulevard.

25 Fehr and Peers. *Transportation Assessment Delta Fair Village.* December 2019.

Figure 12
Study Intersection Locations



Source: Fehr and Peers, 2019.

The operations of the study intersections were evaluated during the weekday AM (7:00 AM to 9:00 PM) and PM (4:00 PM to 6:00 PM) peak hours under the following scenarios:

- **Existing conditions.** Existing (2019) conditions based on recent traffic counts.
- **Existing with Project conditions.** Existing (2019) conditions with project-related traffic.
- **Near-Term conditions.** Existing (2019) conditions with approved projects within the study area that could be constructed over the next five to ten years.
- **Near-Term with Project conditions.** Near-Term conditions with project-related traffic.
- **Cumulative conditions.** Forecasts for the cumulative scenario are based on traffic growth trends as described in the Antioch General Plan EIR and supplemented by a check of traffic forecasts for the study area in the most recent CCTA Countywide travel demand model. The scenario reflects conditions over the next 20 to 25 years.
- **Cumulative with Project conditions.** Future forecast conditions with project-related traffic.

Method of Analysis

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a quantitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

Signalized Intersections

The City of Antioch evaluates LOS at signalized intersections based on the 2010 Highway Capacity Manual (HCM) LOS methodology using Synchro software with capacity criteria based on the CCTA TPM. The 2010 HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., stop sign or traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in Table 16.

Unsignalized Intersections

The TIA analyzed unsignalized (all-way stop controlled and side-street stop controlled) intersections using the 2010 HCM method. The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side-street stop-controlled intersections. The correlation between average control delay and LOS for unsignalized intersections is shown in Table 17.

The determination of whether the installation of a traffic signal is warranted is based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) Peak Hour Signal Warrant (Warrant 3).

Table 16
Signalized Intersection LOS Definitions

LOS	Description	Delay in Seconds
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	<10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	>10 to 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	>20 to 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume to capacity (V/C). Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	>55 to 80
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80

Source: 2010 Highway Capacity Manual.

Table 17
Unsignalized Intersection LOS Definitions

LOS	Description	Delay in Seconds
A	Little or no traffic delay	≤10
B	Short traffic delays	>10 to 15
C	Average traffic delays	>15 to 25
D	Long traffic delays	>25 to 35
E	Very long traffic delays	>35 to 50
F	Extreme traffic delays	>50

Source: 2010 Highway Capacity Manual.

Freeway Segments

Freeway segments were analyzed using the ECAP for Routes of Regional Significance. Transplan, the East County Subregional Committee of the CCTA has established delay index and high occupancy vehicle (HOV) lane utilization as the Multimodal Transportation Service Objectives (MTSO) for all freeways in East County, including SR 4. The delay index is the ratio of travel time on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. HOV lane utilization is also identified as an MTSO, and the plan states that the lane should exceed 600 vehicles per lane in the peak direction during the peak hour.

Significance Criteria

The City of Antioch LOS standard for signalized study intersections is mid-level LOS D or better (average delay of 50 seconds or less), except on routes of regional significance, where the standard is high-level LOS D or better (average delay of 55 seconds or less).

The project would have a significant impact on the environment if the project would result in an increase in traffic which is substantial in relation to the traffic load and capacity of the street system, or if the project would change the condition of an existing street in a manner that would substantially impact access or traffic load and capacity of the street system. Significance criteria are used to determine whether a project impact is considered significant and therefore requires mitigation. The City of Antioch strives to maintain LOS D at signalized intersections. The following thresholds of significance were developed based on the City of Antioch and the ECAP policies, CCTA's *Technical Procedures.* An impact would be considered significant if any of the following conditions would occur:

a. Operations of a study intersection not on a Route of Regional Significance would decline from LOS D or better to LOS E or F, with the addition of project traffic;
b. The project would deteriorate already unacceptable operations at a signalized intersection with the addition of traffic;
c. Operations of an unsignalized study intersection would decline from acceptable to unacceptable with the addition of project traffic, and would warrant the installation of a traffic signal (per CAMUTCD Peak Hour Signal Warrant);
d. Construction traffic from the project would have a significant, though temporary, impact on the environment, or construction would substantially affect traffic flow and circulation, parking, and pedestrian safety;
e. Operations of a study intersection on a Route of Regional Significance would decline from LOS high-D (an average delay of 55 seconds for signalized intersections) or better to LOS E or F, based on the HCM LOS method, with addition of project traffic; or
f. The project would result in or worsen unacceptable conditions on SR 4 by causing the delay index to exceed 2.5 during the AM or PM peak hour or the HOV lane utilization to be less than 600 vehicles per lane in the peak direction in the peak hour.

Proposed Project Trip Generation and Distribution

Trip generation is an estimate of the amount of vehicular traffic the project would add to the surrounding roadway system. A conservative approach was used in the analysis of trip generation by assuming that the 4,000 sf of retail space would be used as a daycare. The project trips were assumed to be from the daycare space, renovated retail uses, and new residential development. In order to get an accurate estimate of net new trips, the trip generation was calculated for the existing shopping center based on turning movement counts at the existing site driveways during AM and PM peak hours, and subtracted from the total trips. The trip generation summary is shown in Table 18.

Information contained in the ITE Trip Generation Manual, 10th edition, and surveys of similar uses were used to estimate pass-by trips for the shopping center. Shopping centers of similar size had pass-by rates from 25 percent to 60 percent; a pass-by rate of 30 percent was assumed to be conservative. In other words, 30 percent of the shopping center traffic entering and exiting the site is already on the surrounding roadway system, not a new vehicle trip to the area. To avoid over-estimation of traffic volumes on the surrounding roadway system, the pass-by trips were subtracted from the trip generation estimates.

Some proportion of trips generated by the proposed shopping center would likely have an origin or destination within the residential portion of the development. However, as specific uses are not proposed, the level of internal trip making is difficult to quantify. A reduction of 5 percent in trips due to internal trips between land uses was assumed in the trip generation calculations.

Table 18
Trip Generation Summary

Use	Size	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Project Trips – Shopping Center								
Shopping Center	73,535 sf	4,877	117	72	189	208	225	433
Day Care Center	4,000 sf	199	24	22	46	22	25	47
Less Pass-by Trips		-1,460	-27	-30	-57	-62	-68	-130
Less Internal Trips Between Land Uses		-54	-7	-4	-11	-12	-12	-24
Net New		*3,362*	*107*	*60*	*167*	*156*	*170*	*326*
Project Trips – Residential								
Multi-family Housing (mid-rise)	210 dwelling units	1,143	18	53	71	56	35	91
Project Trips – Existing Shopping Center to be Removed								
Shopping Center	161,000 sf	-2,375	-39	-26	-65	-109	-124	-233
Total New Vehicle Trips		**2,168**	**86**	**87**	**173**	**103**	**81**	**184**

Source: Fehr & Peers, 2019.

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the CCTA travel demand model, and the location of complementary land uses. Separate estimates were developed for the residential and commercial portions of the project, as they are likely to have different distribution patterns. Separate trip distribution estimates were also developed for the Cumulative conditions when the James Donlon Extension is assumed to be complete. Figure 13 shows the Existing and Near-Term project trip distribution and Figure 14 shows the project trip distribution under Cumulative conditions.

Existing with Project Conditions

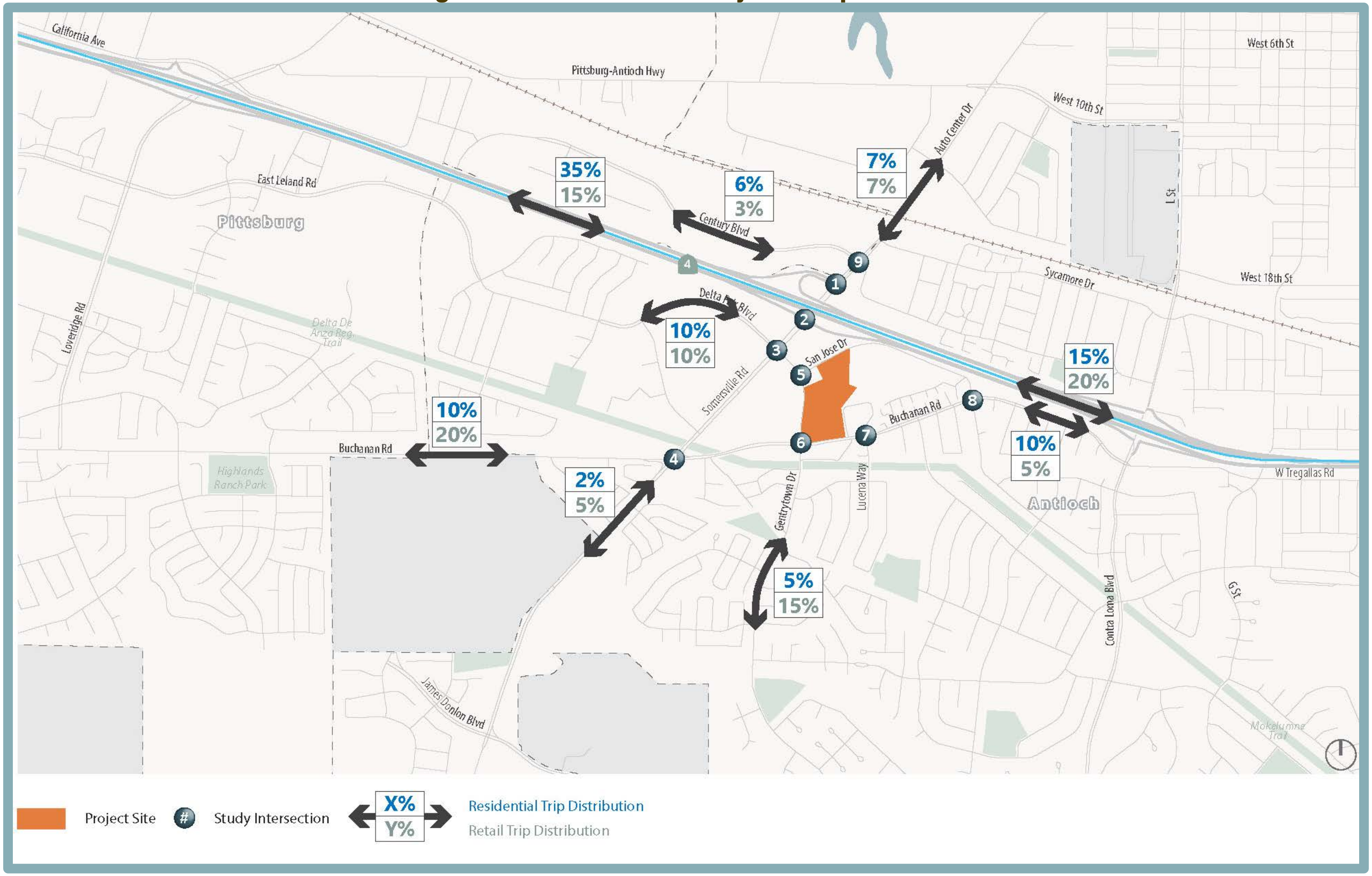
The analysis of traffic under Existing with Project conditions includes transportation facilities in the project area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities. The project's effects on study intersections and freeway segments under Existing with Project conditions are discussed in further detail below.

Intersection Analysis

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the LOS for the study intersections during each peak hour. Observed peak hour factors were used at all intersections for the existing analysis. Pedestrian and bicycle activity were also factored in to the analysis.

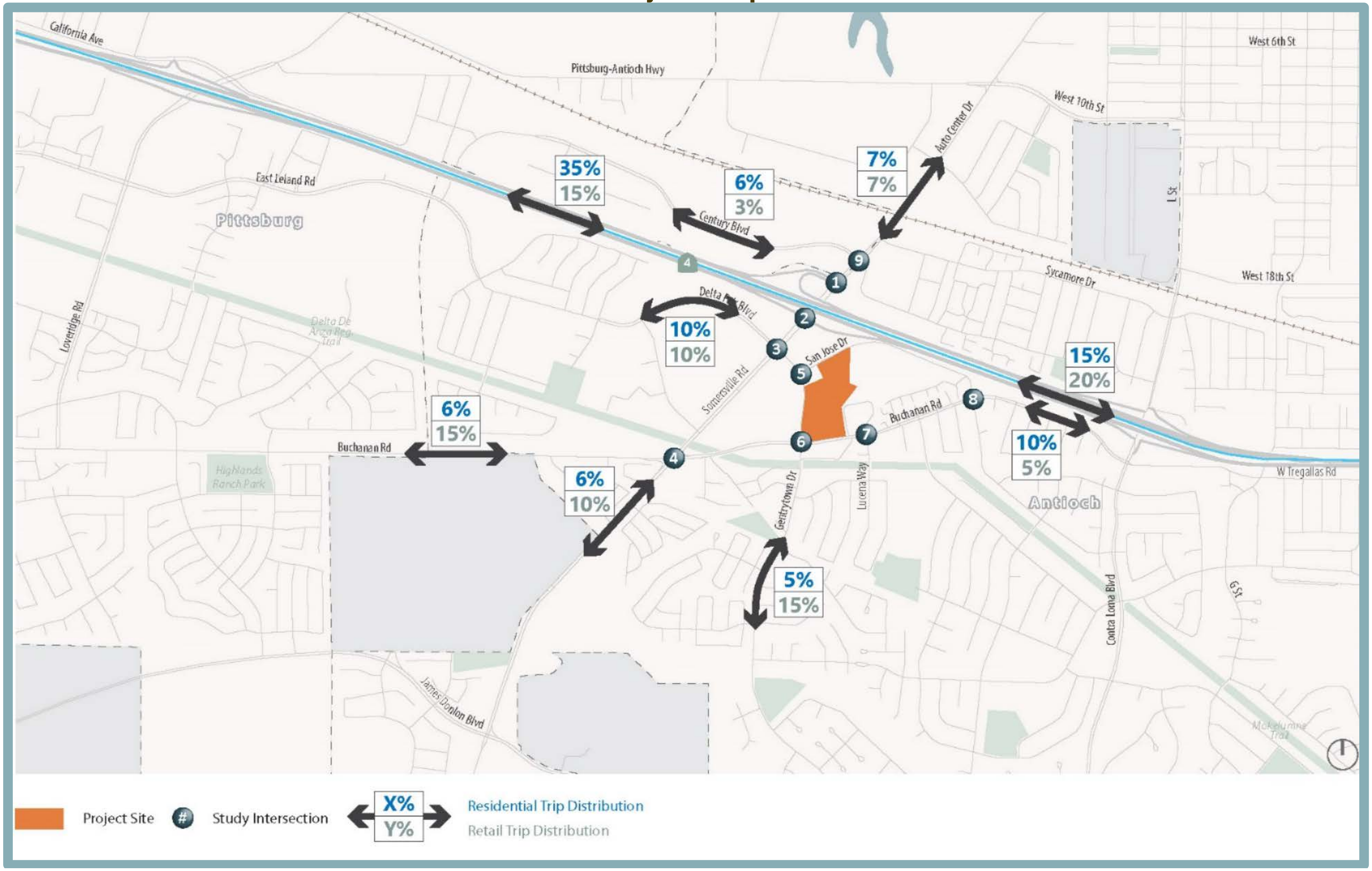
The project traffic volumes were added to the existing traffic volumes to estimate the Existing with Project intersection LOS, using the methods described above. The results are presented in Table 19. As shown in the table, all study intersections currently operate acceptably under the City of Antioch standards. While the addition of project traffic would increase the delay at the signalized and unsignalized study intersections, none of the intersections would be degraded beyond the established LOS standard with the addition of project traffic.

Figure 13
Existing and Near-Term Project Trip Distribution



Source: Fehr & Peers, 2019.

Figure 14
Cumulative Project Trip Distribution



Source: Fehr & Peers, 2019.

Table 19
Existing with Project Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Existing		Existing with Project	
			Delay[2]	LOS	Delay[2]	LOS
1. Somersville Road/SR 4 WB Ramps	Signal	AM PM	22.0 23.0	C C	22.1 23.7	C C
2. Somersville Road/SR 4 EB Ramps	Signal	AM PM	13.7 27.8	B C	13.7 28.0	B C
3. Somersville Road/Delta Fair Boulevard	Signal	AM PM	50.5 48.6	D D	50.9 49.1	D D
4. Somersville Road/Buchanan Road	Signal	AM PM	51.0 28.1	C C	51.7 28.5	D C
5. San Jose Drive/Delta Fair Boulevard	SSSC	AM PM	2.6 (11.4) 2.6 (11.3)	A(B) A(B)	2.6(11.8) 2.5(11.7)	A(B) A(B)
6. Buchanan Road/Delta Fair Boulevard	Signal	AM PM	21.3 21.2	C C	22.7 22.2	C C
7. Buchanan Road/Lucena Way	TWSC	AM PM	1.8 (12.5) 0.8 (13.4)	A(B) A(B)	1.8(16.6) 0.7(13.5)	A(C) A(B)
8. Buchanan Road/San Jose Drive	Signal	AM PM	8.5 9.0	A A	8.6 9.2	A A
9. Century Boulevard/Auto Center Drive	Signal	AM PM	25.0 35.4	C D	25.0 35.7	C D

Notes:
[1] Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
[2] Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.

Bold indicates unacceptable operations.

Source: Fehr & Peers, 2019.

Freeway Analysis

Mainline traffic counts under Existing conditions for the SR 4 study corridor and associated on- and off-ramps were obtained from the Caltrans Performance Measurement System. From the data, the peak hour of westbound and eastbound travel was identified during both the AM and PM commute periods. Free flow conditions are represented by a delay index of 1.0. As shown in Table 20, during both the AM and PM peak hour, little congestion is experienced in the peak-direction, such that some segments of SR 4 operate with a delay index of 1.01. While the project would increase traffic volumes on study freeway segments, the delay index would not increase and would remain under the 2.5 threshold.

The amount of vehicle traffic in HOV lanes was also assessed, as presented in Table 21. As shown in the table, the volume of traffic in the HOV lane traveling the commute direction is above the MTSO standard of at least 600 vehicles per hour per lane and would remain above the standard with the addition of project traffic.

Based on the above, the proposed project would not result in or worsen unacceptable conditions on SR 4 under Existing with Project conditions.

Table 20
Freeway Segment Operations Existing with Project – AM and PM Peak Hour Delay Index

Segment	Direction	Peak Hour	Existing Conditions		Existing Plus Project Conditions	
			Volume	Delay Index	Volume	Delay Index
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[1]	AM	3016	1.00	3026	1.00
		PM	6189	1.01	6196	1.01
	WB[2]	AM	6029	1.01	6053	1.01
		PM	4150	1.00	4168	1.00
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	AM	3178	1.00	3193	1.00
		PM	6293	1.01	6307	1.01
	WB	AM	6329	1.01	6346	1.01
		PM	4479	1.00	4496	1.00
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	AM	3434	1.00	3449	1.00
		PM	6161	1.01	6175	1.01
	WB	AM	5903	1.01	5920	1.01
		PM	4568	1.00	4585	1.00

Note:
[1] AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14-15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
[2] AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 13-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr and Peers, 2019.

Table 21
Freeway Segment Operations Existing with Project – HOV Lane Volumes

Segment	Direction	Existing Conditions		Existing with Project Conditions	
		AM	PM	AM	PM
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[2]	--	898	--	899
	WB[1]	862	--	865	--
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	--	913	--	915
	WB	921	--	923	--
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	--	894	--	896
	WB	844	--	846	--

Source: Fehr and Peers, 2019.

Near-Term with Project Conditions

The near-term scenario reflects existing traffic counts plus traffic from approved and pending developments within the study area that are expected to be constructed and occupied in the next five to ten years. Therefore, the near-term scenario represents the likely traffic conditions at the time of project completion. The latest projects list from the City of Antioch Project Pipeline and the City of Pittsburg Current Project Pipeline Map were used to determine approved and pending developments to be incorporated (see Appendix C for further detail). Based on a review of the list, several developments were identified that could generate additional traffic through the project area. Near-term project vehicle trip generation was estimated using trip generation rates and equations for the proposed land uses from ITE's Trip Generation Manual. Traffic generated by approved and pending developments was added to the existing traffic volumes, which were also increased by five percent to account for traffic growth from projects outside the immediate project area, to provide the basis for the Near-Term without Project analysis.

Below is an analysis of the operations of study intersections and freeway segments under the Near-Term with Project conditions.

Intersection Analysis

Near-Term conditions with and without the proposed project were evaluated for the study intersections. The results are shown in Table 22. As shown in the table, the Somersville Road/Buchanan Road intersection (Intersection #4) is projected to operate at LOS F during the AM peak hour and LOS E during the PM peak hour in the Near-Term and Near-Term with Project condition. With the addition of project traffic, the intersection delay would increase by 1.3 seconds in the AM peak hour and 1.5 seconds in the PM peak hour. Therefore, the proposed project would deteriorate already unacceptable operations at the Somersville Road/Buchanan Road intersection in the AM and PM peak hour with the addition of project traffic.

Table 22
Near-Term with Project Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Near-Term		Near-Term with Project	
			Delay[2]	LOS	Delay[2]	LOS
1. Somersville Road/SR 4 WB Ramps	Signal	AM PM	25.1 37.6	C C	25.6 39.9	C D
2. Somersville Road/SR 4 EB Ramps	Signal	AM PM	15.3 30.2	B C	15.6 30.5	B C
3. Somersville Road/Delta Fair Boulevard	Signal	AM PM	51.0 50.8	D D	51.9 51.7	D D
4. Somersville Road/Buchanan Road	**Signal**	**AM** **PM**	**136.6** **67.8**	**F** **E**	**137.9** **69.3**	**F** **E**
5. San Jose Drive/Delta Fair Boulevard	SSSC	AM PM	3.1(13.0) 2.5(11.5)	A(B) A(B)	3.1(13.2) 3.0(13.6)	A(B) A(B)
6. Buchanan Road/Delta Fair Boulevard	Signal	AM PM	25.2 23.8	C C	28.2 25.0	C C

Continued on Next Page

7. Buchanan Road/Lucena Way	TWSC	AM PM	2.3(18.8) 1.2(16.5)	A(C) A(C)	2.3(18.9) 1.2(16.6)	A(C) A(C)
8. Buchanan Road/San Jose Drive	Signal	AM PM	9.1 9.6	A A	9.4 9.7	A A
9. Century Boulevard/Auto Center Drive	Signal	AM PM	25.1 36.6	C D	25.9 37.2	C D

Notes:
[1] Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
[2] Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.

Bold indicates unacceptable operations.

Source: Fehr & Peers, 2019.

Freeway Analysis

Near-Term freeway forecasts were developed based on the same method as intersection forecasts, both with and without the proposed project. Freeway improvements were not included in the evaluation of near-term freeway operations. The Near-Term and Near-Term with Project conditions are listed in Table 23 for the AM and PM peak hours, based on the estimates of near-term traffic volumes plus the estimate of project traffic. While the project would increase traffic volumes on study freeways in the area, the delay index would not exceed 2.5. Thus, the proposed project would not conflict with the City's standard for freeway segment operations.

In addition, as shown in Table 24, similar to the Near-Term conditions, the volume of traffic on the HOV lane traveling in the commute direction (WB during the AM, EB during the PM) would remain above the desired MTSO standard of at least 600 vehicles per hour per lane under Near-Term with Project conditions.

Based on the above, the proposed project would not be considered to result in or worsen unacceptable conditions on SR 4 under Near-Term with Project conditions.

Cumulative with Project Conditions

To assess future growth with planned development in the City of Antioch, several sources of data were reviewed, including the Contra Costa County travel demand model, and the traffic growth trends in the Antioch General Plan EIR. Traffic forecasts within the immediate study area were reviewed to ensure that known developments were adequately reflected in the forecasts, including the Tuscany Meadows Project, located on the south side of Buchanan Road, just west of Somersville Road, in the City of Pittsburg. An important planned roadway improvement in the area is the proposed James Donlon Boulevard extension. The extension will start at Somersville Road and extend to Kirker Pass Road. The proposed roadway would merge from a four-lane road to a two-lane road and would be designed for vehicles traveling up to 55 miles per hour.

Below is an analysis of Cumulative with Project conditions at study intersections and freeway segments.

Table 23
Freeway Segment Operations Near-Term with Project – AM and PM Peak Hour Delay Index

Segment	Direction	Peak Hour	Near-Term Conditions		Near-Term with Project Conditions	
			Volume	Delay Index	Volume	Delay Index
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[1]	AM	3230	1.00	3240	1.00
		PM	6600	1.01	6607	1.00
	WB[2]	AM	6490	1.02	6514	1.02
		PM	4470	1.00	4488	1.00
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	AM	3490	1.00	3505	1.00
		PM	6740	1.01	6754	1.16
	WB	AM	6770	1.02	6787	1.02
		PM	4920	1.00	4937	1.00
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	AM	3760	1.00	6775	1.00
		PM	6600	1.01	6614	1.07
	WB	AM	6320	1.01	6337	1.01
		PM	5010	1.00	5027	1.00

Notes:
[1] AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 13-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
[2] AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14-15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr and Peers, 2019.

Table 24
Freeway Segment Operations Near-Term with Project – HOV Lane Volumes

Segment	Direction	Near-Term Conditions		Near-Term with Project Conditions	
		AM	PM	AM	PM
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[2]	--	960	--	961
	WB[1]	930	--	933	--
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	--	980	--	982
	WB	990	--	992	--
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	--	960	--	962
	WB	900	--	902	--

Source: Fehr and Peers, 2019.

Intersection Analysis

Cumulative conditions with and without the project were evaluated. The analysis results are presented in Table 25. As shown in the table, the following three intersections are projected to operate at deficient levels under Cumulative conditions prior to the addition of project traffic:

- Somersville Road/SR 4 WB Ramps – LOS E in the PM peak hour;
- Somersville Road/Delta Fair Boulevard – LOS E in the AM and PM peak hour;
- Somersville Road/Buchanan Road – LOS F in the AM peak hour and LOS E in the PM peak hour.

The addition of project traffic would increase delay by up to three seconds at the above intersections, which would be considered a significant impact.

Table 25
Cumulative with Project Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour	Cumulative		Cumulative with Project	
			Delay[2]	LOS	Delay[2]	LOS
1. Somersville Road/SR 4 WB Ramps	Signal	AM **PM**	27.1 **56.4**	C **E**	29.6 **59.4**	C **E**
2. Somersville Road/SR 4 EB Ramps	Signal	AM PM	17.2 39.7	B D	17.4 40.6	B D
3. Somersville Road/Delta Fair Boulevard	Signal	**AM** **PM**	**58.0** **65.8**	**E** **E**	**59.3** **68.3**	**E** **E**
4. Somersville Road/Buchanan Road	Signal	**AM** **PM**	**87.4** **55.5**	**F** **E**	**88.3** **56.5**	**F** **E**
5. San Jose Drive/Delta Fair Boulevard	SSSC	AM PM	4.4(16.0) 3.0(13.3)	A(C) A(B)	4.5(17.4) 3.0(14.0)	A(C) A(B)
6. Buchanan Road/Delta Fair Boulevard	Signal	AM PM	28.4 27.5	C C	30.8 28.2	C C
7. Buchanan Road/Lucena Way	TWSC	AM PM	2.2(18.1) 1.4(17.3)	A(C) A(C)	2.2(18.2) 1.4(17.5)	A(C) A(C)
8. Buchanan Road/San Jose Drive	Signal	AM PM	10.4 10.2	B B	10.4 10.2	B B
9. Century Boulevard/Auto Center Drive	Signal	AM PM	29.2 41.9	C D	29.2 42.2	C D

Notes:
[1] Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
[2] Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.

Bold indicates unacceptable operations.

Source: Fehr & Peers, 2019.

Freeway Analysis

Cumulative freeway forecasts were developed based on the same method used to develop the cumulative intersection forecasts, both without and with the proposed project. Operations were evaluated using the same methods described above. The results of the

Cumulative and Cumulative with Project conditions freeway segment delay index analysis are presented in Table 26, based on the estimates of cumulative traffic volumes plus the estimate of project traffic. As shown in the table, under the Cumulative with Project condition, the delay index of SR 4 would increase on some segments during the AM and PM peak hour, but not beyond the MTSO standard of 2.5.

In addition, as shown in Table 27, the volume of traffic in the HOV lane would remain above the desired MTSO standard of at least 600 vehicles per hour per lane during the AM and PM peak hour under Cumulative and Cumulative with Project conditions. The proposed project is expected to add traffic to the HOV lane segments.

Based on the above, the proposed project would not result in or worsen unacceptable conditions on SR 4 under Cumulative with Project conditions.

Transit Service

The Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service in eastern Contra Costa County, serving the communities of Brentwood, Antioch, Oakley, Concord, Discovery Bay, Bay Point, and Pittsburg. Thirteen routes operate on weekdays, with four routes operating on weekends. Three routes operate in the vicinity of the project site, with Routes 380, 390, and 394 stopping at Delta Fair Boulevard and Buchanan Road, adjacent to the project site. In addition to regular transit service to the area, dial-a-ride door-to-door service within Eastern Contra Costa County is provided by Tri Delta Transit for disabled people of all ages and senior citizens.

Bay Area Rapid Transit (BART) provides fixed rail transit to eastern Contra Costa County. Currently, the terminus station is located in Antioch, approximately four miles east of the project site. Weekday service is provided approximately every 15 minutes and weekend service occurs approximately every 20 minutes. Antioch-SFO/Millbrae Line connects to key regional employment centers, including Concord, Pleasant Hill, Walnut Creek, Oakland, and San Francisco. Transfers to other lines can be made in Oakland.

Because the proposed project includes sidewalk connections to existing transit stops on the east and west side of Delta Fair Boulevard, and on the north and south side of Buchanan Road at the Delta Fair Boulevard intersection, the project would provide a continuous pedestrian path from the site to area transit stops. However, prior to finalization of the site plans, consultation with Tri Delta Transit would be required to ensure the existing transit amenities are sufficient for the project site. Thus, without consultation with Tri Delta Transit, the project could conflict with an existing program, plan, ordinance, or policy addressing transit.

Pedestrian and Bicycle Facilities

Pedestrian facilities in the area include sidewalks, crosswalks, pedestrian signals, and multi-use trails. At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided. A 10-foot sidewalk surrounds the project site and crosswalks are also provided at unsignalized intersections.

Table 26
Freeway Segment Operations Cumulative with Project – AM and PM Peak Hour Delay Index

Segment	Direction	Peak Hour	Cumulative Conditions		Cumulative with Project Conditions	
			Volume	Delay Index	Volume	Delay Index
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[1]	AM	4300	1.00	4310	1.00
		PM	8800	1.11	8807	1.11
	WB[2]	AM	9200	1.27	9224	1.28
		PM	5500	1.00	5519	1.00
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	AM	4500	1.00	4516	1.00
		PM	8900	1.12	8914	1.12
	WB	AM	9700	1.40	9718	1.41
		PM	5900	1.00	5917	1.00
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	AM	4900	1.00	4916	1.23
		PM	8700	1.10	8714	1.10
	WB	AM	9000	1.22	9018	1.23
		PM	6000	1.01	6017	1.01

Notes:
[1] AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 13-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
[2] AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14-15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.

Source: Fehr and Peers, 2019.

Table 27
Freeway Segment Operations Cumulative with Project – HOV Lane Volumes

Segment	Direction	Cumulative Conditions		Cumulative with Project Conditions	
		AM	PM	AM	PM
1. SR 4, between Loveridge Rd. and Somersville Rd./Autocenter Rd.	EB[2]	--	1300	--	1301
	WB[1]	1300	--	1303	--
2. SR 4, between Somersville Rd./Autocenter Dr. and Contra Loma Blvd./L St.	EB	--	1300	--	1302
	WB	1400	--	1403	--
3. SR 4, between Contra Loma Blvd./L St. and Lone Tree Way	EB	--	1300	--	1302
	WB	1300	--	1303	--

Source: Fehr and Peers, 2019.

Bicycle facilities in the City include the following:

- Bike paths (Class I) – Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- Bike lanes (Class II) – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- Bike routes (Class III) – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Currently, Buchanan Road provides a Class II bike lane on the southern side of the street that travels just east of Delta Fair Boulevard to Contra Loma Road. Additionally, a Class II bike lane is provided along the northern side of Buchanan Road, and travels from just west of San Jose Drive to just east of Delta Fair Boulevard. Pedestrian trails and bike paths are also located throughout the project area, including the Delta De Anza Regional Trail and Mokelumne Trail.

The proposed site plan includes connection to the existing 10-foot sidewalk currently surrounding the project frontage and would not alter the existing public sidewalk; however, the connecting internal sidewalks may not be designed to the proper width according to the City of Antioch commercial design guidelines. Additionally, while 110 bicycle parking spaces would be provided in the private garage, the proposed site plan does not currently include bicycle parking at the retail area. Thus, the proposed project could conflict with a plan, program, ordinance, or policy addressing pedestrian and bicycle facilities.

Conclusion

Based on the above, the proposed project would not cause any of the study intersections to exceed applicable City or CCTA minimum LOS standards under Existing with Project conditions. However, under Near-Term with Project conditions, the addition of project traffic would worsen unacceptable operations at the Somersville Road/Buchanan Road intersection. Additionally, under Cumulative with Project conditions, the addition of traffic from the proposed project would worsen unacceptable operations at the Somersville Road/SR 4 WB Ramps, Somersville Road/Delta Fair Boulevard, and Somersville Road/Buchanan Road intersections.

Additionally, while the project would provide access to alternative transportation, proper design and sufficient capacity would be required prior to approval of the project. Therefore, the proposed project could conflict with a program, plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

As shown in Table 28 and Table 29, with implementation of Mitigation Measure XVII-1, the Somersville Road/Buchanan Road intersection would operate within acceptable City of Antioch standards under Near-Term with Project conditions, as well as and Cumulative with Project conditions, respectively. Table 29 also presents the mitigated LOS conditions at the Somersville Road/SR 4 WB Ramps and Somersville Road/Delta Fair Boulevard intersections with implementation of Mitigation Measures XVII-2 and XVII-3, respectively. As shown in the tables, implementation of the following mitigation measures would reduce the potential impact to a *less-than-significant* level.

Table 28
Near-Term with Project Conditions Peak Hour Intersection LOS with Mitigation

Intersection	Peak Hour	Near-Term without Project		Near-Term with Project		Near-Term with Project with Mitigation	
		Delay	LOS	Delay	LOS	Delay	LOS
Somersville Road/ Buchanan Road	AM PM	**136.6** **67.8**	**F** **E**	**137.9** **69.3**	**F** **E**	52.5 50.5	D D

Source: Fehr and Peers, 2019.

Table 29
Cumulative with Project Conditions Peak Hour Intersection LOS with Mitigation

Intersection	Peak Hour	Cumulative without Project		Cumulative with Project		Cumulative with Project with Mitigation	
		Delay	LOS	Delay	LOS	Delay	LOS
Somersville Road/SR 4 WB Ramps	AM PM	27.1 **56.4**	C **E**	27.1 **59.4**	C **E**	22.4 27.8	C C
Somersville Road/Delta Fair Boulevard	AM PM	**58.0** **65.8**	**E** **E**	**59.3** **68.3**	**E** **E**	54.3 **64.4**	D **E**
Somersville Road/ Buchanan Road	AM PM	**87.4** **55.5**	**F** **E**	**88.3** **56.5**	**F** **E**	54.8 43.4	D D

Source: Fehr and Peers, 2019.

XVII-1. *Prior to issuance of building permits, the applicant shall initiate construction, and, prior to occupancy of the first unit, the applicant shall complete construction of the dual northbound left turn lanes on Somersville Road onto Buchanan Road and conversion of an eastbound through lane to a through-left turn lane to the satisfaction of the City Engineer. A portion of the improvements shall be eligible for reimbursement.*

XVII-2. *Prior to occupancy of the first unit, the applicant shall provide funding for the City to modify the Somersville Road/Auto Center Drive at SR 4 Westbound Ramps traffic signal to install an eastbound right-turn overlap phase and retime the signal to the satisfaction of the City Engineer.*

XVII-3. *The project applicant shall restripe the eastbound approach to the Somersville Road/Delta Fair Boulevard intersection to convert the eastbound left-through shared lane to an exclusive eastbound left lane. Prior to occupancy of the first unit, the applicant shall complete the improvements to the satisfaction of the City Engineer.*

XVII-4. *Prior to issuance of building permits, the site plans shall show internal sidewalks will have a minimum width of six feet at all points, including where signs, poles, fire hydrants, etc. are placed in the walkway per City of Antioch commercial design guidelines. The site plans shall be submitted to the Planning Manager for the City of Antioch for review and approval by the City Engineer.*

XVII-5. *Prior to issuance of a building permit, the site plans shall indicate that at least 19 bicycle parking spaces will be provided for the retail portion of the project site. The site plans shall be submitted to the Planning Manager for the City of Antioch for review and approval by the City Engineer.*

XVII-6. *Prior to issuance of a building permit, the applicant shall consult with Tri Delta transit to determine if additional transit amenities shall be provided through the project site or project frontages. Proof of consultation shall be submitted and recommended amenities should be constructed prior to occupancy of the first unit to the satisfaction of the Planning Manager for the City of Antioch and City Engineer.*

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of vehicle miles traveled (VMT) attributable to a project is the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in Section 15064.3(b)(2) regarding roadway capacity, a project's effect on automobile delay does not constitute a significant environmental impact under CEQA. It should be noted that currently, the provisions of Section 15064.3 apply only prospectively; determination of impacts based on VMT is not required Statewide until July 1, 2020. Neither the City of Antioch nor the CCTA has established any standards or thresholds for VMT. Because standards are not in effect, a preliminary assessment of the VMT generated by the proposed project was prepared for informational and disclosure purposes only.

Per Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. Generally, projects within one half mile of either an existing transit stop or a stop along an existing high-quality transit corridor would be presumed to result in a less-than-significant transportation impact. Local-serving retail may be less than significant if the project is less than 50,000 sf. Thus, the assessment focuses on the residential component of the project.

The TIA analyzed VMT using the CCTA travel demand model, as well as information from the MTC. The existing home-based VMT in the City of Antioch is 17.0, while the average trip length in Contra Costa County is 18.0, and the average trip length in the Bay Area is 15.3. Home-based trips in Antioch and Contra Costa County are slightly higher than the Bay Area average, while work-based trips to jobs in Antioch are much lower than regional averages, indicating a jobs-housing imbalance. The difference indicates that more people commute from Antioch to other employment centers, while jobs in Antioch tend to be filled by more local residents.

According to the CCTA analysis, the proposed project is anticipated to generate approximately 16 vehicle miles of travel per day per person for the residential portion of the project, including all trips generated by each person that is projected to live in the development that either start or end at home. The anticipated level of vehicle travel is lower than the City of Antioch average.

All trips generated by the retail portion of the project were also tracked through the transportation system using the CCTA model analysis. The average trip length of the retail portion of the project was six miles, which is shorter than the average trip length of the residential portion of the project. The findings are consistent with the Metropolitan Transportation Commission (MTC) data, which indicates a jobs-housing imbalance within Antioch. The daily project VMT is 21,749.

Results of the VMT analysis indicate that the proposed project would contribute to an increase in VMT on a per-capita basis, as the project would add a housing development that would require residents to travel longer distances than the regional average to meet their daily needs. However, the average trip length of the residential and retail portions of the proposed project have lower average trip lengths than the City of Antioch average.

Furthermore, as noted above, the proposed project is located within walking distance of three major transit routes and would have access to a pedestrian sidewalk system, as well as bicycle facilities, at the project site frontage. Thus, the proposed project would provide access to alternative transportation.

Based on the above, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

c. Access to the project site is proposed by two driveways on San Jose Drive, two driveways on Delta Fair Boulevard, two driveways on Buchanan Road, and one driveway along the frontage road that borders the apartment complex to the east. All driveways are proposed to have stop sign control on the approaches. Sight access was evaluated to determine the adequacy of the site's driveways with regard to traffic volume, delays, vehicle queues, geometric design, and corner sight distance.

Field observations of sight distances at the existing and proposed entrances indicate sight distances in excess of 250 feet, which would be the required stopping sight distance for the current design. Thus, adequate sight distance is provided at all new and existing driveway locations and a ***less-than-significant*** impact would occur related to substantially increasing hazards due to a geometric design feature or incompatible uses.

d. Emergency vehicle access is determined by whether a project has sufficient access for emergency vehicles, including number of access points, width of access points, and width of internal roadways. The project site plan shows a total of five access points for emergency vehicles along Buchanan Road, Delta Fair Boulevard, and San Jose Drive. With the exception of the exit-only driveway on Buchanan Road and the driveway along the frontage road separating the building from the existing apartment complex to the east, all project driveways would serve as access points for emergency vehicles. The 20- to 26-

foot internal roadways throughout the site would meet the regulations for emergency vehicle widths. However, the design of the driveways has not yet been determined and, thus, the widths of the entry points could be inadequate for emergency vehicles.

Based on the above, the proposed project could result in inadequate emergency access and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

XVII-7 *Prior to issuance of grading permits, the project site plans shall indicate that all driveways on the site shall be designed with an adequate width for access by emergency vehicles. In addition, the plans shall indicate that signs shall be posted outside of the garage to make clear that the garage use is for "residents only." The final site plan shall be reviewed and approved by the Fire Marshall and submitted to the Planning Manager for the City of Antioch.*

XVIII. TRIBAL CULTURAL RESOURCES. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	✖	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	✖	☐	☐

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS/MND, the proposed project site does not contain any existing permanent structures or any other known resources listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), and does not contain known resources that could be considered historic pursuant to the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. A search of the NAHC Sacred Lands File did not yield any information regarding the presence of Tribal Cultural Resources within the project site or the immediate area.

In compliance with AB 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Ione Band of Miwok Indians. The letters were distributed on April 26, 2019. In addition, tribal consultation based on SB18 was also initiated and letters were distributed on May 9, 2019. Requests were not received during either consultation period.

Based on the above, known Tribal Cultural Resources do not exist within the proposed project site. Nevertheless, the possibility exists that construction of the proposed project could result in a substantial adverse change in the significance of a Tribal Cultural Resource if previously unknown cultural resources are uncovered during grading or other ground-disturbing activities. Thus, a ***potentially significant*** impact to tribal cultural resources could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

XVIII-1. Implement Mitigation Measures V-1 and V-2.

XIX. UTILITIES AND SERVICE SYSTEMS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	✖	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✖	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	✖	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	✖	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	✖	☐

Discussion

a-c. Water supply, wastewater treatment, stormwater drainage, electric power, natural gas, and telecommunications facilities necessary to serve the proposed project are described in the following sections.

Water Supply

Principal sources of raw water supply to the City of Antioch are the Sacramento/San Joaquin River Delta and the Contra Costa Canal, which are stored in the Antioch Municipal Reservoir. Domestic water and fire water supply for the proposed development would be provided by the City by way of new connections to the City's existing six-inch water main located to the east of the proposed residential building and the existing eight-inch water line within Buchanan Road. Irrigation water would be provided by new connection to the City's existing eight-inch water line within Delta Fair Boulevard. Per the City's 2015 Urban Water Management Plan (UWMP), adequate water supplies will be available to accommodate buildout of the City under normal year, single year, and multiple-dry year demand scenarios, accounting for mandatory measures included in the City's Water Shortage Contingency Plan. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded off-site water facilities, the construction or relocation of which could cause significant environmental effects, and sufficient water supplies would be available to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Wastewater Treatment

The City maintains and owns the local sewage collection system and is responsible for the collection and conveyance of wastewater to the Delta Diablo Wastewater Treatment

Plant (WWTP). The Delta Diablo Sanitation District (DDSD) owns and operates the regional interceptors and WWTP. The project site is located within the Delta Diablo service area. The City of Antioch is responsible for the wastewater collection system from the project site to the designated DDSD regional wastewater conveyance facility. An EIR for the expansion of the wastewater treatment plant capacity to an average dry weather flow of 22.7 million gallons per day (mgd) was completed in April 1988. However, the current WWTP NPDES Permit limits average dry weather flow to 19.5 mgd.[26] The average daily flow influent to the treatment plant is 12.4 mgd.[27] Sewage flow to the plant does not fluctuate seasonally, as sewer and storm water systems are separate.[28] Funds for future plant expansion are collected by the City on behalf of DDSD from sewer connection fees.

The General Plan EIR bases anticipated wastewater demand on a generation rate of 220 gallons per day per residence. The proposed project would include the construction of 210 residential apartment units, and, thus, would be anticipated to generate approximately 46,200 gallons per day of wastewater. The wastewater generated by the project would flow to new four- and six-inch sewer connections to the City's existing sewer line located along the eastern portion of the site.

An increase of 46,200 gallons per day would not have a substantial impact on the available capacity of the WWTP. Additionally, in the current condition, the development on the project site generates wastewater and includes connections to the City's wastewater infrastructure. Because the project applicant would pay required sewer connection fees, and adequate long-term wastewater treatment capacity is available to serve full build-out of the project, the project would not require or result in the relocation or construction of new or expanded off-site wastewater facilities, the construction or relocation of which could cause significant environmental effects.

Stormwater Drainage

The project site is currently developed with the Delta Fair Shopping Center. As such, the project currently has stormwater drainage facilities in place. Following completion of the proposed project, the site would have similar impervious surface coverage. Thus, runoff generated by the project would not be substantially more than the existing conditions. As discussed in further detail in Section IX, Hydrology and Water Quality, of this IS/MND, the SWMP for the proposed project conforms with the most recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements. In compliance with the C.3 Guidebook, the proposed project would include on-site bio-retention facilities sized to exceed the minimum volume requirement necessary to adequately manage all runoff from the proposed impervious surfaces. Because the proposed bio-retention facilities would be designed with adequate capacity to capture and treat runoff from proposed impervious surfaces, the proposed project would not generate runoff in excess of the City's existing stormwater system's capacity.

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[26] San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2014-0030, NPDES No. CA00.8547.* Adopted August 13, 2014.

[27] Delta Diablo. *Quick Facts*. Available at: https://www.deltadiablo.org/about-us/organization/quick-facts. Accessed March 2018.

[28] City of Antioch. *Antioch General Plan Update EIR* [pg. 4.12-2]. July 2003.

Electric Power, Natural Gas, and Telecommunications

The project site is located within a developed area of the City of Antioch and is situated within close proximity to existing electric power, natural gas, and telecommunications facilities. In addition, the site is currently developed with commercial uses that include existing connections to electric power, natural gas, and telecommunications. Thus, substantial expansion of such off-site utilities would not be required to serve the proposed residential development, and associated environmental effects would not occur.

Conclusion

Based on the above, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. In addition, sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years, and adequate wastewater treatment capacity is available to serve the project's projected demand in addition to the provider's existing commitments. Thus, a ***less-than-significant*** impact would occur.

d,e. Republic Services provides solid waste collection, disposal, recycling, and yard waste services to the City, including the project site. Solid waste and recyclables from the City are taken to the Contra Costa Transfer and Recovery Station in Martinez. Solid waste is transferred from the Transfer and Recovery Station to the Keller Canyon Landfill in Pittsburg. The Keller Canyon Landfill site is 1,399 acres, 244 of which comprise the actual current disposal acreage. The Landfill is permitted to accept 3,500 tons of waste per day and has a total estimated permitted capacity of approximately 75 million cubic yards. As of October 2015, the most recent date for which capacity information is available, the total remaining capacity of the landfill was 55 million cubic yards (approximately 73 percent of total capacity).[29] Due to the substantial amount of available capacity remaining at Keller Canyon Landfill, sufficient capacity would be available to accommodate the project's solid waste disposal needs. Therefore, a ***less-than-significant*** impact related to solid waste would occur as a result of the proposed project.

[29] Department of Conservation and Development. *Notice of Preparation and Public Scoping Meeting.* October 15, 2015.

XX. WILDFIRE. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	✖	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	✖	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	✖	☐

Discussion

a-d. According to the CAL FIRE Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.[30] In addition, the site is not located in or near a State Responsibility Area. The site is currently developed with commercial uses and is surrounded by existing development. Development of the site would also comply with appplicable regulations set forth by the CCCFPD. Thus, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a ***less-than-significant*** impact would occur.

30 California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	✖	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	✖	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✖	☐

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, implementation of the proposed project would have the potential to result in adverse effects to special-status wildlife species. In addition, while unlikely, the project could result in impacts related to eliminating important examples of major periods of California history or prehistory associated with encountering undiscovered archeological and/or paleontological resources during project construction. However, the proposed project would be required to comply with applicable City of Antioch General Plan and Municipal Code policies related to biological and cultural resources. In addition, this IS/MND includes mitigation measures that would reduce any potential impacts to less-than-significant levels. With implementation of the mitigation measures required by this IS/MND, as well as compliance with General Plan policies and all applicable sections of the Municipal Code, development of the proposed project would reduce any potential impacts associated with the following: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, a ***less-than-significant*** impact would occur.

b. The proposed project in conjunction with other development within the City of Antioch could incrementally contribute to cumulative impacts in the area. In particular, the project could result in increased traffic, which in conjunction with future development, could exceed City standards. However, a mitigation measure for the aforementioned potential impact identified for the proposed project in this IS/MND has been included that would reduce the potential impact to a less-than-significant level. As demonstrated in this

IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to a less-than-significant level with implementation of project-specific mitigation measures and compliance with applicable General Plan policies. When viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, development of the proposed project would result in a cumulatively considerable contribution to cumulative impacts in the City of Antioch, and the project's cumulative impact would be ***less than significant.***

c. As described in this IS/MND, implementation of the proposed project could result in temporary impacts related to excess noise levels and increase in GHG emissions, as well as potential cancer risks during construction. However, the proposed project would be required to implement the project-specific mitigation measures within this IS/MND, as well as applicable policies of the City of Antioch General Plan, to reduce any potential direct or indirect impacts to human beings. With implementation of the identified mitigation measures, all project-specific impacts would be reduced to less-than-significant levels. Therefore, the proposed project's impact would be ***less than significant.***

APPENDIX A

AIR QUALITY, GHG, AND HEALTH RISK MODELING RESULTS

EXISTING RETAIL CALEEMOD RESULTS

Delta Fair - Existing Retail

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	161.00	1000sqft	3.70	161,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	269.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use -

Construction Phase - zero out for operational only

Grading -

Vehicle Trips - per TIS

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	8.00	0.00
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblVehicleTrips	ST_TR	49.97	14.75
tblVehicleTrips	SU_TR	25.24	14.75
tblVehicleTrips	WD_TR	42.70	14.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**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

	ROG	NOx	CO	SO2	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					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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	0.7129	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-003
Energy	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	266.1814	266.1814	0.0264	5.8300e-003	268.5786
Mobile	0.5388	2.5310	5.4552	0.0183	1.5496	0.0169	1.5665	0.4159	0.0158	0.4317	0.0000	1,684.6920	1,684.6920	0.0666	0.0000	1,686.3558
Waste						0.0000	0.0000		0.0000	0.0000	34.3156	0.0000	34.3156	2.0280	0.0000	85.0155
Water						0.0000	0.0000		0.0000	0.0000	3.7835	11.0156	14.7991	0.3898	9.4200e-003	27.3511
Total	**1.2542**	**2.5541**	**5.4761**	**0.0185**	**1.5496**	**0.0186**	**1.5682**	**0.4159**	**0.0176**	**0.4335**	**38.0991**	**1,961.8919**	**1,999.9910**	**2.5108**	**0.0153**	**2,067.3041**

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	0.7129	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-003
Energy	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	266.1814	266.1814	0.0264	5.8300e-003	268.5786
Mobile	0.5388	2.5310	5.4552	0.0183	1.5496	0.0169	1.5665	0.4159	0.0158	0.4317	0.0000	1,684.6920	1,684.6920	0.0666	0.0000	1,686.3558
Waste						0.0000	0.0000		0.0000	0.0000	34.3156	0.0000	34.3156	2.0280	0.0000	85.0155
Water						0.0000	0.0000		0.0000	0.0000	3.7835	11.0156	14.7991	0.3898	9.4200e-003	27.3511
Total	**1.2542**	**2.5541**	**5.4761**	**0.0185**	**1.5496**	**0.0186**	**1.5682**	**0.4159**	**0.0176**	**0.4335**	**38.0991**	**1,961.8919**	**1,999.9910**	**2.5108**	**0.0153**	**2,067.3041**

	ROG	NOx	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	Demolition	Demolition	3/2/2020	3/1/2020	5	0	
2	Site Preparation	Site Preparation	3/28/2020	3/27/2020	5	0	
3	Grading	Grading	4/4/2020	4/3/2020	5	0	
4	Building Construction	Building Construction	4/16/2020	4/15/2020	5	0	
5	Paving	Paving	3/4/2021	3/3/2021	5	0	
6	Architectural Coating	Architectural Coating	3/30/2021	3/29/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 241,500; Non-Residential Outdoor: 80,500; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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	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**

3.2 Demolition - 2020

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	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**

3.2 Demolition - 2020

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**

3.3 Site Preparation - 2020

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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**

3.4 Grading - 2020

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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 Building Construction - 2020

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	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 Building Construction - 2020

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	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 Building Construction - 2020

Mitigated Construction Off-Site

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

3.6 Paving - 2021

Unmitigated Construction On-Site

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

3.6 Paving - 2021

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	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	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Mitigated Construction Off-Site

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

3.7 Architectural Coating - 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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.7 Architectural Coating - 2021

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**

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	0.5388	2.5310	5.4552	0.0183	1.5496	0.0169	1.5665	0.4159	0.0158	0.4317	0.0000	1,684.692 0	1,684.692 0	0.0666	0.0000	1,686.355 8
Unmitigated	0.5388	2.5310	5.4552	0.0183	1.5496	0.0169	1.5665	0.4159	0.0158	0.4317	0.0000	1,684.692 0	1,684.692 0	0.0666	0.0000	1,686.355 8

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	2,374.75	2,374.75	2374.75	4,163,661	4,163,661
Total	2,374.75	2,374.75	2,374.75	4,163,661	4,163,661

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
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: Y

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	241.0940	241.0940	0.0259	5.3700e-003	243.3422
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.0940	241.0940	0.0259	5.3700e-003	243.3422
NaturalGas Mitigated	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	25.0874	25.0874	4.8000e-004	4.6000e-004	25.2365
NaturalGas Unmitigated	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	25.0874	25.0874	4.8000e-004	4.6000e-004	25.2365

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					
Regional Shopping Center	470120	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	25.0874	25.0874	4.8000e-004	4.6000e-004	25.2365
Total		**2.5300e-003**	**0.0231**	**0.0194**	**1.4000e-004**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**25.0874**	**25.0874**	**4.8000e-004**	**4.6000e-004**	**25.2365**

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					
Regional Shopping Center	470120	2.5300e-003	0.0231	0.0194	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	25.0874	25.0874	4.8000e-004	4.6000e-004	25.2365
Total		**2.5300e-003**	**0.0231**	**0.0194**	**1.4000e-004**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**25.0874**	**25.0874**	**4.8000e-004**	**4.6000e-004**	**25.2365**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	1.97225e+006	241.0940	0.0259	5.3700e-003	243.3422
Total		**241.0940**	**0.0259**	**5.3700e-003**	**243.3422**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	1.97225e+006	241.0940	0.0259	5.3700e-003	243.3422
Total		**241.0940**	**0.0259**	**5.3700e-003**	**243.3422**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7129	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-003
Unmitigated	0.7129	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-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	0.0840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6288					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-003
Total	**0.7129**	**1.0000e-005**	**1.4800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0700e-003**

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	0.0840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6288					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.4800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8800e-003	2.8800e-003	1.0000e-005	0.0000	3.0700e-003
Total	**0.7129**	**1.0000e-005**	**1.4800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8800e-003**	**2.8800e-003**	**1.0000e-005**	**0.0000**	**3.0700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	14.7991	0.3898	9.4200e-003	27.3511
Unmitigated	14.7991	0.3898	9.4200e-003	27.3511

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	11.9257 / 7.30929	14.7991	0.3898	9.4200e-003	27.3511
Total		**14.7991**	**0.3898**	**9.4200e-003**	**27.3511**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	11.9257 / 7.30929	14.7991	0.3898	9.4200e-003	27.3511
Total		**14.7991**	**0.3898**	**9.4200e-003**	**27.3511**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	34.3156	2.0280	0.0000	85.0155
Unmitigated	34.3156	2.0280	0.0000	85.0155

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	169.05	34.3156	2.0280	0.0000	85.0155
Total		**34.3156**	**2.0280**	**0.0000**	**85.0155**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	169.05	34.3156	2.0280	0.0000	85.0155
Total		**34.3156**	**2.0280**	**0.0000**	**85.0155**

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

Delta Fair - Existing Retail
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	161.00	1000sqft	3.70	161,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	269.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use -

Construction Phase - zero out for operational only

Grading -

Vehicle Trips - per TIS

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	8.00	0.00
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblVehicleTrips	ST_TR	49.97	14.75
tblVehicleTrips	SU_TR	25.24	14.75
tblVehicleTrips	WD_TR	42.70	14.75

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.2664	0.0000	0.0000	5.8042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.6745	0.0000	0.0000	0.6298	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.2664**	**0.0000**	**0.0000**	**5.8042**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.2664	0.0000	0.0000	5.8042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.6745	0.0000	0.0000	0.6298	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.2664**	**0.0000**	**0.0000**	**5.8042**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Energy	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Mobile	3.4265	13.5518	30.5753	0.1066	8.8458	0.0925	8.9383	2.3667	0.0865	2.4532		10,791.7242	10,791.7242	0.4018		10,801.7680
Total	**7.3473**	**13.6782**	**30.6979**	**0.1074**	**8.8458**	**0.1021**	**8.9479**	**2.3667**	**0.0962**	**2.4629**		**10,943.2889**	**10,943.2889**	**0.4047**	**2.7800e-003**	**10,954.2355**

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Energy	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Mobile	3.4265	13.5518	30.5753	0.1066	8.8458	0.0925	8.9383	2.3667	0.0865	2.4532		10,791.7242	10,791.7242	0.4018		10,801.7680
Total	**7.3473**	**13.6782**	**30.6979**	**0.1074**	**8.8458**	**0.1021**	**8.9479**	**2.3667**	**0.0962**	**2.4629**		**10,943.2889**	**10,943.2889**	**0.4047**	**2.7800e-003**	**10,954.2355**

	ROG	NOx	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	Demolition	Demolition	3/2/2020	3/1/2020	5	0	
2	Site Preparation	Site Preparation	3/28/2020	3/27/2020	5	0	
3	Grading	Grading	4/4/2020	4/3/2020	5	0	
4	Building Construction	Building Construction	4/16/2020	4/15/2020	5	0	
5	Paving	Paving	3/4/2021	3/3/2021	5	0	
6	Architectural Coating	Architectural Coating	3/30/2021	3/29/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 241,500; Non-Residential Outdoor: 80,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Delta Fair - Existing Retail - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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	0.0000	0.0000	0.0000	0.0000	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**

3.2 Demolition - 2020

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	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	lb/day										lb/day					
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	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**

3.2 Demolition - 2020

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	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**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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	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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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	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**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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	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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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	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 Building Construction - 2020

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	0.0000	0.0000	0.0000	0.0000	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 Building Construction - 2020

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	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	lb/day										lb/day					
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	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 Building Construction - 2020

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	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

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	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	lb/day										lb/day					
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	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	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

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	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

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	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	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

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	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**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	3.4265	13.5518	30.5753	0.1066	8.8458	0.0925	8.9383	2.3667	0.0865	2.4532		10,791.7242	10,791.7242	0.4018		10,801.7680
Unmitigated	3.4265	13.5518	30.5753	0.1066	8.8458	0.0925	8.9383	2.3667	0.0865	2.4532		10,791.7242	10,791.7242	0.4018		10,801.7680

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	2,374.75	2,374.75	2374.75	4,163,661	4,163,661
Total	2,374.75	2,374.75	2,374.75	4,163,661	4,163,661

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
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
NaturalGas Unmitigated	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299

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					
Regional Shopping Center	1288	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Total		**0.0139**	**0.1263**	**0.1061**	**7.6000e-004**		**9.6000e-003**	**9.6000e-003**		**9.6000e-003**	**9.6000e-003**		**151.5294**	**151.5294**	**2.9000e-003**	**2.7800e-003**	**152.4299**

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					
Regional Shopping Center	1.288	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Total		**0.0139**	**0.1263**	**0.1061**	**7.6000e-004**		**9.6000e-003**	**9.6000e-003**		**9.6000e-003**	**9.6000e-003**		**151.5294**	**151.5294**	**2.9000e-003**	**2.7800e-003**	**152.4299**

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Unmitigated	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376

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	0.4600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.4454					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5300e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Total	**3.9069**	**1.5000e-004**	**0.0165**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0352**	**0.0352**	**9.0000e-005**		**0.0376**

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	0.4600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.4454					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5300e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Total	**3.9069**	**1.5000e-004**	**0.0165**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0352**	**0.0352**	**9.0000e-005**		**0.0376**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Delta Fair - Existing Retail

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	161.00	1000sqft	3.70	161,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	269.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use -

Construction Phase - zero out for operational only

Grading -

Vehicle Trips - per TIS

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	8.00	0.00
tblConstructionPhase	NumDays	18.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblVehicleTrips	ST_TR	49.97	14.75
tblVehicleTrips	SU_TR	25.24	14.75
tblVehicleTrips	WD_TR	42.70	14.75

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.2667	0.0000	0.0000	5.8044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.6745	0.0000	0.0000	0.6298	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.2667**	**0.0000**	**0.0000**	**5.8044**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
2020	0.0000	0.0000	0.0000	0.0000	0.0000	6.2667	0.0000	0.0000	5.8044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.6745	0.0000	0.0000	0.6298	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.2667**	**0.0000**	**0.0000**	**5.8044**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Energy	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Mobile	2.9325	14.1053	31.6949	0.0998	8.8458	0.0933	8.9391	2.3667	0.0874	2.4540		10,097.5409	10,097.5409	0.4162		10,107.9464
Total	**6.8533**	**14.2317**	**31.8174**	**0.1005**	**8.8458**	**0.1030**	**8.9488**	**2.3667**	**0.0970**	**2.4637**		**10,249.1056**	**10,249.1056**	**0.4192**	**2.7800e-003**	**10,260.4139**

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Energy	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Mobile	2.9325	14.1053	31.6949	0.0998	8.8458	0.0933	8.9391	2.3667	0.0874	2.4540		10,097.5409	10,097.5409	0.4162		10,107.9464
Total	**6.8533**	**14.2317**	**31.8174**	**0.1005**	**8.8458**	**0.1030**	**8.9488**	**2.3667**	**0.0970**	**2.4637**		**10,249.1056**	**10,249.1056**	**0.4192**	**2.7800e-003**	**10,260.4139**

	ROG	NOx	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	Demolition	Demolition	3/2/2020	3/1/2020	5	0	
2	Site Preparation	Site Preparation	3/28/2020	3/27/2020	5	0	
3	Grading	Grading	4/4/2020	4/3/2020	5	0	
4	Building Construction	Building Construction	4/16/2020	4/15/2020	5	0	
5	Paving	Paving	3/4/2021	3/3/2021	5	0	
6	Architectural Coating	Architectural Coating	3/30/2021	3/29/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 241,500; Non-Residential Outdoor: 80,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Delta Fair - Existing Retail - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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	0.0000	0.0000	0.0000	0.0000	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**

3.2 Demolition - 2020

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	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	lb/day										lb/day					
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	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**

3.2 Demolition - 2020

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	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**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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	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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.3 Site Preparation - 2020

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	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**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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	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	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	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**

3.4 Grading - 2020

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	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 Building Construction - 2020

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	0.0000	0.0000	0.0000	0.0000	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 Building Construction - 2020

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	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	lb/day										lb/day					
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	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 Building Construction - 2020

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	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

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	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	lb/day										lb/day					
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	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	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

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	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 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					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

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	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	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

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	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**

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	2.9325	14.1053	31.6949	0.0998	8.8458	0.0933	8.9391	2.3667	0.0874	2.4540		10,097.54 09	10,097.54 09	0.4162		10,107.94 64
Unmitigated	2.9325	14.1053	31.6949	0.0998	8.8458	0.0933	8.9391	2.3667	0.0874	2.4540		10,097.54 09	10,097.54 09	0.4162		10,107.94 64

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	2,374.75	2,374.75	2374.75	4,163,661	4,163,661
Total	2,374.75	2,374.75	2,374.75	4,163,661	4,163,661

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
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
NaturalGas Unmitigated	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299

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					
Regional Shopping Center	1288	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Total		**0.0139**	**0.1263**	**0.1061**	**7.6000e-004**		**9.6000e-003**	**9.6000e-003**		**9.6000e-003**	**9.6000e-003**		**151.5294**	**151.5294**	**2.9000e-003**	**2.7800e-003**	**152.4299**

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					
Regional Shopping Center	1.288	0.0139	0.1263	0.1061	7.6000e-004		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003		151.5294	151.5294	2.9000e-003	2.7800e-003	152.4299
Total		**0.0139**	**0.1263**	**0.1061**	**7.6000e-004**		**9.6000e-003**	**9.6000e-003**		**9.6000e-003**	**9.6000e-003**		**151.5294**	**151.5294**	**2.9000e-003**	**2.7800e-003**	**152.4299**

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	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Unmitigated	3.9069	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376

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	0.4600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.4454					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5300e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Total	**3.9069**	**1.5000e-004**	**0.0165**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0352**	**0.0352**	**9.0000e-005**		**0.0376**

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	0.4600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.4454					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.5300e-003	1.5000e-004	0.0165	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0352	0.0352	9.0000e-005		0.0376
Total	**3.9069**	**1.5000e-004**	**0.0165**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0352**	**0.0352**	**9.0000e-005**		**0.0376**

7.0 Water Detail

7.1 Mitigation Measures Water

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

PROPOSED PROJECT CALEEMOD RESULTS

Delta Fair Village - Unmitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	328.00	Space	0.00	141,440.00	0
Parking Lot	79.00	Space	0.90	31,600.00	0
Apartments Mid Rise	210.00	Dwelling Unit	3.00	210,000.00	601
Regional Shopping Center	73.54	1000sqft	1.69	73,535.00	0
Day-Care Center	4.00	1000sqft	0.09	4,000.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 64

Climate Zone 4 **Operational Year** 2022

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 269.5 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use - modified per applicant and for mixed use

Construction Phase - per applicant

Demolition -

Grading - per applicant

Vehicle Trips - Proposed Project only from Traffic Report

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	327.00
tblConstructionPhase	NumDays	230.00	327.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	24.00
tblConstructionPhase	PhaseEndDate	5/21/2021	9/20/2021
tblConstructionPhase	PhaseEndDate	3/26/2021	9/6/2021
tblConstructionPhase	PhaseEndDate	3/27/2020	3/16/2020
tblConstructionPhase	PhaseEndDate	5/8/2020	5/20/2020
tblConstructionPhase	PhaseEndDate	4/23/2021	6/4/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/17/2020
tblConstructionPhase	PhaseStartDate	4/24/2021	6/19/2020
tblConstructionPhase	PhaseStartDate	5/9/2020	6/5/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/20/2020

tblConstructionPhase	PhaseStartDate	3/27/2021	5/21/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/17/2020
tblGrading	AcresOfGrading	11.50	4.00
tblGrading	MaterialExported	0.00	50.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	131,200.00	141,440.00
tblLandUse	LotAcreage	2.95	0.00
tblLandUse	LotAcreage	0.71	0.90
tblLandUse	LotAcreage	5.53	3.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	49.97	46.70
tblVehicleTrips	ST_TR	6.21	30.75
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	25.24	46.70
tblVehicleTrips	SU_TR	5.83	30.75
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	42.70	46.70
tblVehicleTrips	WD_TR	74.06	30.75

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	1.1965	3.2886	2.7427	6.5500e-003	0.5384	0.1499	0.6883	0.2207	0.1404	0.3611	0.0000	587.9242	587.9242	0.0863	0.0000	590.0806
2021	1.3859	2.3337	2.3836	6.1600e-003	0.2482	0.0963	0.3445	0.0669	0.0911	0.1580	0.0000	554.1945	554.1945	0.0623	0.0000	555.7524
Maximum	**1.3859**	**3.2886**	**2.7427**	**6.5500e-003**	**0.5384**	**0.1499**	**0.6883**	**0.2207**	**0.1404**	**0.3611**	**0.0000**	**587.9242**	**587.9242**	**0.0863**	**0.0000**	**590.0806**

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					
2020	1.1965	3.2886	2.7427	6.5500e-003	0.5384	0.1499	0.6883	0.2207	0.1404	0.3611	0.0000	587.9239	587.9239	0.0863	0.0000	590.0803
2021	1.3859	2.3337	2.3836	6.1600e-003	0.2482	0.0963	0.3445	0.0669	0.0911	0.1580	0.0000	554.1942	554.1942	0.0623	0.0000	555.7522
Maximum	**1.3859**	**3.2886**	**2.7427**	**6.5500e-003**	**0.5384**	**0.1499**	**0.6883**	**0.2207**	**0.1404**	**0.3611**	**0.0000**	**587.9239**	**587.9239**	**0.0863**	**0.0000**	**590.0803**

	ROG	**NOx**	**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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-2-2020**	**6-1-2020**	1.1678	1.1678
2	**6-2-2020**	**9-1-2020**	1.3512	1.3512
3	**9-2-2020**	**12-1-2020**	1.4423	1.4423
4	**12-2-2020**	**3-1-2021**	1.3638	1.3638
5	**3-2-2021**	**6-1-2021**	1.3548	1.3548
6	**6-2-2021**	**9-1-2021**	1.3520	1.3520
7	**9-2-2021**	**9-30-2021**	0.1422	0.1422
		Highest	1.4423	1.4423

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8581	0.0292	2.2326	1.4100e-003		0.1040	0.1040		0.1040	0.1040	9.5738	6.4881	16.0620	0.0179	6.3000e-004	16.6958
Energy	0.0111	0.0958	0.0458	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	417.4339	417.4339	0.0352	8.8600e-003	420.9541
Mobile	1.0879	5.1664	11.2905	0.0386	3.2768	0.0353	3.3121	0.8795	0.0331	0.9126	0.0000	3,540.4702	3,540.4702	0.1375	0.0000	3,543.9069
Waste						0.0000	0.0000		0.0000	0.0000	36.3374	0.0000	36.3374	2.1475	0.0000	90.0244
Water						0.0000	0.0000		0.0000	0.0000	6.1231	18.0740	24.1972	0.6309	0.0153	44.5136
Total	**2.9572**	**5.2914**	**13.5689**	**0.0406**	**3.2768**	**0.1470**	**3.4238**	**0.8795**	**0.1448**	**1.0243**	**52.0344**	**3,982.4663**	**4,034.5007**	**2.9689**	**0.0247**	**4,116.0947**

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	1.3736	0.0180	1.5654	8.0000e-005		8.6400e-003	8.6400e-003		8.6400e-003	8.6400e-003	0.0000	2.5557	2.5557	2.4800e-003	0.0000	2.6177
Energy	0.0111	0.0958	0.0458	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	417.4339	417.4339	0.0352	8.8600e-003	420.9541
Mobile	1.0481	4.8763	10.3799	0.0344	2.8901	0.0318	2.9219	0.7757	0.0297	0.8055	0.0000	3,160.4423	3,160.4423	0.1269	0.0000	3,163.6141
Waste						0.0000	0.0000		0.0000	0.0000	36.3374	0.0000	36.3374	2.1475	0.0000	90.0244
Water						0.0000	0.0000		0.0000	0.0000	6.1231	18.0740	24.1972	0.6309	0.0153	44.5136
Total	**2.4328**	**4.9901**	**11.9911**	**0.0351**	**2.8901**	**0.0481**	**2.9382**	**0.7757**	**0.0461**	**0.8218**	**42.4606**	**3,598.5059**	**3,640.9665**	**2.9429**	**0.0241**	**3,721.7239**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**17.73**	**5.69**	**11.63**	**13.48**	**11.80**	**67.29**	**14.18**	**11.80**	**68.20**	**19.77**	**18.40**	**9.64**	**9.75**	**0.88**	**2.55**	**9.58**

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	3/2/2020	3/16/2020	5	11	
2	Site Preparation	Site Preparation	3/17/2020	4/17/2020	5	24	
3	Grading	Grading	4/20/2020	5/20/2020	5	23	
4	Building Construction	Building Construction	6/5/2020	9/6/2021	5	327	
5	Paving	Paving	5/21/2020	6/4/2020	5	11	
6	Architectural Coating	Architectural Coating	6/19/2020	9/20/2021	5	327	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.9

Residential Indoor: 425,250; Residential Outdoor: 141,750; Non-Residential Indoor: 116,303; Non-Residential Outdoor: 38,768; Striped Parking Area: 10,382 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	335.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	6.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	249.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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					0.0362	0.0000	0.0362	5.4800e-003	0.0000	5.4800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0182	0.1826	0.1196	2.1000e-004		9.1200e-003	9.1200e-003		8.4800e-003	8.4800e-003	0.0000	18.6992	18.6992	5.2800e-003	0.0000	18.8312
Total	**0.0182**	**0.1826**	**0.1196**	**2.1000e-004**	**0.0362**	**9.1200e-003**	**0.0453**	**5.4800e-003**	**8.4800e-003**	**0.0140**	**0.0000**	**18.6992**	**18.6992**	**5.2800e-003**	**0.0000**	**18.8312**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-003	0.0490	9.8400e-003	1.3000e-004	2.8300e-003	1.6000e-004	2.9900e-003	7.8000e-004	1.5000e-004	9.3000e-004	0.0000	12.8368	12.8368	6.6000e-004	0.0000	12.8533
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**1.6700e-003**	**0.0492**	**0.0119**	**1.4000e-004**	**3.4800e-003**	**1.6000e-004**	**3.6500e-003**	**9.5000e-004**	**1.5000e-004**	**1.1100e-003**	**0.0000**	**13.4079**	**13.4079**	**6.7000e-004**	**0.0000**	**13.4248**

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					0.0362	0.0000	0.0362	5.4800e-003	0.0000	5.4800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0182	0.1826	0.1196	2.1000e-004		9.1200e-003	9.1200e-003		8.4800e-003	8.4800e-003	0.0000	18.6992	18.6992	5.2800e-003	0.0000	18.8312
Total	**0.0182**	**0.1826**	**0.1196**	**2.1000e-004**	**0.0362**	**9.1200e-003**	**0.0453**	**5.4800e-003**	**8.4800e-003**	**0.0140**	**0.0000**	**18.6992**	**18.6992**	**5.2800e-003**	**0.0000**	**18.8312**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-003	0.0490	9.8400e-003	1.3000e-004	2.8300e-003	1.6000e-004	2.9900e-003	7.8000e-004	1.5000e-004	9.3000e-004	0.0000	12.8368	12.8368	6.6000e-004	0.0000	12.8533
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**1.6700e-003**	**0.0492**	**0.0119**	**1.4000e-004**	**3.4800e-003**	**1.6000e-004**	**3.6500e-003**	**9.5000e-004**	**1.5000e-004**	**1.1100e-003**	**0.0000**	**13.4079**	**13.4079**	**6.7000e-004**	**0.0000**	**13.4248**

3.3 Site Preparation - 2020

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					0.2168	0.0000	0.2168	0.1192	0.0000	0.1192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4412
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2168**	**0.0264**	**0.2432**	**0.1192**	**0.0243**	**0.1434**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4412**

3.3 Site Preparation - 2020

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-005	8.8000e-004	1.8000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.2299	0.2299	1.0000e-005	0.0000	0.2302
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	7.2000e-004	5.1000e-004	5.3100e-003	2.0000e-005	1.7100e-003	1.0000e-005	1.7200e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4953	1.4953	4.0000e-005	0.0000	1.4962
Total	**7.5000e-004**	**1.3900e-003**	**5.4900e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7700e-003**	**4.6000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.7252**	**1.7252**	**5.0000e-005**	**0.0000**	**1.7264**

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					0.2168	0.0000	0.2168	0.1192	0.0000	0.1192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0489	0.5090	0.2582	4.6000e-004		0.0264	0.0264		0.0243	0.0243	0.0000	40.1168	40.1168	0.0130	0.0000	40.4411
Total	**0.0489**	**0.5090**	**0.2582**	**4.6000e-004**	**0.2168**	**0.0264**	**0.2432**	**0.1192**	**0.0243**	**0.1434**	**0.0000**	**40.1168**	**40.1168**	**0.0130**	**0.0000**	**40.4411**

3.3 Site Preparation - 2020

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-005	8.8000e-004	1.8000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.2299	0.2299	1.0000e-005	0.0000	0.2302
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	7.2000e-004	5.1000e-004	5.3100e-003	2.0000e-005	1.7100e-003	1.0000e-005	1.7200e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4953	1.4953	4.0000e-005	0.0000	1.4962
Total	**7.5000e-004**	**1.3900e-003**	**5.4900e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7700e-003**	**4.6000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.7252**	**1.7252**	**5.0000e-005**	**0.0000**	**1.7264**

3.4 Grading - 2020

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					0.0714	0.0000	0.0714	0.0383	0.0000	0.0383	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.3034	0.1846	3.4000e-004		0.0146	0.0146		0.0135	0.0135	0.0000	29.9676	29.9676	9.6900e-003	0.0000	30.2099
Total	**0.0279**	**0.3034**	**0.1846**	**3.4000e-004**	**0.0714**	**0.0146**	**0.0860**	**0.0383**	**0.0135**	**0.0518**	**0.0000**	**29.9676**	**29.9676**	**9.6900e-003**	**0.0000**	**30.2099**

3.4 Grading - 2020

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	5.0000e-005	1.7500e-003	3.5000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4598	0.4598	2.0000e-005	0.0000	0.4604
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	5.7000e-004	4.1000e-004	4.2400e-003	1.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1942	1.1942	3.0000e-005	0.0000	1.1949
Total	**6.2000e-004**	**2.1600e-003**	**4.5900e-003**	**1.0000e-005**	**1.4600e-003**	**2.0000e-005**	**1.4800e-003**	**3.9000e-004**	**2.0000e-005**	**4.0000e-004**	**0.0000**	**1.6540**	**1.6540**	**5.0000e-005**	**0.0000**	**1.6553**

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					0.0714	0.0000	0.0714	0.0383	0.0000	0.0383	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.3034	0.1846	3.4000e-004		0.0146	0.0146		0.0135	0.0135	0.0000	29.9675	29.9675	9.6900e-003	0.0000	30.2098
Total	**0.0279**	**0.3034**	**0.1846**	**3.4000e-004**	**0.0714**	**0.0146**	**0.0860**	**0.0383**	**0.0135**	**0.0518**	**0.0000**	**29.9675**	**29.9675**	**9.6900e-003**	**0.0000**	**30.2098**

3.4 Grading - 2020

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	5.0000e-005	1.7500e-003	3.5000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4598	0.4598	2.0000e-005	0.0000	0.4604
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	5.7000e-004	4.1000e-004	4.2400e-003	1.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1942	1.1942	3.0000e-005	0.0000	1.1949
Total	**6.2000e-004**	**2.1600e-003**	**4.5900e-003**	**1.0000e-005**	**1.4600e-003**	**2.0000e-005**	**1.4800e-003**	**3.9000e-004**	**2.0000e-005**	**4.0000e-004**	**0.0000**	**1.6540**	**1.6540**	**5.0000e-005**	**0.0000**	**1.6553**

3.5 Building Construction - 2020

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	0.1590	1.4390	1.2636	2.0200e-003		0.0838	0.0838		0.0788	0.0788	0.0000	173.7075	173.7075	0.0424	0.0000	174.7670
Total	**0.1590**	**1.4390**	**1.2636**	**2.0200e-003**		**0.0838**	**0.0838**		**0.0788**	**0.0788**	**0.0000**	**173.7075**	**173.7075**	**0.0424**	**0.0000**	**174.7670**

3.5 Building Construction - 2020

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	0.0186	0.5538	0.1392	1.3100e-003	0.0315	2.7000e-003	0.0342	9.1000e-003	2.5800e-003	0.0117	0.0000	125.6733	125.6733	6.4800e-003	0.0000	125.8354
Worker	0.0619	0.0443	0.4587	1.4300e-003	0.1476	9.9000e-004	0.1486	0.0393	9.2000e-004	0.0402	0.0000	129.2834	129.2834	3.1300e-003	0.0000	129.3616
Total	**0.0805**	**0.5981**	**0.5979**	**2.7400e-003**	**0.1791**	**3.6900e-003**	**0.1827**	**0.0484**	**3.5000e-003**	**0.0519**	**0.0000**	**254.9567**	**254.9567**	**9.6100e-003**	**0.0000**	**255.1970**

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	0.1590	1.4390	1.2636	2.0200e-003		0.0838	0.0838		0.0788	0.0788	0.0000	173.7073	173.7073	0.0424	0.0000	174.7667
Total	**0.1590**	**1.4390**	**1.2636**	**2.0200e-003**		**0.0838**	**0.0838**		**0.0788**	**0.0788**	**0.0000**	**173.7073**	**173.7073**	**0.0424**	**0.0000**	**174.7667**

3.5 Building Construction - 2020

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	0.0186	0.5538	0.1392	1.3100e-003	0.0315	2.7000e-003	0.0342	9.1000e-003	2.5800e-003	0.0117	0.0000	125.6733	125.6733	6.4800e-003	0.0000	125.8354
Worker	0.0619	0.0443	0.4587	1.4300e-003	0.1476	9.9000e-004	0.1486	0.0393	9.2000e-004	0.0402	0.0000	129.2834	129.2834	3.1300e-003	0.0000	129.3616
Total	**0.0805**	**0.5981**	**0.5979**	**2.7400e-003**	**0.1791**	**3.6900e-003**	**0.1827**	**0.0484**	**3.5000e-003**	**0.0519**	**0.0000**	**254.9567**	**254.9567**	**9.6100e-003**	**0.0000**	**255.1970**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1682	1.5427	1.4669	2.3800e-003		0.0848	0.0848		0.0798	0.0798	0.0000	204.9990	204.9990	0.0495	0.0000	206.2354
Total	**0.1682**	**1.5427**	**1.4669**	**2.3800e-003**		**0.0848**	**0.0848**		**0.0798**	**0.0798**	**0.0000**	**204.9990**	**204.9990**	**0.0495**	**0.0000**	**206.2354**

3.5 Building Construction - 2021

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	0.0180	0.5916	0.1477	1.5300e-003	0.0371	1.2900e-003	0.0384	0.0107	1.2300e-003	0.0120	0.0000	146.8924	146.8924	7.2200e-003	0.0000	147.0730
Worker	0.0676	0.0467	0.4943	1.6300e-003	0.1741	1.1400e-003	0.1753	0.0463	1.0500e-003	0.0474	0.0000	147.2016	147.2016	3.3000e-003	0.0000	147.2841
Total	**0.0856**	**0.6383**	**0.6419**	**3.1600e-003**	**0.2113**	**2.4300e-003**	**0.2137**	**0.0571**	**2.2800e-003**	**0.0593**	**0.0000**	**294.0940**	**294.0940**	**0.0105**	**0.0000**	**294.3571**

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	0.1682	1.5427	1.4669	2.3800e-003		0.0848	0.0848		0.0798	0.0798	0.0000	204.9988	204.9988	0.0495	0.0000	206.2352
Total	**0.1682**	**1.5427**	**1.4669**	**2.3800e-003**		**0.0848**	**0.0848**		**0.0798**	**0.0798**	**0.0000**	**204.9988**	**204.9988**	**0.0495**	**0.0000**	**206.2352**

3.5 Building Construction - 2021

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	0.0180	0.5916	0.1477	1.5300e-003	0.0371	1.2900e-003	0.0384	0.0107	1.2300e-003	0.0120	0.0000	146.8924	146.8924	7.2200e-003	0.0000	147.0730
Worker	0.0676	0.0467	0.4943	1.6300e-003	0.1741	1.1400e-003	0.1753	0.0463	1.0500e-003	0.0474	0.0000	147.2016	147.2016	3.3000e-003	0.0000	147.2841
Total	**0.0856**	**0.6383**	**0.6419**	**3.1600e-003**	**0.2113**	**2.4300e-003**	**0.2137**	**0.0571**	**2.2800e-003**	**0.0593**	**0.0000**	**294.0940**	**294.0940**	**0.0105**	**0.0000**	**294.3571**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	1.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6400e-003**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4600e-003	0.0774	0.0806	1.3000e-004		4.1400e-003	4.1400e-003		3.8100e-003	3.8100e-003	0.0000	11.0155	11.0155	3.5600e-003	0.0000	11.1046
Paving	1.1800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.6400e-003**	**0.0774**	**0.0806**	**1.3000e-004**		**4.1400e-003**	**4.1400e-003**		**3.8100e-003**	**3.8100e-003**	**0.0000**	**11.0155**	**11.0155**	**3.5600e-003**	**0.0000**	**11.1046**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.0000e-004	2.0300e-003	1.0000e-005	6.5000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5711	0.5711	1.0000e-005	0.0000	0.5715
Total	**2.7000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.6000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5711**	**0.5711**	**1.0000e-005**	**0.0000**	**0.5715**

3.7 Architectural Coating - 2020

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	0.8215					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0170	0.1179	0.1282	2.1000e-004		7.7700e-003	7.7700e-003		7.7700e-003	7.7700e-003	0.0000	17.8728	17.8728	1.3800e-003	0.0000	17.9074
Total	**0.8384**	**0.1179**	**0.1282**	**2.1000e-004**		**7.7700e-003**	**7.7700e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**17.8728**	**17.8728**	**1.3800e-003**	**0.0000**	**17.9074**

3.7 Architectural Coating - 2020

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	0.0116	8.3000e-003	0.0860	2.7000e-004	0.0277	1.9000e-004	0.0278	7.3600e-003	1.7000e-004	7.5300e-003	0.0000	24.2298	24.2298	5.9000e-004	0.0000	24.2445
Total	**0.0116**	**8.3000e-003**	**0.0860**	**2.7000e-004**	**0.0277**	**1.9000e-004**	**0.0278**	**7.3600e-003**	**1.7000e-004**	**7.5300e-003**	**0.0000**	**24.2298**	**24.2298**	**5.9000e-004**	**0.0000**	**24.2445**

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	0.8215					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0170	0.1179	0.1282	2.1000e-004		7.7700e-003	7.7700e-003		7.7700e-003	7.7700e-003	0.0000	17.8728	17.8728	1.3800e-003	0.0000	17.9074
Total	**0.8384**	**0.1179**	**0.1282**	**2.1000e-004**		**7.7700e-003**	**7.7700e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**17.8728**	**17.8728**	**1.3800e-003**	**0.0000**	**17.9074**

3.7 Architectural Coating - 2020

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	0.0116	8.3000e-003	0.0860	2.7000e-004	0.0277	1.9000e-004	0.0278	7.3600e-003	1.7000e-004	7.5300e-003	0.0000	24.2298	24.2298	5.9000e-004	0.0000	24.2445
Total	**0.0116**	**8.3000e-003**	**0.0860**	**2.7000e-004**	**0.0277**	**1.9000e-004**	**0.0278**	**7.3600e-003**	**1.7000e-004**	**7.5300e-003**	**0.0000**	**24.2298**	**24.2298**	**5.9000e-004**	**0.0000**	**24.2445**

3.7 Architectural Coating - 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					
Archit. Coating	1.0972					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0205	0.1428	0.1699	2.8000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	23.8729	23.8729	1.6400e-003	0.0000	23.9139
Total	**1.1177**	**0.1428**	**0.1699**	**2.8000e-004**		**8.8000e-003**	**8.8000e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**23.8729**	**23.8729**	**1.6400e-003**	**0.0000**	**23.9139**

3.7 Architectural Coating - 2021

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	0.0144	9.9000e-003	0.1049	3.5000e-004	0.0369	2.4000e-004	0.0372	9.8300e-003	2.2000e-004	0.0101	0.0000	31.2285	31.2285	7.0000e-004	0.0000	31.2460
Total	**0.0144**	**9.9000e-003**	**0.1049**	**3.5000e-004**	**0.0369**	**2.4000e-004**	**0.0372**	**9.8300e-003**	**2.2000e-004**	**0.0101**	**0.0000**	**31.2285**	**31.2285**	**7.0000e-004**	**0.0000**	**31.2460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0972					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0205	0.1428	0.1699	2.8000e-004		8.8000e-003	8.8000e-003		8.8000e-003	8.8000e-003	0.0000	23.8729	23.8729	1.6400e-003	0.0000	23.9139
Total	**1.1177**	**0.1428**	**0.1699**	**2.8000e-004**		**8.8000e-003**	**8.8000e-003**		**8.8000e-003**	**8.8000e-003**	**0.0000**	**23.8729**	**23.8729**	**1.6400e-003**	**0.0000**	**23.9139**

3.7 Architectural Coating - 2021

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	0.0144	9.9000e-003	0.1049	3.5000e-004	0.0369	2.4000e-004	0.0372	9.8300e-003	2.2000e-004	0.0101	0.0000	31.2285	31.2285	7.0000e-004	0.0000	31.2460
Total	**0.0144**	**9.9000e-003**	**0.1049**	**3.5000e-004**	**0.0369**	**2.4000e-004**	**0.0372**	**9.8300e-003**	**2.2000e-004**	**0.0101**	**0.0000**	**31.2285**	**31.2285**	**7.0000e-004**	**0.0000**	**31.2460**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0481	4.8763	10.3799	0.0344	2.8901	0.0318	2.9219	0.7757	0.0297	0.8055	0.0000	3,160.442 3	3,160.442 3	0.1269	0.0000	3,163.614 1
Unmitigated	1.0879	5.1664	11.2905	0.0386	3.2768	0.0353	3.3121	0.8795	0.0331	0.9126	0.0000	3,540.470 2	3,540.470 2	0.1375	0.0000	3,543.906 9

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,142.40	1,142.40	1142.40	2,638,495	2,327,153
Enclosed Parking with Elevator	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	3,434.08	3,434.08	3434.08	6,020,997	5,310,519
Day-Care Center	123.00	123.00	123.00	144,848	127,756
Total	4,699.48	4,699.48	4,699.48	8,804,341	7,765,428

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Day-Care Center	9.50	7.30	7.30	12.70	82.30	5.00	28	58	14

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Enclosed Parking with Elevator	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Parking Lot	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Day-Care Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

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	307.3805	307.3805	0.0331	6.8400e-003	310.2467
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	307.3805	307.3805	0.0331	6.8400e-003	310.2467
NaturalGas Mitigated	0.0111	0.0958	0.0458	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	110.0534	110.0534	2.1100e-003	2.0200e-003	110.7074
NaturalGas Unmitigated	0.0111	0.0958	0.0458	6.1000e-004		7.6800e-003	7.6800e-003		7.6800e-003	7.6800e-003	0.0000	110.0534	110.0534	2.1100e-003	2.0200e-003	110.7074

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.81428e+006	9.7800e-003	0.0836	0.0356	5.3000e-004		6.7600e-003	6.7600e-003		6.7600e-003	6.7600e-003	0.0000	96.8171	96.8171	1.8600e-003	1.7700e-003	97.3925
Day-Care Center	73760	4.0000e-004	3.6200e-003	3.0400e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.9361	3.9361	8.0000e-005	7.0000e-005	3.9595
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	174278	9.4000e-004	8.5400e-003	7.1800e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3001	9.3001	1.8000e-004	1.7000e-004	9.3554
Total		**0.0111**	**0.0958**	**0.0458**	**6.0000e-004**		**7.6800e-003**	**7.6800e-003**		**7.6800e-003**	**7.6800e-003**	**0.0000**	**110.0534**	**110.0534**	**2.1200e-003**	**2.0100e-003**	**110.7074**

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					
Apartments Mid Rise	1.81428e+006	9.7800e-003	0.0836	0.0356	5.3000e-004		6.7600e-003	6.7600e-003		6.7600e-003	6.7600e-003	0.0000	96.8171	96.8171	1.8600e-003	1.7700e-003	97.3925
Day-Care Center	73760	4.0000e-004	3.6200e-003	3.0400e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	3.9361	3.9361	8.0000e-005	7.0000e-005	3.9595
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	174278	9.4000e-004	8.5400e-003	7.1800e-003	5.0000e-005		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	9.3001	9.3001	1.8000e-004	1.7000e-004	9.3554
Total		**0.0111**	**0.0958**	**0.0458**	**6.0000e-004**		**7.6800e-003**	**7.6800e-003**		**7.6800e-003**	**7.6800e-003**	**0.0000**	**110.0534**	**110.0534**	**2.1200e-003**	**2.0100e-003**	**110.7074**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	866954	105.9791	0.0114	2.3600e-003	106.9673
Day-Care Center	21560	2.6356	2.8000e-004	6.0000e-005	2.6601
Enclosed Parking with Elevator	828838	101.3198	0.0109	2.2600e-003	102.2646
Parking Lot	11060	1.3520	1.5000e-004	3.0000e-005	1.3646
Regional Shopping Center	786089	96.0940	0.0103	2.1400e-003	96.9901
Total		**307.3805**	**0.0331**	**6.8500e-003**	**310.2467**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	866954	105.9791	0.0114	2.3600e-003	106.9673
Day-Care Center	21560	2.6356	2.8000e-004	6.0000e-005	2.6601
Enclosed Parking with Elevator	828838	101.3198	0.0109	2.2600e-003	102.2646
Parking Lot	11060	1.3520	1.5000e-004	3.0000e-005	1.3646
Regional Shopping Center	786089	96.0940	0.0103	2.1400e-003	96.9901
Total		**307.3805**	**0.0331**	**6.8500e-003**	**310.2467**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	1.3736	0.0180	1.5654	8.0000e-005		8.6400e-003	8.6400e-003		8.6400e-003	8.6400e-003	0.0000	2.5557	2.5557	2.4800e-003	0.0000	2.6177
Unmitigated	1.8581	0.0292	2.2326	1.4100e-003		0.1040	0.1040		0.1040	0.1040	9.5738	6.4881	16.0620	0.0179	6.3000e-004	16.6958

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	0.1919					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4845	0.0112	0.6672	1.3300e-003		0.0954	0.0954		0.0954	0.0954	9.5738	3.9324	13.5063	0.0154	6.3000e-004	14.0780
Landscaping	0.0476	0.0180	1.5654	8.0000e-005		8.6400e-003	8.6400e-003		8.6400e-003	8.6400e-003	0.0000	2.5557	2.5557	2.4800e-003	0.0000	2.6177
Total	**1.8581**	**0.0292**	**2.2326**	**1.4100e-003**		**0.1040**	**0.1040**		**0.1040**	**0.1040**	**9.5738**	**6.4882**	**16.0620**	**0.0179**	**6.3000e-004**	**16.6958**

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	0.1919					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0476	0.0180	1.5654	8.0000e-005		8.6400e-003	8.6400e-003		8.6400e-003	8.6400e-003	0.0000	2.5557	2.5557	2.4800e-003	0.0000	2.6177
Total	**1.3736**	**0.0180**	**1.5654**	**8.0000e-005**		**8.6400e-003**	**8.6400e-003**		**8.6400e-003**	**8.6400e-003**	**0.0000**	**2.5557**	**2.5557**	**2.4800e-003**	**0.0000**	**2.6177**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	24.1972	0.6309	0.0153	44.5136
Unmitigated	24.1972	0.6309	0.0153	44.5136

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.6823 / 8.62583	17.0816	0.4472	0.0108	31.4835
Day-Care Center	0.171558 / 0.44115	0.3567	5.6200e-003	1.4000e-004	0.5386
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	5.44655 / 3.33821	6.7589	0.1780	4.3000e-003	12.4915
Total		**24.1972**	**0.6309**	**0.0153**	**44.5136**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	13.6823 / 8.62583	17.0816	0.4472	0.0108	31.4835
Day-Care Center	0.171558 / 0.44115	0.3567	5.6200e-003	1.4000e-004	0.5386
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	5.44655 / 3.33821	6.7589	0.1780	4.3000e-003	12.4915
Total		**24.1972**	**0.6309**	**0.0153**	**44.5136**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.3374	2.1475	0.0000	90.0244
Unmitigated	36.3374	2.1475	0.0000	90.0244

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	96.6	19.6089	1.1589	0.0000	48.5803
Day-Care Center	5.2	1.0556	0.0624	0.0000	2.6151
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	77.21	15.6729	0.9262	0.0000	38.8290
Total		**36.3374**	**2.1475**	**0.0000**	**90.0244**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	96.6	19.6089	1.1589	0.0000	48.5803
Day-Care Center	5.2	1.0556	0.0624	0.0000	2.6151
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	77.21	15.6729	0.9262	0.0000	38.8290
Total		**36.3374**	**2.1475**	**0.0000**	**90.0244**

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

Delta Fair Village - Unmitigated

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	4	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	6	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	10	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	3.74200E-002	2.60630E-001	2.98140E-001	4.90000E-004	1.65600E-002	1.65600E-002	0.00000E+000	4.17457E+001	4.17457E+001	3.02000E-003	0.00000E+000	4.18213E+001
Concrete/Industrial Saws	2.30000E-003	1.81400E-002	2.02800E-002	3.00000E-005	1.09000E-003	1.09000E-003	0.00000E+000	2.95711E+000	2.95711E+000	1.90000E-004	0.00000E+000	2.96179E+000
Cranes	6.17300E-002	7.29340E-001	2.92370E-001	8.30000E-004	2.98300E-002	2.74500E-002	0.00000E+000	7.25185E+001	7.25185E+001	2.34500E-002	0.00000E+000	7.31048E+001
Excavators	6.86000E-003	6.75500E-002	9.15000E-002	1.40000E-004	3.27000E-003	3.01000E-003	0.00000E+000	1.27036E+001	1.27036E+001	4.11000E-003	0.00000E+000	1.28063E+001
Forklifts	6.67400E-002	6.05000E-001	5.75620E-001	7.50000E-004	4.39700E-002	4.04500E-002	0.00000E+000	6.58699E+001	6.58699E+001	2.13000E-002	0.00000E+000	6.64025E+001
Generator Sets	6.15600E-002	5.41100E-001	6.04010E-001	1.08000E-003	2.95600E-002	2.95600E-002	0.00000E+000	9.24114E+001	9.24114E+001	4.94000E-003	0.00000E+000	9.25349E+001
Graders	5.47000E-003	7.27400E-002	2.08700E-002	8.00000E-005	2.33000E-003	2.14000E-003	0.00000E+000	6.70524E+000	6.70524E+000	2.17000E-003	0.00000E+000	6.75946E+000
Pavers	2.89000E-003	3.09100E-002	3.18800E-002	5.00000E-005	1.50000E-003	1.38000E-003	0.00000E+000	4.54317E+000	4.54317E+000	1.47000E-003	0.00000E+000	4.57991E+000
Paving Equipment	2.28000E-003	2.35500E-002	2.78800E-002	4.00000E-005	1.18000E-003	1.08000E-003	0.00000E+000	3.93701E+000	3.93701E+000	1.27000E-003	0.00000E+000	3.96884E+000
Rollers	2.29000E-003	2.28900E-002	2.08300E-002	3.00000E-005	1.46000E-003	1.34000E-003	0.00000E+000	2.53534E+000	2.53534E+000	8.20000E-004	0.00000E+000	2.55584E+000
Rubber Tired Dozers	6.31500E-002	6.62940E-001	2.41700E-001	5.00000E-004	3.24700E-002	2.98700E-002	0.00000E+000	4.39073E+001	4.39073E+001	1.42000E-002	0.00000E+000	4.42623E+001
Tractors/Loaders/Backhoes	1.02040E-001	1.02854E+000	1.16197E+000	1.59000E-003	6.31600E-002	5.81000E-002	0.00000E+000	1.39643E+002	1.39643E+002	4.51600E-002	0.00000E+000	1.40772E+002
Welders	5.24400E-002	2.51390E-001	2.84640E-001	4.20000E-004	1.30800E-002	1.30800E-002	0.00000E+000	3.07741E+001	3.07741E+001	4.26000E-003	0.00000E+000	3.08805E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	3.74200E-002	2.60630E-001	2.98140E-001	4.90000E-004	1.65600E-002	1.65600E-002	0.00000E+000	4.17457E+001	4.17457E+001	3.02000E-003	0.00000E+000	4.18212E+001
Concrete/Industrial Saws	2.30000E-003	1.81400E-002	2.02800E-002	3.00000E-005	1.09000E-003	1.09000E-003	0.00000E+000	2.95711E+000	2.95711E+000	1.90000E-004	0.00000E+000	2.96179E+000
Cranes	6.17300E-002	7.29340E-001	2.92370E-001	8.30000E-004	2.98300E-002	2.74500E-002	0.00000E+000	7.25184E+001	7.25184E+001	2.34500E-002	0.00000E+000	7.31047E+001
Excavators	6.86000E-003	6.75500E-002	9.15000E-002	1.40000E-004	3.27000E-003	3.01000E-003	0.00000E+000	1.27036E+001	1.27036E+001	4.11000E-003	0.00000E+000	1.28063E+001
Forklifts	6.67400E-002	6.05000E-001	5.75620E-001	7.50000E-004	4.39700E-002	4.04500E-002	0.00000E+000	6.58698E+001	6.58698E+001	2.13000E-002	0.00000E+000	6.64024E+001
Generator Sets	6.15600E-002	5.41100E-001	6.04010E-001	1.08000E-003	2.95600E-002	2.95600E-002	0.00000E+000	9.24113E+001	9.24113E+001	4.94000E-003	0.00000E+000	9.25348E+001
Graders	5.47000E-003	7.27400E-002	2.08700E-002	8.00000E-005	2.33000E-003	2.14000E-003	0.00000E+000	6.70523E+000	6.70523E+000	2.17000E-003	0.00000E+000	6.75945E+000
Pavers	2.89000E-003	3.09100E-002	3.18800E-002	5.00000E-005	1.50000E-003	1.38000E-003	0.00000E+000	4.54317E+000	4.54317E+000	1.47000E-003	0.00000E+000	4.57990E+000
Paving Equipment	2.28000E-003	2.35500E-002	2.78800E-002	4.00000E-005	1.18000E-003	1.08000E-003	0.00000E+000	3.93700E+000	3.93700E+000	1.27000E-003	0.00000E+000	3.96884E+000
Rollers	2.29000E-003	2.28900E-002	2.08300E-002	3.00000E-005	1.46000E-003	1.34000E-003	0.00000E+000	2.53533E+000	2.53533E+000	8.20000E-004	0.00000E+000	2.55583E+000
Rubber Tired Dozers	6.31500E-002	6.62940E-001	2.41700E-001	5.00000E-004	3.24700E-002	2.98700E-002	0.00000E+000	4.39073E+001	4.39073E+001	1.42000E-002	0.00000E+000	4.42623E+001
Tractors/Loaders/Backhoes	1.02040E-001	1.02854E+000	1.16197E+000	1.59000E-003	6.31600E-002	5.81000E-002	0.00000E+000	1.39643E+002	1.39643E+002	4.51600E-002	0.00000E+000	1.40772E+002
Welders	5.24400E-002	2.51390E-001	2.84640E-001	4.20000E-004	1.30800E-002	1.30800E-002	0.00000E+000	3.07740E+001	3.07740E+001	4.26000E-003	0.00000E+000	3.08804E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19773E-006	1.19773E-006	0.00000E+000	0.00000E+000	1.19556E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.24106E-006	1.24106E-006	0.00000E+000	0.00000E+000	1.09432E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.87179E-007	7.87179E-007	0.00000E+000	0.00000E+000	1.56173E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21452E-006	1.21452E-006	0.00000E+000	0.00000E+000	1.20477E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19033E-006	1.19033E-006	0.00000E+000	0.00000E+000	1.18874E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.49137E-006	1.49137E-006	0.00000E+000	0.00000E+000	1.47941E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.18345E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.54000E-006	2.54000E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.94424E-006	3.94424E-006	0.00000E+000	0.00000E+000	3.91261E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.13876E-006	1.13876E-006	0.00000E+000	0.00000E+000	1.12963E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14578E-006	1.14578E-006	0.00000E+000	0.00000E+000	1.20763E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.74847E-007	9.74847E-007	0.00000E+000	0.00000E+000	9.71488E-007

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00			
No	Clean Paved Road	% PM Reduction	0.00					

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.06	0.02	0.06	0.02	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.39	0.11	0.39	0.11	0.00	0.00
Demolition	Fugitive Dust	0.04	0.01	0.04	0.01	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.07	0.04	0.07	0.04	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.22	0.12	0.22	0.12	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	3.66	5.61	8.07	10.74	10.08	10.13	0.00	10.73	10.73	7.71	0.00	10.73
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.19	0.46		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.24	0.01		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.10			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.25	50.00	25.00	
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.12			
No	Commute	Implement Trip Reduction Program		0.00		
No	Commute	Transit Subsidy	0.00	0.00		
No	Commute	Implement Employee Parking "Cash Out"	4.50	0.00		
No	Commute	Workplace Parking Charge	0.00	0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	0.00	0.00	0.00
No	Commute	Market Commute Trip Reduction Option	0.00	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00	0.00	2.00	
No	Commute	Provide Ride Sharing Program	10.00	0.00		
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00	0.00		
		Total VMT Reduction	0.12			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
Yes	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Delta Fair Village - Unmitigated

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	328.00	Space	0.00	141,440.00	0
Parking Lot	79.00	Space	0.90	31,600.00	0
Apartments Mid Rise	210.00	Dwelling Unit	3.00	210,000.00	601
Regional Shopping Center	73.54	1000sqft	1.69	73,535.00	0
Day-Care Center	4.00	1000sqft	0.09	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	269.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use - modified per applicant and for mixed use

Construction Phase - per applicant

Demolition -

Grading - per applicant

Vehicle Trips - Proposed Project only from Traffic Report

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	327.00
tblConstructionPhase	NumDays	230.00	327.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	24.00
tblConstructionPhase	PhaseEndDate	5/21/2021	9/20/2021
tblConstructionPhase	PhaseEndDate	3/26/2021	9/6/2021
tblConstructionPhase	PhaseEndDate	3/27/2020	3/16/2020
tblConstructionPhase	PhaseEndDate	5/8/2020	5/20/2020
tblConstructionPhase	PhaseEndDate	4/23/2021	6/4/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/17/2020
tblConstructionPhase	PhaseStartDate	4/24/2021	6/19/2020
tblConstructionPhase	PhaseStartDate	5/9/2020	6/5/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/20/2020

tblConstructionPhase	PhaseStartDate	3/27/2021	5/21/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/17/2020
tblGrading	AcresOfGrading	11.50	4.00
tblGrading	MaterialExported	0.00	50.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	131,200.00	141,440.00
tblLandUse	LotAcreage	2.95	0.00
tblLandUse	LotAcreage	0.71	0.90
tblLandUse	LotAcreage	5.53	3.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	49.97	46.70
tblVehicleTrips	ST_TR	6.21	30.75
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	25.24	46.70
tblVehicleTrips	SU_TR	5.83	30.75
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	42.70	46.70
tblVehicleTrips	WD_TR	74.06	30.75

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	15.3789	42.5268	28.4420	0.0721	18.2187	2.1986	20.4173	9.9711	2.0227	11.9939	0.0000	7,155.5645	7,155.5645	1.1965	0.0000	7,175.4576
2021	15.0147	26.1346	27.2967	0.0711	2.8894	1.0825	3.9719	0.7762	1.0233	1.7995	0.0000	7,052.1056	7,052.1056	0.7751	0.0000	7,071.4821
Maximum	**15.3789**	**42.5268**	**28.4420**	**0.0721**	**18.2187**	**2.1986**	**20.4173**	**9.9711**	**2.0227**	**11.9939**	**0.0000**	**7,155.5645**	**7,155.5645**	**1.1965**	**0.0000**	**7,175.4576**

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					
2020	15.3789	42.5268	28.4420	0.0721	18.2187	2.1986	20.4173	9.9711	2.0227	11.9939	0.0000	7,155.5645	7,155.5645	1.1965	0.0000	7,175.4575
2021	15.0147	26.1346	27.2967	0.0711	2.8894	1.0825	3.9719	0.7762	1.0233	1.7995	0.0000	7,052.1056	7,052.1056	0.7751	0.0000	7,071.4821
Maximum	**15.3789**	**42.5268**	**28.4420**	**0.0721**	**18.2187**	**2.1986**	**20.4173**	**9.9711**	**2.0227**	**11.9939**	**0.0000**	**7,155.5645**	**7,155.5645**	**1.1965**	**0.0000**	**7,175.4575**

	ROG	**NOx**	**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**

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	94.1590	2.1098	131.4982	0.2208		16.2948	16.2948		16.2948	16.2948	1,757.877 7	809.5373	2,567.415 0	2.4359	0.1243	2,665.340 5
Energy	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
Mobile	6.9024	27.6339	63.5760	0.2241	18.7050	0.1937	18.8987	5.0045	0.1813	5.1857		22,681.77 42	22,681.77 42	0.8316		22,702.56 32
Total	**101.1223**	**30.2684**	**195.3251**	**0.4482**	**18.7050**	**16.5306**	**35.2356**	**5.0045**	**16.5182**	**21.5227**	**1,757.877 7**	**24,156.04 08**	**25,913.91 85**	**3.2802**	**0.1364**	**26,036.58 31**

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	7.7943	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960	0.0000	31.3020	31.3020	0.0304	0.0000	32.0614
Energy	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
Mobile	6.6787	26.1332	57.9293	0.2000	16.4978	0.1740	16.6719	4.4139	0.1629	4.5768		20,243.01 38	20,243.01 38	0.7644		20,262.12 33
Total	**14.5340**	**26.8584**	**75.5737**	**0.2042**	**16.4978**	**0.3121**	**16.8100**	**4.4139**	**0.3010**	**4.7149**	**0.0000**	**20,939.04 51**	**20,939.04 51**	**0.8075**	**0.0122**	**20,962.86 42**

	ROG	NOx	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	85.63	11.27	61.31	54.43	11.80	98.11	52.29	11.80	98.18	78.09	100.00	13.32	19.20	75.38	91.07	19.49

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	3/2/2020	3/16/2020	5	11	
2	Site Preparation	Site Preparation	3/17/2020	4/17/2020	5	24	
3	Grading	Grading	4/20/2020	5/20/2020	5	23	
4	Building Construction	Building Construction	6/5/2020	9/6/2021	5	327	
5	Paving	Paving	5/21/2020	6/4/2020	5	11	
6	Architectural Coating	Architectural Coating	6/19/2020	9/20/2021	5	327	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.9

Residential Indoor: 425,250; Residential Outdoor: 141,750; Non-Residential Indoor: 116,303; Non-Residential Outdoor: 38,768; Striped Parking Area: 10,382 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	335.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	6.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	249.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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					6.5814	0.0000	6.5814	0.9965	0.0000	0.9965			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**6.5814**	**1.6587**	**8.2401**	**0.9965**	**1.5419**	**2.5383**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

3.2 Demolition - 2020

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	0.2513	8.7235	1.7338	0.0242	0.5320	0.0285	0.5606	0.1458	0.0273	0.1731		2,591.0226	2,591.0226	0.1296		2,594.2630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.3034**	**8.7551**	**2.1362**	**0.0255**	**0.6553**	**0.0293**	**0.6846**	**0.1785**	**0.0280**	**0.2065**		**2,714.1391**	**2,714.1391**	**0.1326**		**2,717.4537**

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					6.5814	0.0000	6.5814	0.9965	0.0000	0.9965			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**6.5814**	**1.6587**	**8.2401**	**0.9965**	**1.5419**	**2.5383**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

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	0.2513	8.7235	1.7338	0.0242	0.5320	0.0285	0.5606	0.1458	0.0273	0.1731		2,591.0226	2,591.0226	0.1296		2,594.2630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.3034**	**8.7551**	**2.1362**	**0.0255**	**0.6553**	**0.0293**	**0.6846**	**0.1785**	**0.0280**	**0.2065**		**2,714.1391**	**2,714.1391**	**0.1326**		**2,717.4537**

3.3 Site Preparation - 2020

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					18.0665	0.0000	18.0665	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0665**	**2.1974**	**20.2639**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

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	2.0600e-003	0.0716	0.0142	2.0000e-004	4.3700e-003	2.3000e-004	4.6000e-003	1.2000e-003	2.2000e-004	1.4200e-003		21.2696	21.2696	1.0600e-003		21.2962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0626	0.0379	0.4830	1.4800e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		147.7398	147.7398	3.5600e-003		147.8288
Total	**0.0646**	**0.1095**	**0.4972**	**1.6800e-003**	**0.1522**	**1.1900e-003**	**0.1534**	**0.0404**	**1.1000e-003**	**0.0415**		**169.0094**	**169.0094**	**4.6200e-003**		**169.1250**

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					18.0665	0.0000	18.0665	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0665**	**2.1974**	**20.2639**	**9.9307**	**2.0216**	**11.9523**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

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	2.0600e-003	0.0716	0.0142	2.0000e-004	4.3700e-003	2.3000e-004	4.6000e-003	1.2000e-003	2.2000e-004	1.4200e-003		21.2696	21.2696	1.0600e-003		21.2962
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0626	0.0379	0.4830	1.4800e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		147.7398	147.7398	3.5600e-003		147.8288
Total	**0.0646**	**0.1095**	**0.4972**	**1.6800e-003**	**0.1522**	**1.1900e-003**	**0.1534**	**0.0404**	**1.1000e-003**	**0.0415**		**169.0094**	**169.0094**	**4.6200e-003**		**169.1250**

3.4 Grading - 2020

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					6.2070	0.0000	6.2070	3.3302	0.0000	3.3302			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2070**	**1.2734**	**7.4804**	**3.3302**	**1.1716**	**4.5018**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3100e-003	0.1495	0.0297	4.2000e-004	9.1100e-003	4.9000e-004	9.6000e-003	2.5000e-003	4.7000e-004	2.9700e-003		44.3887	44.3887	2.2200e-003		44.4442
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0565**	**0.1810**	**0.4322**	**1.6600e-003**	**0.1323**	**1.2900e-003**	**0.1336**	**0.0352**	**1.2100e-003**	**0.0364**		**167.5052**	**167.5052**	**5.1900e-003**		**167.6349**

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					6.2070	0.0000	6.2070	3.3302	0.0000	3.3302			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.485 1	2,872.485 1	0.9290		2,895.710 6
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2070**	**1.2734**	**7.4804**	**3.3302**	**1.1716**	**4.5018**	**0.0000**	**2,872.485 1**	**2,872.485 1**	**0.9290**		**2,895.710 6**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.3100e-003	0.1495	0.0297	4.2000e-004	9.1100e-003	4.9000e-004	9.6000e-003	2.5000e-003	4.7000e-004	2.9700e-003		44.3887	44.3887	2.2200e-003		44.4442
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0565**	**0.1810**	**0.4322**	**1.6600e-003**	**0.1323**	**1.2900e-003**	**0.1336**	**0.0352**	**1.2100e-003**	**0.0364**		**167.5052**	**167.5052**	**5.1900e-003**		**167.6349**

3.5 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	7.2936	1.7398	0.0176	0.4332	0.0358	0.4690	0.1247	0.0342	0.1589		1,866.931 5	1,866.931 5	0.0919		1,869.230 0
Worker	0.8655	0.5240	6.6808	0.0205	2.0455	0.0132	2.0587	0.5426	0.0122	0.5548		2,043.733 6	2,043.733 6	0.0493		2,044.964 8
Total	**1.1081**	**7.8176**	**8.4206**	**0.0381**	**2.4787**	**0.0490**	**2.5277**	**0.6673**	**0.0464**	**0.7137**		**3,910.665 2**	**3,910.665 2**	**0.1412**		**3,914.194 8**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.063 1**	**2,553.063 1**	**0.6229**		**2,568.634 5**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	7.2936	1.7398	0.0176	0.4332	0.0358	0.4690	0.1247	0.0342	0.1589		1,866.9315	1,866.9315	0.0919		1,869.2300
Worker	0.8655	0.5240	6.6808	0.0205	2.0455	0.0132	2.0587	0.5426	0.0122	0.5548		2,043.7336	2,043.7336	0.0493		2,044.9648
Total	**1.1081**	**7.8176**	**8.4206**	**0.0381**	**2.4787**	**0.0490**	**2.5277**	**0.6673**	**0.0464**	**0.7137**		**3,910.6652**	**3,910.6652**	**0.1412**		**3,914.1948**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1985	6.6138	1.5596	0.0175	0.4332	0.0143	0.4476	0.1247	0.0137	0.1384		1,849.334 7	1,849.334 7	0.0868		1,851.504 6
Worker	0.8006	0.4679	6.1162	0.0198	2.0455	0.0129	2.0584	0.5426	0.0119	0.5544		1,971.979 2	1,971.979 2	0.0441		1,973.081 2
Total	**0.9991**	**7.0817**	**7.6758**	**0.0372**	**2.4787**	**0.0272**	**2.5059**	**0.6673**	**0.0256**	**0.6928**		**3,821.313 9**	**3,821.313 9**	**0.1309**		**3,824.585 8**

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1985	6.6138	1.5596	0.0175	0.4332	0.0143	0.4476	0.1247	0.0137	0.1384		1,849.334 7	1,849.334 7	0.0868		1,851.504 6
Worker	0.8006	0.4679	6.1162	0.0198	2.0455	0.0129	2.0584	0.5426	0.0119	0.5544		1,971.979 2	1,971.979 2	0.0441		1,973.081 2
Total	**0.9991**	**7.0817**	**7.6758**	**0.0372**	**2.4787**	**0.0272**	**2.5059**	**0.6673**	**0.0256**	**0.6928**		**3,821.313 9**	**3,821.313 9**	**0.1309**		**3,824.585 8**

3.6 Paving - 2020

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	0.2144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5709**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5709**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0521	0.0316	0.4025	1.2400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		123.1165	123.1165	2.9700e-003		123.1907
Total	**0.0521**	**0.0316**	**0.4025**	**1.2400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**123.1165**	**123.1165**	**2.9700e-003**		**123.1907**

3.7 Architectural Coating - 2020

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**11.9771**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1738	0.1052	1.3415	4.1200e-003	0.4107	2.6600e-003	0.4134	0.1090	2.4500e-003	0.1114		410.3883	410.3883	9.8900e-003		410.6355
Total	**0.1738**	**0.1052**	**1.3415**	**4.1200e-003**	**0.4107**	**2.6600e-003**	**0.4134**	**0.1090**	**2.4500e-003**	**0.1114**		**410.3883**	**410.3883**	**9.8900e-003**		**410.6355**

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**11.9771**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1738	0.1052	1.3415	4.1200e-003	0.4107	2.6600e-003	0.4134	0.1090	2.4500e-003	0.1114		410.3883	410.3883	9.8900e-003		410.6355
Total	**0.1738**	**0.1052**	**1.3415**	**4.1200e-003**	**0.4107**	**2.6600e-003**	**0.4134**	**0.1090**	**2.4500e-003**	**0.1114**		**410.3883**	**410.3883**	**9.8900e-003**		**410.6355**

3.7 Architectural Coating - 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					
Archit. Coating	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**11.9539**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1608	0.0940	1.2282	3.9700e-003	0.4107	2.5800e-003	0.4133	0.1090	2.3800e-003	0.1113		395.9798	395.9798	8.8500e-003		396.2011
Total	**0.1608**	**0.0940**	**1.2282**	**3.9700e-003**	**0.4107**	**2.5800e-003**	**0.4133**	**0.1090**	**2.3800e-003**	**0.1113**		**395.9798**	**395.9798**	**8.8500e-003**		**396.2011**

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**11.9539**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1608	0.0940	1.2282	3.9700e-003	0.4107	2.5800e-003	0.4133	0.1090	2.3800e-003	0.1113		395.9798	395.9798	8.8500e-003		396.2011
Total	**0.1608**	**0.0940**	**1.2282**	**3.9700e-003**	**0.4107**	**2.5800e-003**	**0.4133**	**0.1090**	**2.3800e-003**	**0.1113**		**395.9798**	**395.9798**	**8.8500e-003**		**396.2011**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.6787	26.1332	57.9293	0.2000	16.4978	0.1740	16.6719	4.4139	0.1629	4.5768		20,243.0138	20,243.0138	0.7644		20,262.1233
Unmitigated	6.9024	27.6339	63.5760	0.2241	18.7050	0.1937	18.8987	5.0045	0.1813	5.1857		22,681.7742	22,681.7742	0.8316		22,702.5632

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,142.40	1,142.40	1142.40	2,638,495	2,327,153
Enclosed Parking with Elevator	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	3,434.08	3,434.08	3434.08	6,020,997	5,310,519
Day-Care Center	123.00	123.00	123.00	144,848	127,756
Total	4,699.48	4,699.48	4,699.48	8,804,341	7,765,428

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Day-Care Center	9.50	7.30	7.30	12.70	82.30	5.00	28	58	14

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Enclosed Parking with Elevator	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Parking Lot	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Day-Care Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
NaturalGas Unmitigated	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	4970.64	0.0536	0.4581	0.1949	2.9200e-003		0.0370	0.0370		0.0370	0.0370		584.7815	584.7815	0.0112	0.0107	588.2565
Day-Care Center	202.082	2.1800e-003	0.0198	0.0166	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.7744	23.7744	4.6000e-004	4.4000e-004	23.9157
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	477.474	5.1500e-003	0.0468	0.0393	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.1734	56.1734	1.0800e-003	1.0300e-003	56.5072
Total		**0.0609**	**0.5247**	**0.2509**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.7292**	**664.7292**	**0.0128**	**0.0122**	**668.6794**

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					
Apartments Mid Rise	4.97064	0.0536	0.4581	0.1949	2.9200e-003		0.0370	0.0370		0.0370	0.0370		584.7815	584.7815	0.0112	0.0107	588.2565
Day-Care Center	0.202082	2.1800e-003	0.0198	0.0166	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.7744	23.7744	4.6000e-004	4.4000e-004	23.9157
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.477474	5.1500e-003	0.0468	0.0393	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.1734	56.1734	1.0800e-003	1.0300e-003	56.5072
Total		**0.0609**	**0.5247**	**0.2509**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.7292**	**664.7292**	**0.0128**	**0.0122**	**668.6794**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	7.7943	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960	0.0000	31.3020	31.3020	0.0304	0.0000	32.0614
Unmitigated	94.1590	2.1098	131.4982	0.2208		16.2948	16.2948		16.2948	16.2948	1,757.8777	809.5373	2,567.4150	2.4359	0.1243	2,665.3405

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	1.0513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	86.3646	1.9093	114.1047	0.2198		16.1988	16.1988		16.1988	16.1988	1,757.8777	778.2353	2,536.1130	2.4056	0.1243	2,633.2791
Landscaping	0.5285	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960		31.3020	31.3020	0.0304		32.0614
Total	**94.1590**	**2.1098**	**131.4982**	**0.2208**		**16.2949**	**16.2949**		**16.2949**	**16.2949**	**1,757.8777**	**809.5373**	**2,567.4150**	**2.4359**	**0.1243**	**2,665.3405**

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	1.0513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5285	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960		31.3020	31.3020	0.0304		32.0614
Total	**7.7943**	**0.2005**	**17.3935**	**9.2000e-004**		**0.0960**	**0.0960**		**0.0960**	**0.0960**	**0.0000**	**31.3020**	**31.3020**	**0.0304**	**0.0000**	**32.0614**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Delta Fair Village - Unmitigated

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	328.00	Space	0.00	141,440.00	0
Parking Lot	79.00	Space	0.90	31,600.00	0
Apartments Mid Rise	210.00	Dwelling Unit	3.00	210,000.00	601
Regional Shopping Center	73.54	1000sqft	1.69	73,535.00	0
Day-Care Center	4.00	1000sqft	0.09	4,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	269.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E RPS

Land Use - modified per applicant and for mixed use

Construction Phase - per applicant

Demolition -

Grading - per applicant

Vehicle Trips - Proposed Project only from Traffic Report

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Mobile Commute Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	327.00
tblConstructionPhase	NumDays	230.00	327.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	24.00
tblConstructionPhase	PhaseEndDate	5/21/2021	9/20/2021
tblConstructionPhase	PhaseEndDate	3/26/2021	9/6/2021
tblConstructionPhase	PhaseEndDate	3/27/2020	3/16/2020
tblConstructionPhase	PhaseEndDate	5/8/2020	5/20/2020
tblConstructionPhase	PhaseEndDate	4/23/2021	6/4/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/17/2020
tblConstructionPhase	PhaseStartDate	4/24/2021	6/19/2020
tblConstructionPhase	PhaseStartDate	5/9/2020	6/5/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/20/2020

tblConstructionPhase	PhaseStartDate	3/27/2021	5/21/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/17/2020
tblGrading	AcresOfGrading	11.50	4.00
tblGrading	MaterialExported	0.00	50.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	131,200.00	141,440.00
tblLandUse	LotAcreage	2.95	0.00
tblLandUse	LotAcreage	0.71	0.90
tblLandUse	LotAcreage	5.53	3.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	269.5
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblVehicleTrips	ST_TR	6.39	5.44
tblVehicleTrips	ST_TR	49.97	46.70
tblVehicleTrips	ST_TR	6.21	30.75
tblVehicleTrips	SU_TR	5.86	5.44
tblVehicleTrips	SU_TR	25.24	46.70
tblVehicleTrips	SU_TR	5.83	30.75
tblVehicleTrips	WD_TR	6.65	5.44
tblVehicleTrips	WD_TR	42.70	46.70
tblVehicleTrips	WD_TR	74.06	30.75

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	15.4516	42.5375	28.2047	0.0698	18.2187	2.1986	20.4173	9.9711	2.0227	11.9939	0.0000	6,914.8410	6,914.8410	1.1969	0.0000	6,934.8256
2021	15.0835	26.3237	27.0567	0.0688	2.8894	1.0830	3.9724	0.7762	1.0238	1.8000	0.0000	6,818.5402	6,818.5402	0.7786	0.0000	6,838.0050
Maximum	**15.4516**	**42.5375**	**28.2047**	**0.0698**	**18.2187**	**2.1986**	**20.4173**	**9.9711**	**2.0227**	**11.9939**	**0.0000**	**6,914.8410**	**6,914.8410**	**1.1969**	**0.0000**	**6,934.8256**

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					
2020	15.4516	42.5375	28.2047	0.0698	18.2187	2.1986	20.4173	9.9711	2.0227	11.9939	0.0000	6,914.8410	6,914.8410	1.1969	0.0000	6,934.8256
2021	15.0835	26.3237	27.0567	0.0688	2.8894	1.0830	3.9724	0.7762	1.0238	1.8000	0.0000	6,818.5402	6,818.5402	0.7786	0.0000	6,838.0050
Maximum	**15.4516**	**42.5375**	**28.2047**	**0.0698**	**18.2187**	**2.1986**	**20.4173**	**9.9711**	**2.0227**	**11.9939**	**0.0000**	**6,914.8410**	**6,914.8410**	**1.1969**	**0.0000**	**6,934.8256**

	ROG	**NOx**	**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**

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	94.1590	2.1098	131.4982	0.2208		16.2948	16.2948		16.2948	16.2948	1,757.877 7	809.5373	2,567.415 0	2.4359	0.1243	2,665.340 5
Energy	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
Mobile	5.9229	28.8141	65.4528	0.2098	18.7050	0.1954	18.9004	5.0045	0.1829	5.1874		21,226.03 20	21,226.03 20	0.8585		21,247.49 50
Total	**100.1428**	**31.4485**	**197.2019**	**0.4338**	**18.7050**	**16.5323**	**35.2373**	**5.0045**	**16.5199**	**21.5243**	**1,757.877 7**	**22,700.29 86**	**24,458.17 63**	**3.3072**	**0.1364**	**24,581.51 49**

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	7.7943	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960	0.0000	31.3020	31.3020	0.0304	0.0000	32.0614
Energy	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
Mobile	5.7026	27.1571	60.4294	0.1871	16.4978	0.1758	16.6736	4.4139	0.1645	4.5785		18,938.12 14	18,938.12 14	0.7944		18,957.98 18
Total	**13.5579**	**27.8823**	**78.0738**	**0.1914**	**16.4978**	**0.3139**	**16.8117**	**4.4139**	**0.3026**	**4.7166**	**0.0000**	**19,634.15 26**	**19,634.15 26**	**0.8375**	**0.0122**	**19,658.72 26**

	ROG	NOx	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	86.46	11.34	60.41	55.89	11.80	98.10	52.29	11.80	98.17	78.09	100.00	13.51	19.72	74.68	91.07	20.03

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	3/2/2020	3/16/2020	5	11	
2	Site Preparation	Site Preparation	3/17/2020	4/17/2020	5	24	
3	Grading	Grading	4/20/2020	5/20/2020	5	23	
4	Building Construction	Building Construction	6/5/2020	9/6/2021	5	327	
5	Paving	Paving	5/21/2020	6/4/2020	5	11	
6	Architectural Coating	Architectural Coating	6/19/2020	9/20/2021	5	327	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.9

Residential Indoor: 425,250; Residential Outdoor: 141,750; Non-Residential Indoor: 116,303; Non-Residential Outdoor: 38,768; Striped Parking Area: 10,382 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	335.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	6.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	12.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	249.00	64.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

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					6.5814	0.0000	6.5814	0.9965	0.0000	0.9965			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.704 9	3,747.704 9	1.0580		3,774.153 6
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**6.5814**	**1.6587**	**8.2401**	**0.9965**	**1.5419**	**2.5383**		**3,747.704 9**	**3,747.704 9**	**1.0580**		**3,774.153 6**

3.2 Demolition - 2020

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	0.2582	8.9376	1.8665	0.0238	0.5320	0.0290	0.5611	0.1458	0.0278	0.1736		2,547.5032	2,547.5032	0.1361		2,550.9065
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.3133**	**8.9766**	**2.2444**	**0.0250**	**0.6553**	**0.0298**	**0.6851**	**0.1785**	**0.0285**	**0.2070**		**2,660.9130**	**2,660.9130**	**0.1389**		**2,664.3856**

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					6.5814	0.0000	6.5814	0.9965	0.0000	0.9965			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**6.5814**	**1.6587**	**8.2401**	**0.9965**	**1.5419**	**2.5383**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

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	0.2582	8.9376	1.8665	0.0238	0.5320	0.0290	0.5611	0.1458	0.0278	0.1736		2,547.503 2	2,547.503 2	0.1361		2,550.906 5
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.3133**	**8.9766**	**2.2444**	**0.0250**	**0.6553**	**0.0298**	**0.6851**	**0.1785**	**0.0285**	**0.2070**		**2,660.913 0**	**2,660.913 0**	**0.1389**		**2,664.385 6**

3.3 Site Preparation - 2020

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					18.0665	0.0000	18.0665	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.101 6	3,685.101 6	1.1918		3,714.897 5
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0665**	**2.1974**	**20.2639**	**9.9307**	**2.0216**	**11.9523**		**3,685.101 6**	**3,685.101 6**	**1.1918**		**3,714.897 5**

3.3 Site Preparation - 2020

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	2.1200e-003	0.0734	0.0153	2.0000e-004	4.3700e-003	2.4000e-004	4.6100e-003	1.2000e-003	2.3000e-004	1.4200e-003		20.9123	20.9123	1.1200e-003		20.9403
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0662	0.0468	0.4536	1.3700e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		136.0918	136.0918	3.3300e-003		136.1750
Total	**0.0683**	**0.1202**	**0.4689**	**1.5700e-003**	**0.1522**	**1.2000e-003**	**0.1534**	**0.0404**	**1.1100e-003**	**0.0415**		**157.0041**	**157.0041**	**4.4500e-003**		**157.1153**

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					18.0665	0.0000	18.0665	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0665**	**2.1974**	**20.2639**	**9.9307**	**2.0216**	**11.9523**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

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	2.1200e-003	0.0734	0.0153	2.0000e-004	4.3700e-003	2.4000e-004	4.6100e-003	1.2000e-003	2.3000e-004	1.4200e-003		20.9123	20.9123	1.1200e-003		20.9403
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0662	0.0468	0.4536	1.3700e-003	0.1479	9.6000e-004	0.1488	0.0392	8.8000e-004	0.0401		136.0918	136.0918	3.3300e-003		136.1750
Total	**0.0683**	**0.1202**	**0.4689**	**1.5700e-003**	**0.1522**	**1.2000e-003**	**0.1534**	**0.0404**	**1.1100e-003**	**0.0415**		**157.0041**	**157.0041**	**4.4500e-003**		**157.1153**

3.4 Grading - 2020

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					6.2070	0.0000	6.2070	3.3302	0.0000	3.3302			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2070**	**1.2734**	**7.4804**	**3.3302**	**1.1716**	**4.5018**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4200e-003	0.1531	0.0320	4.1000e-004	9.1100e-003	5.0000e-004	9.6100e-003	2.5000e-003	4.8000e-004	2.9700e-003		43.6431	43.6431	2.3300e-003		43.7015
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0596**	**0.1921**	**0.4100**	**1.5500e-003**	**0.1323**	**1.3000e-003**	**0.1336**	**0.0352**	**1.2200e-003**	**0.0364**		**157.0530**	**157.0530**	**5.1000e-003**		**157.1806**

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					6.2070	0.0000	6.2070	3.3302	0.0000	3.3302			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2070**	**1.2734**	**7.4804**	**3.3302**	**1.1716**	**4.5018**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.4200e-003	0.1531	0.0320	4.1000e-004	9.1100e-003	5.0000e-004	9.6100e-003	2.5000e-003	4.8000e-004	2.9700e-003		43.6431	43.6431	2.3300e-003		43.7015
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0596**	**0.1921**	**0.4100**	**1.5500e-003**	**0.1323**	**1.3000e-003**	**0.1336**	**0.0352**	**1.2200e-003**	**0.0364**		**157.0530**	**157.0530**	**5.1000e-003**		**157.1806**

3.5 Building Construction - 2020

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2553	7.3752	1.9903	0.0172	0.4332	0.0364	0.4696	0.1247	0.0348	0.1595		1,819.694 4	1,819.694 4	0.0994		1,822.180 4
Worker	0.9154	0.6474	6.2745	0.0189	2.0455	0.0132	2.0587	0.5426	0.0122	0.5548		1,882.602 9	1,882.602 9	0.0461		1,883.754 0
Total	**1.1708**	**8.0226**	**8.2649**	**0.0361**	**2.4787**	**0.0496**	**2.5283**	**0.6673**	**0.0470**	**0.7142**		**3,702.297 2**	**3,702.297 2**	**0.1455**		**3,705.934 5**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.063 1	2,553.063 1	0.6229		2,568.634 5
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.063 1**	**2,553.063 1**	**0.6229**		**2,568.634 5**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2553	7.3752	1.9903	0.0172	0.4332	0.0364	0.4696	0.1247	0.0348	0.1595		1,819.694 4	1,819.694 4	0.0994		1,822.180 4
Worker	0.9154	0.6474	6.2745	0.0189	2.0455	0.0132	2.0587	0.5426	0.0122	0.5548		1,882.602 9	1,882.602 9	0.0461		1,883.754 0
Total	**1.1708**	**8.0226**	**8.2649**	**0.0361**	**2.4787**	**0.0496**	**2.5283**	**0.6673**	**0.0470**	**0.7142**		**3,702.297 2**	**3,702.297 2**	**0.1455**		**3,705.934 5**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2102	6.6707	1.7926	0.0170	0.4332	0.0148	0.4481	0.1247	0.0142	0.1389		1,802.413 7	1,802.413 7	0.0939		1,804.761 3
Worker	0.8482	0.5780	5.7223	0.0182	2.0455	0.0129	2.0584	0.5426	0.0119	0.5544		1,816.546 2	1,816.546 2	0.0411		1,817.573 8
Total	**1.0584**	**7.2487**	**7.5149**	**0.0352**	**2.4787**	**0.0277**	**2.5064**	**0.6673**	**0.0260**	**0.6933**		**3,618.960 0**	**3,618.960 0**	**0.1350**		**3,622.335 2**

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.363 9**	**2,553.363 9**	**0.6160**		**2,568.764 3**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2102	6.6707	1.7926	0.0170	0.4332	0.0148	0.4481	0.1247	0.0142	0.1389		1,802.413 7	1,802.413 7	0.0939		1,804.761 3
Worker	0.8482	0.5780	5.7223	0.0182	2.0455	0.0129	2.0584	0.5426	0.0119	0.5544		1,816.546 2	1,816.546 2	0.0411		1,817.573 8
Total	**1.0584**	**7.2487**	**7.5149**	**0.0352**	**2.4787**	**0.0277**	**2.5064**	**0.6673**	**0.0260**	**0.6933**		**3,618.960 0**	**3,618.960 0**	**0.1350**		**3,622.335 2**

3.6 Paving - 2020

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.733 4	2,207.733 4	0.7140		2,225.584 1
Paving	0.2144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5709**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.733 4**	**2,207.733 4**	**0.7140**		**2,225.584 1**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

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	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.2144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5709**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0552	0.0390	0.3780	1.1400e-003	0.1232	8.0000e-004	0.1240	0.0327	7.4000e-004	0.0334		113.4098	113.4098	2.7700e-003		113.4792
Total	**0.0552**	**0.0390**	**0.3780**	**1.1400e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.4000e-004**	**0.0334**		**113.4098**	**113.4098**	**2.7700e-003**		**113.4792**

3.7 Architectural Coating - 2020

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**11.9771**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1838	0.1300	1.2599	3.7900e-003	0.4107	2.6600e-003	0.4134	0.1090	2.4500e-003	0.1114		378.0327	378.0327	9.2500e-003		378.2639
Total	**0.1838**	**0.1300**	**1.2599**	**3.7900e-003**	**0.4107**	**2.6600e-003**	**0.4134**	**0.1090**	**2.4500e-003**	**0.1114**		**378.0327**	**378.0327**	**9.2500e-003**		**378.2639**

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**11.9771**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1838	0.1300	1.2599	3.7900e-003	0.4107	2.6600e-003	0.4134	0.1090	2.4500e-003	0.1114		378.0327	378.0327	9.2500e-003		378.2639
Total	**0.1838**	**0.1300**	**1.2599**	**3.7900e-003**	**0.4107**	**2.6600e-003**	**0.4134**	**0.1090**	**2.4500e-003**	**0.1114**		**378.0327**	**378.0327**	**9.2500e-003**		**378.2639**

3.7 Architectural Coating - 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					
Archit. Coating	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**11.9539**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1703	0.1161	1.1491	3.6600e-003	0.4107	2.5800e-003	0.4133	0.1090	2.3800e-003	0.1113		364.7683	364.7683	8.2500e-003		364.9747
Total	**0.1703**	**0.1161**	**1.1491**	**3.6600e-003**	**0.4107**	**2.5800e-003**	**0.4133**	**0.1090**	**2.3800e-003**	**0.1113**		**364.7683**	**364.7683**	**8.2500e-003**		**364.9747**

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	11.7350					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**11.9539**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1703	0.1161	1.1491	3.6600e-003	0.4107	2.5800e-003	0.4133	0.1090	2.3800e-003	0.1113		364.7683	364.7683	8.2500e-003		364.9747
Total	**0.1703**	**0.1161**	**1.1491**	**3.6600e-003**	**0.4107**	**2.5800e-003**	**0.4133**	**0.1090**	**2.3800e-003**	**0.1113**		**364.7683**	**364.7683**	**8.2500e-003**		**364.9747**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.7026	27.1571	60.4294	0.1871	16.4978	0.1758	16.6736	4.4139	0.1645	4.5785		18,938.1214	18,938.1214	0.7944		18,957.9818
Unmitigated	5.9229	28.8141	65.4528	0.2098	18.7050	0.1954	18.9004	5.0045	0.1829	5.1874		21,226.0320	21,226.0320	0.8585		21,247.4950

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,142.40	1,142.40	1142.40	2,638,495	2,327,153
Enclosed Parking with Elevator	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Regional Shopping Center	3,434.08	3,434.08	3434.08	6,020,997	5,310,519
Day-Care Center	123.00	123.00	123.00	144,848	127,756
Total	4,699.48	4,699.48	4,699.48	8,804,341	7,765,428

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11
Day-Care Center	9.50	7.30	7.30	12.70	82.30	5.00	28	58	14

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Enclosed Parking with Elevator	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Parking Lot	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Regional Shopping Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Day-Care Center	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794
NaturalGas Unmitigated	0.0609	0.5247	0.2509	3.3200e-003		0.0421	0.0421		0.0421	0.0421		664.7292	664.7292	0.0127	0.0122	668.6794

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	4970.64	0.0536	0.4581	0.1949	2.9200e-003		0.0370	0.0370		0.0370	0.0370		584.7815	584.7815	0.0112	0.0107	588.2565
Day-Care Center	202.082	2.1800e-003	0.0198	0.0166	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.7744	23.7744	4.6000e-004	4.4000e-004	23.9157
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	477.474	5.1500e-003	0.0468	0.0393	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.1734	56.1734	1.0800e-003	1.0300e-003	56.5072
Total		**0.0609**	**0.5247**	**0.2509**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.7292**	**664.7292**	**0.0128**	**0.0122**	**668.6794**

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					
Apartments Mid Rise	4.97064	0.0536	0.4581	0.1949	2.9200e-003		0.0370	0.0370		0.0370	0.0370		584.7815	584.7815	0.0112	0.0107	588.2565
Day-Care Center	0.202082	2.1800e-003	0.0198	0.0166	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.7744	23.7744	4.6000e-004	4.4000e-004	23.9157
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.477474	5.1500e-003	0.0468	0.0393	2.8000e-004		3.5600e-003	3.5600e-003		3.5600e-003	3.5600e-003		56.1734	56.1734	1.0800e-003	1.0300e-003	56.5072
Total		**0.0609**	**0.5247**	**0.2509**	**3.3200e-003**		**0.0421**	**0.0421**		**0.0421**	**0.0421**		**664.7292**	**664.7292**	**0.0128**	**0.0122**	**668.6794**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	7.7943	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960	0.0000	31.3020	31.3020	0.0304	0.0000	32.0614
Unmitigated	94.1590	2.1098	131.4982	0.2208		16.2948	16.2948		16.2948	16.2948	1,757.8777	809.5373	2,567.4150	2.4359	0.1243	2,665.3405

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	1.0513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	86.3646	1.9093	114.1047	0.2198		16.1988	16.1988		16.1988	16.1988	1,757.8777	778.2353	2,536.1130	2.4056	0.1243	2,633.2791
Landscaping	0.5285	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960		31.3020	31.3020	0.0304		32.0614
Total	**94.1590**	**2.1098**	**131.4982**	**0.2208**		**16.2949**	**16.2949**		**16.2949**	**16.2949**	**1,757.8777**	**809.5373**	**2,567.4150**	**2.4359**	**0.1243**	**2,665.3405**

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	1.0513					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	6.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5285	0.2005	17.3935	9.2000e-004		0.0960	0.0960		0.0960	0.0960		31.3020	31.3020	0.0304		32.0614
Total	**7.7943**	**0.2005**	**17.3935**	**9.2000e-004**		**0.0960**	**0.0960**		**0.0960**	**0.0960**	**0.0000**	**31.3020**	**31.3020**	**0.0304**	**0.0000**	**32.0614**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Unmitigated CONSTRUCTION HEALTH RISK ANALYSIS
AERMOD

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Delta Fair
CO	TITLETWO	Project title 2	
CO	MODELOPT	Model options	DFAULT,CONC,NODRYDPLT,NOWETDPLT
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	
CO	POLLUTID	Pollutant ID	PM25 H1H
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	1.8
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	C:\Users\jbyrne\Desktop\TRAVIS~1\745160\745160.SFC
ME	PROFFILE	Profile met file	C:\Users\jbyrne\Desktop\TRAVIS~1\745160\745160.PFL
ME	SURFDATA	Surf met data info.	23202 2009 TRAVISAFB
ME	UAIRDATA	U-Air met data info.	23230 2009
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	18.9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
OB9YA001	VOLUME	Construction Equipment	602092.2	4206378.4	0	0.001128637	(g/s)	5
OB9YA002	VOLUME	Construction Equipment	602155.8	4206378.4	0	0.001128637	(g/s)	5
OB9YA003	VOLUME	Construction Equipment	602092.2	4206442.0	0	0.001128637	(g/s)	5
OB9YA004	VOLUME	Construction Equipment	602155.8	4206442.0	0	0.001128637	(g/s)	5
OB9YA005	VOLUME	Construction Equipment	602155.8	4206505.6	0	0.001128637	(g/s)	5
OB9YA007	VOLUME	Construction Equipment	602155.8	4206569.3	0	0.001128637	(g/s)	5
OB9YA009	VOLUME	Construction Equipment	602155.8	4206632.9	0	0.001128637	(g/s)	5

Volume Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Release Height	Init. Lat. Dim.	Init. Vert. Dim.
		East (m)	North (m)	(m)	(g/s)	(m)	(m)	(m)
OB9YA001	Construction Equipment	602092.2	4206378.4	0	0.001128637	5	29.59	1
OB9YA002	Construction Equipment	602155.8	4206378.4	0	0.001128637	5	29.59	1
OB9YA003	Construction Equipment	602092.2	4206442.0	0	0.001128637	5	29.59	1
OB9YA004	Construction Equipment	602155.8	4206442.0	0	0.001128637	5	29.59	1
OB9YA005	Construction Equipment	602155.8	4206505.6	0	0.001128637	5	29.59	1
OB9YA007	Construction Equipment	602155.8	4206569.3	0	0.001128637	5	29.59	1
OB9YA009	Construction Equipment	602155.8	4206632.9	0	0.001128637	5	29.59	1

BREEZE AERMOD Model Results

Max. Annual (5 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	0.11147	602221.60	4206458.40	0.00	0.00	1.80	DC	
	2ND	0.11072	602221.60	4206453.40	0.00	0.00	1.80	DC	
	3RD	0.10972	602221.60	4206448.40	0.00	0.00	1.80	DC	
	4TH	0.10846	602221.60	4206443.40	0.00	0.00	1.80	DC	
	5TH	0.10731	602216.60	4206418.40	0.00	0.00	1.80	DC	
	6TH	0.10695	602221.60	4206438.40	0.00	0.00	1.80	DC	
	7TH	0.10520	602221.60	4206433.40	0.00	0.00	1.80	DC	
	8TH	0.10459	602216.60	4206413.40	0.00	0.00	1.80	DC	
	9TH	0.10351	602226.60	4206458.40	0.00	0.00	1.80	DC	
	10TH	0.10321	602221.60	4206428.40	0.00	0.00	1.80	DC	

Highest Results of Pollutant: PM25

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	1ST	Avg. Conc.	6.22222	ug/m**3	12120707	602234.20	4206611.00	0.00	0.00	1.80	DC	

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
5	Warning Message(s)
5334	Informational Message(s)
43872	Hours Were Processed
3700	Calm Hours Identified
1634	Missing Hours Identified (3.72 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W276	Special proc for 1h-NO2/SO2 24hPM25 NAAQS disabled PM25 H1H
WARNING	CO	W363	Multiyr 24h/Ann PM25 processing not applicable for PM25 H1H
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	MX	W481	Data Remaining After End of Year. Number of Hours= 48

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Unmitigated Construction Health Risk Analysis
HARP 2 RAST

HARP2 - HRACalc (dated 19044) 12/12/2019 10:27:07 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1.5
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home

3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_NCAcuteRisk.csv
HRA ran successfully

*HARP - HRACalc v19044 12/12/2019 10:27:07 AM - Cancer Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK
1			9901	DieselExhPM	0.11147	2.90E-05	1.5YrCancerHighEnd_Inh_FAH16to70	*	2.90E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.00E+00	0.00E+00	0.00E+00

1	9901	DieselExhPM	0.11147	6.22222	0	0	0

*HARP - HRACalc v19044 12/12/2019 10:27:07 AM - Acute Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	6.22222	NonCancerAcute	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 12/12/2019 10:27:07 AM - Chronic Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Default FOT\Delta Fair_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	0.11147	NonCancerChronicHighEnd_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DETAILS	INH_CONC	SOIL_DOSE	DERMAL_DOSE	MMILK_DOSE	WATER_DOSE	FISH_DOSE	CROP_DOSE	BEEF_DOSE	DAIRY_DOSE	PIG_DOSE	CHICKEN_DOSE	EGG_DOSE	1ST_DRIVER	2ND_DRIVER	3RD_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
*	1.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION	NA	NA	0.00E+00	0.00E+00	0.00E+00

1	2	3	4	5	6	7	8	9	10
POL	POLABBREV	InhalationCancerURF	InhalationCancerSlopeFactor	OralCancerSlopeFactor	AcuteREL	InhalationChronicREL	OralChronicREL	IsMultipathway	AcuteCV_
9901	DieselExhPM	0.0003	1.1			5		FALSE	FALSE

11	12	13	14	15	16	17	18	19	20
AcuteCNS_	AcuteIMMUN_	AcuteKIDNEY_	AcuteGILV_	AcuteREPRO_DEVEL_	AcuteRESP_	AcuteSKIN_	AcuteEYE_	AcuteBONE_TEETH_	AcuteENDO_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

21	22	23	24	25	26	27	28	29	30
AcuteBLOOD_	AcuteODOR_	AcuteGENERAL_	InhalationChronicCV_	InhalationChronicCNS_	InhalationChronicIMMUN_	InhalationChronicKIDNEY_	InhalationChronicGILV_	InhalationChronicREPRO_DEVEL_	InhalationChronicRESP_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE

31	32	33	34	35	36	37	38	39	40
InhalationChronicSKIN_	InhalationChronicEYE_	InhalationChronicBONE_TEETH_	InhalationChronicENDO_	InhalationChronicBLOOD_	InhalationChronicODOR_	InhalationChronicGENERAL_	OralChronicCV_	OralChronicCNS_	OralChronicIMMUN_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

41	42	43	44	45	46	47	48	49	50
OralChronicKIDNEY_	OralChronicGILV_	OralChronicREPRO_DEVEL_	OralChronicRESP_	OralChronicSKIN_	OralChronicEYE_	OralChronicBONE_TEETH_	OralChronicENDO_	OralChronicBLOOD_	OralChronicODOR_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

51	52	53	54	55	56	57	58	59	60
OralChronicGENERAL_	PathwayInhalation	PathwayDrinking	PathwayFood	PathwayCrop	PathwayExposed	PathwayLeafy	PathwayProtected	PathwayRoot	PathwayDairy
FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

61	62	63	64	65	66	67	68	69	70
PathwayMeatEggs	PathwaySoilIngestion	PathwayFish	PathwayDermal	PathwayMothersMilk	SoilUptakeFactorLeafy	SoilUptakeFactorExposed	SoilUptakeFactorProtected	SoilUptakeFactorRoot	FoodTcoMilk
FALSE	FALSE	FALSE	FALSE	FALSE					

71	72	73	74	75	76	77	78	79	80
FoodTcoEgg	FoodTcoChicken	FoodTcoBeef	FoodTcoPig	HalfLifeInSoil	GRAF	FishBCF	MolWtCorrection	DermalAbsorptionFactor	InhalationChronicREL_8HR
							1		

81	82	83	84	85	86	87	88	89	90
InhalationChronicCV_8HR	InhalationChronicCNS_8HR	InhalationChronicIMMUN_8HR	InhalationChronicKIDNEY_8HR	InhalationChronicGILV_8HR	InhalationChronicREPRO_DEVEL_8HR	InhalationChronicRESP_8HR	InhalationChronicSKIN_8HR	InhalationChronicEYE_8HR	InhalationChronicBONE_TEETH_8HR
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

91	92	93	94	95	96	97
InhalationChronicENDO_8HR	InhalationChronicBLOOD_8HR	InhalationChronicODOR_8HR	InhalationChronicGENERAL_8HR	Tco_InhMM	Tco_OralMM	RChem_Group_HV
FALSE	FALSE	FALSE	FALSE			

Mitigated Construction Health Risk Analysis
AERMOD

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Delta Fair (Mitigated)
CO	TITLETWO	Project title 2	
CO	MODELOPT	Model options	DFAULT,CONC,NODRYDPLT,NOWETDPLT
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	
CO	POLLUTID	Pollutant ID	PM25 H1H
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	1.8
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	C:\Users\jbyrne\Desktop\TRAVIS~1\745160\745160.SFC
ME	PROFFILE	Profile met file	C:\Users\jbyrne\Desktop\TRAVIS~1\745160\745160.PFL
ME	SURFDATA	Surf met data info.	23202 2009 TRAVISAFB
ME	UAIRDATA	U-Air met data info.	23230 2009
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	18.9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
OB9YA001	VOLUME	Construction Equipment	602092.2	4206378.4	0	0.000375571	(g/s)	5
OB9YA002	VOLUME	Construction Equipment	602155.8	4206378.4	0	0.000375571	(g/s)	5
OB9YA003	VOLUME	Construction Equipment	602092.2	4206442.0	0	0.000375571	(g/s)	5
OB9YA004	VOLUME	Construction Equipment	602155.8	4206442.0	0	0.000375571	(g/s)	5
OB9YA005	VOLUME	Construction Equipment	602155.8	4206505.6	0	0.000375571	(g/s)	5
OB9YA007	VOLUME	Construction Equipment	602155.8	4206569.3	0	0.000375571	(g/s)	5
OB9YA009	VOLUME	Construction Equipment	602155.8	4206632.9	0	0.000375571	(g/s)	5

Volume Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Release Height	Init. Lat. Dim.	Init. Vert. Dim.
		East (m)	North (m)	(m)	(g/s)	(m)	(m)	(m)
OB9YA001	Construction Equipment	602092.2	4206378.4	0	0.000375571	5	29.59	1
OB9YA002	Construction Equipment	602155.8	4206378.4	0	0.000375571	5	29.59	1
OB9YA003	Construction Equipment	602092.2	4206442.0	0	0.000375571	5	29.59	1
OB9YA004	Construction Equipment	602155.8	4206442.0	0	0.000375571	5	29.59	1
OB9YA005	Construction Equipment	602155.8	4206505.6	0	0.000375571	5	29.59	1
OB9YA007	Construction Equipment	602155.8	4206569.3	0	0.000375571	5	29.59	1
OB9YA009	Construction Equipment	602155.8	4206632.9	0	0.000375571	5	29.59	1

BREEZE AERMOD Model Results

Max. Annual (5 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM East (m)	UTM North (m)	Elev. (m)	Hill Ht. (m)	Flag Ht. (m)	Rec. Type	Grid ID
ALL	1ST	0.03709	602221.60	4206458.40	0.00	0.00	1.80	DC	
	2ND	0.03685	602221.60	4206453.40	0.00	0.00	1.80	DC	
	3RD	0.03651	602221.60	4206448.40	0.00	0.00	1.80	DC	
	4TH	0.03609	602221.60	4206443.40	0.00	0.00	1.80	DC	
	5TH	0.03571	602216.60	4206418.40	0.00	0.00	1.80	DC	
	6TH	0.03559	602221.60	4206438.40	0.00	0.00	1.80	DC	
	7TH	0.03501	602221.60	4206433.40	0.00	0.00	1.80	DC	
	8TH	0.03480	602216.60	4206413.40	0.00	0.00	1.80	DC	
	9TH	0.03444	602226.60	4206458.40	0.00	0.00	1.80	DC	
	10TH	0.03434	602221.60	4206428.40	0.00	0.00	1.80	DC	

Highest Results of Pollutant: PM25

Avg. Per.	Grp ID	High	Type	Val	Units	Date YYMMDDHH	UTM East (m)	UTM North (m)	Elev. (m)	Hill Ht. (m)	Flag Ht. (m)	Rec. Type	Grid ID
1-HR	ALL	1ST	Avg. Conc.	2.07054	ug/m**3	12120707	602234.20	4206611.00	0.00	0.00	1.80	DC	

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
5	Warning Message(s)
5334	Informational Message(s)
43872	Hours Were Processed
3700	Calm Hours Identified
1634	Missing Hours Identified (3.72 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W276	Special proc for 1h-NO2/SO2 24hPM25 NAAQS disabled PM25 H1H
WARNING	CO	W363	Multiyr 24h/Ann PM25 processing not applicable for PM25 H1H
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	MX	W481	Data Remaining After End of Year. Number of Hours= 48

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Mitigated CONSTRUCTION HEALTH RISK ANALYSIS
HARP 2 RAST

HARP2 - HRACalc (dated 19044) 12/12/2019 2:17:01 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: HighEnd

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1.5

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1.5
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: False
Dermal: False
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home

3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_CancerRisk.csv
Calculating chronic risk
Chronic risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_NCChronicRisk.csv
Calculating acute risk
Acute risk saved to: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_NCAcuteRisk.csv
HRA ran successfully

*HARP - HRACalc v19044 12/12/2019 2:17:01 PM - Cancer Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK
1			9901	DieselExhPM	0.03709	9.64E-06	1.5YrCancerHighEnd_Inh_FAH16to70	*	9.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	0.00E+00	0.00E+00	0.00E+00

1	9901	DieselExhPM	0.03709	2.07054	0	0	0

*HARP - HRACalc v19044 12/12/2019 2:17:01 PM - Acute Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	2.07054	NonCancerAcute	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v19044 12/12/2019 2:17:01 PM - Chronic Risk - Input File: C:\Users\jbyrne\Desktop\Delta Fair\Mitigated\Delta Fair_Mitigated_HRAInput.hra

INDEX	GRP1	GRP2	POLID	POLABBREV	CONC	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
1			9901	DieselExhPM	0.03709	NonCancerChronicHighEnd_Inh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.42E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

DETAILS	INH_CONC	SOIL_DOSE	DERMAL_DOSE	MMILK_DOSE	WATER_DOSE	FISH_DOSE	CROP_DOSE	BEEF_DOSE	DAIRY_DOSE	PIG_DOSE	CHICKEN_DOSE	EGG_DOSE	1ST_DRIVER	2ND_DRIVER	3RD_DRIVER	PASTURE_CONC	FISH_CONC	WATER_CONC
*	3.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INHALATION	NA	NA	0.00E+00	0.00E+00	0.00E+00

1	2	3	4	5	6	7	8	9	10
POL	POLABBREV	InhalationCancerURF	InhalationCancerSlopeFactor	OralCancerSlopeFactor	AcuteREL	InhalationChronicREL	OralChronicREL	IsMultipathway	AcuteCV_
9901	DieselExhPM	0.0003	1.1			5		FALSE	FALSE

11	12	13	14	15	16	17	18	19	20
AcuteCNS_	AcuteIMMUN_	AcuteKIDNEY_	AcuteGILV_	AcuteREPRO_DEVEL_	AcuteRESP_	AcuteSKIN_	AcuteEYE_	AcuteBONE_TEETH_	AcuteENDO_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

21	22	23	24	25	26	27	28	29	30
AcuteBLOOD_	AcuteODOR_	AcuteGENERAL_	InhalationChronicCV_	InhalationChronicCNS_	InhalationChronicIMMUN_	InhalationChronicKIDNEY_	InhalationChronicGILV_	InhalationChronicREPRO_DEVEL_	InhalationChronicRESP_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE

31	32	33	34	35	36	37	38	39	40
InhalationChronicSKIN_	InhalationChronicEYE_	InhalationChronicBONE_TEETH_	InhalationChronicENDO_	InhalationChronicBLOOD_	InhalationChronicODOR_	InhalationChronicGENERAL_	OralChronicCV_	OralChronicCNS_	OralChronicIMMUN_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

41	42	43	44	45	46	47	48	49	50
OralChronicKIDNEY_	OralChronicGILV_	OralChronicREPRO_DEVEL_	OralChronicRESP_	OralChronicSKIN_	OralChronicEYE_	OralChronicBONE_TEETH_	OralChronicENDO_	OralChronicBLOOD_	OralChronicODOR_
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

51	52	53	54	55	56	57	58	59	60
OralChronicGENERAL_	PathwayInhalation	PathwayDrinking	PathwayFood	PathwayCrop	PathwayExposed	PathwayLeafy	PathwayProtected	PathwayRoot	PathwayDairy
FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

61	62	63	64	65	66	67	68	69	70
PathwayMeatEggs	PathwaySoilIngestion	PathwayFish	PathwayDermal	PathwayMothersMilk	SoilUptakeFactorLeafy	SoilUptakeFactorExposed	SoilUptakeFactorProtected	SoilUptakeFactorRoot	FoodTcoMilk
FALSE	FALSE	FALSE	FALSE	FALSE					

71	72	73	74	75	76	77	78	79	80
FoodTcoEgg	FoodTcoChicken	FoodTcoBeef	FoodTcoPig	HalfLifeInSoil	GRAF	FishBCF	MolWtCorrection	DermalAbsorptionFactor	InhalationChronicREL_8HR
							1		

81	82	83	84	85	86	87	88	89	90
InhalationChronicCV_8HR	InhalationChronicCNS_8HR	InhalationChronicIMMUN_8HR	InhalationChronicKIDNEY_8HR	InhalationChronicGILV_8HR	InhalationChronicREPRO_DEVEL_8HR	InhalationChronicRESP_8HR	InhalationChronicSKIN_8HR	InhalationChronicEYE_8HR	InhalationChronicBONE_TEETH_8HR
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

91	92	93	94	95	96	97
InhalationChronicENDO_8HR	InhalationChronicBLOOD_8HR	InhalationChronicODOR_8HR	InhalationChronicGENERAL_8HR	Tco_InhMM	Tco_OralMM	RChem_Group_HV
FALSE	FALSE	FALSE	FALSE			

Appendix A

Air Quality, GHG, and Health Risk Modeling Results

Delta Fair Village

City of Antioch, California

August 26, 2019

jcb Project # 2019-121

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C FHWA Traffic Noise Modeling Inputs and Results

INTRODUCTION

This report has been prepared to address the noise impacts due to, and upon the Delta Fair Mixed Use Project the city of Antioch, California. The site is currently developed with a retail center that would be partially removed, with the remaining buildings renovated as part of the project. The project would remove 73,550 square feet of existing retail uses and some parking. The project would include a 141,440 square foot parking garage, with 210 multi-family residential units above the garage. The project will also develop a new 4,000 square foot building as either a day care center or retail space. The remaining existing 87,535 square feet of retail would be renovated. Figure 1 shows the project location. Figure 2 shows the project site plan.

ENVIRONMENTAL SETTING

Background Information on Noise and Vibration

<u>*Fundamentals of Acoustics*</u>

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

Figure 1
Project Location & Noise Monitoring Sites

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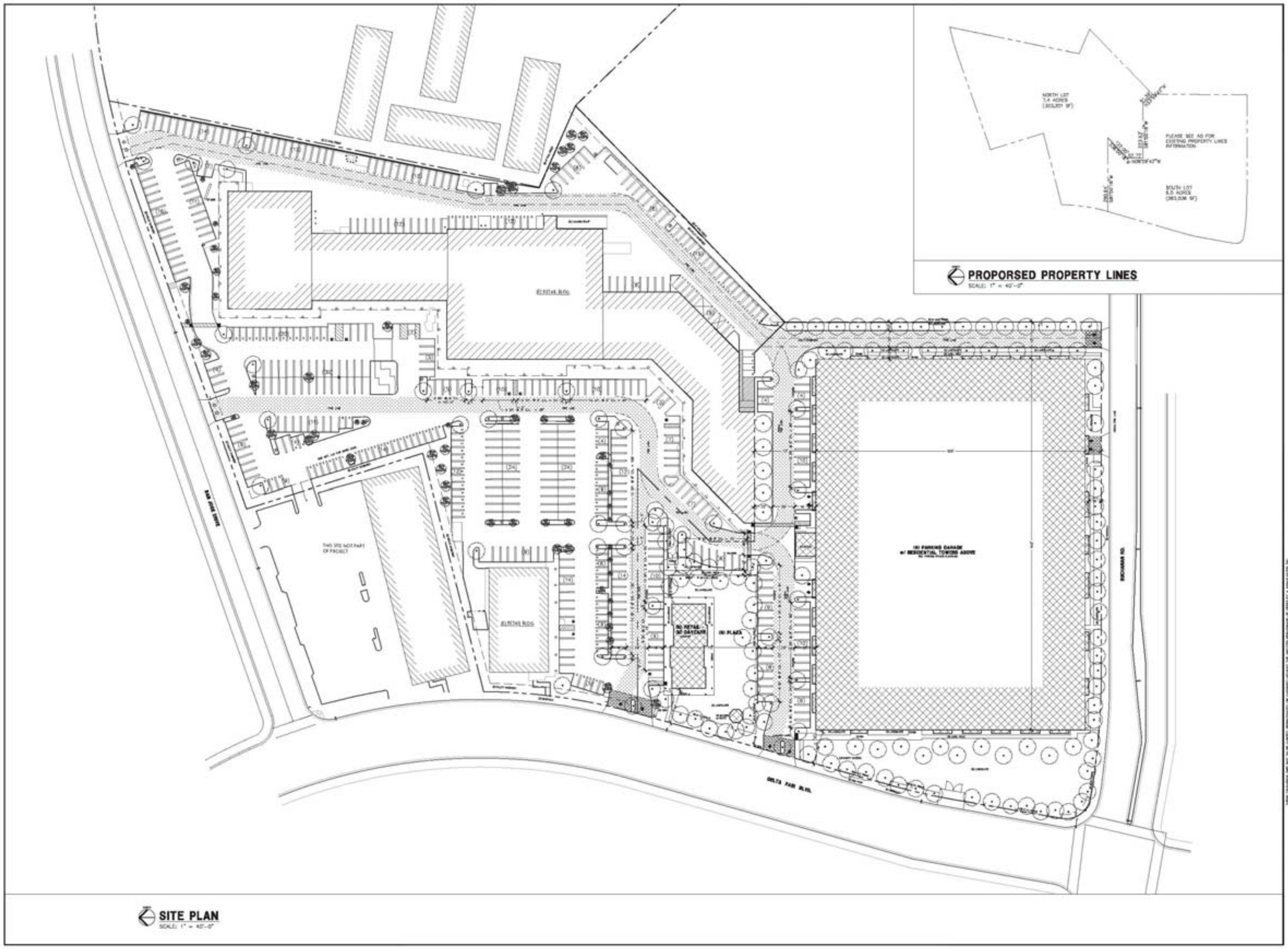

Figure 2
Project Site Plan

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The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

Table 1

LOUDNESS COMPARISON CHART (dBA)

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 1000 ft	110	Rock Band
Gas Lawn Mower at 3 ft	100	
	90	Food Blender at 3 ft
Diesel Truck at 50 ft at 50 mph Noisy Urban Area, Daytime	80	Garbage Disposal at 3 ft
Gas Lawn Mower at 100 ft Commercial Area	70	Vacuum Cleaner at 10 ft Normal Speech at 3 ft
Heavy Traffic at 300 ft	60	Large Business Office
Quiet Urban, Daytime	50	Dishwasher Next Room
Quiet Urban, Nighttime Quiet Suburban, Nighttime	40	Theater, Large Conference Room (Background)
Quiet Rural, Nighttime	30	Library Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

An increase of 3 dBA is barely perceptible to the human ear.

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With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

Surrounding Land Uses

Residential uses are located to the east, retail uses to the north and west, and commercial to the south.

Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the project vicinity, j.c. brennan & associates, Inc. staff conducted continuous 24-hour and short-term noise level measurements. The noise measurements were conducted on July 24th - 25th, 2019. See Figure 1 for noise measurement locations. The noise level measurements were conducted to determine typical background noise levels and for comparison to the project related noise levels. Table 2 shows a summary of the noise measurement results. Appendix B graphically shows the results of the 24-hour noise measurements.

Table 2: Summary of Ambient Noise Measurements

Continuous 24-hour Noise Measurement Site									
Site	**Location**	**Date**	**Average Measured Hourly Noise Levels, dBA**						
			CNEL	**Daytime (7:00 am-10:00 pm)**			**Nighttime (10:00 pm – 7:00 am)**		
				L_{eq}	**L_{50}**	**L_{max}**	**L_{eq}**	**L_{50}**	**L_{max}**
A	East Portion of Project Site	July 24-25, 2019	56 dBA	51.9	50.7	67.5	49.1	47.5	64.0

Short-term Noise Measurement Sites						
Site	**Location**	**Date**	**Time**	**L_{eq}**	**L_{50}**	**L_{max}**
1	Southeast Portion of Project Site	July 24, 2019	12:30 p.m.	55.2	54.0	61.9
		July 25, 2019	7:40 p.m.	58.1	57.0	69.0
2	West Portion of Project Site	July 24, 2019	1:15 p.m.	58.9	56.5	76.5
		July 25, 2019	7:00 p.m.	61.1	58.1	76.1
Source: j.c. brennan & associates, Inc. - 2019						

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Existing Roadway Noise Levels

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the traffic study prepared for the project (Fehr & Peers). Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the sensitive receptors located at 75-feet from the centerline along each project-area roadway segment. In some locations sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the project-area roadway segments analyzed in this report.

The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, roadway grade, shielding from local topography, sound walls or structures. The distances reported in Table 3 are generally considered to be conservative estimates of noise exposure along the project-area roadways.

Table 3 shows the existing traffic noise levels in terms of CNEL at 75-feet from the centerline along each roadway segment. This table also shows the distances to existing traffic noise contours. A complete listing of the FHWA Model input data is contained in Appendix C.

Table 3: Predicted Existing Traffic Noise Levels

Roadway	Segment	CNEL, dBA	Noise Levels (CNEL, dB)			
			Distance (feet)	Distance to Contours (feet) Existing (CNEL)		
				70	65	60
Somersville	South of Buchanan	64.8	75-feet	34	73	158
Somersville	Buchanan to Delta Fair	65.4	75-feet	37	80	171
Somersville	North of Delta Fair	68.5	75-feet	60	128	277
Buchanan	West of Somersville	66.2	75-feet	42	90	193
Buchanan	Somersville to Delta Fair	62.5	75-feet	24	51	109
Buchanan	Delta Fair to San Jose	63.3	75-feet	27	58	124
Buchanan	East of San Jose	63.2	75-feet	26	57	122
Delta Fair	West of Somersville	64.8	75-feet	34	73	156
Delta Fair	Somersville to Buchanan	64.9	75-feet	34	74	159

[1] Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.
[2] Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2019

REGULATORY CONTEXT

Federal

There are no federal regulations related to noise that apply to the Proposed Project.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room.

Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment

City of Antioch General Plan

The Environmental Hazards Chapter of the City of Antioch General Plan sets forth noise and land use compatibility standards to guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Objectives and policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

11.6.1 Noise Objective
Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch as described below:

- Residential
  Single-Family: 60 dBA CNEL within rear yards
  Multi-Family: 60 dBA CNEL within exterior open space

- Schools
  Classrooms: 65 dBA CNEL
  Play and sports areas: 70 dB CNEL

- Hospitals, Libraries: 60 dBA CNEL

- Commercial/Industrial: 70 dBA CNEL at the front setback

11.6.2 Noise

Noise Compatible Land Use and Circulation Patterns

b. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.

Noise Analysis and Mitigation

e. When new development incorporating a potentially significant noise generator is proposed, require noise analyses to be prepared by a qualified acoustical engineer. Require the implementation of appropriate noise mitigation when the proposed project will cause new exceedances of General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development.

f. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:

- Increased building setbacks to increase the distance between the noise source and sensitive receptor.
- Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.

- Orient delivery, loading docks, and outdoor work areas away from noise sensitive uses.
- Place noise tolerant use, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive receptor.
- Cluster office, commercial, or multi-family residential structures to reduce noise levels within interior open space areas.
- Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.

g. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.

- The barrier must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source
- To be effective, the barrier needs to be constructed without cracks or openings.
- The barrier must interrupt the line-of-sight between the noise source and the receptor.
- The effects of noise "flanking" the noise barrier should be minimized by bending the end of the barrier back from the noise source
- Require appropriate landscaping treatment to be provided in conjunction with noise barriers to mitigate their potential aesthetic impacts.

h. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administration Code).

Temporary Construction

i. Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.

j. Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.

k. Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

m. Prior to the issuance of any grading plans, the City shall condition approval of subdivisions and non-residential development adjacent to any developed/occupied noise sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the City for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:

- The construction contractor shall use temporary noise-attenuation fences, where feasible, to reduce construction noise impacts on adjacent noise sensitive land uses
- During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.

n. The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the city.

City of Antioch Noise Ordinance

Section 9-5.1901 of the Antioch Zoning Ordinance sets forth noise attenuation requirements for stationary and mobile noise sources. The provisions applicable to the project include the following:

(A) *Stationary noise sources.* Uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks shall not cause an increase in background ambient noise which will exceed 60 CNEL.

(B) Mobile noise sources.

(1) Arterial and street traffic shall not cause an increase in background ambient noise which will exceed 60 CNEL.

(D) Noise attenuation. The city may require noise attenuation measures be incorporated into a project to obtain compliance with this section. Measures outlined in the noise policies of the General Plan should be utilized to mitigate noise to the maximum feasible extent.

The City of Antioch Zoning Ordinance (2005) provides noise attenuation requirements for construction activity. Specifically, Section 5-17.04 prohibits construction during sensitive evening, nighttime, and weekend hours. 5-17.04

Construction Noise Attenuation

(B) It shall be unlawful for any person to be involved in construction activity during the hours specified below:

- On weekdays prior to 7:00 a.m. and after 6:00 p.m.
- On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
- On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.

Vibration Standards

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City of Antioch does not contain specific policies pertaining to vibration levels. However, vibration levels associated with construction activities are discussed in this report.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 4, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 4 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. and continuous vibrations of 0.10 in/sec p.p.v., or greater, would likely cause annoyance to sensitive receptors.

Table 4: Effects of Various Vibration Levels on People and Buildings

Vibration Level (Peak Particle Velocity)*			
mm/s	in/sec	Human Reaction	Effect on Buildings
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

Source: Transportation Related Earthborne Vibrations, Caltrans Experiences. Technical Advisory: TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

Methods of Analysis

Traffic Noise Impact Assessment Methodology

To describe future noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. Direct inputs to the model included traffic volumes provided by Fehr & Peers. The FHWA model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict L_{dn}/CNEL values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Construction / Demolition Noise and Vibration Impact Methodology

Construction noise and vibration was analyzed using data compiled for various pieces of construction equipment at a representative distance of 50 feet. Construction activities are discussed relative to the applicable City of Antioch General Plan noise policies and Noise Ordinance. Potential impacts and mitigation measures are discussed.

Thresholds of Significance

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-f]).

Additional thresholds included in the General Plan EIR also are shown.

Would the project:

a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b. Expose persons to, or generate, excessive groundborne vibration or groundborne noise levels;

c. Cause a substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the project;

d. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels without the project;

e. Expose persons residing or working in the project area to excessive noise levels if located within an airport land use plan or where such a plan has not been adopted within 2 miles of a public airport or public use airport; or

f. Expose persons residing or working in the project area to excessive noise levels if located within the vicinity of a private airstrip.

Additionally, the General Plan EIR included the following discussion regarding increases in ambient noise:

> *"CEQA does not define "substantial increase." Webster's Dictionary defines "substantial" as "considerable in quantity." As noted earlier in the discussion of noise definitions, the human ear can detect changes of 3 dBA and changes of less than 3 dBA, while audible under controlled circumstances, are not readily discernable in an outdoor environment. Thus a change of 3 dBA is considered a barely audible change. However, CEQA uses "substantial change" as its criterion. Because most people can readily hear a change of 5 dBA L_{dn} in an exterior environment, this value was established for the proposed General Plan as the CEQA criterion for substantial change. As a point of reference, Caltrans defines a noise increase as substantial when the predicted noise level with the project would exceed existing noise levels by 12 dBA L_{eq}."*

Thus, the proposed project could result in potentially significant impacts related to noise if it would exceed any of the thresholds of significance described below.

- An increase in long-term ambient noise by 5 dBA CNEL/L_{dn} or more, where existing noise levels do not exceed the City's 60 dBA CNEL exterior noise level standard (*General Plan DEIR*), or:

- An increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level standard (*General Plan Noise Element, Policy E*).

The proposed project is not located within two miles of a public or private airport or airstrip. Therefore, aircraft noise is not discussed further in this analysis.

Project-Specific Impacts and Mitigation Measures

Impact 1 Construction / Demolition Noise at Sensitive Receptors

Demolition and Construction of the Proposed Project would temporarily increase noise levels. This would be a ***potentially significant*** impact.

During the demolition and construction of the project, noise from these activities would add to the noise environment in the project vicinity. This is particularly true at the residences adjacent to the east property line. Activities involved in demolition and construction would generate maximum noise levels, as indicated in Table 5, ranging from 76 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A substantial project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Table 5: Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85
Source: *Roadway Construction Noise Model User's Guide*. Federal Highway Administration. FHWA-HEP-05-054. January 2006.	

Construction activities are conditionally exempt from the Noise Ordinance during certain hours. Construction activities are exempt from the noise standard from 7 a.m. to 6 p.m. Monday through Friday, and from 9 a.m. to 5 p.m. on Saturdays. No construction is allowed on Sundays and federal holidays.

Mitigation for Impact 1:

The following mitigation measures are required for the Proposed Project to minimize demolition and construction noise impacts.

MM 1a: Demolition and Construction activities shall comply with the City of Antioch Noise Ordinance with regards to hours of operations.

MM 1b: Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment.

MM 1c**:** Designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances and will be responsible for determining the cause of the complaint, and implement any feasible measures to be taken to alleviate the problem.

MM 1d: Develop a construction-related noise mitigation plan, consistent with the General Plan.

Significance after Mitigation: **Less-than-significant**

Impact 2 Demolition and Construction Vibration at Sensitive Receptors

The proposed project has the potential to expose sensitive receptors to substantial vibration associated with construction activities. This would be a ***less-than-significant*** impact.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading and utility placement.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 6 shows the typical vibration levels produced by construction equipment.

Sensitive receptors could be impacted by construction related vibrations, especially vibratory compactors/rollers. The nearest receptors are located approximately 50 feet or further from any areas of the project site that might require grading or paving. At this distance construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

Table 6: Vibration Levels for Varying Construction Equipment

Type of Equipment	Peak Particle Velocity @ 25 feet (inches/second)	Peak Particle Velocity @ 50 feet (inches/second)	Peak Particle Velocity @ 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006

The Table 6 data indicate that construction vibration levels anticipated for the project are less than the 0.1 in/sec criteria at distances of 50 feet. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors. Implementation of the proposed project would have a **less than significant** impact.

Mitigation for Impact 2: None required

Impact 3 Transportation Noise at Existing Sensitive Receptors

Traffic generated by the Proposed Project will not generate traffic noise increases exceeding the substantial increase criteria, as outlined in the Thresholds of Significance criteria above. This would be a ***less-than-significant*** impact.

Tables 7 through 9 show the predicted traffic noise level increases on the local roadway network for Existing, Near-Term, and Cumulative scenarios under No-Project and Project conditions.

Table 7: Existing No Project vs. Existing + Project Traffic Noise Levels

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Existing No Project	Existing + Project	Δ Change	Existing No Project (CNEL, dB)			Existing + Project (CNEL, dB)		
					70	65	60	70	65	60
Somersville	South of Buchanan	64.8	64.9	+0.1	34	73	158	34	74	158
Somersville	Buchanan to Delta Fair	65.4	65.4	0	37	80	171	37	80	172
Somersville	North of Delta Fair	68.5	68.6	+0.1	60	128	277	61	131	282
Buchanan	West of Somersville	66.2	66.4	+0.2	42	90	193	43	93	200
Buchanan	Somersville to Delta Fair	62.5	62.7	+0.2	24	51	109	24	53	113
Buchanan	Delta Fair to San Jose	63.3	63.3	0	27	58	124	27	58	125
Buchanan	East of San Jose	63.2	63.2	0	26	57	122	26	57	123
Delta Fair	West of Somersville	64.8	64.9	+0.1	34	73	156	34	74	160
Delta Fair	Somersville to Buchanan	64.9	65.3	+0.4	34	74	159	37	79	170

[1] Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways
[2] Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.
[3] Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Bold indicates a potential significant increase in traffic noise levels.
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2019

Table 8: Near Term No Project vs. Near Term + Project Traffic Noise Levels

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Near Term No Project	Near Term + Project	Δ Change	Near Term No Project (CNEL, dB)			Near Term + Project (CNEL, dB)		
					70	65	60	70	65	60
Somersville	South of Buchanan	65.8	65.8	0	39	84	182	39	85	182
Somersville	Buchanan to Delta Fair	66.9	66.9	0	47	100	216	47	100	216
Somersville	North of Delta Fair	69.5	69.6	+0.1	69	149	320	70	151	325
Buchanan	West of Somersville	67.5	67.5	0	51	110	236	51	111	239
Buchanan	Somersville to Delta Fair	63.4	63.6	+0.2	27	58	126	28	60	129
Buchanan	Delta Fair to San Jose	64.0	64.0	0	30	64	138	30	65	140
Buchanan	East of San Jose	63.9	63.9	0	29	63	136	30	64	137
Delta Fair	West of Somersville	65.3	65.4	+0.1	36	78	169	37	80	172
Delta Fair	Somersville to Buchanan	65.2	65.6	+0.4	36	78	167	38	82	178

[1] Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways
[2] Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.
[3] Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Bold indicates a potential significant increase in traffic noise levels.
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2019

Table 9: Cumulative No Project vs. Cumulative + Project Traffic Noise Levels

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Cumulative No Project	Cumulative + Project	Δ Change	Cumulative No Project (CNEL, dB)			Cumulative + Project (CNEL, dB)		
					70	65	60	70	65	60
Somersville	South of Buchanan	67.2	67.2	0	49	105	226	49	106	227
Somersville	Buchanan to Delta Fair	67.5	67.6	+0.1	51	111	239	51	111	239
Somersville	North of Delta Fair	70.1	70.2	+0.1	76	164	353	77	166	357
Buchanan	West of Somersville	67.5	67.5	0	51	110	236	51	110	238
Buchanan	Somersville to Delta Fair	63.6	63.8	+0.2	28	61	130	29	62	134
Buchanan	Delta Fair to San Jose	64.1	64.2	+0.1	30	65	141	31	66	142
Buchanan	East of San Jose	64.1	64.2	+0.1	31	66	142	31	66	143
Delta Fair	West of Somersville	65.8	65.9	+0.1	39	85	183	40	86	186
Delta Fair	Somersville to Buchanan	65.7	66.0	+0.3	39	83	179	41	88	189

[1] Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways
[2] Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.
[3] Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Bold indicates a potential significant increase in traffic noise levels.
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2019

The project does not result in an increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level standard (*General Plan Noise Element, Policy E*).

Mitigation for Impact 3: None Required.

Impact 4 Transportation Noise at New Sensitive Receptors

The proposed project does not expose new noise-sensitive uses on the project site to transportation noise levels that exceed the City of Antioch exterior and interior noise level standards. This is considered to be a ***less than significant*** impact.

Exterior Traffic Noise Level Impacts:

The FHWA traffic noise prediction model was used to predict Cumulative traffic noise levels at the proposed residential portion of the project site. Tables 10 shows the predicted traffic noise levels at the proposed residential uses adjacent to Buchanan Road and Delta Fair Avenue.

Based upon Table 10, traffic noise levels will exceed the 60 dBA CNEL standard at the individual patios facing the roadways. However, Noise Objective 11.6.1 of the General Plan applies the noise level standard at the exterior open space for Multi-Family uses. The center courtyard of the project provides a common outdoor area, and those traffic noise levels will comply with the exterior noise level standard of 60 dBA CNEL.

Interior Traffic Noise Level Impacts:

Typical construction will result in an exterior to interior noise level reduction of 25 dBA, provided that air conditioning is provided to allow residents to close windows and doors for the appropriate acoustical isolation. It is assumed that all residences will provide air conditioning for occupants. Predicted cumulative exterior noise levels are expected to be less than 70 dBA CNEL. Therefore, interior noise levels are expected to comply with the interior noise level standard of 45 dBA CNEL.

Mitigation for Impact 4: None Required.

Table 10: Cumulative + Project
Transportation Noise Levels at Proposed Residential Uses

Noise Source	Receptor Description	Approximate Distance to Center of Outdoor Activity Area, feet[1]	ADT	Predicted Exterior Traffic Noise Levels, CNEL (dBA)
Buchanan Road	Building Facade / Patios	100-feet	11,140	64 dBA
Buchanan Road	Courtyard Outdoor Area	200-feet	11,140	54.5 dBA*
Delta Fair Avenue	Building Facade / Patios	100-feet	17,120	66 dBA
Delta Fair Avenue	Courtyard Outdoor Area	200-feet	17,120	56.5 dBA

[1] Setback distances are measured in feet from the centerlines of the roadways.
* Assumes a minimum of -5 dBA shielding from building facades
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2019

Impact 5 Stationary Noise Sources

The primary stationary noise source associated with the project is the proposed parking garage, adjacent to the residences to the east. However, since the entrance is located on the opposite side from the residences, the majority of the use is shielded. Only openings for ventilation are located on the east side of the parking garage. This is a **Less than Significant Noise Source**.

Mitigation for Impact 5:

MM 5a: None required

Cumulative Impacts and Mitigation Measures

Impact 6 Cumulative Noise Levels

The cumulative context for noise impacts associated with the Proposed Project consists of the existing and future noise sources that could affect the project or surrounding uses. Noise generated by construction would be temporary, and would not add to the permanent noise environment or be considered as part of the cumulative context. The total noise impact of the Proposed Project would be fairly small and would not be a substantial increase to the existing future noise environment. The mitigation measures described in this analysis would result in the Proposed Project having a ***less-than-significant cumulative impact.***

Mitigation for Impact 6: None required

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_{eq} Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

$L_{(n)}$ The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50% of the time during the one hour period.

Loudness A subjective term for the sensation of the magnitude of sound.

Noise Unwanted sound.

NRC Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the AMaximum@ level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.

SEL Sound Exposure Level. SEL is s rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.

STC Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.

Impulsive Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.

Simple Tone Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B
2019-121 Delta Fair Village
24hr Continuous Noise Monitoring - Site A
07/24/2019 - 07/25/2019

Hour	Leq	Lmax	L50	L90
20:00	52	73	52	50
21:00	50	63	49	47
22:00	48	62	47	46
23:00	47	60	46	44
0:00	46	65	45	44
1:00	45	54	45	43
2:00	45	61	44	42
3:00	48	67	47	44
4:00	51	73	50	48
5:00	52	61	52	50
6:00	52	72	51	48
7:00	53	66	52	50
8:00	54	68	52	49
9:00	52	71	51	49
10:00	53	64	51	49
11:00	51	63	50	48
12:00	53	64	52	50
13:00	51	65	50	48
14:00	52	73	51	48
15:00	52	63	51	49
16:00	51	68	50	48
17:00	51	68	50	48
18:00	51	74	50	47
19:00	51	70	49	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	54.0	49.8	51.9	52.1	45.0	49.1
Lmax (Maximum)	74.4	62.6	67.5	73.1	54.1	64.0
L50 (Median)	52.2	49.2	50.7	51.7	44.3	47.5
L90 (Background)	50.1	47.4	48.6	49.8	42.3	45.6

Computed Ldn, dB	56.0
% Daytime Energy	76%
% Nighttime Energy	24%

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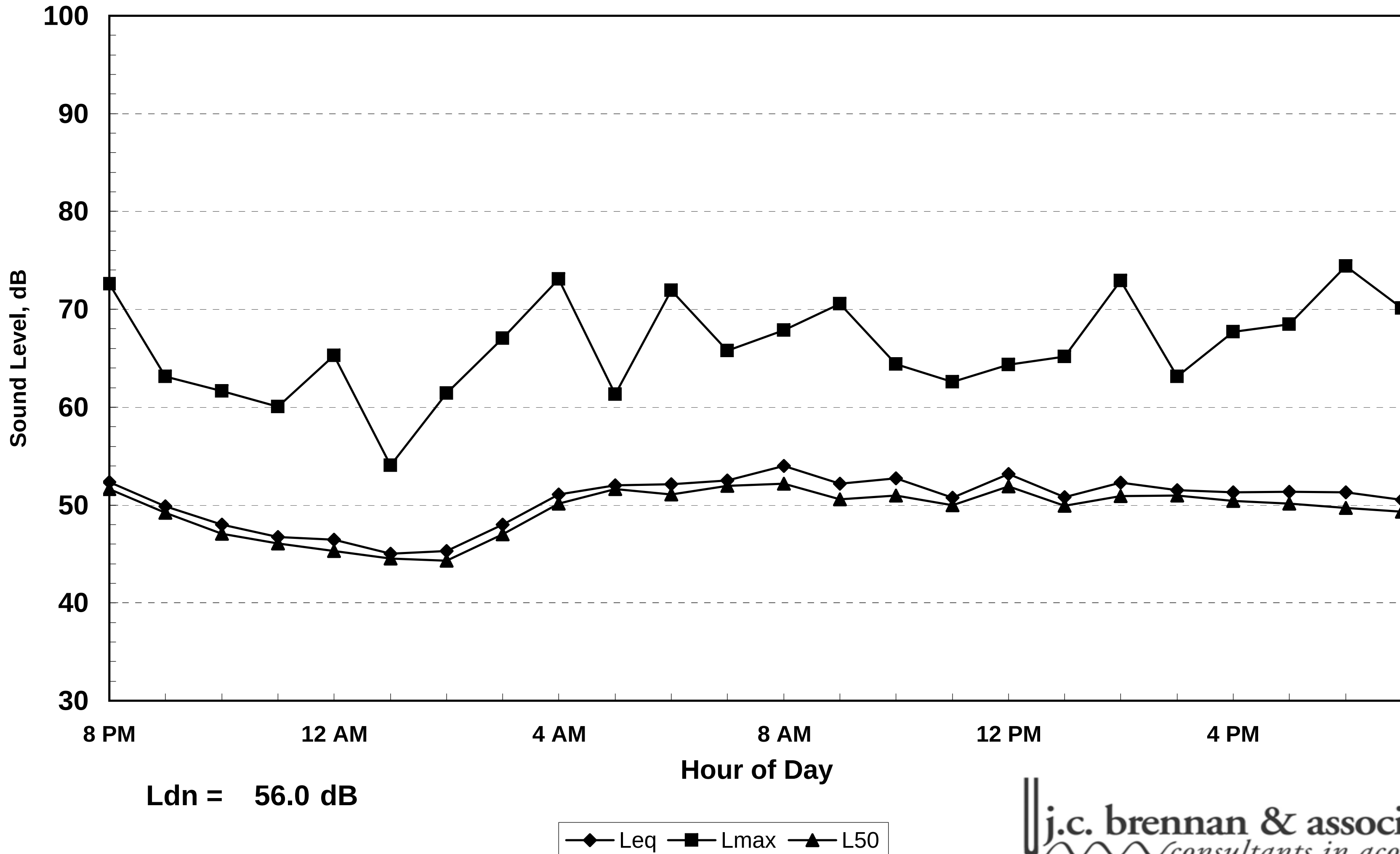
Appendix B

2019-121 Delta Fair Village

24hr Continuous Noise Monitoring - Site A

07/24/2019 - 07/25/2019



Ldn = 56.0 dB

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Appendix C
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Existing
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	13,040	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	14,760	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	30,300	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	17,680	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	7,540	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	9,090	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	8,860	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	12,860	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	13,220	77		23	2.5	1.5	35	75	
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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121

Description: Existing

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	62.5	56.3	59.3	64.8
2	Somersville	Buchanan to Delta Fair	63.0	56.9	59.8	65.4
3	Somersville	North of Delta Fair	66.1	60.0	63.0	68.5
4	Buchanan	West of Somersville	63.8	57.6	60.6	66.2
5	Buchanan	Somersville to Delta Fair	60.1	53.9	56.9	62.5
6	Buchanan	Delta Fair to San Jose	60.9	54.8	57.7	63.3
7	Buchanan	East of San Jose	60.8	54.6	57.6	63.2
8	Delta Fair	West of Somersville	62.4	56.3	59.2	64.8
9	Delta Fair	Somersville to Buchanan	62.5	56.4	59.4	64.9

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121

Description: Existing

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours -------- 75	70	65	60	55
1	Somersville	South of Buchanan	16	34	73	158	340
2	Somersville	Buchanan to Delta Fair	17	37	80	171	369
3	Somersville	North of Delta Fair	28	60	128	277	596
4	Buchanan	West of Somersville	19	42	90	193	416
5	Buchanan	Somersville to Delta Fair	11	24	51	109	236
6	Buchanan	Delta Fair to San Jose	12	27	58	124	267
7	Buchanan	East of San Jose	12	26	57	122	263
8	Delta Fair	West of Somersville	16	34	73	156	337
9	Delta Fair	Somersville to Buchanan	16	34	74	159	343

Appendix C
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Existing + Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	13,120	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	14,790	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	31,220	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	18,680	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	7,930	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	9,230	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	89,300	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	13,270	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	14,600	77		23	2.5	1.5	35	75	
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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121

Description: Existing + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	62.5	56.4	59.3	64.9
2	Somersville	Buchanan to Delta Fair	63.0	56.9	59.9	65.4
3	Somersville	North of Delta Fair	66.3	60.1	63.1	68.6
4	Buchanan	West of Somersville	64.0	57.9	60.9	66.4
5	Buchanan	Somersville to Delta Fair	60.3	54.2	57.1	62.7
6	Buchanan	Delta Fair to San Jose	61.0	54.8	57.8	63.3
7	Buchanan	East of San Jose	70.8	64.7	67.7	73.2
8	Delta Fair	West of Somersville	62.6	56.4	59.4	64.9
9	Delta Fair	Somersville to Buchanan	63.0	56.8	59.8	65.3

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121

Description: Existing + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	-------- Distances to Traffic Noise Contours --------				
			75	70	65	60	55
1	Somersville	South of Buchanan	16	34	74	158	341
2	Somersville	Buchanan to Delta Fair	17	37	80	172	370
3	Somersville	North of Delta Fair	28	61	131	282	608
4	Buchanan	West of Somersville	20	43	93	200	432
5	Buchanan	Somersville to Delta Fair	11	24	53	113	244
6	Buchanan	Delta Fair to San Jose	13	27	58	125	270
7	Buchanan	East of San Jose	57	123	264	569	1226
8	Delta Fair	West of Somersville	16	34	74	160	344
9	Delta Fair	Somersville to Buchanan	17	37	79	170	366

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Appendix C
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Near Term No Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	16,100	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	20,900	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	37,700	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	23,900	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	9,300	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	10,700	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	10,400	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	14,400	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	14,200	77		23	2.5	1.5	35	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121

Description: Near Term No Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	63.4	57.2	60.2	65.8
2	Somersville	Buchanan to Delta Fair	64.5	58.4	61.4	66.9
3	Somersville	North of Delta Fair	67.1	60.9	63.9	69.5
4	Buchanan	West of Somersville	65.1	59.0	61.9	67.5
5	Buchanan	Somersville to Delta Fair	61.0	54.9	57.8	63.4
6	Buchanan	Delta Fair to San Jose	61.6	55.5	58.4	64.0
7	Buchanan	East of San Jose	61.5	55.3	58.3	63.9
8	Delta Fair	West of Somersville	62.9	56.8	59.7	65.3
9	Delta Fair	Somersville to Buchanan	62.8	56.7	59.7	65.2

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121

Description: Near Term No Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Somersville	South of Buchanan	18	39	84	182	391
2	Somersville	Buchanan to Delta Fair	22	47	100	216	465
3	Somersville	North of Delta Fair	32	69	149	320	690
4	Buchanan	West of Somersville	24	51	110	236	509
5	Buchanan	Somersville to Delta Fair	13	27	58	126	271
6	Buchanan	Delta Fair to San Jose	14	30	64	138	298
7	Buchanan	East of San Jose	14	29	63	136	292
8	Delta Fair	West of Somersville	17	36	78	169	363
9	Delta Fair	Somersville to Buchanan	17	36	78	167	360

Appendix C
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Near Term + Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	16,180	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	20,930	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	38,620	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	24,240	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	9,690	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	10,860	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	10,560	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	14,830	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	15,580	77		23	2.5	1.5	35	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121

Description: Near Term + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	63.4	57.3	60.2	65.8
2	Somersville	Buchanan to Delta Fair	64.5	58.4	61.4	66.9
3	Somersville	North of Delta Fair	67.2	61.0	64.0	69.6
4	Buchanan	West of Somersville	65.2	59.0	62.0	67.5
5	Buchanan	Somersville to Delta Fair	61.2	55.0	58.0	63.6
6	Buchanan	Delta Fair to San Jose	61.7	55.5	58.5	64.0
7	Buchanan	East of San Jose	61.6	55.4	58.4	63.9
8	Delta Fair	West of Somersville	63.0	56.9	59.9	65.4
9	Delta Fair	Somersville to Buchanan	63.3	57.1	60.1	65.6

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121

Description: Near Term + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Somersville	South of Buchanan	18	39	85	182	392
2	Somersville	Buchanan to Delta Fair	22	47	100	216	466
3	Somersville	North of Delta Fair	33	70	151	325	701
4	Buchanan	West of Somersville	24	51	111	239	514
5	Buchanan	Somersville to Delta Fair	13	28	60	129	279
6	Buchanan	Delta Fair to San Jose	14	30	65	140	301
7	Buchanan	East of San Jose	14	30	64	137	295
8	Delta Fair	West of Somersville	17	37	80	172	370
9	Delta Fair	Somersville to Buchanan	18	38	82	178	383

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Cumulative No Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	22,400	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	24,300	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	43,600	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	23,900	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	9,800	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	11,000	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	11,100	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	16,300	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	15,800	77		23	2.5	1.5	35	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121
Description: Cumulative No Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	64.8	58.7	61.7	67.2
2	Somersville	Buchanan to Delta Fair	65.2	59.0	62.0	67.5
3	Somersville	North of Delta Fair	67.7	61.6	64.5	70.1
4	Buchanan	West of Somersville	65.1	59.0	61.9	67.5
5	Buchanan	Somersville to Delta Fair	61.2	55.1	58.1	63.6
6	Buchanan	Delta Fair to San Jose	61.7	55.6	58.6	64.1
7	Buchanan	East of San Jose	61.8	55.6	58.6	64.1
8	Delta Fair	West of Somersville	63.4	57.3	60.3	65.8
9	Delta Fair	Somersville to Buchanan	63.3	57.2	60.1	65.7

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121
Description: Cumulative No Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Somersville	South of Buchanan	23	49	105	226	488
2	Somersville	Buchanan to Delta Fair	24	51	111	239	515
3	Somersville	North of Delta Fair	35	76	164	353	760
4	Buchanan	West of Somersville	24	51	110	236	509
5	Buchanan	Somersville to Delta Fair	13	28	61	130	281
6	Buchanan	Delta Fair to San Jose	14	30	65	141	303
7	Buchanan	East of San Jose	14	31	66	142	305
8	Delta Fair	West of Somersville	18	39	85	183	394
9	Delta Fair	Somersville to Buchanan	18	39	83	179	386

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-121
Description: Cumulative + Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Somersville	South of Buchanan	22,580	77		23	2.5	1.5	35	75	
2	Somersville	Buchanan to Delta Fair	24,320	77		23	2.5	1.5	35	75	
3	Somersville	North of Delta Fair	44,470	77		23	2.5	1.5	35	75	
4	Buchanan	West of Somersville	24,130	77		23	2.5	1.5	35	75	
5	Buchanan	Somersville to Delta Fair	10,190	77		23	2.5	1.5	35	75	
6	Buchanan	Delta Fair to San Jose	11,140	77		23	2.5	1.5	35	75	
7	Buchanan	East of San Jose	11,260	77		23	2.5	1.5	35	75	
8	Delta Fair	West of Somersville	16,730	77		23	2.5	1.5	35	75	
9	Delta Fair	Somersville to Buchanan	17,120	77		23	2.5	1.5	35	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-121

Description: Cumulative + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Somersville	South of Buchanan	64.9	58.7	61.7	67.2
2	Somersville	Buchanan to Delta Fair	65.2	59.0	62.0	67.6
3	Somersville	North of Delta Fair	67.8	61.7	64.6	70.2
4	Buchanan	West of Somersville	65.2	59.0	62.0	67.5
5	Buchanan	Somersville to Delta Fair	61.4	55.3	58.2	63.8
6	Buchanan	Delta Fair to San Jose	61.8	55.6	58.6	64.2
7	Buchanan	East of San Jose	61.8	55.7	58.7	64.2
8	Delta Fair	West of Somersville	63.6	57.4	60.4	65.9
9	Delta Fair	Somersville to Buchanan	63.7	57.5	60.5	66.0

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-121

Description: Cumulative + Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

			-------- Distances to Traffic Noise Contours --------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Somersville	South of Buchanan	23	49	106	227	490
2	Somersville	Buchanan to Delta Fair	24	51	111	239	515
3	Somersville	North of Delta Fair	36	77	166	357	770
4	Buchanan	West of Somersville	24	51	110	238	512
5	Buchanan	Somersville to Delta Fair	13	29	62	134	288
6	Buchanan	Delta Fair to San Jose	14	31	66	142	306
7	Buchanan	East of San Jose	14	31	66	143	308
8	Delta Fair	West of Somersville	19	40	86	186	401
9	Delta Fair	Somersville to Buchanan	19	41	88	189	408

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APPENDIX C

TRAFFIC REPORT

Prepared by

FEHR & PEERS

100 Pringle Avenue
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December 2019

Transportation Assessment

Delta Fair Village

Prepared for:
The City of Antioch
Raney Planning & Management, Inc.

Table of Contents

Appendices

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1. Introduction

This report presents the analysis and findings of the Transportation Impact Assessment (TIA) prepared for the Delta Fair Village (Project) located in the City of Antioch, Contra Costa County. This chapter discusses the TIA purpose, study locations and analysis scenarios, analysis methods, criteria used to identify significant impacts, and report organization.

Study Purpose and Project Description

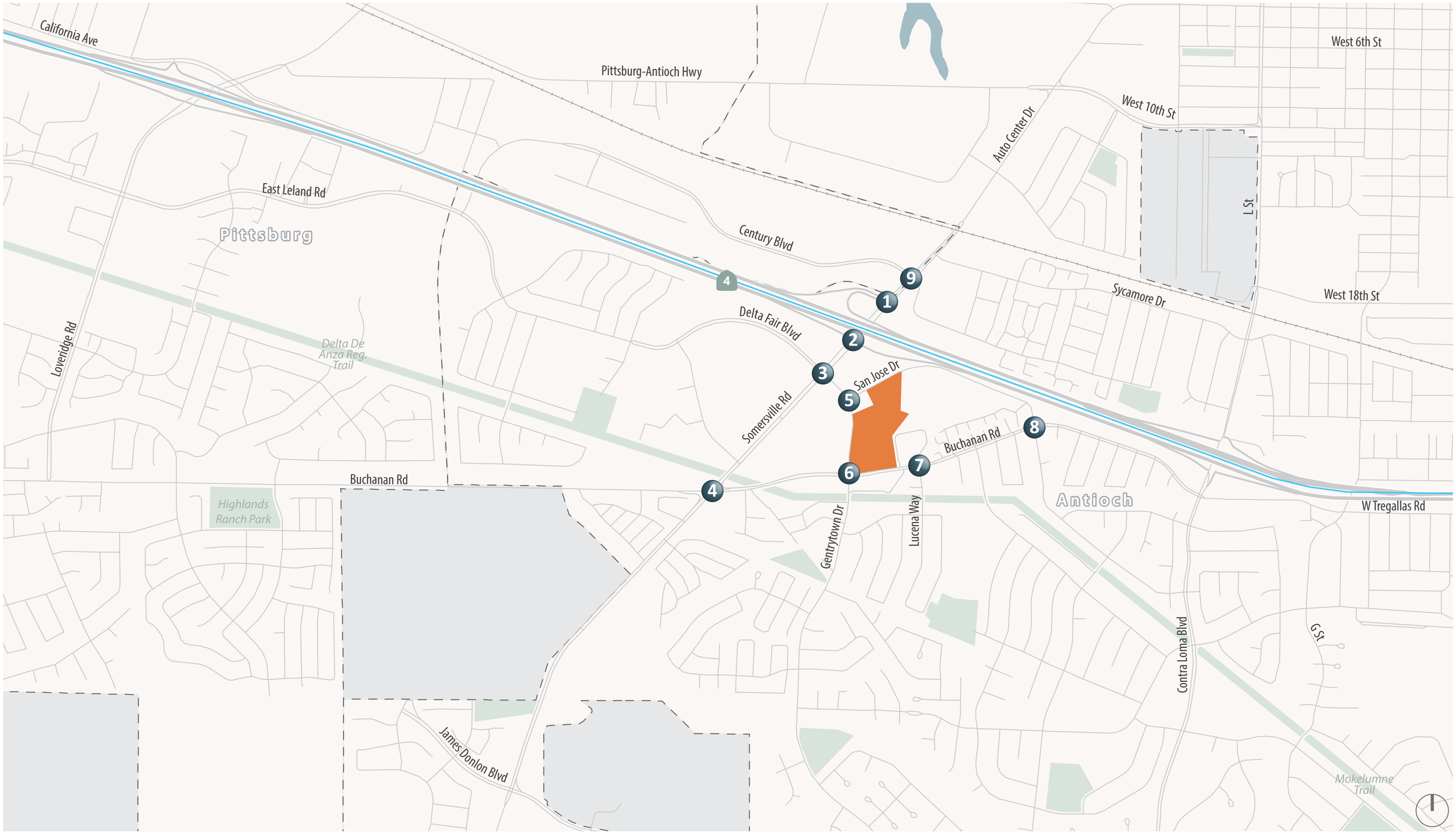
The study's purpose is to evaluate the transportation impacts of the Project, located on Delta Fair Boulevard in Antioch between San Jose Drive and Buchanan Road, as shown in **Figure 1**. The site is currently developed with an underperforming retail center that would be partially removed with the remaining buildings renovated as part of the Project. The proposed Project would remove 73,550 square feet of existing retail uses and much of the site's southern parking, to be replaced by a 141,440 square foot single story parking garage, with 210 multi-family residential units above the garage. The proposed Project will also develop a new 4,000 square foot building with the potential to be either a day care center, or additional retail space. The remaining existing 73,535 square feet of retail uses would be renovated. The Project site plan is shown on **Figure 2.**

Vehicular access would occur from San Jose Drive, Delta Fair Boulevard, and Buchanan Road via various existing and proposed driveways as part of the proposed Project.

Study Locations and Analysis Scenarios

Project impacts on study area roadway facilities were determined by measuring the effect project traffic would have on intersections in the vicinity of the site during the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods. The following intersections were selected based on a review of the Project location, estimates of the added traffic from the Project, and locations of planned roadways in the area:

1. Somersville Road/State Route 4 Westbound Ramps
2. Somersville Road/State Route 4 Eastbound Ramps
3. Somersville Road/Delta Fair Boulevard
4. Somersville Road/Buchanan Road
5. San Jose Drive/Delta Fair Boulevard
6. Buchanan Road/Delta Fair Boulevard
7. Buchanan Road/Lucena Way
8. Buchanan Road/San Jose Drive
9. Auto Center Drive/Century Boulevard



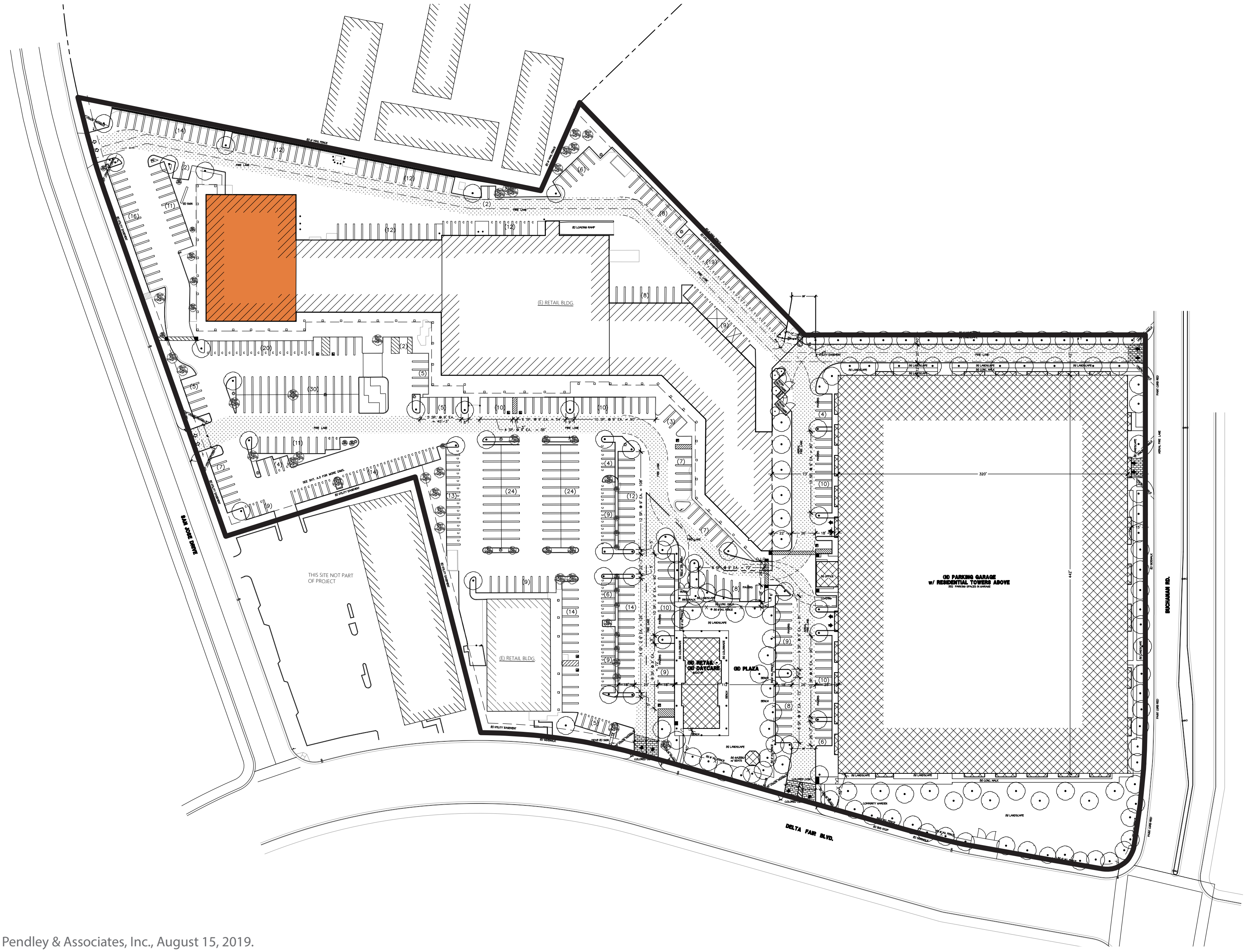
Project Site

Study Intersection

Figure 1

Project Site Vicinity and Proposed Analysis Locations

WC19-3589_1_StudyArea



Site Plan Source: Pendley & Associates, Inc., August 15, 2019.

Pending Project 8

Figure 2

Site Plan

WC19-3589_2_SitePlan

The following freeway segments were evaluated:

1. State Route 4, west of Somersville Road
2. State Route 4, between Somersville Road and Contra Loma Boulevard
3. State Route 4, east of Contra Loma Boulevard

The following scenarios were evaluated:

- ***Existing*** – Existing (2019) conditions based on recent traffic counts.
- ***Existing with Project*** – Existing (2019) conditions with project-related traffic. An assessment of the day care center alternative for the 4,000 SF building on the southwestern part of the Project site was conducted.
- ***Near-Term without Project*** – Existing (2019) conditions with approved projects within the study area that could be constructed over the next five to ten years. Additional details are provided in Chapter 5.
- ***Near-Term with Project*** – Near-Term conditions with project-related traffic. An assessment of the day care center alternative for the 4,000 SF building on the southwestern part of the Project site was conducted.
- ***Cumulative without Project*** – Forecasts for the cumulative scenario are based on traffic growth trends as described in the Antioch General Plan EIR and supplemented by a check of traffic forecasts for the study area in the most recent Contra Costa Transportation Authority Countywide travel demand model. The scenario reflects conditions over the next 20 to 25 years. Additional details are provided in Chapter 6.
- ***Cumulative with Project*** – Future forecast conditions with project-related traffic. An assessment of the day care center alternative for the 4,000 SF building on the southwestern part of the Project site was conducted.

Analysis Methods

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic flow from a vehicle driver's perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (free-flow conditions) to LOS F (over capacity conditions). LOS E corresponds to operations "at capacity." When volumes exceed capacity, stop-and-go conditions result, and operations are designated LOS F.

Signalized Intersections

Traffic conditions at signalized intersections were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the 2010 *Highway Capacity Manual* (2010 HCM) for vehicles using the analysis software Synchro 10.0. The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 1.**

Unsignalized Intersections

For unsignalized (all-way stop controlled and side-street stop controlled) intersections, the 2010 HCM method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. **Table 2** summarizes the relationship between LOS and delay for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side-street stop-controlled intersections.

Table 1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0

F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: 2010 Highway Capacity Manual

Table 2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic, delays where intersection capacity exceeded	> 50.0

Source: 2010 Highway Capacity Manual

Freeway Segments

For freeway segments, the *East County Action Plan for Routes of Regional Significance,* CCTA has established delay index and HOV lane utilization as the Multimodal Transportation Service Objectives (MTSO) for all freeways in East County, including State Route 4 (SR4). The delay index is the ratio of travel time on a facility divided by the travel times that occur during non-congested free-flow periods. Should the delay index exceed 2.5 during either the AM or PM peak period, freeway operations would be considered deficient. This would equate to peak hour travel taking 2.5 times as long as off-peak travel or an average travel speed below 26 miles per hour assuming a non-congested free-flow speed of 65 miles per hour. HOV lane utilization is also identified as an MTSO, and the plan states that it should exceed 600 vehicles per lane in the peak direction during the peak hour.

Regulatory Setting and Significance Criteria

The Project would have a significant impact on the environment if it would cause an increase in traffic which is substantial in relation to the traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, or delay and congestion at intersections), or change the condition of an existing street (e.g., street closures, changing direction of travel) in a manner that would substantially impact access or traffic load and capacity of the street system. Significance criteria are used to determine whether a project impact is considered significant and therefore requires mitigation. The City of Antioch strives to maintain LOS D operations at signalized intersections.

The following thresholds of significance were developed based on City of Antioch and East Contra Costa County Action Plan policies, CCTA's *Technical Procedures* (2013), as well as the CEQA Checklist criteria as shown below.

1. Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
   a. Would the operations of a study intersection not on a route of regional significance decline from LOS D (an average delay of 55 seconds for signalized intersections) or better to LOS E or F, based on the HCM LOS method, with the addition of project traffic?
   b. Would the Project deteriorate already unacceptable operations at a signalized intersection by adding traffic?
   c. Would the operations of an unsignalized study intersection decline from acceptable to unacceptable with the addition of project traffic, and would the installation of a traffic signal based on the *Manual on Uniform Traffic Control Devices* (MUTCD) Peak Hour Signal Warrant (Warrant 3), be warranted?
   d. Would construction traffic from the Project have a significant, though temporary, impact on the environment, or would project construction substantially affect traffic flow and circulation, parking, and pedestrian safety?
2. Would the Project conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads and highways?
   a. Would the operations of a study intersection on a route of regional significance decline from LOS high-D (an average delay of 55 seconds for signalized intersections) or better to LOS E or F, based on the HCM LOS method, with the addition of project traffic?
   b. Would the Project result in or worsen unacceptable conditions on State Route 4, based on delay index calculations, considering High Occupancy Vehicle (HOV) Lane usage?
      - The delay index should not exceed 2.5 during the AM or PM peak hour
      - HOV lane utilization should exceed 600 vehicles per lane in the peak direction in the peak hour
3. Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

4. Would the Project substantially increase traffic hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?
5. Would the Project result in inadequate emergency access?
6. Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Report Organization

This report is divided into 9 chapters as described below:

- **Chapter 1 – Introduction** discusses the purpose and organization of the report.
- **Chapter 2 – Existing Conditions** describes the transportation system in the Project vicinity, including the surrounding roadway network morning and evening peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and intersection operations.
- **Chapter 3 – Project Characteristics** presents relevant project information, such as the Project components and project trip generation, distribution, and assignment.
- **Chapter 4 – Existing with Project Traffic Conditions** addresses the existing conditions with the Project and discusses project vehicular impacts.
- **Chapter 5 – Near-Term Traffic Conditions** addresses the near-term future conditions, both without and with the Project and discusses project vehicular impacts.
- **Chapter 6 – Cumulative Traffic Conditions** addresses the long-term future conditions, both without and with the Project and discusses project vehicular impacts.
- **Chapter 7 – Freeway Analysis** presents the results of the freeway analysis under existing, near-term and cumulative conditions.
- **Chapter 8 – Site Plan Review** describes project access and circulation for all travel modes.
- **Chapter 9 – Vehicle Miles of Travel** presents the results of the VMT assessment conducted for the Project.

2. Existing Conditions

This chapter describes transportation facilities in the Project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the Project site vicinity. Existing intersection operations are also described.

Roadway System

The Project site is bounded by existing retail to the north and west, office space and single-family homes to the south, and existing apartment buildings to the east in Antioch, California. Antioch is located in eastern Contra Costa County, adjacent to the cities of Oakley, Brentwood, and Pittsburg located east, southeast, and west respectively. Land uses surrounding the Project site are residential, retail, and office space.

Regional access to the site is provided by State Route 4, Buchanan Road, and Somersville Road/Auto Center Drive. Delta Fair Boulevard and San Jose Drive provide local access. The following section discusses the roadways that would provide access to the site and are most likely to experience direct traffic impacts, if any, from the proposed Project.

State Route 4 (SR 4) is an east-west freeway that extends from Hercules in the west to Stockton and beyond in the east. It is defined as a Route of Regional Significance in CCTA's *East County Action Plan for Routes of Regional Significance.* In the study area, SR 4 has a northwest/southeast orientation between Loveridge Road and Contra Loma Boulevard/L Street in east Contra Costa County. The facility is an eight-lane freeway within the study area, with interchanges at Loveridge Road, Somersville Road/Auto Center Drive, and Contra Loma Boulevard/L Street. Each interchange has signalized intersections at its on and off-ramps operated by the California Department of Transportation (Caltrans). State Route 4 is a designated route of regional significance by the Contra Costa County Transportation Agency (CCTA). Routes of regional significance are roadways that connect two or more subareas of Contra Costa, cross County boundaries, carry significant through traffic, and/or provide access to a regional highway or transit facility.

Somersville Road is a, north-south roadway with a northeast/southwest orientation within the study area. It is defined as a Route of Regional Significance in CCTA's *East County Action Plan for Routes of Regional Significance.* The roadway extends from SR 4 to Black Diamond Mines Regional Preserve, with six lanes from SR 4 to Delta Fair Boulevard and reduces to four lanes south of Delta Fair Boulevard. In the study area, the posted speed limit is 35 mph. Sidewalks are provided for the entire length of the study area and shoulders are present north of Delta Fair Boulevard. Somersville Road serves both retail and residential units.

Auto Center Drive is a northeast/southwest oriented roadway located north of State Route 4. It is defined as a Route of Regional Significance in CCTA's *East County Action Plan for Routes of Regional Significance.* The roadway extends from SR 4 to north Antioch. South of the SPRR line, three travel lanes are provided in each direction with shoulders and sidewalks. North of the SPRR line, two travel lanes are provided in each direction with sidewalks. The posted speed limit is 35 mph. Auto Center Drive primarily serves retail spaces.

Delta Fair Boulevard is an east-west roadway with a primarily north/south orientation within the study area. In the study area, the roadway extends from Somersville Road to Buchanan Road. The posted speed limit is 30 mph. Two travel lanes are provided in each direction and with a two-way left-turn median for vehicles turning into the retail area. Sidewalks are provided along the roadway. Bicycle facilities are not present. Delta Fair Boulevard serves commercial developments.

San Jose Drive is an east-west roadway that provides access to much of the residential communities located east and southeast of the Project site. The posted speed limit is 35 mph. Sidewalks are present; there are no bicycle lanes. It bisects Delta Fair Boulevard at the northwest corner of the Project site and continues east to its intersection with Buchanan Road, where it then runs southeast through residential neighborhoods to its termination at Contra Loma Boulevard.

Buchanan Road is an east-west roadway that runs from Pittsburg's Railroad Avenue in the west, to Contra Loma Boulevard in the east. The segment of Buchanan Road west of Somersville Road is defined as a Route of Regional Significance in CCTA's *East County Action Plan for Routes of Regional Significance.* The posted speed limit is 35 mph. Two lanes in each direction are provided with sidewalks and bicycle lanes for most of the roadway. It serves a high volume of traffic in the peak hours, as it serves as a connecter between the cities of Pittsburg and Antioch.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signals and multi-use trails. At the signalized intersections in the area, crosswalks and pedestrian push-button actuated signals are provided. 10-foot sidewalks surround the Project site and crosswalks are also provided at unsignalized intersections. Bicycle facilities in Antioch include the following:

- **Bike paths (Class I)** – Bike paths provide a completely separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.

- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).

- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.

Within the Project vicinity, Buchanan Road provides a Class II marked bike lane on the southern side that travels just east of Delta Fair Boulevard to Contra Loma Road. On the northern side an unmarked Class II bike lane travels from just west of San Jose Drive to just east of Delta Fair Boulevard.

Existing Transit Service

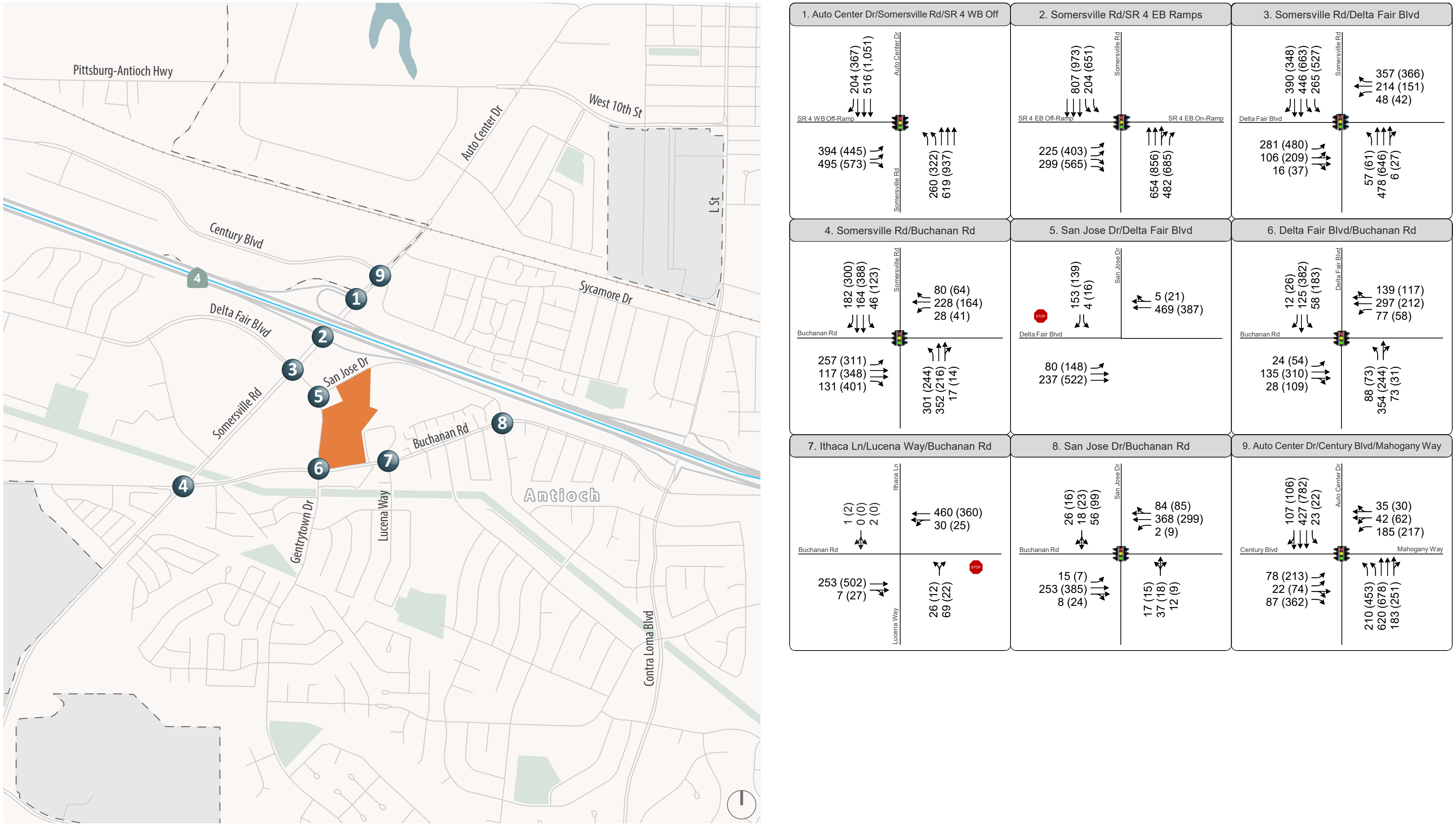
The Eastern Contra Costa Transit Authority (Tri Delta Transit) provides transit service in eastern Contra Costa County, serving the communities of Brentwood, Antioch, Oakley, Concord, Discovery Bay, Bay Point and Pittsburg. Thirteen routes operate on weekdays, with four routes operating on weekends. Three routes operate in the vicinity of the Project site, with Routes 380, 390, and 394 stopping at Delta Fair Boulevard and Buchanan Road, adjacent to the Project site.

In addition to the regular transit service to the study area, dial-a-ride door-to-door service within Eastern Contra Costa County is provided by Tri Delta Transit for disabled people of all ages and senior citizens.

Bay Area Rapid Transit (BART) provides fixed rail transit to eastern Contra Costa County. Currently, the terminus station is located in Antioch, approximately four miles east of the Project site. Weekday service is provided on approximately 15-minute headways and weekend service is provided on approximately 20-minute headways. Antioch-SFO/Millbrae Line connects to key regional employment centers, including Concord, Pleasant Hill, Walnut Creek, Oakland and San Francisco. Transfers to other lines can be made in Oakland.

Existing Traffic Counts

Weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period intersection turning movement counts were collected at the study intersections, including separate counts of pedestrians and bicyclists, in June 2019 with area schools in normal session. Peak hour intersection vehicle volumes are summarized on **Figure 3** along with existing lane configurations and traffic controls. Bicycle and pedestrian counts are presented on **Figure 4**. As the figure shows, existing bicycle and pedestrian activity at the study intersections is generally low. The traffic counts for existing conditions are provided in **Appendix A**.



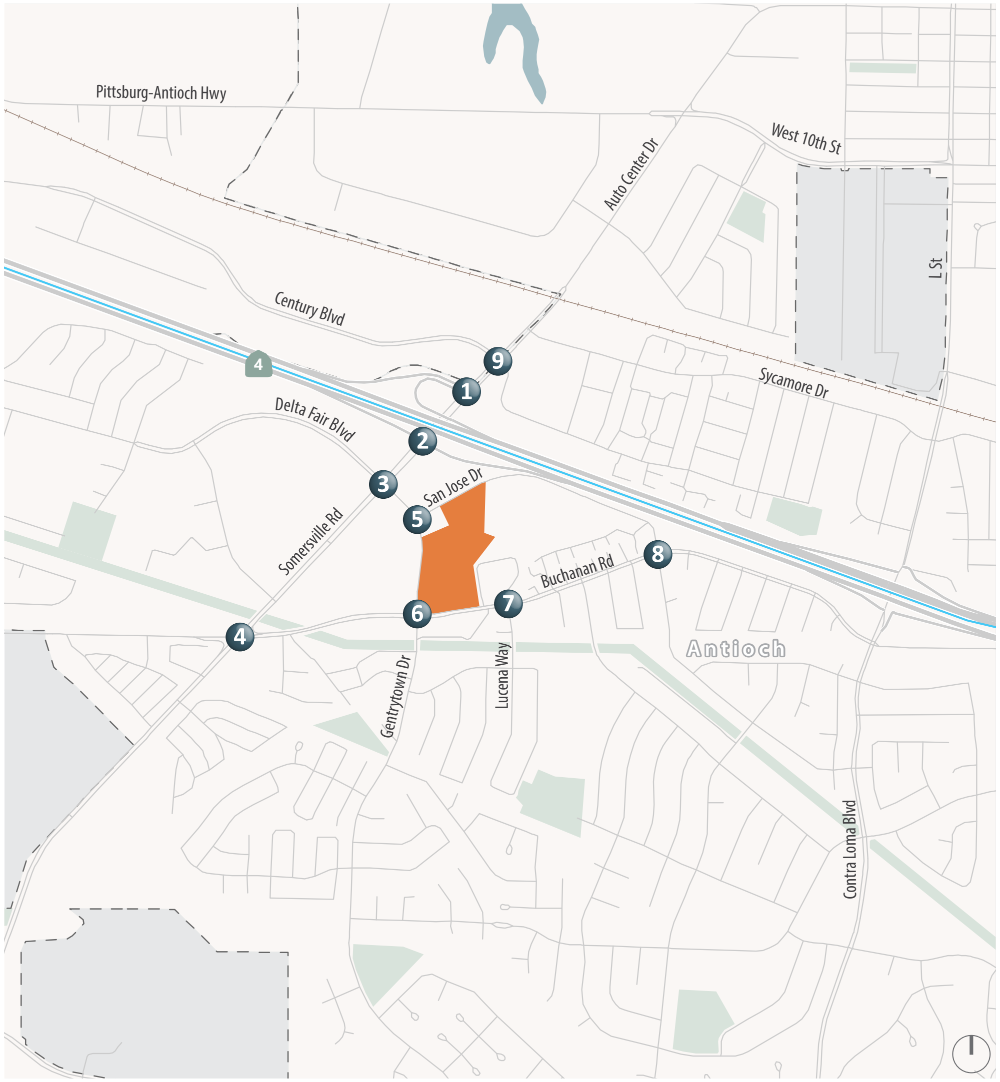
XX (YY) AM (PM) Peak Hour Traffic Volumes — Signalized Intersection — Stop Sign

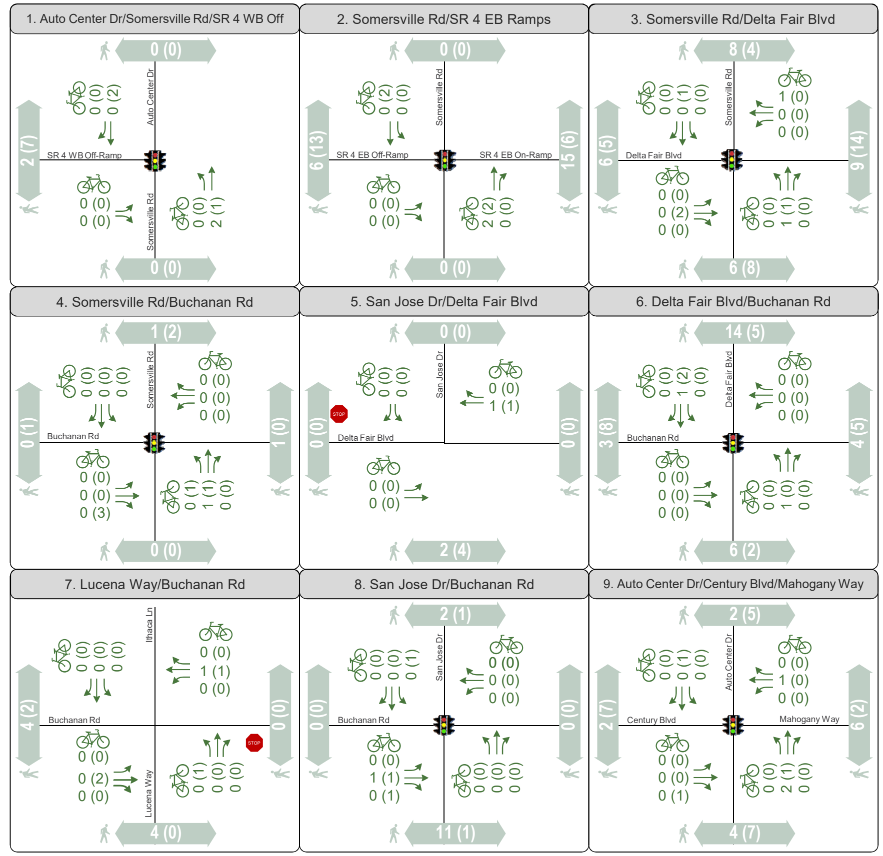
Project Site — # Study Intersection

Figure 3

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

WC19-3589_X_Volumes





0 (0) AM (PM) Peak Hour Pedestrian Volumes

0 (0) AM (PM) Peak Hour Bicycle Volumes

Signalized Intersection

Stop Sign

Project Site

Study Intersection

Figure 4

Existing Conditions
Peak Hour Bicycle and Pedestrian Volumes

WC19-3589_4_Vols-PedBike

Existing Intersection Levels of Service

Existing intersection lane configurations, signal timings, and peak hour turning movement volumes were used to calculate the levels of service for the study intersections during each peak hour, using the Synchro 10.0 software program These levels of service are presented in **Table 3.** Observed peak hour factors[1] were used at all intersections for the existing analysis. Pedestrian and bicycle activity was also factored into the analysis. Detailed intersection LOS calculation worksheets are presented in **Appendix B**. As shown, all signalized and unsignalized intersections currently operate with the level of service standards set by the City of Antioch.

Table 3: Existing Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour[2]	Delay[3]	LOS
1. Somersville Road/Auto Center Drive & SR 4 WB Ramps	Signal	AM PM	22.0 23.0	C C
2. Somersville Road & SR 4 EB Ramps	Signal	AM PM	13.7 27.8	B C
3. Somersville Road & Delta Fair Boulevard	Signal	AM PM	50.5 48.6	D D
4. Somersville Road & Buchanan Road	Signal	AM PM	51.0 28.1	C C
5. Delta Fair Boulevard & San Jose Drive	SSSC	AM PM	2.6 (11.4) 2.5 (11.3)	A (B) A (B)
6. Delta Fair Boulevard & Buchanan Road	Signal	AM PM	21.3 21.2	C C
7. Lucena Way & Buchanan Road	TWSC	AM PM	1.8 (12.5) 0.8 (13.4)	A (B) A (B)
8. San Jose Drive & Buchanan Road	Signal	AM PM	8.5 9.0	A A
9. Autocenter Drive & Century Boulevard/Mahogany Way	Signal	AM PM	25.0 35.4	C D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

[1] The peak hour factor is the relationship between the peak 15-minute flow rate and the full hourly volume: PHF = Hourly volume / (4 x (volume during the peak 15 minutes of flow)). The analysis level of served is based on peak rates of flow occurring within the peak hour because substantial short term fluctuations typically occurring during an hour.

3. Project Characteristics

This chapter provides an overview of the proposed Project components and addresses the proposed project trip generation, distribution, and assignment characteristics, allowing for an evaluation of project impacts on the surrounding roadway network. The amount of traffic associated with the Project was estimated using a three-step process:

1. **Trip Generation** – The *amount* of vehicle traffic entering/exiting the Project site was estimated.
2. **Trip Distribution** – The *direction* trips would use to approach and depart the site was projected.
3. **Trip Assignment** – Trips were then *assigned* to specific roadway segments and intersection turning movements.

Project Description

The Project site is located on Delta Fair Boulevard in Antioch between San Jose Drive and Buchanan Road as shown on Figure 1. The site is currently developed with an underperforming retail center that would be partially removed with the remaining buildings renovated as part of the Project. The proposed Project would remove 73,550 square feet of existing retail uses and much of the site's southern parking, to be replaced by a 141,440 square foot single story parking garage, with 210 multi-family residential units above the garage. The proposed Project will also develop a new 4,000 square foot retail or daycare building. The remaining existing 73,535 square feet of retail uses would be renovated. The Project site plan is shown on Figure 2**.**

Vehicular access would occur from San Jose Drive, Delta Fair Boulevard, and Buchanan Road via various existing and proposed driveways as part of the proposed Project.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition).

Trip generation estimates were developed for the proposed Project described on the previous page and are presented in **Table 4**. For a conservative approach on the trip generation, the 4,000 square foot new facility was assumed to be daycare rather than retail.

The Project is expected to generate approximately 2,168 net new daily vehicle trips, including approximately 173 morning peak hour and 184 evening peak hour trips. This includes the trip generating potential of the new retail or day care center and renovated retail center uses, plus the new residential development, less project trips generated by the existing shopping center to be removed. Trip generation for the existing shopping center was determined by conducting turning movement counts at the existing site driveways during AM and PM peak hours.

Information contained in the ITE *Trip Generation Handbook* and surveys of similar uses were used to estimate pass-by trips for the shopping center. For shopping centers of similar size, the pass-by rate ranges from 25 percent to 60 percent; a pass-by rate of 30 percent was assumed to be conservative. In other words, 30 percent of the shopping center traffic entering and exiting the site is already on the surrounding roadway system – not a new vehicle trip to the area. To avoid over-estimation of traffic volumes on the surrounding roadway system, these pass-by trips were subtracted from the trip generation estimates.

It is expected that some proportion of trips generated by the proposed shopping center would have an origin or destination within the residential portion of the development. However, as there are not specific uses proposed, the level of internal trip making is difficult to quantify. A reduction of 5% in trips due to internal trips between land uses was assumed in the trip generation calculations.

Table 4: Trip Generation Summary

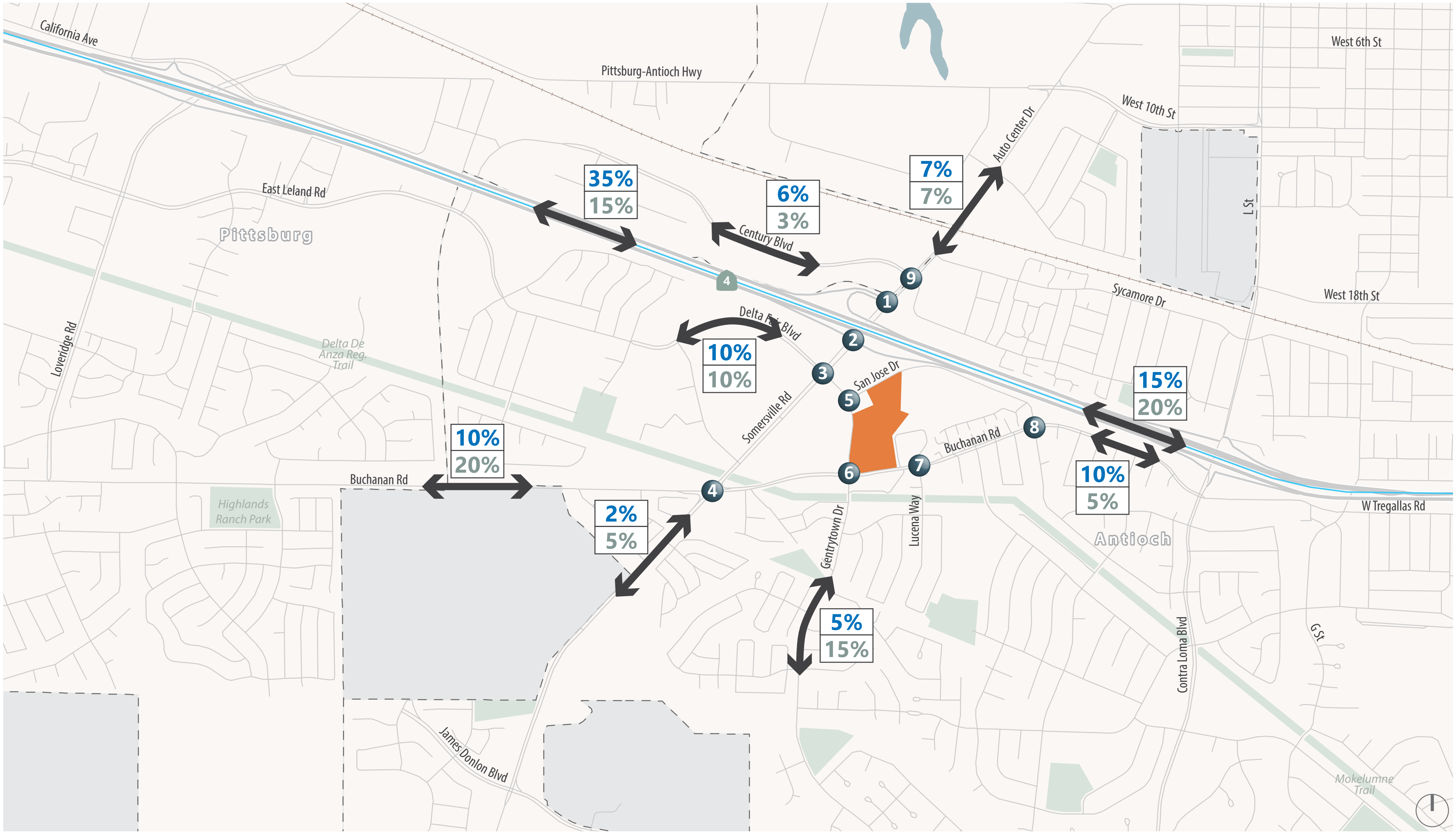
Use	Size	Weekday						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Project Trips – Shopping Center								
Shopping Center[1]	73,535 Sq. Ft. GLA	4,877	117	72	189	208	225	433
Day Care Center[2]	4,000 Sq. Ft. GLA	199	24	22	46	22	25	47
Less Pass-by Trips[3]		-1,460	-27	-30	-57	-62	-68	-130
Less Internal Trips Between Land Uses[4]		-54	-7	-4	-11	-12	-12	-24
Net-New		3,362	107	60	167	156	170	326
Project Trips - Residential								
Multifamily Housing (Mid-Rise)[5]	210 dwelling units	1,143	18	53	71	56	35	91
Project Trips – Existing Shopping Center to be Removed								
Shopping Center[6]	161,000 Sq. Ft. GLA	-2,375	-39	-26	-65	-109	-124	-233
Total New Vehicle Trips		***2,168***	***86***	***87***	***173***	***103***	***81***	***184***

1. ITE land use category 820 – Shopping Center - Attached (Adj Streets, 7-9A, 4-6P):
   Daily: Ln(T) = 0.68 Ln(X) + 5.57
   AM Peak Hour: T = 0.50(X) + 151.78; Enter = 62%; Exit = 38%
   PM Peak Hour: Ln(T) = 0.74 Ln(X) + 2.89; Enter = 48%; Exit = 52%
2. ITE land use category 565 – Day Care Center - Attached (Adj Streets, 7-9A, 4-6P):
   Daily: Average rate of 47.62
   AM Peak Hour: Average rate of 11.0; Enter = 53%; Exit = 47%
   PM Peak Hour: Average rate of 11.12; Enter = 47%; Exit = 53%
3. Reflects a 30 percent pass-by reduction for shopping center and day care center only trips.
4. Reflects a five percent internal reduction for shopping center.
5. ITE land use category 221 – Multifamily Housing (Mid-Rise) (Adj Streets, 7-9A, 4-6P):
   Daily: T = 5.45 (X) – 1.75
   AM Peak Hour: Ln(T) = 0.98 Ln(X) – 0.98; Enter = 26%; Exit = 74%
   PM Peak Hour: Ln(T) = 0.96 Ln(X) – 0.63; Enter = 61%; Exit = 39%
6. Existing shopping center trip generation taken from enter and exits from the peak hour turning movement counts.

Source: *Trip Generation Manual* (10th Edition), ITE, 2017; Fehr & Peers, September 2019.

Project Trip Distribution and Assignment

Project trip distribution refers to the directions of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis using the Contra Costa Transportation Authority (CCTA) travel demand model, and the location of complementary land uses. Separate estimates were developed for the residential and commercial portions of the Project as they are likely to have different trip distribution patterns. Separate trip distribution estimates were developed for the Cumulative Scenario when the James Donlon Extension is assumed to be complete. The resulting trip distribution percentages are shown on **Figure 5A** and **5B**. Project trips were then assigned to the roadway network for each of the Project alternatives, as shown on **Figure 6A** for the existing and near-term roadway network and **Figure 6B** for the cumulative roadway network.

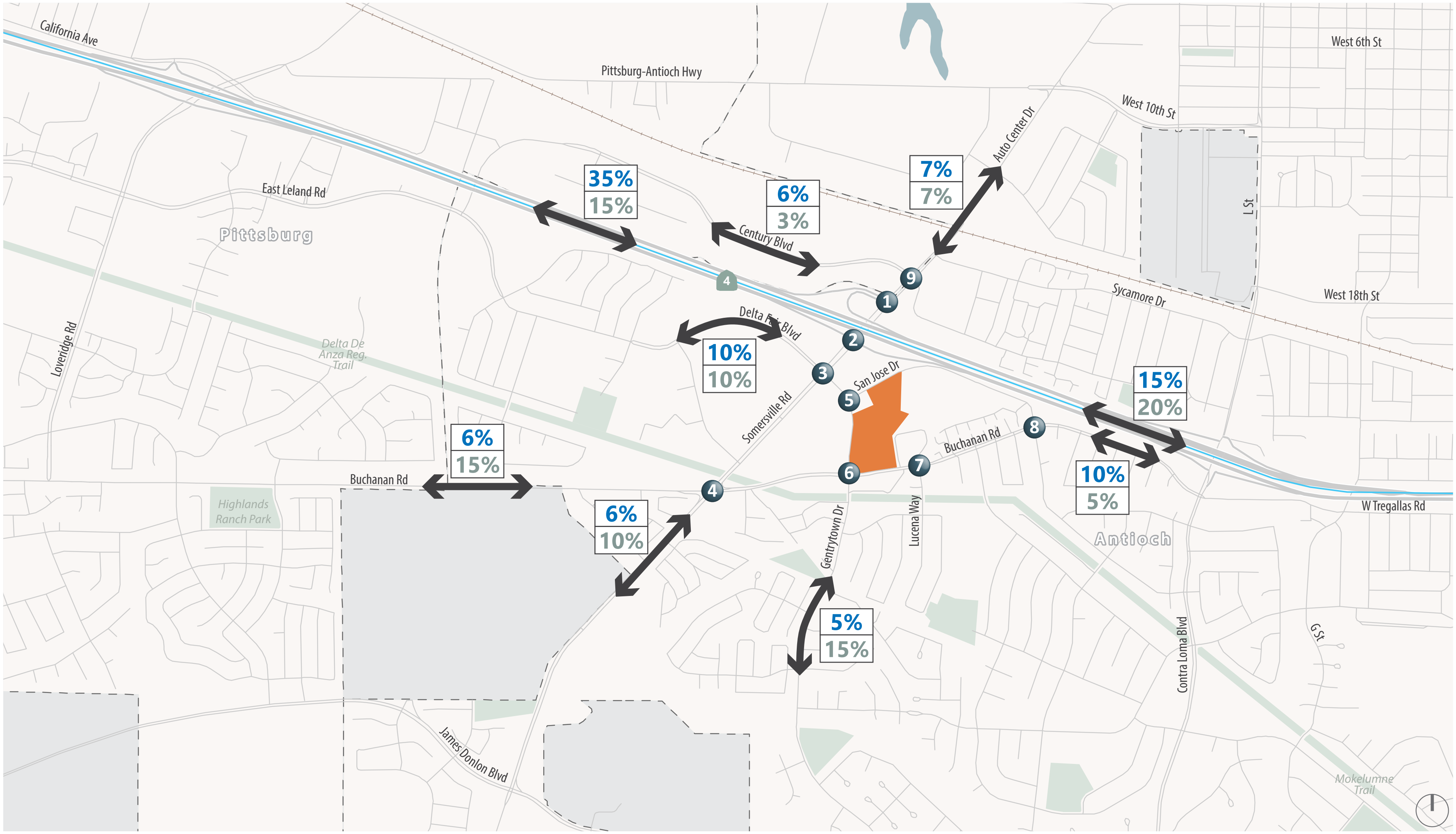


Project Site
Study Intersection
X%
Y%
Residential Trip Distribution
Retail Trip Distribution

Figure 5A

Existing and Near-Term Project Trip Distribution

WC19-3589_5A_TripDistro

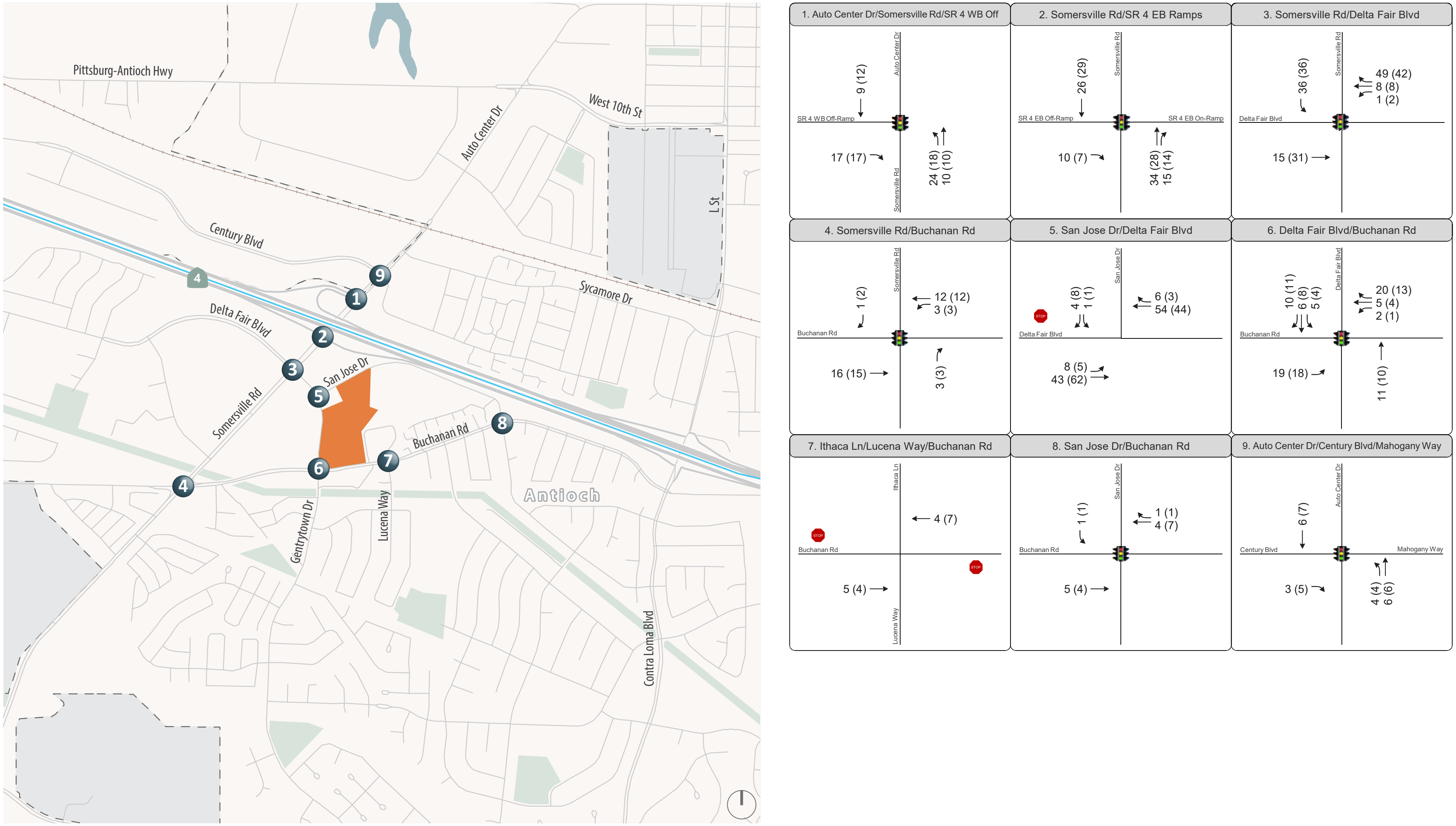


Project Site
Study Intersection
X%
Y%
Residential Trip Distribution
Retail Trip Distribution

Figure 5B

Cumulative Project Trip Distribution

WC19-3589_5B_TripDistro



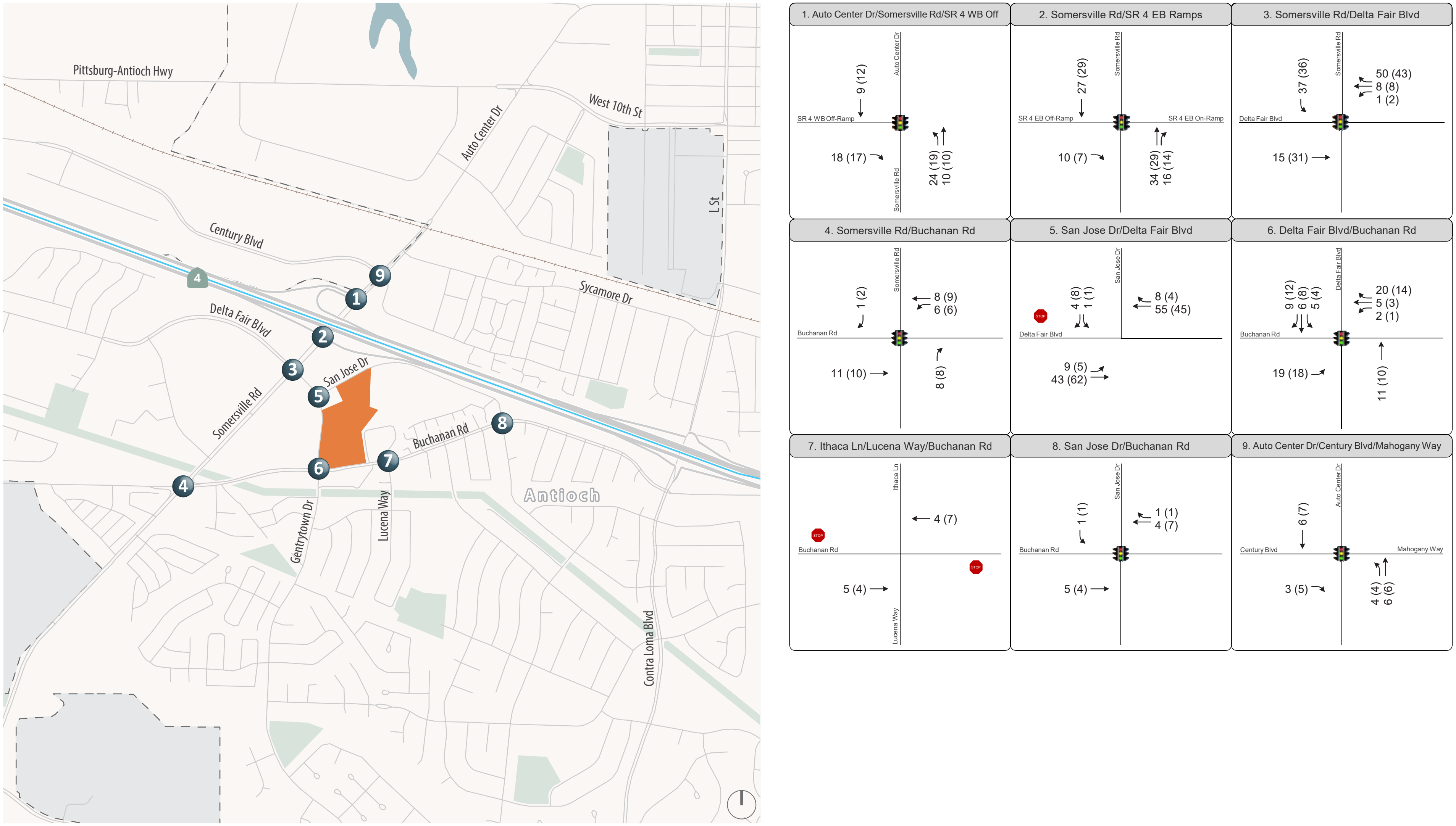
XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign

Project Site | Study Intersection

Figure 6A

Existing and Near-Term Project Trip Assignment

WC19-3589_X_Volumes



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

Project Site — Study Intersection

Figure 6B

Cumulative Project Trip Assignment

WC19-3589_X_Volumes

4. Existing With Project Traffic Conditions

This chapter evaluated potential off-site impacts under Existing with Project conditions.

Existing with Project Traffic Volumes

The Project traffic volumes on Figure 6A were added to the existing traffic volumes from Figure 3 to estimate the Existing with Project traffic volumes, as shown on **Figure 7.** An assessment of site access is provided in the site plan review.

Analysis of Existing With Project Conditions

Intersection Operations

Existing with Project intersections were evaluated using the methods descried in Chapter 1. The Existing with Project analysis results are presented in **Table 5**, based on the traffic volumes and intersection configurations presented on Figure 7. Table 5 also includes the operations results for Existing conditions. The addition of project traffic would increase delay at the signalized and unsignalized study intersections. No signalized and unsignalized intersections that are currently operating within the City's level of service standard are projected to degrade beyond the established level of service standard with the addition of project traffic in the existing condition.

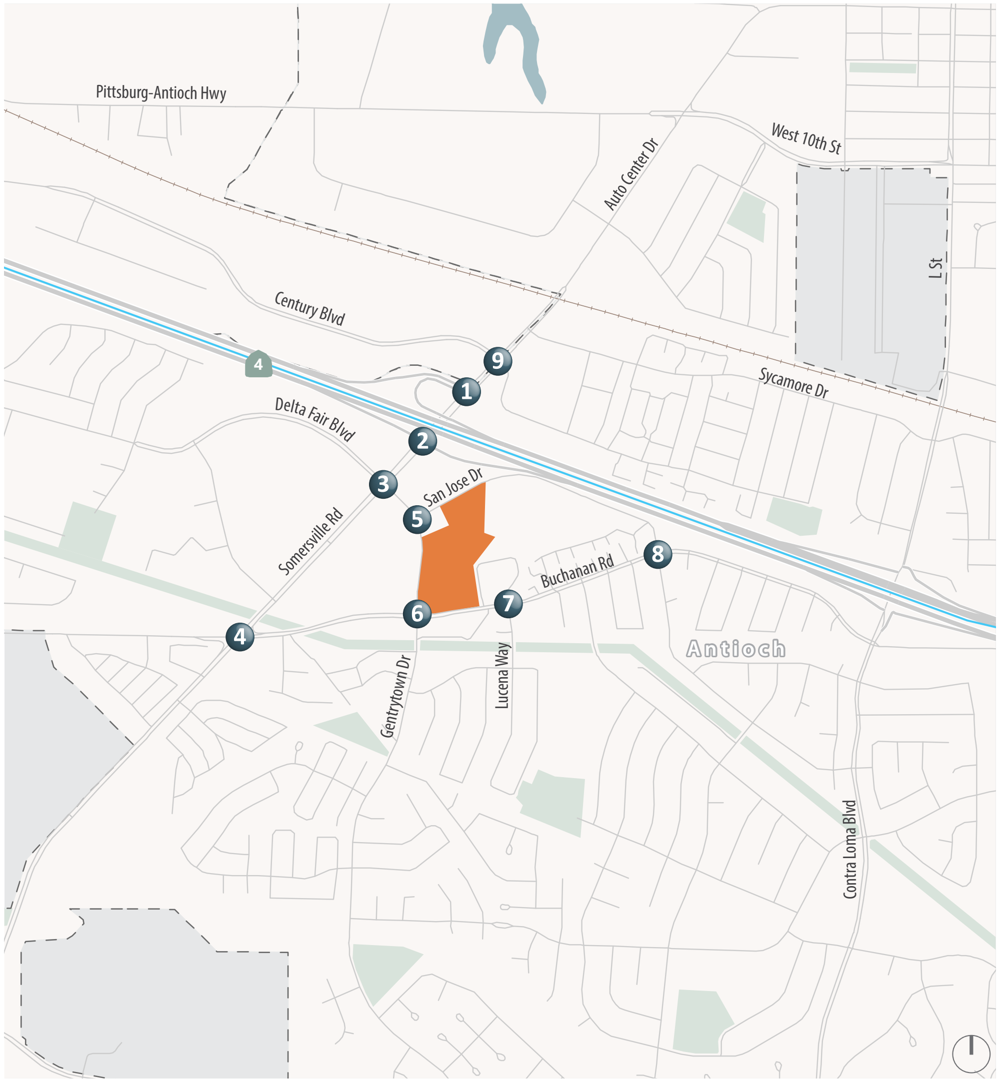
Table 5: Existing with Project Conditions Peak Hour Intersection LOS Summary

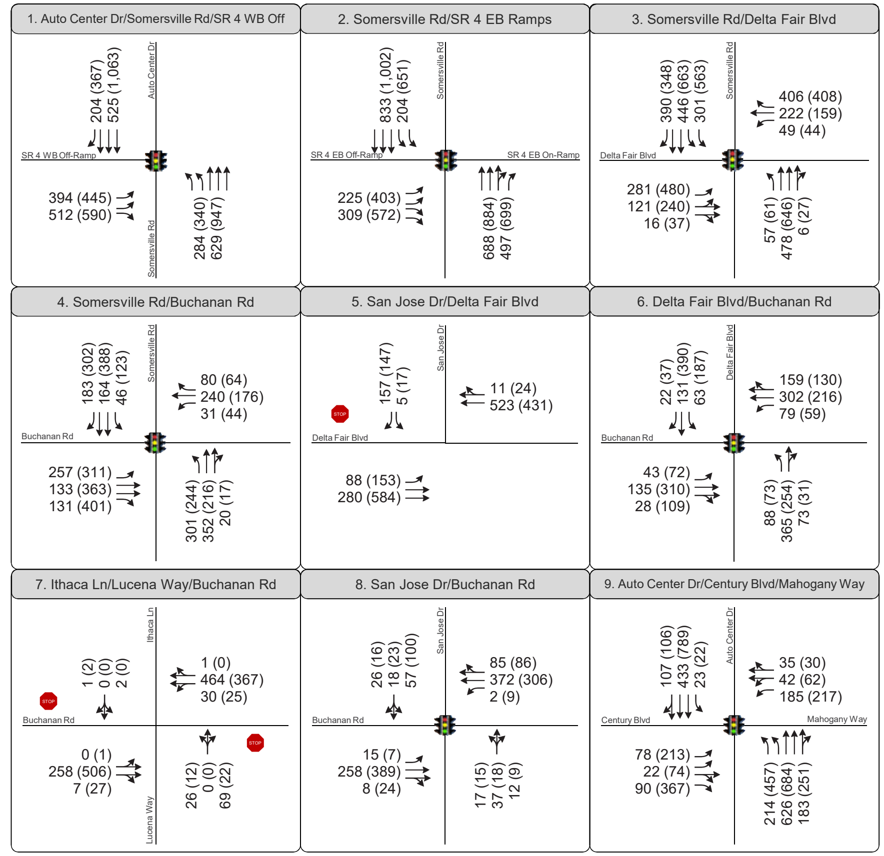
Intersection	Control[1]	Peak Hour[2]	Existing		Existing with Project	
			Delay[3]	LOS	Delay[3]	LOS
1. Somersville Road/Auto Center Drive & SR 4 WB Ramps	Signal	AM PM	22.0 23.0	C C	22.1 23.7	C C
2. Somersville Road & SR 4 EB Ramps	Signal	AM PM	13.7 27.8	B C	13.7 28.0	B C
3. Somersville Road & Delta Fair Boulevard	Signal	AM PM	50.5 48.6	D D	50.9 49.1	D D
4. Somersville Road & Buchanan Road	Signal	AM PM	51.0 28.1	C C	51.7 28.5	D C
5. Delta Fair Boulevard & San Jose Drive	SSSC	AM PM	2.6 (11.4) 2.5 (11.3)	A (B) A (B)	2.6 (11.8) 2.5 (11.7)	A (B) A (B)
6. Delta Fair Boulevard & Buchanan Road	Signal	AM PM	21.3 21.2	C C	22.7 22.2	C C
7. Lucena Way & Buchanan Road	TWSC	AM PM	1.8 (12.5) 0.8 (13.4)	A (B) A (B)	1.8 (16.6) 0.7 (13.5)	A (C) A (B)
8. San Jose Drive & Buchanan Road	Signal	AM PM	8.5 9.0	A A	8.6 9.2	A A
9. Autocenter Drive & Century Boulevard/Mahogany Way	Signal	AM PM	25.0 35.4	C D	25.0 35.7	C D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

Existing Conditions Impacts and Mitigation

Off-site intersection impacts of the proposed Project were found to be less-than-significant in the Existing with Project condition based on the significance criteria.





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

Project Site # Study Intersection

Figure 7

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

WC19-3589_X_Volumes

5. Near-Term Traffic Conditions

This chapter discusses near-term traffic conditions both without and with the Project. The near-term conditions analysis considers approved projects within the study area that are expected to be constructed and occupied in the next five to ten years.

Near-Term Roadway Assumptions

No roadway improvements were assumed at any of the study intersections for the analysis of near-term conditions. The analysis of cumulative conditions (see Chapter 6 for details) considers development within the City of Antioch as described in the General Plan and approved General Plan Amendment.

Near-Term Forecasts

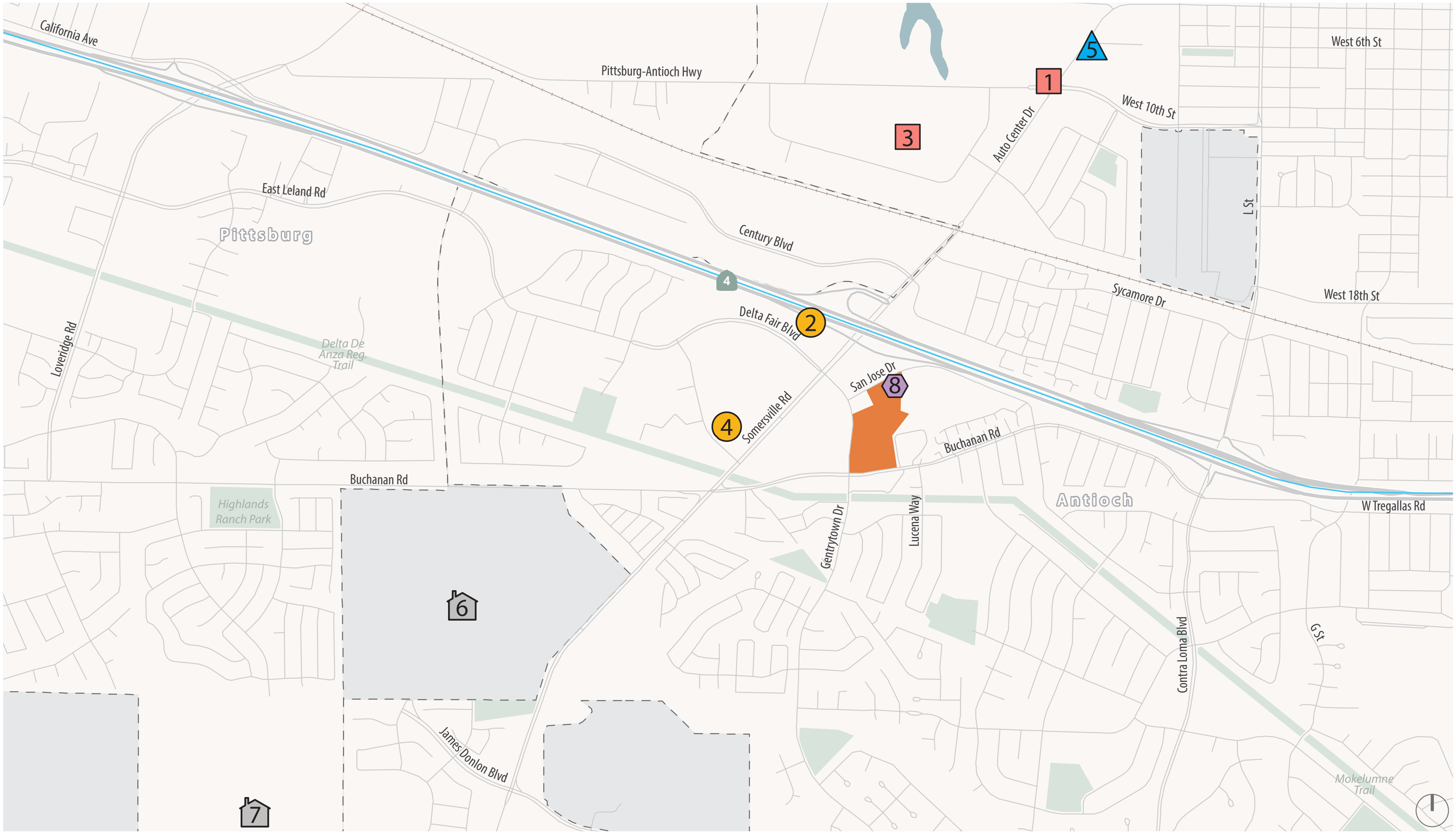
The near-term scenario reflects existing traffic counts plus traffic from approved and pending developments. Therefore, the near-term condition represents the likely traffic levels at the time of project completion. The latest project lists from the City of Antioch Project Pipeline (January 2019), and the City of Pittsburg Current Project Pipeline Map (accessed May 2019) were used to determine approved and pending developments to be incorporated. Based on a review of the list, several developments were identified that could generate additional traffic through the study area. These proposed developments are listed in **Table 6**, and their locations are shown on **Figure 8**.

Near-Term project vehicle trip generation was estimated using trip generation rates and equations for the proposed land uses from ITE's *Trip Generation Manual* (10th Edition). The results are provided in **Appendix C**. Traffic generated by approved and pending developments was added to the existing traffic volumes, which were also increased by 5 percent to account for traffic growth from projects outside the immediate study area, to provide the basis for the Near-Term without Project analysis, as presented on **Figure 9**. Project traffic was added to the Near-Term without Project forecasts to estimate Near-Term with Project volumes, as presented on **Figure 10**.

Table 6: Approved and Pending Projects

Map Location	Project Name	Project Address	Size	Land Use	Status
1	Arco AM/PM Gas Station and Car Wash	1800 West 10th St, Antioch CA	18 Pumps 3,180 Square Foot (SF) Convenience Store 1 Tunnel Car Wash	Retail	Under Construction
2	Delta Bowl Addition and Remodels	3300 Delta Fair Blvd, Antioch CA	1,500 SF Arcade 16 Player Laser Tag 400 SF Party Room	Commercial	Under Construction
3	Granite Expo	1888 Verne Roberts Circle, Antioch CA	Remodel Exterior 11,836 SF Showroom 20,920 SF Wholesale Business	Retail	Under Construction
4	Buchanan Crossings Shops Building E	3140 Buchanan Road, Antioch CA	3,164 SF Drive Thru 4,339 SF Drive Thru 5,000 SF Retail	Commercial	Approved
5	Tri Delta Park & Ride	West 6th St & Auto Center Dr, Antioch CA	186 Parking Spaces	Park-and-Ride Lot	Approved
6	Tuscany Meadows Residential Subdivision	Buchanan Road at Somersville Road, Pittsburg CA	917 Dwelling Units 375 Dwelling Units	Signal Family Homes Multi-Family Units	Approved
7	Sky Ranch II	South of Buchanan Road, West of Somersville Road, Pittsburg CA	415 Dwelling Units	Signal Family Homes	Approved
8	The City of the Lord Zion Church and School	2710 Delta Fair Boulevard, Suite A&B, Antioch CA	4,700 SF Church 9,300 SF Preschool and Daycare	Institutional	Under Review

Source: City of Antioch Development Project Pipeline, January 2019, City of Pittsburg Project Pipeline (Accessed May 7, 2019)



Project Site

Retail Project

Park-and-Ride Lot Project

Single Family Home Project

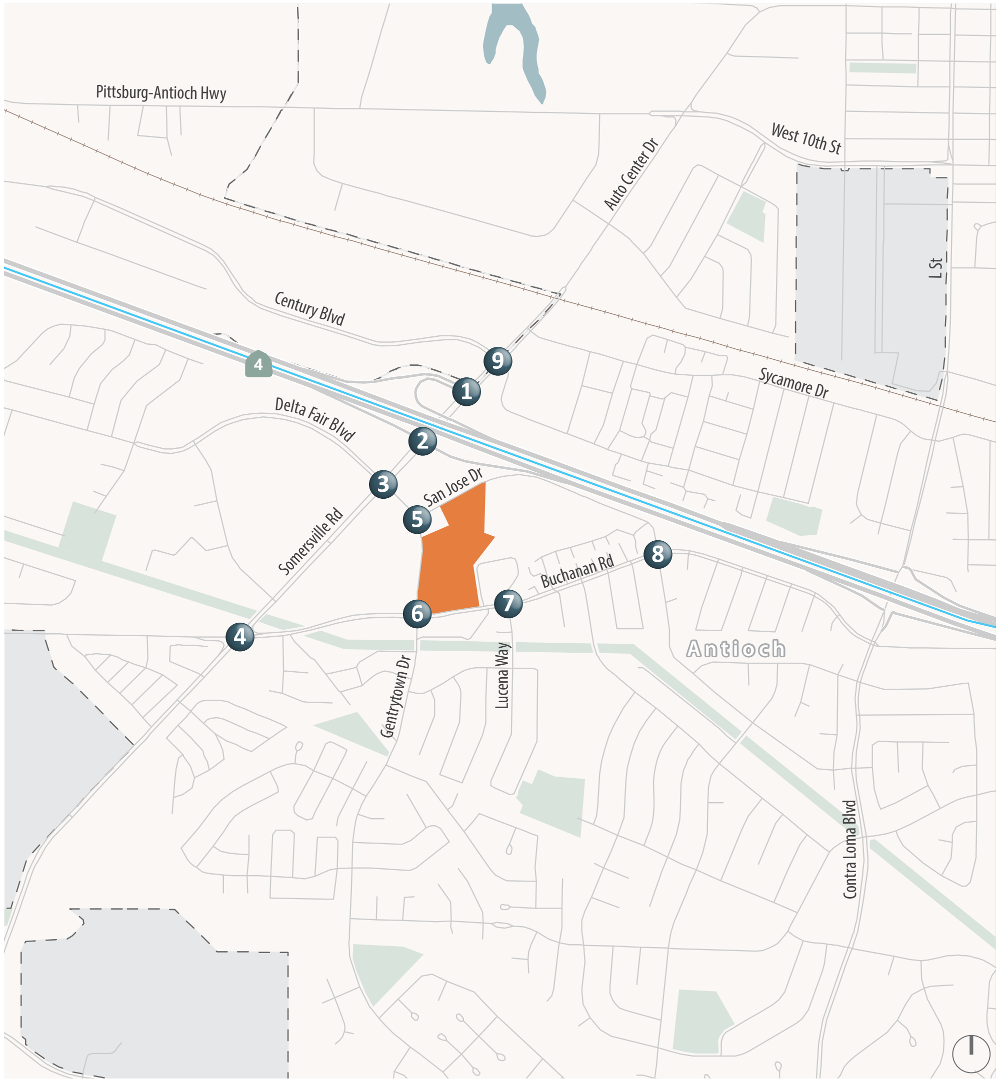
Commercial Project

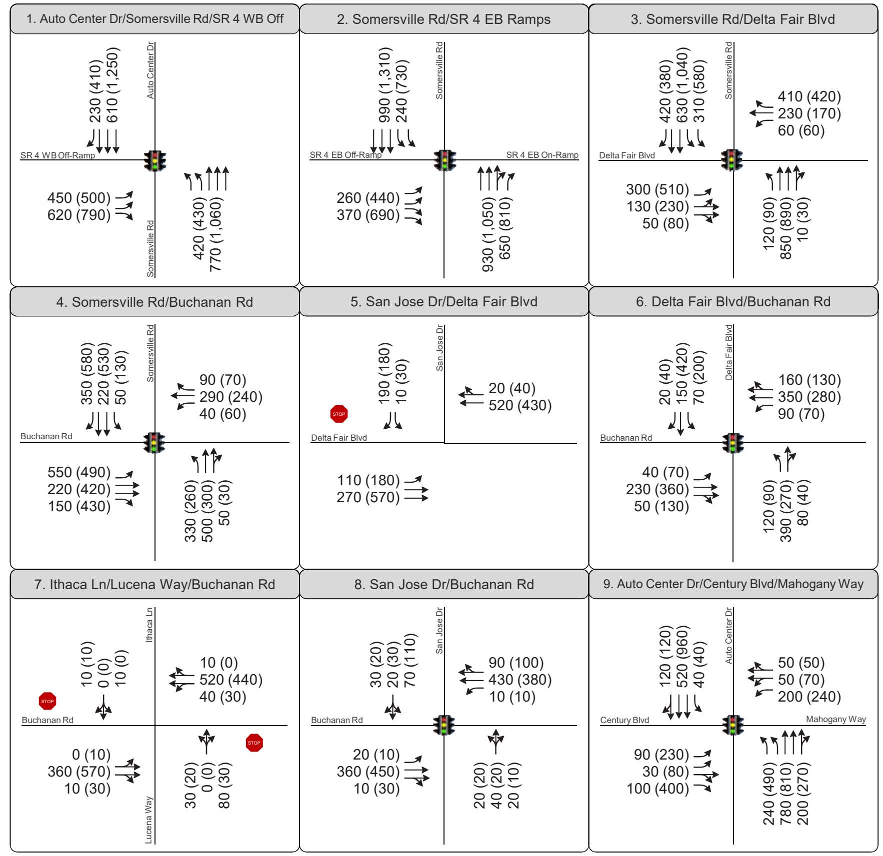
Institutional Project

Figure 8

Approved and Pending Project Locations

WC19-3589_8_ApprovedProjects





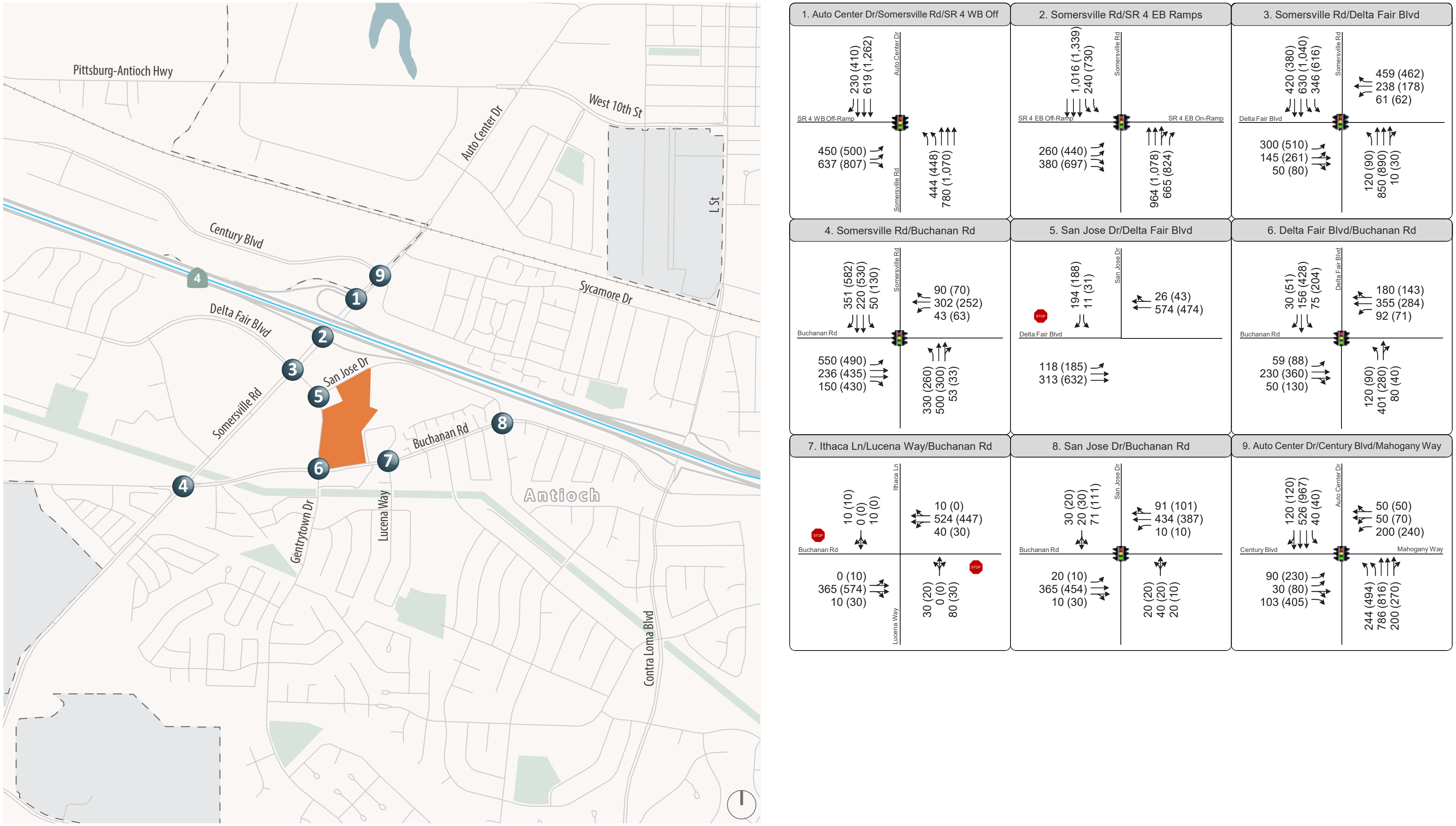
XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign

Project Site | Study Intersection

Figure 9

Near-Term without Project Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls

WC19-3589_X_Volumes



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

Project Site   # Study Intersection

Figure 10

Near-Term with Project Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls

WC19-3589_X_Volumes

Analysis of Near-Term Conditions

Intersection Operations

Near-Term without and with Project conditions were evaluated using the same methods described in Chapter 1. The analysis results are presented in **Table 7**, based on the traffic volumes and lane configurations presented on Figure 9 and Figure 10. In the near-term condition, Somersville Road at Buchanan Road would operate at deficient levels.

Table 7: Near-Term Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour[2]	Near-Term Without Project		Near-Term With Project	
			Delay[3]	LOS	Delay[3]	LOS
1. Somersville Road/Auto Center Drive & SR 4 WB Ramps	Signal	AM PM	25.1 37.6	C C	25.6 39.9	C D
2. Somersville Road & SR 4 EB Ramps	Signal	AM PM	15.3 30.2	B C	15.6 30.5	B C
3. Somersville Road & Delta Fair Boulevard	Signal	AM PM	51.0 50.8	D D	51.9 51.7	D D
4. Somersville Road & Buchanan Road	Signal	AM PM	**136.6** **67.8**	**F** **E**	**137.9** **69.3**	**F** **E**
5. Delta Fair Boulevard & San Jose Drive	SSSC	AM PM	3.1 (13.0) 2.5 (11.5)	A (B) A (B)	3.1 (13.2) 3.0 (13.6)	A (B) A (B)
6. Delta Fair Boulevard & Buchanan Road	Signal	AM PM	25.2 23.8	C C	28.2 25.0	C C
7. Lucena Way & Buchanan Road	TWSC	AM PM	2.3 (18.8) 1.2 (16.5)	A (C) A (C)	2.3 (18.9) 1.2 (16.6)	A (C) A (C)
8. San Jose Drive & Buchanan Road	Signal	AM PM	9.1 9.6	A A	9.4 9.7	A A
9. Autocenter Drive & Century Boulevard/Mahogany Way	Signal	AM PM	25.1 36.6	C D	25.9 37.2	C D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

With the addition of project traffic, operations of the deficient intersection would further degrade. All other study intersections would operate at acceptable service levels with the addition of project traffic.

Near-Term Conditions Impact and Mitigation

One intersection is projected to operate deficiently in the near-term condition prior to the addition of project traffic:

- Somersville Road at Buchanan Road – LOS F in the AM Peak Hour and LOS E in the PM Peak Hour

Impact Statement 1: The Somersville Road at Buchanan Road intersection is projected to operate at LOS F during the AM peak hour, and LOS E during the PM peak hour in the near-term condition. The addition of project traffic would increase delay by 1.3 seconds (136.6 seconds without project to 137.9 seconds with project) in the AM peak hour and 1.5 seconds (67.8 seconds without project to 69.3 seconds with project) in the PM peak hour. Based on the significance criteria, this is considered a **significant** adverse impact. The addition of project traffic would worsen operations within a failing condition.

As specified in the final EIR for the Tuscany Meadows Project dated July 2015 (City of Pittsburg), mitigations are proposed at this intersection to maintain established operational standards with the development of currently approved projects. The mitigation measure identified the conversion of an eastbound through lane to an eastbound through-left turn lane to allow for dual left turn movement onto northbound Somersville Road and an additional northbound lane to allow for a dual left turn movement onto westbound Buchanan Road. With implementation of the mitigation, the intersection would operate within acceptable standards based on the City of Antioch Standards, reducing the project impact to a **less-than-significant**, as shown in **Table 8**.

> ***Mitigation Measure 1:*** Prior to issuance of building permits the applicant shall initiate construction and prior to occupancy of the first unit the applicant shall complete construction of dual northbound left turn lanes on Somersville Road onto Buchanan Road and conversion of an eastbound through lane to a through-left-turn lane to the satisfaction of the City Engineer. A portion of the improvements will be eligible for reimbursement.

Table 8: Near-Term Conditions Peak Hour Intersection LOS Summary with Mitigation

Intersection	Control[1]	Peak Hour	Near-Term Without Project		Near-Term with Project		Near-Term with Project with Mitigation	
			Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS
3. Somersville Road & Buchanan Road	Signal	AM PM	**136.6** **67.8**	**F** **E**	**137.9** **69.3**	**F** **E**	52.5 50.5	D D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

6. Cumulative Traffic Conditions

This chapter discusses Cumulative traffic conditions both without and with the Project. The future conditions analysis considers development within the City of Antioch as described in the General Plan.

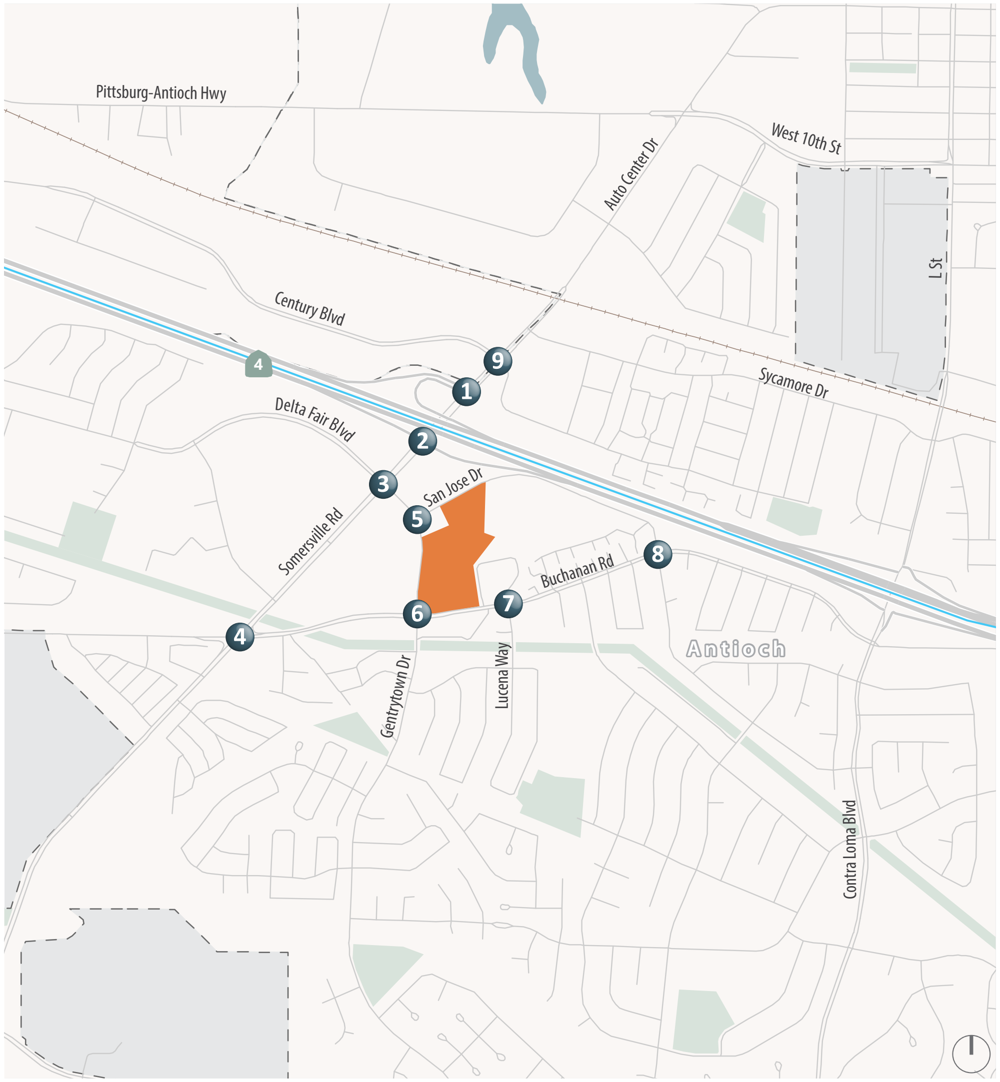
Cumulative Traffic Forecasts

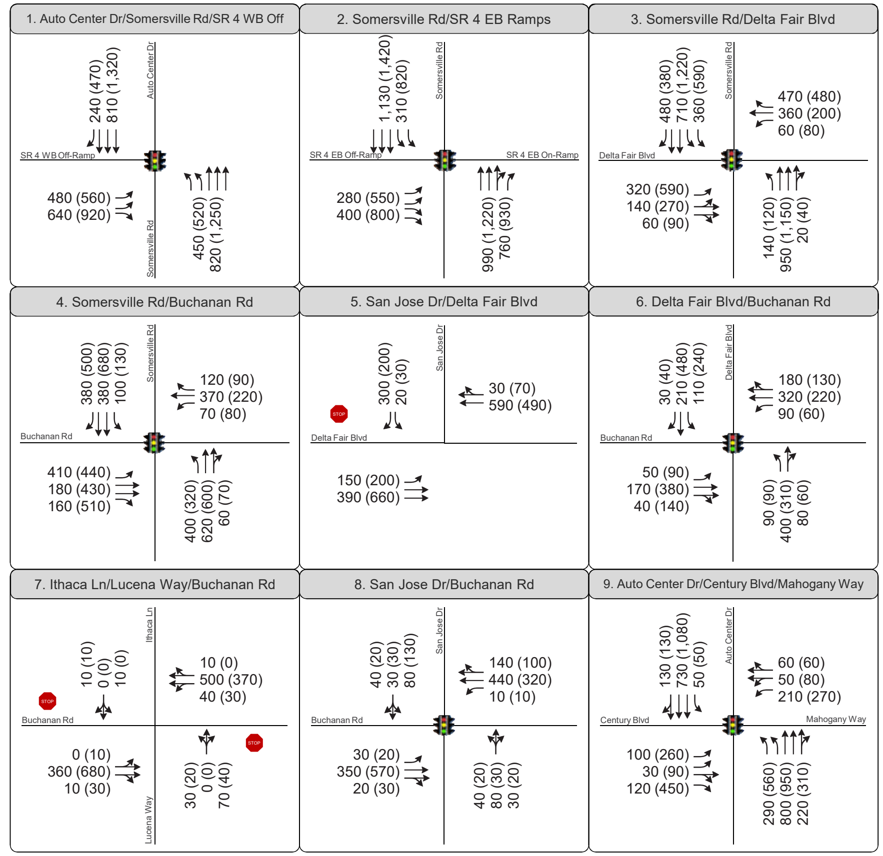
To assess future growth with planned development in the City of Antioch, several sources of data were reviewed, including the Contra Costa County Travel Demand Model (CCTA Model), and the traffic growth trends as described in the Antioch General Plan EIR. Traffic forecasts within the immediate study area were reviewed to ensure that known developments were adequately reflected in the forecasts, such as the Tuscany Meadows project located on the south side of Buchanan Road and just west Somersville Road in the City of Pittsburg. Minor adjustments were made to the forecasts to balance traffic volumes between closely spaced intersections in the study area. The resulting Cumulative without project forecasts are presented on **Figure 11**, which are representative of conditions over the next 20 to 25 years. The Project volumes from **Figure 6B** were added to the Cumulative without Project traffic volumes to represent Cumulative with project conditions, as presented on **Figure 12**.

Cumulative Roadway Assumptions

An important planned roadway improvement in the area is the propose James Donlon Boulevard Extension. The extension will start at Somersville Road and extend to Kirker Pass Road. The proposed roadway would merge from a four-lane road to a two-lane road and would be designed for vehicles traveling up to 55 miles per hour. The volumes presented on Figure 12 reflect that in the cumulative scenario, when the James Donlon extension is expected to be constructed. The assumed lane configurations are shown on Figure 11 and Figure 12.

Vehicle traffic generated by the proposed Project would contribute to the need for local and regional roadway improvements. The Project would contribute to the construction of regional roadway improvements through the payment of regional transportation impact fees to the East Contra Costa Regional Fee and Financing Authority (ECCRFFA).





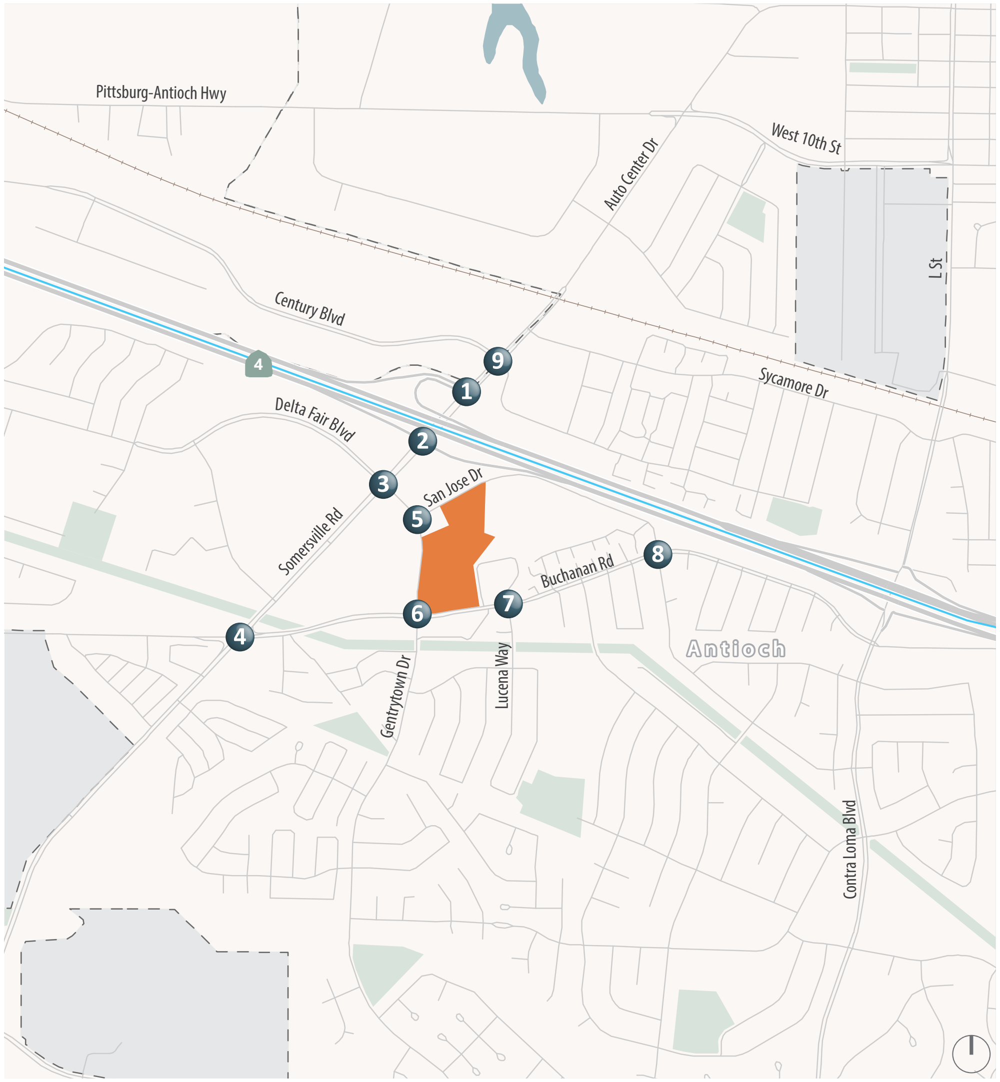
XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign

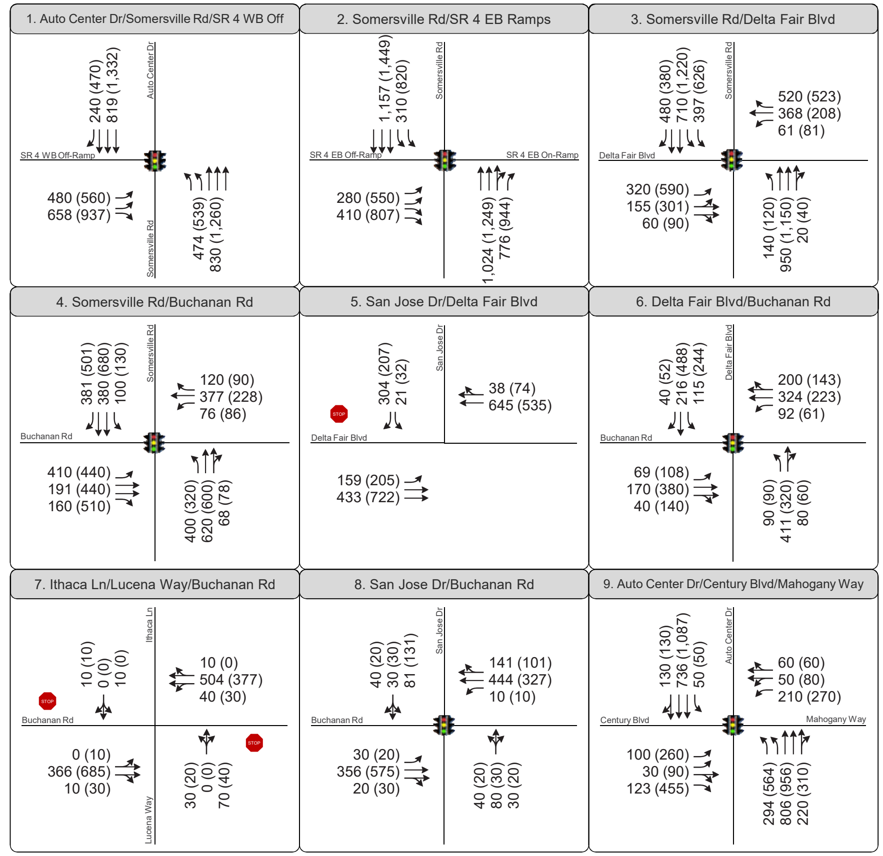
Project Site | Study Intersection

Figure 11

Cumulative without Project Conditions Peak Hour Intersection Volumes, Lane Configurations and Traffic Controls

WC19-3589_X_Volumes





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

Project Site | Study Intersection

Figure 12

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

WC19-3589_X_Volumes

Analysis of Cumulative Conditions

Intersection Operations

Cumulative without and with Project conditions were evaluated using the methods described in Chapter 1. The analysis results are presented in **Table 9**, based on traffic volumes presented on Figure 11 and Figure 12. Three intersections are projected to operate at deficient levels in the cumulative conditions prior to the addition of project traffic:

- Somersville Road/Auto Center Drive at State Route 4 Westbound Ramps – LOS E in the PM Peak Hour
- Somersville Road at Delta Fair Boulevard – LOS E in the AM peak Hour and LOS E in the PM Peak Hour
- Somersville Road at Buchanan Road – LOS F in the AM Peak Hour and LOS E in the PM Peak Hour

Table 9: Cumulative Conditions Peak Hour Intersection LOS Summary

Intersection	Control[1]	Peak Hour[2]	Cumulative Without Project		Cumulative With Project	
			Delay[3]	LOS	Delay[3]	LOS
1. Somersville Road/Auto Center Drive & SR 4 WB Ramps	Signal	AM PM	27.1 **56.4**	C **E**	29.6 **59.4**	C **E**
2. Somersville Road & SR 4 EB Ramps	Signal	AM PM	17.2 39.7	B D	17.4 40.6	B D
3. Somersville Road & Delta Fair Boulevard	Signal	AM PM	**58.0** **65.8**	**E** **E**	**59.3** **68.3**	**E** **E**
4. Somersville Road & Buchanan Road	Signal	AM PM	**87.4** **55.5**	**F** **E**	**88.3** **56.5**	**F** **E**
5. Delta Fair Boulevard & San Jose Drive	SSSC	AM PM	4.4 (16.0) 3.0 (13.3)	A (C) A (B)	4.5 (17.4) 3.0 (14.0)	A (C) A (B)
6. Delta Fair Boulevard & Buchanan Road	Signal	AM PM	28.4 27.5	C C	30.8 28.2	C C
7. Lucena Way & Buchanan Road	TWSC	AM PM	2.2 (18.1) 1.4 (17.3)	A (C) A (C)	2.2 (18.2) 1.4 (17.5)	A (C) A (C)
8. San Jose Drive & Buchanan Road	Signal	AM PM	10.4 10.2	B B	10.4 10.2	B B
9. Autocenter Drive & Century Boulevard/Mahogany Way	Signal	AM PM	29.2 41.9	C D	29.2 42.2	C D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled, TWSC = Two-Way Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

The addition of project traffic would increase delay, resulting in potentially significant impacts at Somersville Road/Auto Center Drive at SR 4 Westbound Ramps, Somersville Road at Delta Fair Boulevard and Somersville Road at Buchanan Road.

Vehicle queues are expected to increase at study intersections as traffic volumes increase, which would further increase with the addition of Project traffic. Monitoring and adjusting traffic signal timings in response to actual traffic volumes to minimize the potential for vehicle queue spillback is recommended.

Cumulative Conditions Impact and Mitigation

Potential off-site intersection impacts were identified in the Cumulative condition.

Impact Statement 2: The Somersville Road/Auto Center Drive at SR 4 Westbound Ramps intersection is projected to operate at LOS E during the PM peak hour. The addition of project traffic would increase delay by 3 seconds (56.4 seconds without project to 59.4 seconds with project) in the PM peak hour. Based on the significance criteria, this is considered a **significant** adverse impact. The addition of project traffic would worsen operations within a deficient operating condition.

The modification of this traffic signal to provide an eastbound right-turn overlap phase with signal timing optimization would mitigate the Project's cumulative impact at this location. With this improvement, the intersection's operation would improve as compared to the without project condition, reducing the Project impact to a **less-than-significant**, as presented in Table 10. As this intersection is under the jurisdiction of Caltrans, their approval of the improvement would be required to implement this mitigation measure.

> ***Mitigation Measure 2:*** Prior to occupancy of the first unit, the Project applicant shall provide funding for the City to modify the Somersville Road/Auto Center Drive at SR 4 Westbound Ramps traffic signal to install an eastbound right-turn overlap phase and retime the signal to the satisfaction of the City Engineer.

Impact Statement 3: The Somersville Road at Delta Fair Boulevard intersection is projected to operate at LOS E during the AM peak hour, and LOS E during the PM peak hour. The addition of project traffic would increase delay by 1.3 seconds (58 seconds without project to 59.3 seconds with project) in the AM peak hour and 2.5 seconds (65.8 seconds without project to 68.3 seconds with project) in the PM peak hour. Based on the significance criteria, this is considered a **significant** adverse impact. The addition of project traffic would worsen operations within a deficient operating condition.

The restriping of the intersection's eastbound approach to convert the eastbound left-thru shared lane to an exclusive eastbound left lane would mitigate the Project's cumulative impact at this location. As the existing intersection currently operates with east-west split phasing, which would be converted to lead lag phasing, the traffic signal would need to be modified, along with surrounding infrastructure to ensure no vehicle conflicts occur with the eastbound and westbound left turn movements. Implementation of this improvement with retiming of the traffic signal, would improve operations as compared to the without project condition, reducing the impact to **less-than-significant**, as presented in Table 10.

> ***Mitigation Measure 3:*** The Project applicant shall restripe the eastbound approach to convert the eastbound left-thru shared lane to an exclusive eastbound left lane. Prior to occupancy of the first unit the applicant shall complete this mitigation to the satisfaction of the City Engineer.

Impact Statement 4: The Somersville Road at Buchanan Road intersection is projected to operate at LOS F during the AM peak hour, and LOS E during the PM peak hour. The addition of project traffic would increase delay by 0.9 seconds (87.4 seconds without project to 88.3 seconds with project) in the AM peak hour and one second (55.5 seconds without project to 56.5 seconds with project) in the PM peak hour under cumulative conditions. Based on the significance criteria, this is considered a **significant** adverse impact. The addition of project traffic would worsen operations within a deficient condition.

As discussed in Impact Statement 1 above, Tuscany Meadows EIR identified a mitigation measure at this location. That mitigation included the conversion of an eastbound through lane to an eastbound through-left turn lane to allow for dual left turn movement onto northbound Somersville Road and an additional northbound lane to allow for a dual left turn movement onto westbound Buchanan Road. With implementation of this mitigation measure, the intersection's operation would operate within acceptable standards based on the City of Antioch Standards, reducing the Project's cumulative impact to **less-than-significant**, as shown in Table 10.

> ***Mitigation Measure 4:*** Implement mitigation measure 1. Prior to issuance of building permits the applicant shall initiate construction and prior to occupancy of the first unit the applicant shall complete construction of dual northbound left turn lanes on Somersville Road onto Buchanan Road and conversion of an eastbound through lane to a through-left-turn lane to the satisfaction of the City Engineer. A portion of the improvements will be eligible for reimbursement.

Table 10: Cumulative Conditions Peak Hour Intersection LOS Summary with Mitigation

Intersection	Control[1]	Peak Hour[2]	Cumulative Without Project		Cumulative with Project		Cumulative with Project with Mitigation	
			Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS
1. Somersville Road/Auto Center Drive & SR 4 WB Ramps	Signal	AM PM	27.1 **56.4**	C **E**	27.1 **59.4**	C **E**	22.4 27.8	C C
3. Somersville Road & Delta Fair Boulevard	Signal	AM PM	**58.0** **65.8**	**E** **E**	**59.3** **68.3**	**E** **E**	54.3 **64.4**	D **E**
4. Somersville Road & Buchanan Road	Signal	AM PM	**87.4** **55.5**	**F** **E**	**88.3** **56.5**	**F** **E**	54.8 43.4	D D

Notes:
1. Existing intersection traffic control type (SSSC = Side-Street Stop-Controlled)
2. AM = Weekday morning peak hour, PM = Weekday evening peak hour
3. Whole intersection average delay reported for signalized intersections. Side-street stop-controlled delay presented as Whole Intersection Average Delay (Worst Movement Delay). Delay calculated per HCM 2010 methodologies.
Bold indicates unacceptable operations.
Source: Fehr & Peers, September 2019.

7. Freeway Analysis

The freeway analysis was conducted under existing, near-term and cumulative conditions based on the methodology outlined in Chapter 1 to determine travel speeds along the State Route 4 corridor from Loveridge Road and Somersville Road/Autocenter Drive to Contra Loma Boulevard/L Street and Lone Tree Way.

Existing Conditions

Existing conditions mainline traffic counts for the State Route 4 study corridor and associated on and off-ramps were obtained from the Caltrans Performance Measurement System (PeMS). From this data, the peak hour of westbound and eastbound travel was identified during both the morning and evening commute periods. Existing conditions results are presented in **Table 11** for the AM peak hour and **Table 12** for the PM peak hour. During both the morning and evening peak hour, little congestion is experienced in the peak-direction, such that some segments of State Route 4 operate with a delay index of 1.01. Free-flow conditions are represented by a delay index of 1.0, indicating that travel during peak times takes 1.01 times longer than travel during off-peak times. All study segments operate at free flow conditions in the off-peak direction with a delay index of 1.0.

The Project would increase traffic on freeways in the study area and worsen the delay index for segments that are projected to operate within the standard; however, it would not result in study-segment operations to degrade beyond the established standard.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 13**. The table shows that in both the morning and evening peak hours in the existing condition, the volume of traffic on the HOV lane traveling in the commute direction (WB during AM, EB during PM) is above the desired MTSO standard of at least 600 vehicles per hour per lane. The Project is expected to add traffic to these HOV lane segments.

Table 11: Existing Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Existing		Existing with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	3016	1.00	3026	1.00
	WB[1]	6029	1.01	6053	1.01
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	3178	1.00	3193	1.00
	WB[1]	6329	1.01	6346	1.01
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	3434	1.00	3449	1.00
	WB[1]	5903	1.01	5920	1.01

Notes:
1. AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14-15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 13-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 12: Existing Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Existing		Existing with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	6189	1.01	6196	1.01
	WB[1]	4150	1.00	4168	1.00
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	6293	1.01	6307	1.01
	WB[1]	4479	1.00	4496	1.00
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	6161	1.01	6175	1.01
	WB[1]	4568	1.00	4585	1.00

Notes:
1. PM WB peak hour analysis reflects operation of the HOV lane which carries approximately 11-13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. PM EB peak hour analysis reflects operation of the HOV lane which carries approximately 15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 13: Existing Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Existing		Existing with Project	
		AM	PM	AM	PM
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB	--	898	--	899
	WB	862	--	865	--
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB	--	913	--	915
	WB	921	--	923	--
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB	--	894	--	896
	WB	844	--	846	--

Source: Fehr & Peers, 2019.

The addition of project trips to the freeway system is not expected to create any significant impacts in the existing condition.

Near-Term

Near-term freeway forecasts were developed based on the same method used to develop the near-term intersection forecasts, both without and with the Project. Operations were evaluated using the same methods described in Chapter 1. No freeway improvements were included in the evaluation of near-term freeway operations. The Near-term without and with Project analysis results are presented in **Table 14** and **Table 15** for the AM and PM peak hours, respectively, based on the estimates of near-term traffic volumes, plus estimates of project traffic.

The Project would increase traffic on freeways in the study area and worsen the delay index for segments that are projected to operate within the standard; however, it would not result in study-segment operations to degrade beyond the established standard.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 16**. Similar to the existing conditions, the volume of traffic on the HOV lane traveling in the commute direction (WB during AM, EB during PM) is above the desired MTSO standard of at least 600 vehicles per hour per lane. The Project is expected to add traffic to these HOV lane segments.

Table 14: Near-term Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Near Term		Near Term with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	3230	1.00	3240	1.00
	WB[1]	6490	1.02	6514	1.02
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	3490	1.00	3505	1.00
	WB[1]	6770	1.02	6787	1.02
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	3760	1.00	3775	1.00
	WB[1]	6320	1.01	6337	1.01

Notes:
1. AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14-15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 13-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 15: Near-term Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Near Term		Near Term with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	6600	1.01	6607	1.00
	WB[1]	4470	1.00	4488	1.00
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	6740	1.01	6754	1.16
	WB[1]	4920	1.00	4937	1.00
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	6600	1.01	6614	1.07
	WB[1]	5010	1.00	5027	1.00

Notes:
1. PM WB peak hour analysis reflects operation of the HOV lane which carries approximately 11-13 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. PM EB peak hour analysis reflects operation of the HOV lane which carries approximately 15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 16: Near Term Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Near Term		Near Term with Project	
		AM	PM	AM	PM
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB	--	960	--	961
	WB	930	--	933	--
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB	--	980	--	982
	WB	990	--	992	--
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB	--	960	--	962
	WB	900	--	902	--

Source: Fehr & Peers, 2019.

The addition of project trips to the freeway system is not expected to create any significant impacts in the Near-Term condition.

Cumulative

Cumulative freeway forecasts were developed based on the same method used to develop the cumulative intersection forecasts, both without and with the Project. Operations were evaluated using the same methods described in Chapter 1. The Cumulative without and with Project analysis results are presented in **Table 17** and **Table 18** for the AM and PM peak hours, respectively, based on the estimates of cumulative traffic volumes, plus estimates of project traffic. In the cumulative condition, operations of State Route 4 are projected to further degrade on some segments during the morning and evening peak hours, but not beyond the MTSO standard of 2.5 for the delay index.

The Project would increase traffic on freeways in the study area and worsen the delay index for segments that are projected to operate within the standard; however, it would not result in study-segment operations to degrade beyond the established standard.

The amount of vehicle traffic in high-occupancy vehicle lanes was also assessed, as presented in **Table 19**, which shows that in both the morning and evening peak hours, the volume of traffic in the HOV lane is above the desired MTSO standard of at least 600 vehicles per hour per lane. The Project is expected to add traffic to these HOV lane segments.

Table 17: Cumulative Conditions Freeway Operations Summary – AM Peak Hour

Segment	Direction	Cumulative		Cumulative with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	4300	1.00	4310	1.00
	WB[1]	9200	1.27	9224	1.28
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	4500	1.00	4516	1.00
	WB[1]	9700	1.40	9718	1.41
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	4900	1.00	4916	1.00
	WB[1]	9000	1.22	9018	1.23

Notes:
1. AM WB peak hour analysis reflects operation of the HOV lane which carries approximately 14 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. AM EB peak hour analysis reflects operation of the HOV lane which carries approximately 12-16 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 18: Cumulative Conditions Freeway Operations Summary – PM Peak Hour

Segment	Direction	Cumulative		Cumulative with Project	
		Volume	Delay Index	Volume	Delay Index
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB[2]	8800	1.11	8807	1.11
	WB[1]	5500	1.00	5519	1.00
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB[2]	8900	1.12	8914	1.12
	WB[1]	5900	1.00	5917	1.00
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB[2]	8700	1.10	8714	1.10
	WB[1]	6000	1.01	6017	1.01

Notes:
1. PM WB peak hour analysis reflects operation of the HOV lane which carries approximately 10-14 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
2. PM EB peak hour analysis reflects operation of the HOV lane which carries approximately 15 percent of traffic volumes, reducing the number of mixed-flow lanes available during the AM peak hour.
Source: Fehr & Peers, 2019.

Table 19: Cumulative Conditions Freeway Operations Summary – HOV Lane Volumes

Segment	Direction	Cumulative		Cumulative with Project	
		AM	PM	AM	PM
1. State Route 4, between Loveridge Rd and Somersville Rd/Autocenter Dr	EB	--	1300	--	1301
	WB	1300	--	1303	--
2. State Route 4, between Somersville Rd/Autocenter Dr and Contra Loma Blvd/L St	EB	--	1300	--	1302
	WB	1400	--	1403	--
3. State Route 4, between Contra Loma Blvd/L St and Lone Tree Way	EB	--	1300	--	1302
	WB	1300	--	1303	--

Source: Fehr & Peers, 2019.

The addition of project trips to the freeway system is not expected to create any significant impacts in the Cumulative condition.

8. Site Plan Review

This chapter analyzes site access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles based on the site plan presented previously on Figure 2.

Vehicular Site Access and Circulation

Vehicular access to the Project site is proposed to be provided via two driveways on San Jose Drive, two driveways on Delta Fair Boulevard, two driveways on Buchanan Road, and one driveway along the frontage road that borders the Elder Winds apartment complex. Figure 2 illustrates the proposed Project site plan, including all driveways, internal roadways, and parking spaces. The two driveways on San Jose Drive currently exist and are proposed to be realigned. The northern-most driveway on Delta Fair Boulevard would remain in its current location and configuration, with the other Delta Fair Boulevard driveway being relocated and reconstructed just north to fit the revised site plan. On Buchanan Road, the western-most existing driveway will be replaced by a right-turn, exit-only parking garage driveway at the location shown on Figure 2. The existing eastern driveway on Buchanan Road is proposed to remain in its current location and configuration. Along the Elder Winds frontage road, a new driveway would provide residents access to and from the Project site. All driveways are proposed to have stop sign control on the driveway approaches, with the main street (San Jose Drive, Delta Fair Boulevard and Buchanan Road) approaches being uncontrolled. This control type is consistent with that present at all existing driveway locations.

Field observed travel speeds along Buchanan Road in the vicinity of the Project site range between 30 and 40 miles per hour. The posted speed limit is 35 mph. Table 201.1 of the Caltrans Highway Design Manual (HDM) states that the stopping sight distance standard for a design speed of 40 miles per hour is 300 feet (250 feet for 35 miles per hour). Field observations of existing sight distance at the two proposed driveway locations on Buchanan Road indicate sight distances in excess of 300 feet. Field observed travel speeds along Delta Fair Boulevard in the vicinity of the Project site range between 25 and 35 miles per hour, with the posted speed limit being 30 miles per hour. Field observations of existing sight distance at the two newly proposed driveway locations on Delta Fair Boulevard indicate sight distances in excess of 250 feet, which would be the required stopping sight distance for a design speed of 35 miles per hour. Thus, adequate sight distance appears to be provided at all new driveway locations proposed by the Project. However, as the Project's design is finalized, these distances should be checked, and the Project should propose no features (signs, landscaping, etc.) that would compromise driveway sight distance.

Site Recommendation 1 The final site plan for the Project should be analyzed by the Project's Civil Engineer to ensure that adequate sight distance is maintained at all driveways. No objects (landscaping, monument signs, etc.) greater than three feet in height should be allowed within the sight distance triangles at driveway intersections. Review available speed survey information from the City and adjust required sight distance if necessary.

Site Recommendation 2: The conceptual site plan appears to show raised islands, potentially with signage or entry markers, at the two new driveways on Delta Fair Boulevard. We recommend removing the raised islands for both safety and operational efficiency. Entrance signing should be relocated to the driveway corners and not obstruct vehicular sight distance, as noted above.

As illustrated on Figure 2, the Project site is served by an internal at-grade landscaped parking lot providing 90-degree parking. In the central portion of the site the 90-degree parking is oriented largely on a north-south axis to align with the Delta Fair Boulevard driveways. This orientation transitions to an east-west axis towards the northern portion of the Project site to align with the San Jose Drive driveways. Parking aisles are generally 26 feet in width.

Trucks are expected to travel on site for moving, garbage, deliveries and emergency access.

Site Recommendation 3: The final site plan for the Project should illustrate truck turning templates at project driveways and internal roadways showing that applicable routes of travel provide sufficient space for emergency vehicles, garbage trucks, moving trucks/vans and automobiles.

Vehicles accessing the site and parking garage may be blocked from vehicles parking or entering the garage.

Site Recommendation 4: At all parking garage entries, install signs indicating that garage use is for "residents only." No parking within 25 feet of garage entry gates will be permitted inside the garage, unless otherwise approved by a City Engineer.

Site Recommendation 5: At project driveways, provide a minimum throat depth of 50 feet (approximately two vehicles). Parking spaces would not be provided or accessed from within this throat depth. Provide two outbound lanes (dedicated right and left turn lanes) onto Delta Fair Boulevard at the most northerly driveway and two outbound lanes onto San Jose Drive on the most westerly driveway. Align project driveways with internal parking lot aisles and provide a driveway width consistent with the drive aisle width (26 feet).

The following recommendations are provided to enhance vehicular access and circulation throughout the Project site:

Site Recommendation 6: Identify and provide locations for garbage and recycling pick up that do not result in trucks blocking through traffic on adjacent surface streets or internal roadways.

Identify and provide locations for loading and unloading of moving vehicles that do not result in trucks/vans/vehicles blocking through traffic on adjacent surface streets or internal roadways. Consider widening the roadway along the garage's eastern frontage to provide 22 feet of width for both trash pick-up and loading/unloading to occur.

Site Recommendation 7: Just northeast of the proposed 4,000 square foot retail or daycare center the site plan proposes an acute angle/triangular shaped intersection. Redesign the parking and aisles so that they intersect at 90-degree angles.

Site Recommendation 8: An existing acute angle intersection would remain within the central northern portion of the parking lot (just east of the adjacent retail parcel to remain at the corner of Delta Fair Boulevard and San Jose Drive). This internal intersection presents a large unstriped area wherein vehicle right-of-way is ambiguous. Redesign this internal intersection to reduce/eliminate the amount of unassigned pavement and intersect internal parking aisles as near to 90-degrees as possible.

Emergency Vehicle Access

Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

The Project site plan shows a total of five access points for emergency vehicles along Buchanan Road, Delta Fair Boulevard and San Jose Drive. With the exception of the exit-only driveway on Buchanan Road, and the driveway along the Elder Winds frontage road, all project driveways described in the Vehicular Site Access and Circulation section above would serve as access points for emergency vehicles. The 20 to 26-foot roadways through the site meet regulations for emergency vehicle widths.

Site Recommendation 9: Provide driveway widths to ensure access points width are sufficient for emergency vehicles.

Site Recommendation 10: Implement Site Recommendation 4

Pedestrian Access and Circulation

A 10-foot side-walk currently surrounds the Project frontage with crosswalks at nearby intersections. The proposed site plan shows connections to offsite public sidewalks on all sides of the Project frontage.

Site Recommendation 11: Show internal sidewalk widths. A minimum sidewalk width of 6-feet at all points including locations where signs, poles, fire hydrants, etc. are placed in the walkway per City of Antioch commercial design guidelines.

Site Recommendation 12: Provide accessible paths of travel between accessible parking spaces and building entries. Identify locations for accessible parking spaces in accordance with Code requirements.

Bike Access and Circulation

Currently an unmarked Class II bike lane is provided along northern Buchanan Road which terminates just prior to Delta Fair Boulevard.

Site Recommendation 13: Install sharrows along the Project's frontage on Buchanan Road to incorporate a class III bike route.

No bicycle parking is provided on the site plan; a minimum of 19 bicycle spaces are required for the retail portions of the development and bicycle parking is recommended for the residential units.

Site Recommendation 14: Provide at least 19 bicycle parking spaces for the retail portions. For the residential units, provide one per unit in either a restricted access bike room or individual bike lockers.

Transit Access Adjacent to Site

As described previously, three routes serve the study area, with stops on the east and west side of Delta Fair Boulevard, and on the north and south side of Buchanan Road at Delta Fair Boulevard intersection. With a provided sidewalk on the roadways and crosswalks at the intersections, a continuous pedestrian path would be provided from the Project site to area transit stops.

Parking

The proposed development requires 370 parking spaces for residents, 42 guest parking spaces, 21 parking spaces for the new retail facility and 438 parking spaces for the renovated retail building for a total of 829 parking spaces per the City of Antioch, California Code of Ordinances section 9-5.1703.1. 837 parking spaces are proposed, adequate parking is provided.

CEQA Checklist Review

This section provides a summary of the potential Project impacts related to bicycles, pedestrians, and transit based on the significance criteria outlined in Chapter 1, and summarized for each topic area, as presented in **Table 20.**

Table 20: CEQA Checklist Review

Significance Criteria	Discussion	Mitigation
A pedestrian impact is considered significant if the Project would:		
Disrupt existing pedestrian facilities	Pedestrian access is currently provided on Delta Fair Boulevard, San Jose Drive and Buchanan Drive. No pedestrian facilities are proposed to be removed as a part of the development.	None required.
Interfere with planned pedestrian facilities	The Project would construct pedestrian access to all offsite public sidewalks. Existing sidewalks and pedestrian facilities offsite are proposed to remain in place.	None Required
Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards	Sidewalks throughout the Project site are not dimensioned to connect to offsite pedestrian facilities. (Impact 5)	Mitigation Measure 5: Implement site recommendation number 11 to the satisfaction of the City Engineer. Implementation of this recommendation would reduce the impact to ***less-than-significant.***
A bicycle impact is considered significant if the Project would:		
Disrupt existing bicycle facilities	Existing Class II bicycle facilities are provided in the immediate vicinity of the Project site on Buchanan Road. The Project does not propose to eliminate existing bicycle facilities in the vicinity of Project.	None required.
Interfere with planned bicycle facilities	The proposed Project does not interfere with any infrastructure off-site. The Project does not interfere with planned bicycle facilities in the area.	None Required
Create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards	The proposed development does not create any inconsistencies with the adopted bicycle system plans, guidelines, policies or standards. The current site plans does not show any bicycle parking as required by the City of Antioch, California Code of Ordinances. (Impact 6)	Mitigation Measure 6: implement site recommendation number 14 to the satisfaction of the City Engineer. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.

Table 20: CEQA Checklist Review

Significance Criteria	Discussion	Mitigation
A transit impact is considered significant if the Project would:		
Result in development that is inaccessible to transit riders	Bus stops are currently located on Delta Fair Boulevard and Buchanan Road. Pedestrian connections would be provided from the site to the bus stops. However, many more residences would be located within close proximity to these bus stops. (Impact 7)	Mitigation Measure 7: Prior to the issuance of a building permit, the applicant shall consult with TriDelta Transit to determine if additional transit amenities should be provided throughout the Project site or Project frontages. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.
Generate transit demand that cannot be met by existing or planned transit in the area.	Based on the existing travel patterns in the area, it is not expected that the Project would generate significant levels of transit ridership.	None required.
Other Transportation Effects not addressed in other Chapters		
An impact could occur if the Project substantially increases traffic hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses.	An increase in hazardous road conditions could occur if the site circulation design does not meet City of Antioch standards or the Project adds traffic to a roadway that does not meet current design standards. Roadways within the Project site would be designed to meet City of Antioch standards.	None Required
An impact could occur if the Project results in inadequate emergency access	The Project provides five access points for emergency vehicles from numerous roadways. With roadway widths of 20 to 26 feet in the Project site. However, it is unclear what the driveway widths are and if emergency vehicles can make the turns in the site. (Impact 8)	Mitigation Measure 8: Implement Site Recommendation 9 and 10 to the satisfaction of the City Engineer. The final site plan shall be reviewed and approved by the Fire Marshal shall to ensure adequate emergency access. Implementation of this measure would reduce the impact to a ***less-than-significant*** level.

9. Vehicle Miles Traveled

In response to Senate Bill 743 (SB 743), the Office of Planning and Research (OPR) has updated California Environmental Quality Act (CEQA) guidelines to include new transportation-related evaluation metrics. Draft guidelines were developed in August 2014, with updated draft guidelines prepared January 2016, which incorporated public comments from the August 2014 guidelines. OPR released final proposed Guidelines on November 27, 2017, with an associated Technical Advisory Document on Evaluating Transportation Impacts in CEQA dated December 2018. The updated guidelines were finalized in January 2019 by the Natural Resources Agency, which includes a new Section 15064.3 on VMT analysis and thresholds for land use developments. New Guidelines section 15064.3 states that they do not take effect until July 1, 2020 unless the lead agency adopts them earlier. Neither the City of Antioch nor the Contra Costa Transportation Authority has established any standards or thresholds on VMT. Therefore, the new guidelines have not yet been adopted and are not in effect at this time.

Since there are no standards in effect on VMT analysis, a preliminary assessment of the vehicle miles of travel (VMT) generated by the proposed Project was prepared for informational and disclosure purposes only. No determination on the significance of VMT impacts is made in this document since none is legally required.

CEQA Guidelines

Changes to Appendix G of the CEQA guidelines were finalized in January 2019, with methods for evaluating transportation impacts detailed in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018)[1] The following provides the information relevant to this Project:

Text of Amendments to Appendix G

b) For a land use Project, would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?

(b) Criteria for Analyzing Transportation Impacts.

(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than

[1] Full document can be found here:
http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact. For office uses, developments that would result in VMT 15 percent below **existing** regional VMT per employee (work tour or home-based work) would be considered less than significant.

Local-serving retail may be less than significant (projects less than 50,000 square feet). Retail which increases VMT compared to previous shopping patterns may be considered significant.

As neither the City of Antioch nor the Contra Costa Transportation Authority (CCTA) have established thresholds, and the new guidelines have not yet been adopted, this assessment is prepared for informational purposes only. This assessment focuses on the residential component of the Project only as the proposed commercial uses are unknown.

Analysis Methods

To conduct the VMT assessment, Fehr & Peers used the CCTA travel demand model as well as information from the Metropolitan Transportation Commission (MTC). The CCTA model was used to estimate average trip lengths for the proposed Project, while MTC data[2] was used to establish average trip lengths for existing residential uses in Antioch. The existing average trip lengths for the City of Antioch, Contra Costa County and the Bay Area based on the MTC data are presented in **Table 21.** Home based trips in Antioch and Contra Costa County are slightly higher than the Bay Area average, while work based trips to jobs in Antioch are much lower than regional averages, indicating a jobs-housing imbalance where more people commute from Antioch to other employment centers, while jobs in Antioch tend to be filled by more local residents.

Table 21: Average Home-Based VMT Per Capita

Land Use Type	Antioch	Contra Costa County	Bay Area
Home Based VMT - 2015	17.9	18.0	15.3

Analysis Results

A select zone analysis was conducted using the CCTA model whereby all the trips generated by the residential portion of the Project were tracked through the transportation system. Based on this analysis, the proposed Project is estimated to generate approximately **16 vehicle miles of travel** per day per person for the residential portion of the Project. This includes all trips generated by each person that is

[2] http://analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerCapita

projected to live in the development that either start or end at home. This level of vehicle travel is lower than the City of Antioch average but higher than the Bay Area Average.

All trips generated by the retail portion of the Project were also tracked through the transportation system using a CCTA model select zone analysis. The average trip length of the retail portion of the Project was six miles; shorter than the average trip length of the residential portion of the Project. This is consistent with the MTC data which indicates a jobs-housing imbalance where more people commute from Antioch to other employment centers, while jobs in Antioch tend to be filled by more local residents. The daily project VMT is 21,749.

VMT Conclusion

Results of the VMT analysis indicate that the Project would contribute to an increase in vehicle miles of travel on a per-capita basis as the Project adds a housing development that would require residents to travel longer-than-average distances, than the regional average, to meet their daily needs. However, the average trip length of the residential and retail portions of the Project have lower average trip lengths than the City of Antioch average. The residential **vehicle miles of travel** per day per person is also lower than the City of Antioch average. As there are no thresholds of significance, this analysis is being provided for informational purposes only.

Appendix A: Counts

Prepared by National Data & Surveying Services

Delta Fair Shopping Center E Dwy 1 & San Jose Dr

Peak Hour Turning Movement Count

ID: 19-08215-001
City: Antioch

Day: Tuesday
Date: 04/23/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

CONTROL: 1-Way Stop(NB)

	AM	NOON	PM
TEV	263	0	319
PHF	0.91		0.94

Delta Fair Shopping Center E Dwy 1 — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Lanes	0	0	0	0	

Delta Fair Shopping Center E Dwy 1 — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
PM	13	0	16	0	11
NOON	0	0	0	0	0
AM	6	0	1	0	0
Lanes		0	0	1	0

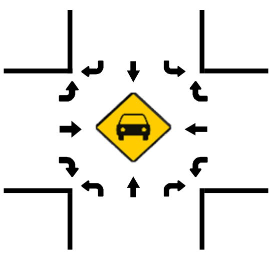
San Jose Dr — EASTBOUND

	AM	NOON	PM	Lanes
Departing	181	0	141	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	76	0	154	1
Right	4	0	13	0

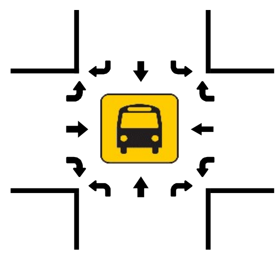
San Jose Dr — WESTBOUND

	PM	NOON	AM	Lanes
Right	0	0	0	0
Thru	125	0	180	1
Left	0	0	2	0
U-Turn	0	0	0	0
Departing	165	0	76	

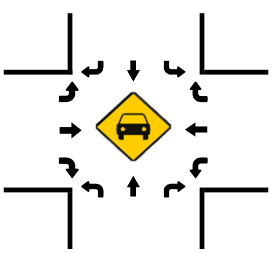
Total Vehicles (AM)



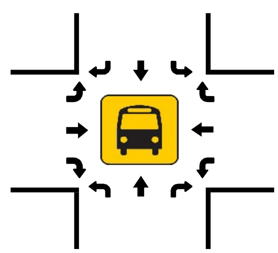
Total Vehicles (AM)



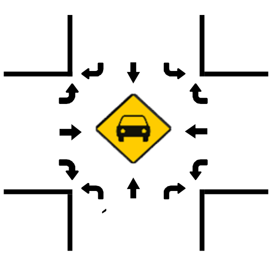
Total Vehicles (NOON)



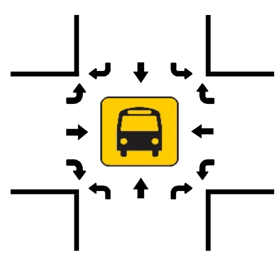
Total Vehicles (NOON)



Total Vehicles (PM)

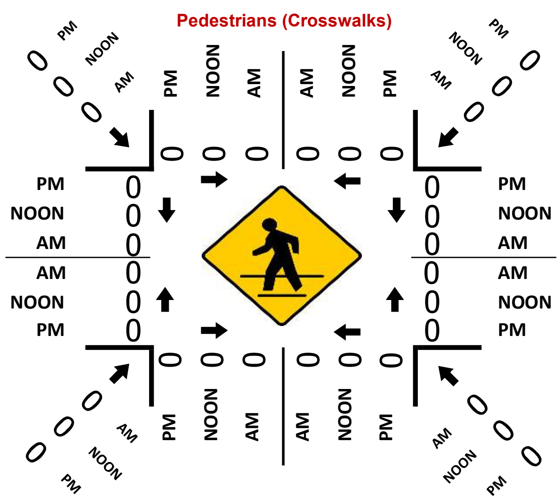


Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (west side)	0	0	0
North (east side)	0	0	0
South (west side)	0	0	0
South (east side)	0	0	0
West (north side)	0	0	0
West (south side)	0	0	0
East (north side)	0	0	0
East (south side)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0



Prepared by National Data & Surveying Services

Delta Fair Shopping Center W Dwy 2 & San Jose Dr

Peak Hour Turning Movement Count

ID: 19-08215-002
City: Antioch

Day: Tuesday
Date: 04/23/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Delta Fair Shopping Center W Dwy 2 — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	0	0	0	0	0
NOON	0	0	0	0	0
PM	0	0	0	0	0
Lanes	0	0	0	0	

San Jose Dr — EASTBOUND

	AM	NOON	PM	Lanes
Departing	172	0	140	
U-Turn	0	0	0	0
Left	0	0	0	0
Thru	81	0	151	1
Right	0	0	8	0

San Jose Dr — WESTBOUND

	PM	NOON	AM	Lanes
Right	0	0	0	0
Thru	132	0	170	1
Left	8	0	6	0
U-Turn	0	0	0	0
Departing	158	0	82	

Delta Fair Shopping Center W Dwy 2 — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	0	1	0
PM	16	0	8	0	7
NOON	0	0	0	0	0
AM	6	0	2	0	1

CONTROL

1-Way Stop(NB)

	AM	NOON	PM
TEV	260	0	314
PHF	0.90		0.87

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (PM)

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (W side)	0	0	0
North leg (E side)	0	0	0
West leg (N side)	0	0	0
West leg (S side)	0	0	0
East leg (N side)	0	0	0
East leg (S side)	0	0	0
South leg (W side)	0	0	0
South leg (E side)	0	0	0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

Prepared by National Data & Surveying Services

Delta Fair Blvd & Delta Fair Shopping Center N Dwy 3

Peak Hour Turning Movement Count

ID: 19-08215-003
City: Antioch

Day: Tuesday
Date: 04/23/2019

PEAK HOURS		COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

CONTROL: 1-Way Stop(WB)

	AM	NOON	PM
TEV	667	0	914
PHF	0.83		0.94

Delta Fair Blvd — SOUTHBOUND

	U-turn	Left	Through	Right	Total (departing)
AM	0	203	2	0	459
NOON	0	0	0	0	0
PM	0	523	19	0	361
Peds/Bikes	0	2	0	0	

Delta Fair Shopping Center N Dwy — EASTBOUND

	AM	NOON	PM	
Total (departing)	0	0	0	
U-turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

Delta Fair Shopping Center N Dwy — WESTBOUND

		PM	NOON	AM
Right	0	16	0	2
Through	1	0	0	0
Left	0	4	0	2
U-turn	0	0	0	0
Total (departing)		26	0	3

Delta Fair Blvd — NORTHBOUND

	Total (departing)	U-turn	Left	Through	Right
		0	0	2	0
PM	527	0	0	345	7
NOON	0	0	0	0	0
AM	205	0	0	457	1

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (PM)

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (PM)

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North	0	0	0
South	0	0	0
East	0	0	0
West	0	0	0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

Prepared by National Data & Surveying Services

Delta Fair Blvd & Delta Fair Shopping Center S Dwy 4

Peak Hour Turning Movement Count

ID: 19-08215-004
City: Antioch

Day: Tuesday
Date: 04/23/2019

PEAK HOURS		COUNT PERIODS
07:30 AM - 08:30 AM	AM	07:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	04:00 PM - 06:00 PM

Delta Fair Blvd — SOUTHBOUND

	Right	Through	Left	U-turn	
AM	0	212	9	0	479
NOON	0	0	0	0	0
PM	0	505	20	0	421
	0	2	1	0	

Delta Fair Shopping Center S Dwy — WESTBOUND

		PM	NOON	AM
Right	0	22	0	10
Through	1	0	0	0
Left	0	9	0	3
U-turn	0	0	0	0
		33	0	13

Delta Fair Shopping Center S Dwy — EASTBOUND

	AM	NOON	PM	
	0	0	0	
U-turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

CONTROL

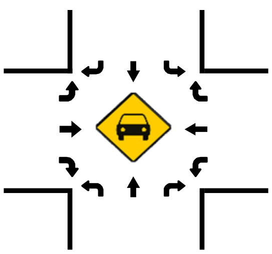
1-Way Stop(WB)

	AM	NOON	PM
TEV	707	0	968
PHF	0.88		0.92

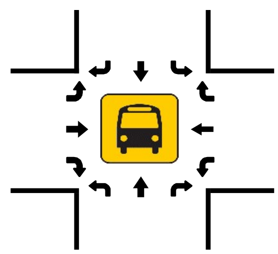
Delta Fair Blvd — NORTHBOUND

		U-turn	Left	Through	Right
		0	0	2	0
PM	514	0	0	399	13
NOON	0	0	0	0	0
AM	215	0	0	469	4

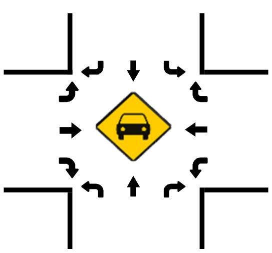
Total Vehicles (AM)



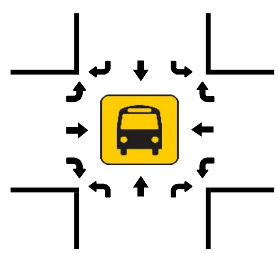
Total Vehicles (AM)



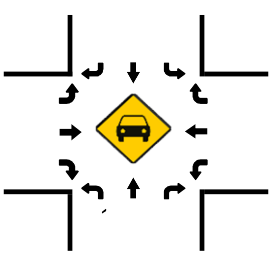
Total Vehicles (NOON)



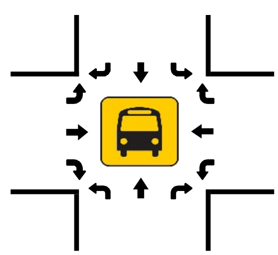
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (westward)	0	0	0
North (eastward)	0	0	0
West (southward)	0	0	0
West (northward)	0	0	0
East (southward)	0	0	0
East (northward)	0	0	0
South (westward)	0	0	0
South (eastward)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

Prepared by National Data & Surveying Services

Delta Fair Shopping Center W Dwy 5 & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08215-005
City: Antioch

Day: Tuesday
Date: 04/23/2019

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Delta Fair Shopping Center W Dwy 5 — SOUTHBOUND

	U-Turn	Left	Through	Right	Departing
AM	5	0	0	0	8
NOON	0	0	0	0	0
PM	30	0	0	0	15
Pedestrians/Bikes	0	1	0	0	

Buchanan Rd — EASTBOUND

	AM	NOON	PM	
Departing	513	0	387	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	273	0	518	2
Right	0	0	0	0

Buchanan Rd — WESTBOUND

		PM	NOON	AM
Right	0	15	0	8
Through	2	357	0	508
Left	0	0	0	0
U-Turn	0	0	0	0
Departing		518	0	273

CONTROL

1-Way Stop(SB)

	AM	NOON	PM
TEV	794	0	920
PHF	0.87		0.97

Delta Fair Shopping Center W Dwy 5 — NORTHBOUND

	Departing	U-Turn	Left	Through	Right
		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	0	0	0	0	0

Total Vehicles (AM)

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (NOON)

Total Vehicles (PM)

Total Vehicles (PM)

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North (west side)	0	0	0
North (east side)	0	0	0
West (north side)	0	0	0
West (south side)	0	0	0
East (north side)	0	0	0
East (south side)	0	0	0
South (west side)	0	0	0
South (east side)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

Prepared by National Data & Surveying Services

Delta Fair Shopping Center E Dwy 6 & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08215-006
City: Antioch

Day: Tuesday
Date: 04/23/2019

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Delta Fair Shopping Center E Dwy 6 — SOUTHBOUND

	Movement 1	Movement 2	Movement 3	Movement 4	Departing
AM	0	0	0	0	3
NOON	0	0	0	0	0
PM	1	0	0	0	6
Lanes	0	1	0	0	

Buchanan Rd — EASTBOUND

	AM	NOON	PM	Lanes
Departing	513	0	368	
U-turn	0	0	0	0
Left	0	0	0	0
Through	279	0	520	2
Right	0	0	0	0

Buchanan Rd — WESTBOUND

	PM	NOON	AM	Lanes
Right	6	0	3	0
Through	367	0	513	2
Left	0	0	0	0
U-turn	0	0	0	0
Departing	520	0	279	

CONTROL

1-Way Stop(SB)

	AM	NOON	PM
TEV	795	0	894
PHF	0.92		0.98

Delta Fair Shopping Center E Dwy 6 — NORTHBOUND

	Departing	U-turn	Left	Through	Right
Lanes		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	0	0	0	0	0

Total Vehicles (AM)

Total Vehicles (AM)

Total Vehicles (NOON)

Total Vehicles (NOON)

Total Vehicles (PM)

Total Vehicles (PM)

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (west side)	0	0	0
North leg (east side)	0	0	0
West leg (north side)	0	0	0
West leg (south side)	0	0	0
East leg (north side)	0	0	0
East leg (south side)	0	0	0
South leg (west side)	0	0	0
South leg (east side)	0	0	0
NW corner	0	0	0
NE corner	0	0	0
SW corner	0	0	0
SE corner	0	0	0

Prepared by National Data & Surveying Services

Somersville Rd & SR 4 WB Ramps

Peak Hour Turning Movement Count

ID: 19-08322-001
City: Antioch

Day: Wednesday
Date: 06/05/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Somersville Rd — SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	204	508	0	0	1012
NOON	0	0	0	0	0
PM	367	1048	0	0	1382
	1	3	0	0	

SR 4 WB Ramps — EASTBOUND

	AM	NOON	PM	
Exit	462	0	686	
U-Turn	1	0	0	0
Left	393	0	445	2
Thru	0	0	0	0
Right	491	0	573	1

SR 4 WB Ramps — WESTBOUND

		PM	NOON	AM
Right	0	0	0	0
Thru	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Exit		0	0	0

Somersville Rd — NORTHBOUND

	Exit	U-Turn	Left	Thru	Right
		0	2	3	0
PM	1624	3	319	937	0
NOON	0	0	0	0	0
AM	1002	3	257	619	0

CONTROL

Signalized

	AM	NOON	PM
TEV	2476	0	3692
PHF	0.94		0.95

Total Vehicles (AM)

Approach	Right	Thru	Left	U-Turn
Southbound	204	508	0	
Eastbound	491	0	393	
Westbound	0	0	0	
Northbound	0	619	257	

HT (AM)

Approach	Right	Thru	Left
Southbound	7	22	0
Eastbound	12	0	18
Westbound	0	0	0
Northbound	0	13	3

Total Vehicles (Noon)

All movements: N/A

HT (NOON)

All movements: N/A

Total Vehicles (PM)

Approach	Right	Thru	Left
Southbound	367	1048	0
Eastbound	573	0	445
Westbound	0	0	0
Northbound	0	937	319

HT (PM)

Approach	Right	Thru	Left
Southbound	1	7	0
Eastbound	5	0	1
Westbound	0	0	0
Northbound	0	5	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North leg	Eastbound	0	0	0
North leg	Westbound	0	0	0
South leg	Eastbound	0	0	0
South leg	Westbound	0	0	0
West leg	Southbound	0	0	8
West leg	Northbound	2	0	8
East leg	Southbound	0	0	0
East leg	Northbound	0	0	0
Diagonals (all four)		0	0	0

Prepared by National Data & Surveying Services

Somersville Rd & SR 4 EB Ramps

Peak Hour Turning Movement Count

ID: 19-08322-002
City: Antioch

Day: Wednesday
Date: 06/05/2019

PEAK HOURS		COUNT PERIODS
07:45 AM - 08:45 AM	AM	07:00 AM - 09:00 AM
NONE	NOON	NONE
04:00 PM - 05:00 PM	PM	04:00 PM - 06:00 PM

Somersville Rd – SOUTHBOUND

	Right	Through	Left	U-Turn	Total
AM	0	807	204	0	874
NOON	0	0	0	0	0
PM	0	973	648	3	1260
HT %	0	3	2	0	

SR 4 EB Ramps – EASTBOUND

	AM	NOON	PM	HT %
⇦	0	0	0	
U-Turn	0	0	0	0
Left	225	0	403	2
Through	1	0	0	0
Right	299	0	565	2

SR 4 EB Ramps – WESTBOUND

	HT %	PM	NOON	AM
Right	0	0	0	0
Through	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
⇨		1333	0	687

CONTROL

Signalized

	AM	NOON	PM
TEV	2667	0	4131
PHF	0.89		0.96

Somersville Rd – NORTHBOUND

	Total	U-Turn	Left	Through	Right
HT %		0	0	2.5	1.5
PM	1538	0	0	854	685
NOON	0	0	0	0	0
AM	1106	0	0	649	482

Total Vehicles (AM)

SB: 0 (U), 807 (T), 204 (L); WB: 0, 0, 0; EB: 225 (L), 1 (T), 299 (R); NB: 0 (U), 649 (T), 482 (R)

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

SB: 0 (U), 973 (T), 648 (L); WB: 0, 0, 0; EB: 403 (L), 0 (T), 565 (R); NB: 0 (U), 854 (T), 685 (R)

HT (AM)

SB: 0 (U), 18 (T), 16 (L); WB: 0, 0, 0; EB: 8 (L), 1 (T), 5 (R); NB: 0 (U), 8 (T), 14 (R)

HT (NOON)

All movements: N/A

HT (PM)

SB: 0 (U), 7 (T), 5 (L); WB: 0, 0, 0; EB: 1 (L), 0 (T), 3 (R); NB: 0 (U), 4 (T), 5 (R)

Pedestrians (Crosswalks)

Crosswalk		AM	NOON	PM
North (westbound)	→	0	0	0
North (eastbound)	←	0	0	0
West (southbound)	↓	1	0	9
West (northbound)	↑	5	0	10
East (southbound)	↓	10	0	1
East (northbound)	↑	5	0	2
South (eastbound)	→	0	0	0
South (westbound)	←	1	0	0
NW corner (diagonal)		0	0	0
NE corner (diagonal)		0	0	0
SW corner (diagonal)		0	0	0
SE corner (diagonal)		0	0	0

Prepared by National Data & Surveying Services

Somersville Rd & Delta Fair Blvd

Peak Hour Turning Movement Count

ID: 19-08322-003
City: Antioch

Day: Wednesday
Date: 06/05/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Somersville Rd – SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	390	446	249	16	1102
NOON	0	0	0	0	0
PM	348	663	488	39	1531
Lanes	1	2	2	0	

Delta Fair Blvd – EASTBOUND

	AM	NOON	PM	Lanes
Exit	661	0	559	
U-Turn	0	0	0	0
Left	281	0	480	1.5
Thru	106	0	209	1.5
Right	16	0	37	0

Delta Fair Blvd – WESTBOUND

	Lanes	PM	NOON	AM
Right	1	366	0	357
Thru	1	151	0	214
Left	1	42	0	48
U-Turn	0	0	0	0
Exit		724	0	361

Somersville Rd – NORTHBOUND

	Exit	U-Turn	Left	Thru	Right
Lanes		0	1	2.5	0.5
PM	743	1	60	646	27
NOON	0	0	0	0	0
AM	510	0	57	448	6

CONTROL

Signalized

	AM	NOON	PM
TEV	2634	0	3557
PHF	0.90		0.97

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	249	446	390
Eastbound	281	106	16
Westbound	48	214	357
Northbound	57	448	6

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	488	663	348
Eastbound	480	209	37
Westbound	42	151	366
Northbound	60	646	27

HT (AM)

Approach	Left	Thru	Right
Southbound	3	8	11
Eastbound	13	1	1
Westbound	1	3	3
Northbound	1	9	1

HT (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

HT (PM)

Approach	Left	Thru	Right
Southbound	1	5	4
Eastbound	6	1	0
Westbound	0	4	3
Northbound	1	2	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	6	0	2
North	Westbound	2	0	2
West	Southbound	2	0	4
West	Northbound	4	0	7
East	Southbound	8	0	9
East	Northbound	1	0	7
South	Eastbound	2	0	4
South	Westbound	4	0	4
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

Prepared by National Data & Surveying Services

Somersville Rd & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08322-004
City: Antioch

Day: Wednesday
Date: 06/05/2019

PEAK HOURS		COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Somersville Rd — SOUTHBOUND

	Right	Through	Left	U-Turn	Exit (northbound leg)
AM	182	164	46	0	689
NOON	0	0	0	0	0
PM	300	388	123	0	586
Lanes	1	2	1	0	

Buchanan Rd — WESTBOUND

Movement	Lanes	PM	NOON	AM
Right	1	64	0	80
Through	1	164	0	228
Left	1	31	0	20
U-Turn	0	10	0	8
Exit (eastbound leg)		495	0	188

Buchanan Rd — EASTBOUND

Movement	AM	NOON	PM	Lanes
Exit (westbound leg)	711	0	713	
U-Turn	0	0	5	0
Left	257	0	306	1
Through	117	0	348	2
Right	131	0	401	1

Somersville Rd — NORTHBOUND

	Exit (southbound leg)	U-Turn	Left	Through	Right
Lanes		0	1	2	0
PM	820	0	244	216	14
NOON	0	0	0	0	0
AM	315	0	301	352	17

CONTROL

Signalized

	AM	NOON	PM
TEV	1903	0	2614
PHF	0.88		0.96

Total Vehicles (AM)

Approach	Left	Through	Right
Southbound	46	164	182
Eastbound	257	117	131
Westbound	20	228	80
Northbound	301	352	17

HT (AM)

Approach	Left	Through	Right
Southbound	2	2	6
Eastbound	4	2	1
Westbound	0	0	1
Northbound	3	2	0

Total Vehicles (Noon)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

HT (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Through	Right
Southbound	123	388	300
Eastbound	306	348	401
Westbound	31	164	64
Northbound	244	216	14

HT (PM)

Approach	Left	Through	Right
Southbound	0	3	2
Eastbound	3	2	1
Westbound	0	0	0
Northbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	0	0	1
North	Westbound	1	0	1
West	Southbound	0	0	0
West	Northbound	0	0	1
East	Southbound	0	0	0
East	Northbound	1	0	0
South	Eastbound	0	0	0
South	Westbound	0	0	0
NW corner (diagonal)		0	0	0
NE corner (diagonal)		0	0	0
SW corner (diagonal)		0	0	0
SE corner (diagonal)		0	0	0

Prepared by National Data & Surveying Services

San Jose Dr & Delta Fair Blvd

Peak Hour Turning Movement Count

ID: 19-08322-005
City: Antioch

Day: Wednesday
Date: 06/05/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

San Jose Dr — SOUTHBOUND

	Right	Thru	Left	U-Turn	Exit
AM	153	0	4	0	83
NOON	0	0	0	0	0
PM	139	0	16	0	168
Lanes	1	0	1	0	

Delta Fair Blvd — EASTBOUND

	AM	NOON	PM	Lanes
Exit	624	0	527	
U-Turn	2	0	1	0
Left	78	0	147	1
Thru	237	0	522	2
Right	0	0	0	0

Delta Fair Blvd — WESTBOUND

	Lanes	PM	NOON	AM
Right	0	21	0	5
Thru	2	387	0	469
Left	0	0	0	0
U-Turn	0	1	0	0
Exit		539	0	241

San Jose Dr — NORTHBOUND

	Exit	U-Turn	Left	Thru	Right
Lanes		0	0	0	0
PM	0	0	0	0	0
NOON	0	0	0	0	0
AM	0	0	0	0	0

CONTROL

1-Way Stop (SB)

	AM	NOON	PM
TEV	948	0	1234
PHF	0.92		0.97

Total Vehicles (AM)

Approach	Left	Thru	Right
Southbound	4	0	153
Eastbound	78	237	0
Westbound	0	469	5
Northbound	0	0	0

HT (AM)

Approach	Left	Thru	Right
Southbound	0	0	4
Eastbound	2	1	0
Westbound	0	3	0
Northbound	0	0	0

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

HT (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	16	0	139
Eastbound	147	522	0
Westbound	0	387	21
Northbound	0	0	0

HT (PM)

Approach	Left	Thru	Right
Southbound	0	0	1
Eastbound	0	5	0
Westbound	0	6	0
Northbound	0	0	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	Eastbound	0	0	1
North	Westbound	0	0	0
West	Southbound	0	0	0
West	Northbound	0	0	0
East	Southbound	2	0	3
East	Northbound	1	0	1
South	Eastbound	0	0	2
South	Westbound	2	0	2
NW corner (diagonal)		0	0	0
NE corner (diagonal)		0	0	0
SW corner (diagonal)		0	0	0
SE corner (diagonal)		0	0	0

Prepared by National Data & Surveying Services

Delta Fair Blvd & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08322-006
City: Antioch

Day: Wednesday
Date: 06/05/2019

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

Delta Fair Blvd — SOUTHBOUND

	Right	Through	Left	U-turn	
AM	12	125	58	0	517
NOON	0	0	0	0	0
PM	31	375	137	0	459
Lanes	1	1	1	0	

Buchanan Rd — WESTBOUND

	Lanes	PM	NOON	AM
Right	0	128	0	139
Through	2	189	0	263
Left	1	82	0	77
U-turn	0	0	0	0
		485	0	266

Buchanan Rd — EASTBOUND

	AM	NOON	PM	Lanes
	363	0	290	
U-turn	0	0	0	0
Left	24	0	56	1
Through	135	0	306	2
Right	28	0	125	0

CONTROL

Signalized

	AM	NOON	PM
TEV	1376	0	1816
PHF	0.89		0.96

Delta Fair Blvd — NORTHBOUND

		U-turn	Left	Through	Right
Lanes		0	1	1	0
PM	582	0	70	275	42
NOON	0	0	0	0	0
AM	230	0	88	354	73

Total Vehicles (AM)

Approach	Left	Through	Right
Southbound	58	125	12
Eastbound	24	135	28
Westbound	77	263	139
Northbound	88	354	73

Total Vehicles (Noon)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Through	Right
Southbound	137	375	31
Eastbound	56	306	125
Westbound	82	189	128
Northbound	70	275	42

HT (AM)

Approach	Left	Through	Right
Southbound	1	2	0
Eastbound	0	3	0
Westbound	3	1	2
Northbound	0	3	2

HT (NOON)

Approach	Left	Through	Right
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

HT (PM)

Approach	Left	Through	Right
Southbound	1	1	0
Eastbound	0	4	0
Westbound	0	0	0
Northbound	0	4	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North leg	Eastbound	0	0	4
North leg	Westbound	6	0	0
West leg	Southbound	3	0	4
West leg	Northbound	2	0	5
East leg	Southbound	2	0	3
East leg	Northbound	3	0	2
South leg	Eastbound	3	0	2
South leg	Westbound	3	0	2
NW corner (diagonal)		0	0	0
NE corner (diagonal)		0	0	0
SW corner (diagonal)		0	0	0
SE corner (diagonal)		0	0	0

Prepared by National Data & Surveying Services

Lucena Way & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08322-007
City: Antioch

Day: Wednesday
Date: 06/05/2019

PEAK HOURS		COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

Lucena Way — SOUTHBOUND

AM	1	0	2	0	1
NOON	0	0	0	0	0
PM	2	0	0	0	1
	0	0	0	0	

Buchanan Rd — EASTBOUND

AM	NOON	PM	
493	0	388	
6	0	14	0
0	0	1	0
247	0	488	2
7	0	27	0

Buchanan Rd — WESTBOUND

	PM	NOON	AM
0	0	0	1
2	360	0	460
0	23	0	29
0	2	0	1
	512	0	319

Lucena Way — NORTHBOUND

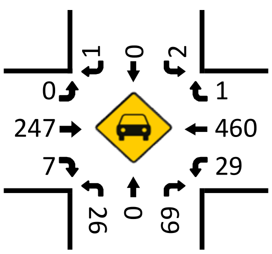
		0	0	1	0
PM	50	0	12	0	22
NOON	0	0	0	0	0
AM	36	0	26	0	69

CONTROL

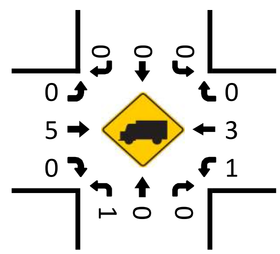
1-Way Stop (NB)

	AM	NOON	PM
TEV	849	0	951
PHF	0.83		0.97

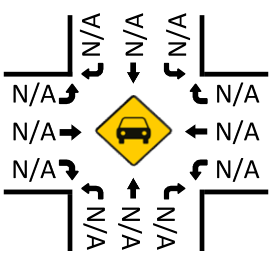
Total Vehicles (AM)



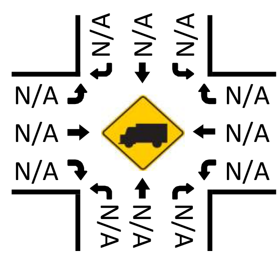
HT (AM)



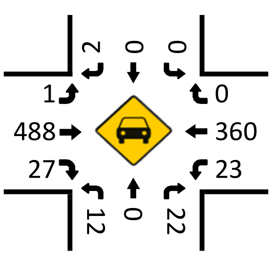
Total Vehicles (Noon)



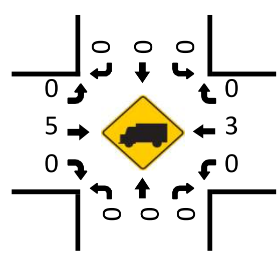
HT (NOON)



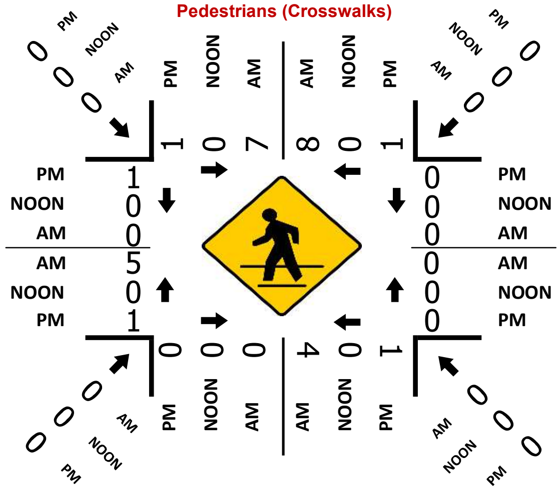
Total Vehicles (PM)



HT (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

San Jose Dr & Buchanan Rd

Peak Hour Turning Movement Count

ID: 19-08322-008
City: Antioch

Day: Wednesday
Date: 06/05/2019

PEAK HOURS		COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

San Jose Dr — SOUTHBOUND

	Right	Through	Left	U-Turn	Exiting
AM	26	18	56	0	136
NOON	0	0	0	0	0
PM	16	23	99	0	110
	0	1	0	0	

Buchanan Rd — EASTBOUND

	AM	NOON	PM	
Exiting	411	0	330	
U-Turn	0	0	0	0
Left	15	0	7	1
Through	253	0	385	2
Right	8	0	24	0

Buchanan Rd — WESTBOUND

		PM	NOON	AM
Right	0	85	0	84
Through	2	299	0	368
Left	1	7	0	2
U-Turn	0	2	0	0
Exiting		495	0	321

San Jose Dr — NORTHBOUND

	Exiting	U-Turn	Left	Through	Right
		0	0	1	0
PM	54	0	15	18	9
NOON	0	0	0	0	0
AM	28	0	17	37	12

CONTROL

Signalized

	AM	NOON	PM
TEV	896	0	989
PHF	0.85		0.93

Total Vehicles (AM)

Approach	Left	Through	Right
SB	56	18	26
EB	15	253	8
WB	2	368	84
NB	17	37	12

HT (AM)

Approach	Left	Through	Right
SB	0	0	2
EB	0	4	1
WB	0	3	3
NB	0	0	0

Total Vehicles (Noon)

All movements: N/A

HT (NOON)

All movements: N/A

Total Vehicles (PM)

Approach	Left	Through	Right
SB	99	23	16
EB	7	385	24
WB	7	299	85
NB	15	18	9

HT (PM)

Approach	Left	Through	Right
SB	0	0	0
EB	0	4	1
WB	0	2	0
NB	0	0	1

Pedestrians (Crosswalks)

Crosswalk		AM	NOON	PM
North leg	eastbound	1	0	1
North leg	westbound	3	0	0
West leg	southbound	0	0	0
West leg	northbound	0	0	0
East leg	southbound	0	0	0
East leg	northbound	0	0	0
South leg	eastbound	2	0	0
South leg	westbound	6	0	1
Diagonals (all corners)		0	0	0

Prepared by National Data & Surveying Services

Auto Center Dr & Century Blvd

Peak Hour Turning Movement Count

ID: 19-08322-009
City: Antioch

Day: Wednesday
Date: 06/05/2019

	PEAK HOURS	COUNT PERIODS
AM	07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

Auto Center Dr — SOUTHBOUND

	Right	Thru	Left	U-Turn	Departing
AM	107	427	22	1	732
NOON	0	0	0	0	0
PM	121	742	33	0	887
Lanes	0	3	1	0	

Auto Center Dr — NORTHBOUND

	Departing	U-Turn	Left	Thru	Right
Lanes		0	2	2.5	0.5
PM	1347	0	496	630	257
NOON	0	0	0	0	0
AM	699	0	210	619	183

Century Blvd — EASTBOUND

	Lanes	AM	NOON	PM
Departing		360	0	685
U-Turn	0	1	0	1
Left	2	77	0	230
Thru	0.5	22	0	120
Right	1.5	87	0	373

Century Blvd — WESTBOUND

	Lanes	PM	NOON	AM
Right	0.5	27	0	35
Thru	1	67	0	42
Left	1.5	232	0	185
U-Turn	0	0	0	0
Departing		410	0	227

CONTROL

Signalized

	AM	NOON	PM
TEV	2018	0	3329
PHF	0.94		0.98

Total Vehicles (AM)

Approach	Left	Thru	Right	U-Turn
Southbound	22	427	107	
Northbound	210	619	183	
Eastbound	77	22	87	
Westbound	185	42	35	

Total Vehicles (Noon)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Left	Thru	Right
Southbound	33	742	121
Northbound	496	630	257
Eastbound	230	120	373
Westbound	232	67	27

HT (AM)

Approach	Left	Thru	Right
Southbound	0	27	3
Northbound	6	23	2
Eastbound	5	0	5
Westbound	0	0	0

HT (NOON)

Approach	Left	Thru	Right
Southbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A

HT (PM)

Approach	Left	Thru	Right
Southbound	0	4	3
Northbound	2	3	1
Eastbound	2	0	1
Westbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (westward)	0	0	2
North leg (eastward)	2	0	5
West leg (southward)	1	0	5
West leg (northward)	1	0	6
East leg (southward)	3	0	0
East leg (northward)	3	0	0
South leg (eastward)	0	0	4
South leg (westward)	2	0	6
NW corner (diagonal)	0	0	0
NE corner (diagonal)	0	0	0
SW corner (diagonal)	0	0	0
SE corner (diagonal)	0	0	0

Appendix B: LOS Calculation Worksheets

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	394	495	260	619	516	204
Future Volume (veh/h)	394	495	260	619	516	204
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	419	86	277	659	549	126
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	494	227	909	3907	2375	723
Arrive On Green	0.14	0.14	0.53	1.00	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	419	86	277	659	549	126
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	14.4	6.0	5.4	0.0	7.8	5.7
Cycle Q Clear(g_c), s	14.4	6.0	5.4	0.0	7.8	5.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	494	227	909	3907	2375	723
V/C Ratio(X)	0.85	0.38	0.30	0.17	0.23	0.17
Avail Cap(c_a), veh/h	710	327	909	3907	2375	723
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.92	0.92	0.98	0.98
Uniform Delay (d), s/veh	50.0	46.4	21.8	0.0	18.8	18.2
Incr Delay (d2), s/veh	5.8	0.8	0.8	0.1	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	5.3	2.6	0.0	3.7	2.5
LnGrp Delay(d),s/veh	55.8	47.2	22.6	0.1	19.0	18.8
LnGrp LOS	E	D	C	A	B	B
Approach Vol, veh/h	505			936	675	
Approach Delay, s/veh	54.4			6.7	19.0	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		98.1		21.9	36.5	61.6		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		16.4	7.4	9.8		
Green Ext Time (p_c), s		7.7		1.0	0.8	2.8		

Intersection Summary		
HCM 2010 Ctrl Delay		22.0
HCM 2010 LOS		C

Notes

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	394	495	260	619	516	204
Future Volume (veh/h)	394	495	260	619	516	204
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	419	86	277	659	549	126
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	494	227	909	3907	2375	723
Arrive On Green	0.14	0.14	0.53	1.00	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	419	86	277	659	549	126
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	14.4	6.0	5.4	0.0	7.8	5.7
Cycle Q Clear(g_c), s	14.4	6.0	5.4	0.0	7.8	5.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	494	227	909	3907	2375	723
V/C Ratio(X)	0.85	0.38	0.30	0.17	0.23	0.17
Avail Cap(c_a), veh/h	710	327	909	3907	2375	723
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.92	0.92	0.98	0.98
Uniform Delay (d), s/veh	50.0	46.4	21.8	0.0	18.8	18.2
Incr Delay (d2), s/veh	5.8	0.8	0.8	0.1	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	5.3	2.6	0.0	3.7	2.5
LnGrp Delay(d),s/veh	55.8	47.2	22.6	0.1	19.0	18.8
LnGrp LOS	E	D	C	A	B	B
Approach Vol, veh/h	505			936	675	
Approach Delay, s/veh	54.4			6.7	19.0	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		98.1		21.9	36.5	61.6		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		16.4	7.4	9.8		
Green Ext Time (p_c), s		7.7		1.0	0.8	2.8		

Intersection Summary		
HCM 2010 Ctrl Delay		22.0
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	0	299	0	0	0	0	654	482	204	807	0
Future Volume (veh/h)	225	0	299	0	0	0	0	654	482	204	807	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	253	0	48				0	944	291	229	907	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	307	0	248				0	3882	1064	279	4163	0
Arrive On Green	0.09	0.00	0.09				0.00	0.70	0.70	0.16	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1516	3408	5202	0
Grp Volume(v), veh/h	253	0	48				0	944	291	229	907	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1516	1704	1679	0
Q Serve(g_s), s	8.8	0.0	1.9				0.0	7.4	8.5	7.8	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	1.9				0.0	7.4	8.5	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	307	0	248				0	3882	1064	279	4163	0
V/C Ratio(X)	0.82	0.00	0.19				0.00	0.24	0.27	0.82	0.22	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3882	1064	767	4163	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.88	0.88	0.86	0.86	0.00
Uniform Delay (d), s/veh	53.7	0.0	50.6				0.0	6.4	6.6	49.3	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.1				0.0	0.1	0.6	2.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.7				0.0	3.8	3.7	3.7	0.0	0.0
LnGrp Delay(d),s/veh	55.8	0.0	50.7				0.0	6.6	7.2	51.3	0.1	0.0
LnGrp LOS	E		D					A	A	D	A	
Approach Vol, veh/h		301						1235			1136	
Approach Delay, s/veh		55.0						6.7			10.4	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	89.5		15.5		104.5		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	9.8	10.5		10.8		2.0		
Green Ext Time (p_c), s	0.0	1.3		0.0		1.3		

Intersection Summary		
HCM 2010 Ctrl Delay		13.7
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	106	16	48	214	357	57	478	6	265	446	390
Future Volume (veh/h)	281	106	16	48	214	357	57	478	6	265	446	390
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	312	118	14	53	238	68	63	531	6	294	496	194
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	427	196	23	292	306	257	81	1083	12	358	929	413
Arrive On Green	0.12	0.12	0.12	0.16	0.16	0.16	0.05	0.21	0.21	0.03	0.09	0.09
Sat Flow, veh/h	3548	1632	194	1774	1863	1560	1774	5182	58	3442	3539	1572
Grp Volume(v), veh/h	312	0	132	53	238	68	63	347	190	294	496	194
Grp Sat Flow(s),veh/h/ln	1774	0	1825	1774	1863	1560	1774	1695	1851	1721	1770	1572
Q Serve(g_s), s	10.2	0.0	8.2	3.1	14.7	4.6	4.2	10.8	10.9	10.2	16.1	14.1
Cycle Q Clear(g_c), s	10.2	0.0	8.2	3.1	14.7	4.6	4.2	10.8	10.9	10.2	16.1	14.1
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	427	0	220	292	306	257	81	708	387	358	929	413
V/C Ratio(X)	0.73	0.00	0.60	0.18	0.78	0.26	0.78	0.49	0.49	0.82	0.53	0.47
Avail Cap(c_a), veh/h	721	0	371	510	536	449	169	708	387	531	929	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	0.96	0.96	0.96
Uniform Delay (d), s/veh	50.9	0.0	50.0	43.2	48.0	43.8	56.7	41.8	41.8	56.8	47.8	46.9
Incr Delay (d2), s/veh	1.8	0.0	2.0	0.1	1.6	0.2	5.2	2.1	3.9	3.8	2.1	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.3	1.5	7.7	2.0	2.2	5.3	6.0	5.1	8.2	6.6
LnGrp Delay(d),s/veh	52.7	0.0	52.0	43.3	49.6	44.0	61.9	43.9	45.7	60.6	49.9	50.5
LnGrp LOS	D		D	D	D	D	E	D	D	E	D	D
Approach Vol, veh/h		444			359			600			984	
Approach Delay, s/veh		52.5			47.6			46.4			53.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.5	29.7		18.9	10.1	36.1		24.2
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	18.5	25.0		24.4	11.4	31.5		34.5
Max Q Clear Time (g_c+I1), s	12.2	12.9		12.2	6.2	18.1		16.7
Green Ext Time (p_c), s	0.3	5.5		1.2	0.0	7.1		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.5
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	117	131	28	228	80	301	352	17	46	164	182
Future Volume (veh/h)	257	117	131	28	228	80	301	352	17	46	164	182
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	292	133	0	32	259	0	342	400	17	52	186	32
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	319	1125	503	67	327	278	377	1634	69	79	1064	476
Arrive On Green	0.18	0.31	0.00	0.04	0.17	0.00	0.21	0.47	0.47	0.04	0.30	0.30
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3492	148	1792	3574	1599
Grp Volume(v), veh/h	292	133	0	32	259	0	342	204	213	52	186	32
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1853	1792	1787	1599
Q Serve(g_s), s	21.5	3.6	0.0	2.4	17.7	0.0	25.0	9.2	9.3	3.8	5.2	1.9
Cycle Q Clear(g_c), s	21.5	3.6	0.0	2.4	17.7	0.0	25.0	9.2	9.3	3.8	5.2	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	319	1125	503	67	327	278	377	836	867	79	1064	476
V/C Ratio(X)	0.92	0.12	0.00	0.48	0.79	0.00	0.91	0.24	0.25	0.66	0.17	0.07
Avail Cap(c_a), veh/h	427	1125	503	267	560	476	600	836	867	400	1064	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	32.8	0.0	63.4	53.1	0.0	51.8	21.5	21.5	63.2	35.0	33.8
Incr Delay (d2), s/veh	19.2	0.2	0.0	3.9	17.5	0.0	13.0	0.7	0.7	6.8	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	1.8	0.0	1.2	10.8	0.0	13.7	4.7	4.9	2.1	2.6	0.9
LnGrp Delay(d),s/veh	73.4	33.0	0.0	67.3	70.7	0.0	64.7	22.2	22.2	70.0	35.3	34.1
LnGrp LOS	E	C		E	E		E	C	C	E	D	C
Approach Vol, veh/h		425			291			759			270	
Approach Delay, s/veh		60.8			70.3			41.4			41.9	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	67.9	9.0	47.6	32.8	45.0	27.9	28.7
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	15.8	11.3	4.4	5.6	27.0	7.2	23.5	19.7
Green Ext Time (p_c), s	0.1	2.0	0.0	2.1	1.2	1.8	0.4	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.6					
Movement	**EBL**	**EBT**	**WBT**	**WBR**	**SBL**	**SBR**
Lane Configurations						
Traffic Vol, veh/h	80	237	469	5	4	153
Future Vol, veh/h	80	237	469	5	4	153
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	87	258	510	5	4	166

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	518	0	-	0	822	261
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	306	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1051	-	-	-	314	741
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1048	-	-	-	286	739
Mov Cap-2 Maneuver	-	-	-	-	388	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	721	-
Approach	**EB**		**WB**		**SB**	
HCM Control Delay, s	2.2		0		11.4	
HCM LOS					B	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1048	-	-	-	388	739
HCM Lane V/C Ratio	0.083	-	-	-	0.011	0.225
HCM Control Delay (s)	8.7	-	-	-	14.4	11.3
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	135	28	77	297	139	88	354	73	58	125	12
Future Volume (veh/h)	24	135	28	77	297	139	88	354	73	58	125	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	27	152	12	87	334	101	99	398	75	65	140	3
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	89	641	50	152	612	182	164	512	96	128	590	493
Arrive On Green	0.05	0.19	0.19	0.08	0.23	0.23	0.09	0.33	0.33	0.07	0.31	0.31
Sat Flow, veh/h	1792	3349	261	1792	2701	802	1792	1535	289	1792	1881	1571
Grp Volume(v), veh/h	27	80	84	87	219	216	99	0	473	65	140	3
Grp Sat Flow(s),veh/h/ln	1792	1787	1823	1792	1787	1716	1792	0	1824	1792	1881	1571
Q Serve(g_s), s	0.8	2.1	2.2	2.6	6.1	6.3	3.0	0.0	13.2	2.0	3.1	0.1
Cycle Q Clear(g_c), s	0.8	2.1	2.2	2.6	6.1	6.3	3.0	0.0	13.2	2.0	3.1	0.1
Prop In Lane	1.00		0.14	1.00		0.47	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	89	342	349	152	405	389	164	0	608	128	590	493
V/C Ratio(X)	0.30	0.23	0.24	0.57	0.54	0.56	0.60	0.00	0.78	0.51	0.24	0.01
Avail Cap(c_a), veh/h	634	949	968	634	949	911	634	0	968	634	999	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	19.3	19.4	24.9	19.3	19.3	24.7	0.0	16.9	25.3	14.4	13.3
Incr Delay (d2), s/veh	1.9	0.5	0.5	3.4	1.6	1.8	3.5	0.0	3.1	3.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	1.4	3.2	3.1	1.6	0.0	7.1	1.1	1.6	0.0
LnGrp Delay(d),s/veh	27.8	19.8	19.9	28.2	20.9	21.1	28.2	0.0	20.0	28.3	14.7	13.4
LnGrp LOS	C	B	B	C	C	C	C		C	C	B	B
Approach Vol, veh/h		191			522			572			208	
Approach Delay, s/veh		21.0			22.2			21.4			18.9	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	23.9	8.8	15.8	9.2	22.7	6.8	17.8
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	4.0	15.2	4.6	4.2	5.0	5.1	2.8	8.3
Green Ext Time (p_c), s	0.1	3.6	0.2	1.2	0.2	1.0	0.0	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	253	7	30	460	1	26	0	69	0	0	1
Future Vol, veh/h	0	253	7	30	460	1	26	0	69	0	0	1
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	305	8	36	554	1	31	0	83	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	555	0	0	317	0	0	667	940	161	780	944	283
Stage 1	-	-	-	-	-	-	313	313	-	627	627	-
Stage 2	-	-	-	-	-	-	354	627	-	153	317	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1011	-	-	1247	-	-	346	262	859	285	261	714
Stage 1	-	-	-	-	-	-	675	656	-	438	474	-
Stage 2	-	-	-	-	-	-	639	474	-	834	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1011	-	-	1242	-	-	331	250	856	249	249	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	250	-	249	249	-
Stage 1	-	-	-	-	-	-	672	653	-	438	454	-
Stage 2	-	-	-	-	-	-	608	454	-	753	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	12.5	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1011	-	-	1242	-	-	711
HCM Lane V/C Ratio	0.192	-	-	-	0.029	-	-	0.002
HCM Control Delay (s)	12.5	0	-	-	8	0.1	-	10.1
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	253	8	2	368	84	17	37	12	56	18	26
Future Volume (veh/h)	15	253	8	2	368	84	17	37	12	56	18	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	18	298	5	2	433	75	20	44	3	66	21	13
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	1261	21	123	1053	181	209	124	8	311	34	21
Arrive On Green	0.07	0.35	0.35	0.07	0.35	0.35	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1792	3595	60	1792	3037	522	483	1218	80	1051	334	207
Grp Volume(v), veh/h	18	148	155	2	253	255	67	0	0	100	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1868	1792	1787	1772	1781	0	0	1593	0	0
Q Serve(g_s), s	0.3	1.7	1.7	0.0	3.2	3.2	0.0	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	0.3	1.7	1.7	0.0	3.2	3.2	1.0	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.29	0.30		0.04	0.66		0.13
Lane Grp Cap(c), veh/h	130	627	655	123	620	615	341	0	0	366	0	0
V/C Ratio(X)	0.14	0.24	0.24	0.02	0.41	0.41	0.20	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1226	2447	2557	1226	2447	2426	1324	0	0	1229	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	6.7	6.7	12.7	7.3	7.3	12.2	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.0	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	0.9	0.0	1.7	1.7	0.5	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	12.9	7.0	7.0	12.7	7.9	7.9	12.3	0.0	0.0	12.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		321			510			67			100	
Approach Delay, s/veh		7.3			7.9			12.3			12.6	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	16.2		7.0	6.1	16.1		7.0
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.0	3.7		3.7	2.3	5.2		3.0
Green Ext Time (p_c), s	0.0	2.6		0.3	0.0	4.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	22	87	185	42	35	210	620	183	23	427	107
Future Volume (veh/h)	78	22	87	185	42	35	210	620	183	23	427	107
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	83	36	31	197	45	14	223	660	0	24	454	97
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	187	98	80	290	111	34	1500	3406	0	32	1059	220
Arrive On Green	0.05	0.05	0.05	0.08	0.08	0.08	0.89	1.00	0.00	0.02	0.26	0.26
Sat Flow, veh/h	3480	1827	1494	3480	1330	414	3375	5152	0	1740	4128	857
Grp Volume(v), veh/h	83	36	31	197	0	59	223	660	0	24	363	188
Grp Sat Flow(s),veh/h/ln	1740	1827	1494	1740	0	1743	1688	1663	0	1740	1663	1659
Q Serve(g_s), s	2.8	2.3	2.4	6.6	0.0	3.9	1.0	0.0	0.0	1.6	10.9	11.4
Cycle Q Clear(g_c), s	2.8	2.3	2.4	6.6	0.0	3.9	1.0	0.0	0.0	1.6	10.9	11.4
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.00	1.00		0.52
Lane Grp Cap(c), veh/h	187	98	80	290	0	145	1500	3406	0	32	853	426
V/C Ratio(X)	0.44	0.37	0.39	0.68	0.00	0.41	0.15	0.19	0.00	0.75	0.43	0.44
Avail Cap(c_a), veh/h	783	411	336	1009	0	506	1500	3406	0	200	853	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	54.8	54.8	53.5	0.0	52.2	3.8	0.0	0.0	58.6	37.2	37.4
Incr Delay (d2), s/veh	0.6	0.8	1.1	1.1	0.0	0.7	0.0	0.1	0.0	12.3	1.6	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	1.4	1.2	1.0	3.2	0.0	1.9	0.4	0.0	0.0	0.9	5.2	5.6
LnGrp Delay(d),s/veh	55.6	55.6	56.0	54.5	0.0	52.9	3.8	0.1	0.0	70.9	38.8	40.7
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		150			256			883			575	
Approach Delay, s/veh		55.7			54.1			1.0			40.7	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	59.3	35.8		10.7	7.2	87.9		14.2
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	3.0	13.4		4.8	3.6	2.0		8.6
Green Ext Time (p_c), s	0.2	2.1		0.3	0.0	9.7		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	445	573	322	937	1051	367		
Future Volume (veh/h)	445	573	322	937	1051	367		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881		
Adj Flow Rate, veh/h	468	290	339	986	1106	180		
Adj No. of Lanes	2	1	2	3	3	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	1	1	1	1	1	1		
Cap, veh/h	717	330	400	3701	2932	881		
Arrive On Green	0.21	0.21	0.23	1.00	0.57	0.57		
Sat Flow, veh/h	3476	1599	3476	5305	5305	1543		
Grp Volume(v), veh/h	468	290	339	986	1106	180		
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1543		
Q Serve(g_s), s	16.1	22.9	12.1	0.0	15.3	7.4		
Cycle Q Clear(g_c), s	16.1	22.9	12.1	0.0	15.3	7.4		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	717	330	400	3701	2932	881		
V/C Ratio(X)	0.65	0.88	0.85	0.27	0.38	0.20		
Avail Cap(c_a), veh/h	1069	492	722	3701	2932	881		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.73	0.73	0.92	0.92		
Uniform Delay (d), s/veh	47.3	50.0	49.0	0.0	15.2	13.5		
Incr Delay (d2), s/veh	0.8	10.3	3.2	0.1	0.3	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.8	19.6	5.9	0.0	7.3	3.3		
LnGrp Delay(d),s/veh	48.1	60.3	52.2	0.1	15.6	14.0		
LnGrp LOS	D	E	D	A	B	B		
Approach Vol, veh/h	758			1325	1286			
Approach Delay, s/veh	52.8			13.4	15.4			
Approach LOS	D			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		98.7		31.3	19.4	79.2		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		24.9	14.1	17.3		
Green Ext Time (p_c), s		13.3		2.0	0.8	6.3		
Intersection Summary								
HCM 2010 Ctrl Delay			23.0					
HCM 2010 LOS			C					
Notes								

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	0	565	0	0	0	0	856	685	651	973	0
Future Volume (veh/h)	403	0	565	0	0	0	0	856	685	651	973	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	420	0	373				0	1156	356	678	1014	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	511	0	413				0	2548	704	989	3986	0
Arrive On Green	0.15	0.00	0.15				0.00	0.45	0.45	0.38	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1559	3476	5305	0
Grp Volume(v), veh/h	420	0	373				0	1156	356	678	1014	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1559	1738	1712	0
Q Serve(g_s), s	15.2	0.0	16.9				0.0	18.4	21.1	21.3	0.0	0.0
Cycle Q Clear(g_c), s	15.2	0.0	16.9				0.0	18.4	21.1	21.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	511	0	413				0	2548	704	989	3986	0
V/C Ratio(X)	0.82	0.00	0.90				0.00	0.45	0.51	0.69	0.25	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2548	704	989	3986	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.81	0.81	0.79	0.79	0.00
Uniform Delay (d), s/veh	53.8	0.0	54.5				0.0	24.6	25.3	35.5	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	6.4				0.0	0.5	2.1	3.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	6.9				0.0	9.6	9.5	10.5	0.0	0.0
LnGrp Delay(d),s/veh	55.3	0.0	60.9				0.0	25.1	27.4	38.6	0.1	0.0
LnGrp LOS	E		E					C	C	D	A	
Approach Vol, veh/h		793						1512			1692	
Approach Delay, s/veh		57.9						25.6			15.5	
Approach LOS		E						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	42.2	64.0		23.8		106.2		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0		
Max Q Clear Time (g_c+I1), s	23.3	23.1		18.9		2.0		
Green Ext Time (p_c), s	0.1	1.6		0.2		1.5		

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	209	37	42	151	366	61	646	27	527	663	348
Future Volume (veh/h)	480	209	37	42	151	366	61	646	27	527	663	348
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	495	215	33	43	156	45	63	666	26	543	684	174
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	592	262	40	217	228	190	85	1013	39	595	1141	496
Arrive On Green	0.17	0.17	0.17	0.12	0.12	0.12	0.05	0.20	0.20	0.29	0.53	0.53
Sat Flow, veh/h	3583	1586	243	1792	1881	1567	1792	5065	197	3476	3574	1555
Grp Volume(v), veh/h	495	0	248	43	156	45	63	449	243	543	684	174
Grp Sat Flow(s),veh/h/ln	1792	0	1830	1792	1881	1567	1792	1712	1838	1738	1787	1555
Q Serve(g_s), s	17.4	0.0	17.0	2.8	10.3	3.4	4.5	15.7	15.8	19.6	17.1	8.4
Cycle Q Clear(g_c), s	17.4	0.0	17.0	2.8	10.3	3.4	4.5	15.7	15.8	19.6	17.1	8.4
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	592	0	302	217	228	190	85	685	368	595	1141	496
V/C Ratio(X)	0.84	0.00	0.82	0.20	0.68	0.24	0.74	0.66	0.66	0.91	0.60	0.35
Avail Cap(c_a), veh/h	703	0	359	460	483	403	157	685	368	735	1141	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	0.86	0.86	0.86
Uniform Delay (d), s/veh	52.6	0.0	52.4	51.4	54.7	51.7	61.1	47.9	47.9	45.5	24.6	22.6
Incr Delay (d2), s/veh	7.1	0.0	11.4	0.2	1.4	0.2	4.1	4.3	8.0	11.0	2.0	1.7
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	9.2	0.0	9.6	1.4	5.5	1.5	2.3	7.8	8.8	10.3	8.7	3.8
LnGrp Delay(d),s/veh	59.7	0.0	63.8	51.6	56.1	51.9	65.3	52.2	55.9	56.4	26.7	24.3
LnGrp LOS	E		E	D	E	D	E	D	E	E	C	C
Approach Vol, veh/h		743			244			755			1401	
Approach Delay, s/veh		61.1			54.5			54.5			37.9	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.3	30.6		26.0	10.8	46.1		20.3
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.5	26.0		25.5	11.4	41.5		33.4
Max Q Clear Time (g_c+I1), s	21.6	17.8		19.4	6.5	19.1		12.3
Green Ext Time (p_c), s	0.7	5.0		1.5	0.0	12.7		0.6

Intersection Summary			
HCM 2010 Ctrl Delay			48.6
HCM 2010 LOS			D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	311	348	401	41	164	64	244	216	14	123	388	300
Future Volume (veh/h)	311	348	401	41	164	64	244	216	14	123	388	300
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	324	362	0	43	171	0	254	225	12	128	404	162
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	378	1058	473	126	293	249	319	984	52	180	718	320
Arrive On Green	0.21	0.29	0.00	0.07	0.15	0.00	0.18	0.28	0.28	0.10	0.20	0.20
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3485	185	1810	3610	1611
Grp Volume(v), veh/h	324	362	0	43	171	0	254	116	121	128	404	162
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1864	1810	1805	1611
Q Serve(g_s), s	12.4	5.6	0.0	1.6	6.0	0.0	9.6	3.5	3.6	4.9	7.2	6.4
Cycle Q Clear(g_c), s	12.4	5.6	0.0	1.6	6.0	0.0	9.6	3.5	3.6	4.9	7.2	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	378	1058	473	126	293	249	319	510	526	180	718	320
V/C Ratio(X)	0.86	0.34	0.00	0.34	0.58	0.00	0.80	0.23	0.23	0.71	0.56	0.51
Avail Cap(c_a), veh/h	807	2014	901	505	1060	901	1136	1007	1040	757	2014	899
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	19.9	0.0	31.8	28.2	0.0	28.3	19.7	19.7	31.3	25.9	25.6
Incr Delay (d2), s/veh	4.3	0.9	0.0	1.2	8.3	0.0	5.4	0.2	0.2	3.8	1.0	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	6.6	2.9	0.0	0.9	3.8	0.0	5.3	1.8	1.9	2.6	3.7	3.0
LnGrp Delay(d),s/veh	31.6	20.8	0.0	33.0	36.5	0.0	33.7	19.9	19.9	35.1	26.9	27.4
LnGrp LOS	C	C		C	D		C	B	B	D	C	C
Approach Vol, veh/h		686			214			491			694	
Approach Delay, s/veh		25.9			35.8			27.1			28.5	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	25.3	9.0	26.3	17.1	19.3	19.0	16.3
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	6.9	5.6	3.6	7.6	11.6	9.2	14.4	8.0
Green Ext Time (p_c), s	0.2	1.1	0.0	6.3	1.0	4.9	0.6	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	148	522	387	21	16	139
Future Vol, veh/h	148	522	387	21	16	139
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	153	538	399	22	16	143

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	990	212
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	579	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1141	-	-	-	245	796
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1140	-	-	-	212	795
Mov Cap-2 Maneuver	-	-	-	-	293	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	525	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1140	-	-	-	293	795
HCM Lane V/C Ratio	0.134	-	-	-	0.056	0.18
HCM Control Delay (s)	8.6	-	-	-	18	10.5
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	310	109	58	212	117	73	244	31	183	382	26
Future Volume (veh/h)	54	310	109	58	212	117	73	244	31	183	382	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	57	326	83	61	223	57	77	257	29	193	402	9
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	125	606	152	129	614	153	146	377	42	265	553	461
Arrive On Green	0.07	0.22	0.22	0.07	0.22	0.22	0.08	0.23	0.23	0.15	0.29	0.29
Sat Flow, veh/h	1792	2820	706	1792	2827	706	1792	1659	187	1792	1881	1568
Grp Volume(v), veh/h	57	205	204	61	139	141	77	0	286	193	402	9
Grp Sat Flow(s),veh/h/ln	1792	1787	1739	1792	1787	1746	1792	0	1846	1792	1881	1568
Q Serve(g_s), s	1.6	5.4	5.6	1.7	3.5	3.7	2.2	0.0	7.5	5.5	10.2	0.2
Cycle Q Clear(g_c), s	1.6	5.4	5.6	1.7	3.5	3.7	2.2	0.0	7.5	5.5	10.2	0.2
Prop In Lane	1.00		0.41	1.00		0.40	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	125	384	374	129	388	379	146	0	419	265	553	461
V/C Ratio(X)	0.46	0.53	0.55	0.47	0.36	0.37	0.53	0.00	0.68	0.73	0.73	0.02
Avail Cap(c_a), veh/h	673	1007	980	673	1007	984	673	0	1040	673	1060	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.8	18.5	18.6	23.7	17.7	17.7	23.5	0.0	18.8	21.7	16.9	13.4
Incr Delay (d2), s/veh	2.6	1.6	1.8	2.7	0.8	0.9	3.0	0.0	2.8	3.8	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.8	2.9	1.0	1.8	1.9	1.2	0.0	4.1	3.0	5.7	0.1
LnGrp Delay(d),s/veh	26.4	20.2	20.4	26.4	18.5	18.6	26.4	0.0	21.6	25.5	19.5	13.4
LnGrp LOS	C	C	C	C	B	B	C		C	C	B	B
Approach Vol, veh/h		466			341			363			604	
Approach Delay, s/veh		21.0			20.0			22.6			21.3	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	17.1	7.8	16.5	8.3	20.6	7.7	16.6
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	7.5	9.5	3.7	7.6	4.2	12.2	3.6	5.7
Green Ext Time (p_c), s	0.4	2.3	0.1	3.3	0.1	3.3	0.1	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	502	27	25	360	0	12	0	22	0	0	2
Future Vol, veh/h	1	502	27	25	360	0	12	0	22	0	0	2
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	1	518	28	26	371	0	12	0	23	0	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	371	0	0	547	0	0	775	958	274	684	972	188
Stage 1	-	-	-	-	-	-	535	535	-	423	423	-
Stage 2	-	-	-	-	-	-	240	423	-	261	549	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1184	-	-	1025	-	-	290	256	727	335	251	822
Stage 1	-	-	-	-	-	-	500	522	-	579	586	-
Stage 2	-	-	-	-	-	-	745	586	-	721	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1184	-	-	1024	-	-	281	247	726	316	242	820
Mov Cap-2 Maneuver	-	-	-	-	-	-	281	247	-	316	242	-
Stage 1	-	-	-	-	-	-	499	521	-	578	567	-
Stage 2	-	-	-	-	-	-	718	567	-	698	514	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	13.4	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	466	1184	-	-	1024	-	-	820
HCM Lane V/C Ratio	0.075	0.001	-	-	0.025	-	-	0.003
HCM Control Delay (s)	13.4	8	0	-	8.6	0.1	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	385	24	9	299	85	15	18	9	99	23	16
Future Volume (veh/h)	7	385	24	9	299	85	15	18	9	99	23	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	8	414	22	10	322	64	16	19	1	106	25	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	1051	56	130	908	178	258	150	6	368	35	17
Arrive On Green	0.07	0.30	0.30	0.07	0.30	0.30	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1792	3448	183	1792	2979	585	577	1148	49	1131	267	128
Grp Volume(v), veh/h	8	214	222	10	192	194	36	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1844	1792	1787	1777	1775	0	0	1525	0	0
Q Serve(g_s), s	0.1	2.7	2.7	0.1	2.4	2.4	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	2.7	2.7	0.1	2.4	2.4	0.5	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.33	0.44		0.03	0.74		0.08
Lane Grp Cap(c), veh/h	130	545	562	130	545	542	415	0	0	420	0	0
V/C Ratio(X)	0.06	0.39	0.40	0.08	0.35	0.36	0.09	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	1259	2511	2591	1259	2511	2497	1337	0	0	1267	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	7.8	7.8	12.3	7.7	7.7	11.0	0.0	0.0	11.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.6	0.1	0.6	0.6	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.4	1.5	0.1	1.3	1.3	0.3	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	12.4	8.5	8.5	12.4	8.3	8.3	11.0	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		444			396			36			143	
Approach Delay, s/veh		8.5			8.4			11.0			12.0	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	14.7		7.7	6.1	14.7		7.7
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.1	4.7		4.5	2.1	4.4		2.5
Green Ext Time (p_c), s	0.0	3.9		0.4	0.0	3.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	74	362	217	62	30	453	678	251	22	782	106
Future Volume (veh/h)	213	74	362	217	62	30	453	678	251	22	782	106
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	222	158	131	226	65	17	472	706	0	23	815	96
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	416	218	184	340	136	36	1341	2699	0	206	1185	139
Arrive On Green	0.11	0.11	0.11	0.09	0.09	0.09	0.64	0.87	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1598	3619	1449	379	3510	5358	0	1810	4696	550
Grp Volume(v), veh/h	222	158	131	226	0	82	472	706	0	23	599	312
Grp Sat Flow(s),veh/h/ln	1810	1900	1598	1810	0	1827	1755	1729	0	1810	1729	1788
Q Serve(g_s), s	7.5	10.4	10.3	7.8	0.0	5.5	8.2	3.0	0.0	1.5	20.4	20.6
Cycle Q Clear(g_c), s	7.5	10.4	10.3	7.8	0.0	5.5	8.2	3.0	0.0	1.5	20.4	20.6
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.00	1.00		0.31
Lane Grp Cap(c), veh/h	416	218	184	340	0	172	1341	2699	0	206	872	451
V/C Ratio(X)	0.53	0.72	0.71	0.67	0.00	0.48	0.35	0.26	0.00	0.11	0.69	0.69
Avail Cap(c_a), veh/h	974	512	430	969	0	489	1341	2699	0	206	872	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.93	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	55.5	55.5	56.9	0.0	55.9	16.0	4.3	0.0	51.7	43.9	44.0
Incr Delay (d2), s/veh	0.4	1.7	1.9	0.8	0.0	0.8	0.1	0.2	0.0	1.1	4.4	8.4
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	3.8	5.6	4.6	4.0	0.0	2.8	3.9	1.5	0.0	0.8	10.3	11.2
LnGrp Delay(d),s/veh	54.6	57.2	57.4	57.8	0.0	56.6	16.1	4.5	0.0	52.8	48.3	52.5
LnGrp LOS	D	E	E	E		E	B	A		D	D	D
Approach Vol, veh/h		511			308			1178			934	
Approach Delay, s/veh		56.1			57.5			9.1			49.8	
Approach LOS		E			E			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	55.6	38.8		19.1	20.8	73.6		16.4
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.0	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	10.2	22.6		12.4	3.5	5.0		9.8
Green Ext Time (p_c), s	0.0	7.0		1.1	0.1	9.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	35.4
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	394	512	284	629	525	204
Future Volume (veh/h)	394	512	284	629	525	204
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	419	96	302	669	559	97
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	495	228	909	3906	2375	722
Arrive On Green	0.15	0.15	0.53	1.00	0.47	0.47
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	419	96	302	669	559	97
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	14.4	6.7	6.0	0.0	7.9	4.3
Cycle Q Clear(g_c), s	14.4	6.7	6.0	0.0	7.9	4.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	495	228	909	3906	2375	722
V/C Ratio(X)	0.85	0.42	0.33	0.17	0.24	0.13
Avail Cap(c_a), veh/h	710	327	909	3906	2375	722
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	0.98	0.98
Uniform Delay (d), s/veh	50.0	46.7	21.9	0.0	18.9	17.9
Incr Delay (d2), s/veh	5.8	0.9	0.9	0.1	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.0	2.9	0.0	3.7	1.9
LnGrp Delay(d),s/veh	55.8	47.6	22.8	0.1	19.1	18.3
LnGrp LOS	E	D	C	A	B	B
Approach Vol, veh/h	515			971	656	
Approach Delay, s/veh	54.3			7.2	19.0	
Approach LOS	D			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		98.1		21.9	36.5	61.6		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		16.4	8.0	9.9		
Green Ext Time (p_c), s		7.8		1.0	0.9	2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	0	309	0	0	0	0	688	497	204	833	0
Future Volume (veh/h)	225	0	309	0	0	0	0	688	497	204	833	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	253	0	66				0	1003	309	229	936	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	307	0	249				0	3882	1063	279	4163	0
Arrive On Green	0.09	0.00	0.09				0.00	0.70	0.70	0.16	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1516	3408	5202	0
Grp Volume(v), veh/h	253	0	66				0	1003	309	229	936	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1516	1704	1679	0
Q Serve(g_s), s	8.8	0.0	2.7				0.0	7.9	9.2	7.8	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	2.7				0.0	7.9	9.2	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	307	0	249				0	3882	1063	279	4163	0
V/C Ratio(X)	0.82	0.00	0.27				0.00	0.26	0.29	0.82	0.22	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3882	1063	767	4163	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.84	0.84	0.86	0.86	0.00
Uniform Delay (d), s/veh	53.7	0.0	50.9				0.0	6.5	6.7	49.3	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.2				0.0	0.1	0.6	2.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	1.0				0.0	4.0	3.9	3.7	0.0	0.0
LnGrp Delay(d),s/veh	55.8	0.0	51.1				0.0	6.7	7.3	51.3	0.1	0.0
LnGrp LOS	E		D					A	A	D	A	
Approach Vol, veh/h		319						1312			1165	
Approach Delay, s/veh		54.8						6.8			10.2	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	89.5		15.5		104.5		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	9.8	11.2		10.8		2.0		
Green Ext Time (p_c), s	0.0	1.4		0.1		1.4		

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	121	16	49	222	406	57	478	6	301	446	390
Future Volume (veh/h)	281	121	16	49	222	406	57	478	6	301	446	390
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	312	134	15	54	247	135	63	531	6	334	496	193
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	429	199	22	301	316	265	100	1080	12	398	929	413
Arrive On Green	0.12	0.12	0.12	0.17	0.17	0.17	0.06	0.21	0.21	0.04	0.09	0.09
Sat Flow, veh/h	3548	1643	184	1774	1863	1561	1774	5182	58	3442	3539	1572
Grp Volume(v), veh/h	312	0	149	54	247	135	63	347	190	334	496	193
Grp Sat Flow(s),veh/h/ln	1774	0	1827	1774	1863	1561	1774	1695	1851	1721	1770	1572
Q Serve(g_s), s	10.2	0.0	9.4	3.1	15.2	9.4	4.2	10.8	10.9	11.6	16.1	14.0
Cycle Q Clear(g_c), s	10.2	0.0	9.4	3.1	15.2	9.4	4.2	10.8	10.9	11.6	16.1	14.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	429	0	221	301	316	265	100	706	386	398	929	413
V/C Ratio(X)	0.73	0.00	0.67	0.18	0.78	0.51	0.63	0.49	0.49	0.84	0.53	0.47
Avail Cap(c_a), veh/h	721	0	371	510	536	449	169	706	386	531	929	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	0.95	0.95	0.95
Uniform Delay (d), s/veh	50.8	0.0	50.5	42.7	47.7	45.3	55.4	41.9	41.9	56.6	47.8	46.8
Incr Delay (d2), s/veh	1.8	0.0	2.7	0.1	1.6	0.6	2.1	2.1	3.9	6.5	2.1	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.9	1.5	8.0	4.1	2.1	5.3	6.0	5.9	8.2	6.5
LnGrp Delay(d),s/veh	52.6	0.0	53.2	42.8	49.3	45.9	57.5	44.0	45.8	63.1	49.9	50.4
LnGrp LOS	D		D	D	D	D	E	D	D	E	D	D
Approach Vol, veh/h		461			436			600			1023	
Approach Delay, s/veh		52.8			47.4			46.0			54.3	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.9	29.6		19.0	11.4	36.1		24.9
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	18.5	25.0		24.4	11.4	31.5		34.5
Max Q Clear Time (g_c+I1), s	13.6	12.9		12.2	6.2	18.1		17.2
Green Ext Time (p_c), s	0.3	5.5		1.3	0.0	7.1		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	50.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	133	131	31	240	80	301	352	20	46	164	183
Future Volume (veh/h)	257	133	131	31	240	80	301	352	20	46	164	183
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	292	151	0	35	273	0	342	400	21	52	186	55
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	318	1151	515	66	341	290	376	1600	84	78	1048	469
Arrive On Green	0.18	0.32	0.00	0.04	0.18	0.00	0.21	0.46	0.46	0.04	0.29	0.29
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3453	181	1792	3574	1599
Grp Volume(v), veh/h	292	151	0	35	273	0	342	206	215	52	186	55
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1846	1792	1787	1599
Q Serve(g_s), s	21.8	4.1	0.0	2.6	19.0	0.0	25.4	9.6	9.6	3.9	5.3	3.4
Cycle Q Clear(g_c), s	21.8	4.1	0.0	2.6	19.0	0.0	25.4	9.6	9.6	3.9	5.3	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	318	1151	515	66	341	290	376	828	855	78	1048	469
V/C Ratio(X)	0.92	0.13	0.00	0.53	0.80	0.00	0.91	0.25	0.25	0.66	0.18	0.12
Avail Cap(c_a), veh/h	420	1151	515	263	552	469	591	828	855	394	1048	469
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	32.7	0.0	64.5	53.5	0.0	52.6	22.2	22.2	64.2	35.9	35.3
Incr Delay (d2), s/veh	19.9	0.2	0.0	4.9	17.8	0.0	13.5	0.7	0.7	6.9	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	2.1	0.0	1.4	11.5	0.0	14.0	4.9	5.1	2.1	2.7	1.6
LnGrp Delay(d),s/veh	75.0	33.0	0.0	69.4	71.2	0.0	66.1	22.9	22.9	71.1	36.3	35.8
LnGrp LOS	E	C		E	E		E	C	C	E	D	D
Approach Vol, veh/h		443			308			763			293	
Approach Delay, s/veh		60.7			71.0			42.3			42.4	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	68.2	9.0	49.2	33.1	45.0	28.2	30.0
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	5.9	11.6	4.6	6.1	27.4	7.3	23.8	21.0
Green Ext Time (p_c), s	0.1	2.0	0.0	2.4	1.2	2.0	0.4	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	280	523	11	5	157
Future Vol, veh/h	88	280	523	11	5	157
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	96	304	568	12	5	171

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	583	0	-	0	924	293
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	994	-	-	-	270	706
Stage 1	-	-	-	-	528	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	991	-	-	-	242	704
Mov Cap-2 Maneuver	-	-	-	-	349	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	991	-	-	-	349	704
HCM Lane V/C Ratio	0.097	-	-	-	0.016	0.242
HCM Control Delay (s)	9	-	-	-	15.5	11.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	135	28	79	302	159	88	365	73	63	131	22
Future Volume (veh/h)	43	135	28	79	302	159	88	365	73	63	131	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	48	152	14	89	339	116	99	410	76	71	147	4
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	108	678	62	151	598	201	161	516	96	132	599	501
Arrive On Green	0.06	0.21	0.21	0.08	0.23	0.23	0.09	0.34	0.34	0.07	0.32	0.32
Sat Flow, veh/h	1792	3302	300	1792	2611	877	1792	1539	285	1792	1881	1571
Grp Volume(v), veh/h	48	81	85	89	230	225	99	0	486	71	147	4
Grp Sat Flow(s),veh/h/ln	1792	1787	1815	1792	1787	1701	1792	0	1825	1792	1881	1571
Q Serve(g_s), s	1.5	2.3	2.3	2.9	6.8	7.0	3.2	0.0	14.4	2.3	3.4	0.1
Cycle Q Clear(g_c), s	1.5	2.3	2.3	2.9	6.8	7.0	3.2	0.0	14.4	2.3	3.4	0.1
Prop In Lane	1.00		0.17	1.00		0.52	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	108	367	373	151	410	390	161	0	611	132	599	501
V/C Ratio(X)	0.45	0.22	0.23	0.59	0.56	0.58	0.61	0.00	0.79	0.54	0.25	0.01
Avail Cap(c_a), veh/h	602	900	914	602	900	856	602	0	919	602	947	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	19.7	19.7	26.3	20.3	20.4	26.1	0.0	18.0	26.6	15.0	13.9
Incr Delay (d2), s/veh	2.9	0.4	0.4	3.7	1.7	1.9	3.8	0.0	3.8	3.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.2	1.2	1.6	3.5	3.5	1.7	0.0	7.8	1.2	1.8	0.0
LnGrp Delay(d),s/veh	29.9	20.1	20.2	29.9	22.0	22.3	29.9	0.0	21.8	30.0	15.3	13.9
LnGrp LOS	C	C	C	C	C	C	C		C	C	B	B
Approach Vol, veh/h		214			544			585			222	
Approach Delay, s/veh		22.3			23.4			23.1			20.0	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	25.0	9.0	17.2	9.4	24.0	7.6	18.7
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	4.3	16.4	4.9	4.3	5.2	5.4	3.5	9.0
Green Ext Time (p_c), s	0.1	3.6	0.2	1.2	0.2	1.1	0.1	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	258	7	30	464	1	26	0	69	2	0	1
Future Vol, veh/h	0	258	7	30	464	1	26	0	69	2	0	1
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	311	8	36	559	1	31	0	83	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	323	0	0	676	951	164	788	955	285
Stage 1	-	-	-	-	-	-	319	319	-	632	632	-
Stage 2	-	-	-	-	-	-	357	632	-	156	323	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1007	-	-	1241	-	-	341	258	855	282	257	712
Stage 1	-	-	-	-	-	-	670	652	-	435	472	-
Stage 2	-	-	-	-	-	-	636	472	-	831	649	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1007	-	-	1236	-	-	327	246	852	246	245	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	327	246	-	246	245	-
Stage 1	-	-	-	-	-	-	667	649	-	435	452	-
Stage 2	-	-	-	-	-	-	605	452	-	750	646	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	12.5	16.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	592	1007	-	-	1236	-	-	314
HCM Lane V/C Ratio	0.193	-	-	-	0.029	-	-	0.01
HCM Control Delay (s)	12.5	0	-	-	8	0.1	-	16.6
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	258	8	2	372	85	17	37	12	57	18	26
Future Volume (veh/h)	15	258	8	2	372	85	17	37	12	57	18	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	18	304	7	2	438	80	20	44	5	67	21	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	129	1264	29	122	1053	191	205	124	13	305	33	27
Arrive On Green	0.07	0.35	0.35	0.07	0.35	0.35	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1792	3568	82	1792	3009	545	458	1194	129	1017	319	258
Grp Volume(v), veh/h	18	152	159	2	259	259	69	0	0	105	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1863	1792	1787	1767	1781	0	0	1594	0	0
Q Serve(g_s), s	0.3	1.8	1.8	0.0	3.3	3.3	0.0	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	0.3	1.8	1.8	0.0	3.3	3.3	1.0	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.31	0.29		0.07	0.64		0.16
Lane Grp Cap(c), veh/h	129	633	660	122	625	619	342	0	0	365	0	0
V/C Ratio(X)	0.14	0.24	0.24	0.02	0.41	0.42	0.20	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1212	2419	2522	1212	2419	2392	1305	0	0	1213	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	6.7	6.7	12.9	7.3	7.3	12.3	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.0	0.6	0.6	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	0.9	0.0	1.7	1.7	0.5	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	13.0	7.0	7.0	12.9	7.9	8.0	12.4	0.0	0.0	12.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		329			520			69			105	
Approach Delay, s/veh		7.3			8.0			12.4			12.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	16.5		7.1	6.1	16.3		7.1
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.0	3.8		3.8	2.3	5.3		3.0
Green Ext Time (p_c), s	0.0	2.7		0.3	0.0	4.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	22	90	185	42	35	214	626	183	23	433	107
Future Volume (veh/h)	78	22	90	185	42	35	214	626	183	23	433	107
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	83	39	34	197	45	14	228	666	0	24	461	97
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	188	99	81	290	111	34	1500	3405	0	32	1062	217
Arrive On Green	0.05	0.05	0.05	0.08	0.08	0.08	0.89	1.00	0.00	0.02	0.26	0.26
Sat Flow, veh/h	3480	1827	1494	3480	1330	414	3375	5152	0	1740	4139	847
Grp Volume(v), veh/h	83	39	34	197	0	59	228	666	0	24	368	190
Grp Sat Flow(s),veh/h/ln	1740	1827	1494	1740	0	1743	1688	1663	0	1740	1663	1661
Q Serve(g_s), s	2.8	2.5	2.6	6.6	0.0	3.9	1.0	0.0	0.0	1.6	11.1	11.5
Cycle Q Clear(g_c), s	2.8	2.5	2.6	6.6	0.0	3.9	1.0	0.0	0.0	1.6	11.1	11.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.00	1.00		0.51
Lane Grp Cap(c), veh/h	188	99	81	290	0	145	1500	3405	0	32	853	426
V/C Ratio(X)	0.44	0.40	0.42	0.68	0.00	0.41	0.15	0.20	0.00	0.75	0.43	0.45
Avail Cap(c_a), veh/h	783	411	336	1009	0	506	1500	3405	0	200	853	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.93	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	54.9	54.9	53.5	0.0	52.2	3.8	0.0	0.0	58.6	37.3	37.4
Incr Delay (d2), s/veh	0.6	1.0	1.3	1.1	0.0	0.7	0.0	0.1	0.0	12.3	1.6	3.4
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	1.4	1.3	1.1	3.2	0.0	1.9	0.4	0.0	0.0	0.9	5.3	5.7
LnGrp Delay(d),s/veh	55.6	55.8	56.2	54.5	0.0	52.9	3.8	0.1	0.0	70.9	38.9	40.8
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		156			256			894			582	
Approach Delay, s/veh		55.8			54.1			1.1			40.8	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	59.3	35.8		10.7	7.2	87.9		14.2
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	3.0	13.5		4.8	3.6	2.0		8.6
Green Ext Time (p_c), s	0.2	2.2		0.3	0.0	9.8		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	445	590	340	947	1063	367
Future Volume (veh/h)	445	590	340	947	1063	367
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	468	315	358	997	1119	200
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	770	354	419	3623	2827	849
Arrive On Green	0.22	0.22	0.24	1.00	0.55	0.55
Sat Flow, veh/h	3476	1599	3476	5305	5305	1542
Grp Volume(v), veh/h	468	315	358	997	1119	200
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1542
Q Serve(g_s), s	15.7	24.8	12.8	0.0	16.3	8.7
Cycle Q Clear(g_c), s	15.7	24.8	12.8	0.0	16.3	8.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	770	354	419	3623	2827	849
V/C Ratio(X)	0.61	0.89	0.86	0.28	0.40	0.24
Avail Cap(c_a), veh/h	1069	492	722	3623	2827	849
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.72	0.72	0.92	0.92
Uniform Delay (d), s/veh	45.5	49.1	48.3	0.0	16.8	15.1
Incr Delay (d2), s/veh	0.6	12.9	3.2	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	7.6	21.4	6.2	0.0	7.8	3.9
LnGrp Delay(d),s/veh	46.1	61.9	51.5	0.1	17.2	15.7
LnGrp LOS	D	E	D	A	B	B
Approach Vol, veh/h	783			1355	1319	
Approach Delay, s/veh	52.5			13.7	17.0	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		96.7		33.3	20.2	76.5		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		26.8	14.8	18.3		
Green Ext Time (p_c), s		13.5		2.0	0.9	6.4		

Intersection Summary		
HCM 2010 Ctrl Delay		23.7
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	0	572	0	0	0	0	884	699	651	1002	0
Future Volume (veh/h)	403	0	572	0	0	0	0	884	699	651	1002	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	420	0	397				0	1152	358	678	1044	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	540	0	437				0	2501	691	989	3943	0
Arrive On Green	0.16	0.00	0.16				0.00	0.44	0.44	0.38	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1559	3476	5305	0
Grp Volume(v), veh/h	420	0	397				0	1152	358	678	1044	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1559	1738	1712	0
Q Serve(g_s), s	15.1	0.0	18.0				0.0	18.6	21.6	21.3	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	18.0				0.0	18.6	21.6	21.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	540	0	437				0	2501	691	989	3943	0
V/C Ratio(X)	0.78	0.00	0.91				0.00	0.46	0.52	0.69	0.26	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2501	691	989	3943	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.79	0.79	0.77	0.77	0.00
Uniform Delay (d), s/veh	52.7	0.0	54.0				0.0	25.3	26.2	35.5	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	8.4				0.0	0.5	2.2	3.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	7.5				0.0	9.7	9.7	10.5	0.0	0.0
LnGrp Delay(d),s/veh	53.8	0.0	62.4				0.0	25.8	28.4	38.5	0.1	0.0
LnGrp LOS	D		E					C	C	D	A	
Approach Vol, veh/h		817						1510			1722	
Approach Delay, s/veh		58.0						26.4			15.2	
Approach LOS		E						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	42.2	62.9		24.9		105.1		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0		
Max Q Clear Time (g_c+I1), s	23.3	23.6		20.0		2.0		
Green Ext Time (p_c), s	0.1	1.6		0.2		1.6		

Intersection Summary		
HCM 2010 Ctrl Delay		28.0
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	240	37	44	159	408	61	646	27	563	663	348
Future Volume (veh/h)	480	240	37	44	159	408	61	646	27	563	663	348
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	517	216	38	45	164	55	63	666	28	580	684	170
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	609	264	46	224	235	196	103	1009	42	630	1141	496
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.06	0.20	0.20	0.30	0.53	0.53
Sat Flow, veh/h	3583	1551	273	1792	1881	1568	1792	5047	211	3476	3574	1555
Grp Volume(v), veh/h	517	0	254	45	164	55	63	451	243	580	684	170
Grp Sat Flow(s),veh/h/ln	1792	0	1824	1792	1881	1568	1792	1712	1834	1738	1787	1555
Q Serve(g_s), s	18.2	0.0	17.5	2.9	10.9	4.1	4.5	15.8	15.9	21.0	17.1	8.1
Cycle Q Clear(g_c), s	18.2	0.0	17.5	2.9	10.9	4.1	4.5	15.8	15.9	21.0	17.1	8.1
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	609	0	310	224	235	196	103	685	367	630	1141	496
V/C Ratio(X)	0.85	0.00	0.82	0.20	0.70	0.28	0.61	0.66	0.66	0.92	0.60	0.34
Avail Cap(c_a), veh/h	703	0	358	460	483	403	157	685	367	735	1141	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	0.86	0.86	0.86
Uniform Delay (d), s/veh	52.3	0.0	52.0	51.0	54.5	51.6	59.8	47.9	48.0	44.4	24.6	22.6
Incr Delay (d2), s/veh	8.2	0.0	11.8	0.2	1.4	0.3	1.9	4.4	8.1	12.8	2.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	0.0	9.8	1.5	5.7	1.8	2.3	7.9	8.9	11.2	8.7	3.7
LnGrp Delay(d),s/veh	60.5	0.0	63.8	51.2	55.9	51.8	61.8	52.3	56.1	57.2	26.6	24.2
LnGrp LOS	E		E	D	E	D	E	D	E	E	C	C
Approach Vol, veh/h		771			264			757			1434	
Approach Delay, s/veh		61.6			54.3			54.3			38.7	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	27.6	30.6		26.6	12.1	46.1		20.8
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.5	26.0		25.5	11.4	41.5		33.4
Max Q Clear Time (g_c+I1), s	23.0	17.9		20.2	6.5	19.1		12.9
Green Ext Time (p_c), s	0.6	5.0		1.5	0.0	12.6		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	49.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑	↱	↰	↑↱		↰	↑↑	↱
Traffic Volume (veh/h)	311	363	401	44	176	64	244	216	17	123	388	302
Future Volume (veh/h)	311	363	401	44	176	64	244	216	17	123	388	302
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	324	378	0	46	183	0	254	225	18	128	404	163
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	377	1087	486	124	306	260	318	950	75	179	712	318
Arrive On Green	0.21	0.30	0.00	0.07	0.16	0.00	0.18	0.28	0.28	0.10	0.20	0.20
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3385	269	1810	3610	1611
Grp Volume(v), veh/h	324	378	0	46	183	0	254	119	124	128	404	163
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1848	1810	1805	1611
Q Serve(g_s), s	12.6	6.0	0.0	1.8	6.5	0.0	9.8	3.7	3.8	5.0	7.4	6.6
Cycle Q Clear(g_c), s	12.6	6.0	0.0	1.8	6.5	0.0	9.8	3.7	3.8	5.0	7.4	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	377	1087	486	124	306	260	318	507	519	179	712	318
V/C Ratio(X)	0.86	0.35	0.00	0.37	0.60	0.00	0.80	0.24	0.24	0.71	0.57	0.51
Avail Cap(c_a), veh/h	793	1979	885	496	1041	885	1116	989	1013	744	1979	883
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	19.9	0.0	32.5	28.4	0.0	28.9	20.2	20.2	31.9	26.5	26.2
Incr Delay (d2), s/veh	4.4	0.9	0.0	1.4	8.3	0.0	5.5	0.2	0.2	3.9	1.0	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	6.8	3.1	0.0	0.9	4.1	0.0	5.4	1.9	2.0	2.7	3.7	3.1
LnGrp Delay(d),s/veh	32.2	20.8	0.0	33.9	36.8	0.0	34.4	20.4	20.4	35.8	27.5	28.0
LnGrp LOS	C	C		C	D		C	C	C	D	C	C
Approach Vol, veh/h		702			229			497			695	
Approach Delay, s/veh		26.1			36.2			27.6			29.1	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	25.5	9.0	27.3	17.3	19.4	19.2	17.1				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3				
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40				
Max Q Clear Time (g_c+I1), s	7.0	5.8	3.8	8.0	11.8	9.4	14.6	8.5				
Green Ext Time (p_c), s	0.2	1.1	0.0	6.5	1.0	4.9	0.6	2.9				
Intersection Summary												
HCM 2010 Ctrl Delay			28.5									
HCM 2010 LOS			C									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	153	584	431	24	17	147
Future Vol, veh/h	153	584	431	24	17	147
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	158	602	444	25	18	152

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	470	0	-	0	1079	236
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1095	-	-	-	215	769
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	501	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1094	-	-	-	184	768
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	500	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1094	-	-	-	266	768
HCM Lane V/C Ratio	0.144	-	-	-	0.066	0.197
HCM Control Delay (s)	8.8	-	-	-	19.5	10.8
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	310	109	59	216	130	73	254	31	187	390	37
Future Volume (veh/h)	72	310	109	59	216	130	73	254	31	187	390	37
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	76	326	115	62	227	137	77	267	33	197	411	11
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	142	582	201	127	470	272	143	381	47	266	566	472
Arrive On Green	0.08	0.22	0.22	0.07	0.22	0.22	0.08	0.23	0.23	0.15	0.30	0.30
Sat Flow, veh/h	1792	2592	896	1792	2171	1256	1792	1641	203	1792	1881	1568
Grp Volume(v), veh/h	76	223	218	62	185	179	77	0	300	197	411	11
Grp Sat Flow(s),veh/h/ln	1792	1787	1701	1792	1787	1641	1792	0	1844	1792	1881	1568
Q Serve(g_s), s	2.3	6.1	6.3	1.9	5.0	5.3	2.3	0.0	8.3	5.8	10.9	0.3
Cycle Q Clear(g_c), s	2.3	6.1	6.3	1.9	5.0	5.3	2.3	0.0	8.3	5.8	10.9	0.3
Prop In Lane	1.00		0.53	1.00		0.77	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	142	401	382	127	387	355	143	0	428	266	566	472
V/C Ratio(X)	0.54	0.56	0.57	0.49	0.48	0.50	0.54	0.00	0.70	0.74	0.73	0.02
Avail Cap(c_a), veh/h	645	965	919	645	965	886	645	0	995	645	1016	847
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	19.1	19.2	24.8	19.0	19.1	24.6	0.0	19.6	22.6	17.4	13.7
Incr Delay (d2), s/veh	3.1	1.7	1.9	2.9	1.3	1.6	3.1	0.0	3.0	4.0	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.2	3.2	1.0	2.6	2.5	1.3	0.0	4.5	3.2	6.0	0.1
LnGrp Delay(d),s/veh	27.7	20.8	21.1	27.7	20.3	20.7	27.7	0.0	22.6	26.6	19.9	13.7
LnGrp LOS	C	C	C	C	C	C	C		C	C	B	B
Approach Vol, veh/h		517			426			377			619	
Approach Delay, s/veh		21.9			21.6			23.6			21.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	17.9	7.9	17.5	8.4	21.7	8.4	17.0
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	7.8	10.3	3.9	8.3	4.3	12.9	4.3	7.3
Green Ext Time (p_c), s	0.4	2.4	0.1	3.6	0.1	3.3	0.1	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	506	27	25	367	0	12	0	22	0	0	2
Future Vol, veh/h	1	506	27	25	367	0	12	0	22	0	0	2
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	1	522	28	26	378	0	12	0	23	0	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	551	0	0	782	969	276	693	983	191
Stage 1	-	-	-	-	-	-	539	539	-	430	430	-
Stage 2	-	-	-	-	-	-	243	430	-	263	553	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1177	-	-	1022	-	-	286	252	724	330	247	818
Stage 1	-	-	-	-	-	-	497	520	-	574	582	-
Stage 2	-	-	-	-	-	-	742	582	-	719	513	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1177	-	-	1021	-	-	277	243	723	312	239	816
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	243	-	312	239	-
Stage 1	-	-	-	-	-	-	496	519	-	573	563	-
Stage 2	-	-	-	-	-	-	715	563	-	696	512	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	13.5	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	461	1177	-	-	1021	-	-	816
HCM Lane V/C Ratio	0.076	0.001	-	-	0.025	-	-	0.003
HCM Control Delay (s)	13.5	8.1	0	-	8.6	0.1	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	389	24	9	306	86	15	18	9	100	23	16
Future Volume (veh/h)	7	389	24	9	306	86	15	18	9	100	23	16
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	8	418	26	10	329	92	16	19	10	108	25	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	128	1045	65	129	849	234	229	129	54	367	35	24
Arrive On Green	0.07	0.31	0.31	0.07	0.31	0.31	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1792	3414	212	1792	2769	763	436	929	390	1101	255	173
Grp Volume(v), veh/h	8	218	226	10	211	210	45	0	0	150	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1838	1792	1787	1745	1755	0	0	1529	0	0
Q Serve(g_s), s	0.1	2.8	2.8	0.2	2.7	2.8	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	2.8	2.8	0.2	2.7	2.8	0.6	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.44	0.36		0.22	0.72		0.11
Lane Grp Cap(c), veh/h	128	547	563	129	548	535	412	0	0	426	0	0
V/C Ratio(X)	0.06	0.40	0.40	0.08	0.38	0.39	0.11	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	1236	2465	2536	1236	2465	2407	1297	0	0	1239	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.6	8.0	8.0	12.6	7.9	7.9	11.0	0.0	0.0	11.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	0.1	0.6	0.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.4	1.5	0.1	1.4	1.4	0.3	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	12.6	8.6	8.6	12.6	8.5	8.6	11.1	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		452			431			45			150	
Approach Delay, s/veh		8.7			8.7			11.1			12.0	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	14.9		8.0	6.1	14.9		8.0
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	4.8		4.7	2.1	4.8		2.6
Green Ext Time (p_c), s	0.0	4.0		0.4	0.0	3.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	74	367	217	62	30	457	684	251	22	789	106
Future Volume (veh/h)	213	74	367	217	62	30	457	684	251	22	789	106
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	222	155	129	226	65	31	476	712	0	23	822	110
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	411	216	181	341	114	54	1345	2705	0	206	1165	155
Arrive On Green	0.11	0.11	0.11	0.09	0.09	0.09	0.64	0.87	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1598	3619	1211	578	3510	5358	0	1810	4619	614
Grp Volume(v), veh/h	222	155	129	226	0	96	476	712	0	23	614	318
Grp Sat Flow(s),veh/h/ln	1810	1900	1598	1810	0	1789	1755	1729	0	1810	1729	1775
Q Serve(g_s), s	7.5	10.2	10.1	7.8	0.0	6.7	8.2	3.0	0.0	1.5	21.0	21.2
Cycle Q Clear(g_c), s	7.5	10.2	10.1	7.8	0.0	6.7	8.2	3.0	0.0	1.5	21.0	21.2
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.00	1.00		0.35
Lane Grp Cap(c), veh/h	411	216	181	341	0	169	1345	2705	0	206	872	448
V/C Ratio(X)	0.54	0.72	0.71	0.66	0.00	0.57	0.35	0.26	0.00	0.11	0.70	0.71
Avail Cap(c_a), veh/h	974	512	430	969	0	479	1345	2705	0	206	872	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.93	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	55.6	55.6	56.9	0.0	56.3	15.9	4.2	0.0	51.7	44.2	44.3
Incr Delay (d2), s/veh	0.4	1.7	1.9	0.8	0.0	1.1	0.1	0.2	0.0	1.1	4.7	9.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	5.5	4.6	4.0	0.0	3.4	4.0	1.4	0.0	0.8	10.6	11.6
LnGrp Delay(d),s/veh	54.8	57.3	57.5	57.7	0.0	57.5	16.0	4.4	0.0	52.8	48.9	53.5
LnGrp LOS	D	E	E	E		E	B	A		D	D	D
Approach Vol, veh/h		506			322			1188			955	
Approach Delay, s/veh		56.3			57.6			9.1			50.5	
Approach LOS		E			E			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	55.8	38.8		18.9	20.8	73.8		16.5
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.0	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	10.2	23.2		12.2	3.5	5.0		9.8
Green Ext Time (p_c), s	0.0	6.8		1.1	0.1	9.6		0.8

Intersection Summary

HCM 2010 Ctrl Delay 35.7

HCM 2010 LOS D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	450	620	420	770	610	230
Future Volume (veh/h)	450	620	420	770	610	230
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	479	242	447	819	649	107
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	600	276	909	3750	2218	675
Arrive On Green	0.18	0.18	0.53	1.00	0.44	0.44
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	479	242	447	819	649	107
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	16.2	18.0	10.0	0.0	9.9	5.0
Cycle Q Clear(g_c), s	16.2	18.0	10.0	0.0	9.9	5.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	600	276	909	3750	2218	675
V/C Ratio(X)	0.80	0.88	0.49	0.22	0.29	0.16
Avail Cap(c_a), veh/h	710	327	909	3750	2218	675
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.85	0.85	0.97	0.97
Uniform Delay (d), s/veh	47.4	48.2	22.9	0.0	21.6	20.2
Incr Delay (d2), s/veh	5.1	19.3	1.6	0.1	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	16.1	4.8	0.0	4.6	2.2
LnGrp Delay(d),s/veh	52.5	67.5	24.5	0.1	21.9	20.7
LnGrp LOS	D	E	C	A	C	C
Approach Vol, veh/h	721			1266	756	
Approach Delay, s/veh	57.5			8.7	21.7	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		94.4		25.6	36.5	57.9		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		20.0	12.0	11.9		
Green Ext Time (p_c), s		10.2		1.1	1.3	3.3		

Intersection Summary		
HCM 2010 Ctrl Delay		25.1
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	0	370	0	0	0	0	930	650	240	990	0
Future Volume (veh/h)	260	0	370	0	0	0	0	930	650	240	990	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	292	0	196				0	1320	409	270	1112	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	346	0	280				0	3753	1028	319	4105	0
Arrive On Green	0.10	0.00	0.10				0.00	0.68	0.68	0.19	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1515	3408	5202	0
Grp Volume(v), veh/h	292	0	196				0	1320	409	270	1112	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1515	1704	1679	0
Q Serve(g_s), s	10.1	0.0	8.2				0.0	12.1	14.3	9.2	0.0	0.0
Cycle Q Clear(g_c), s	10.1	0.0	8.2				0.0	12.1	14.3	9.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	346	0	280				0	3753	1028	319	4105	0
V/C Ratio(X)	0.84	0.00	0.70				0.00	0.35	0.40	0.85	0.27	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3753	1028	767	4105	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.77	0.77	0.75	0.75	0.00
Uniform Delay (d), s/veh	53.0	0.0	52.1				0.0	8.2	8.5	48.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	1.2				0.0	0.2	0.9	1.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	3.2				0.0	6.2	6.2	4.4	0.0	0.0
LnGrp Delay(d),s/veh	55.1	0.0	53.3				0.0	8.4	9.4	49.8	0.1	0.0
LnGrp LOS	E		D					A	A	D	A	
Approach Vol, veh/h		488						1729			1382	
Approach Delay, s/veh		54.4						8.6			9.8	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.4	86.7		16.9		103.1		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	11.2	16.3		12.1		2.0		
Green Ext Time (p_c), s	0.0	1.9		0.1		1.7		

Intersection Summary		
HCM 2010 Ctrl Delay		15.3
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	130	50	60	230	410	120	850	10	310	630	420
Future Volume (veh/h)	300	130	50	60	230	410	120	850	10	310	630	420
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	336	139	42	67	256	156	133	944	10	344	700	194
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	474	183	55	309	325	272	159	1236	13	408	929	413
Arrive On Green	0.13	0.13	0.13	0.17	0.17	0.17	0.09	0.24	0.24	0.04	0.09	0.09
Sat Flow, veh/h	3548	1369	414	1774	1863	1562	1774	5187	55	3442	3539	1572
Grp Volume(v), veh/h	336	0	181	67	256	156	133	617	337	344	700	194
Grp Sat Flow(s),veh/h/ln	1774	0	1783	1774	1863	1562	1774	1695	1851	1721	1770	1572
Q Serve(g_s), s	10.9	0.0	11.7	3.9	15.8	11.0	8.9	20.3	20.3	11.9	23.2	14.1
Cycle Q Clear(g_c), s	10.9	0.0	11.7	3.9	15.8	11.0	8.9	20.3	20.3	11.9	23.2	14.1
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	474	0	238	309	325	272	159	808	441	408	929	413
V/C Ratio(X)	0.71	0.00	0.76	0.22	0.79	0.57	0.84	0.76	0.76	0.84	0.75	0.47
Avail Cap(c_a), veh/h	721	0	363	510	536	449	169	808	441	531	929	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	0.91	0.91	0.91
Uniform Delay (d), s/veh	49.7	0.0	50.1	42.5	47.4	45.5	53.8	42.5	42.6	56.5	51.0	46.9
Incr Delay (d2), s/veh	1.5	0.0	3.7	0.1	1.6	0.7	3.1	0.6	1.2	6.9	5.2	3.5
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	5.4	0.0	6.0	1.9	8.3	4.8	4.5	9.6	10.5	6.1	12.0	6.5
LnGrp Delay(d),s/veh	51.2	0.0	53.8	42.6	49.1	46.2	56.9	43.2	43.7	63.5	56.2	50.3
LnGrp LOS	D		D	D	D	D	E	D	D	E	E	D
Approach Vol, veh/h		517			479			1087			1238	
Approach Delay, s/veh		52.1			47.2			45.0			57.3	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.2	33.2		20.5	15.3	36.1		25.4
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	18.5	25.0		24.4	11.4	31.5		34.5
Max Q Clear Time (g_c+I1), s	13.9	22.3		13.7	10.9	25.2		17.8
Green Ext Time (p_c), s	0.3	2.2		1.4	0.0	4.7		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	220	150	40	290	90	330	500	50	50	220	350
Future Volume (veh/h)	550	220	150	40	290	90	330	500	50	50	220	350
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	625	250	0	45	330	0	375	568	54	57	250	116
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	362	1311	586	67	381	324	403	1436	136	80	902	403
Arrive On Green	0.20	0.37	0.00	0.04	0.20	0.00	0.22	0.44	0.44	0.04	0.25	0.25
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3295	313	1792	3574	1599
Grp Volume(v), veh/h	625	250	0	45	330	0	375	307	315	57	250	116
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1821	1792	1787	1599
Q Serve(g_s), s	32.0	7.6	0.0	3.9	26.9	0.0	32.5	18.6	18.7	5.0	8.9	9.3
Cycle Q Clear(g_c), s	32.0	7.6	0.0	3.9	26.9	0.0	32.5	18.6	18.7	5.0	8.9	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	362	1311	586	67	381	324	403	779	793	80	902	403
V/C Ratio(X)	1.73	0.19	0.00	0.67	0.87	0.00	0.93	0.39	0.40	0.71	0.28	0.29
Avail Cap(c_a), veh/h	362	1311	586	226	474	403	508	779	793	339	902	403
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	34.2	0.0	75.3	61.1	0.0	60.3	30.5	30.5	74.8	47.7	47.8
Incr Delay (d2), s/veh	339.4	0.3	0.0	8.1	22.3	0.0	21.7	1.5	1.5	8.5	0.8	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	49.8	3.8	0.0	2.1	16.4	0.0	18.6	9.5	9.7	2.7	4.5	4.3
LnGrp Delay(d),s/veh	402.7	34.5	0.0	83.4	83.4	0.0	82.0	32.0	32.0	83.3	48.4	49.6
LnGrp LOS	F	C		F	F		F	C	C	F	D	D
Approach Vol, veh/h		875			375			997			423	
Approach Delay, s/veh		297.5			83.4			50.8			53.5	
Approach LOS		F			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	74.1	10.0	63.5	40.2	45.0	36.0	37.4
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	17.0	20.7	5.9	9.6	34.5	11.3	34.0	28.9
Green Ext Time (p_c), s	0.1	2.9	0.0	4.1	1.1	2.9	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	136.6
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	110	270	520	20	10	190
Future Vol, veh/h	110	270	520	20	10	190
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	120	293	565	22	11	207

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	590	0	-	0	969	297
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	390	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	988	-	-	-	253	702
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	985	-	-	-	221	700
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	460	-
Stage 2	-	-	-	-	654	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	985	-	-	-	326	700
HCM Lane V/C Ratio	0.121	-	-	-	0.033	0.295
HCM Control Delay (s)	9.2	-	-	-	16.4	12.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	230	50	90	350	160	120	390	80	70	150	20
Future Volume (veh/h)	40	230	50	90	350	160	120	390	80	70	150	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	45	258	38	101	393	136	135	438	83	79	169	6
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	100	666	97	158	639	218	193	530	100	135	589	492
Arrive On Green	0.06	0.21	0.21	0.09	0.25	0.25	0.11	0.35	0.35	0.08	0.31	0.31
Sat Flow, veh/h	1792	3117	452	1792	2599	887	1792	1533	291	1792	1881	1571
Grp Volume(v), veh/h	45	146	150	101	268	261	135	0	521	79	169	6
Grp Sat Flow(s),veh/h/ln	1792	1787	1782	1792	1787	1699	1792	0	1824	1792	1881	1571
Q Serve(g_s), s	1.6	4.5	4.7	3.5	8.7	8.9	4.7	0.0	17.0	2.8	4.4	0.2
Cycle Q Clear(g_c), s	1.6	4.5	4.7	3.5	8.7	8.9	4.7	0.0	17.0	2.8	4.4	0.2
Prop In Lane	1.00		0.25	1.00		0.52	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	100	382	381	158	439	418	193	0	630	135	589	492
V/C Ratio(X)	0.45	0.38	0.39	0.64	0.61	0.62	0.70	0.00	0.83	0.58	0.29	0.01
Avail Cap(c_a), veh/h	552	826	824	552	826	786	552	0	843	552	870	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	21.9	21.9	28.6	21.7	21.8	27.9	0.0	19.5	29.0	16.8	15.4
Incr Delay (d2), s/veh	3.1	0.9	0.9	4.3	2.0	2.2	4.6	0.0	6.0	4.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.3	2.4	1.9	4.5	4.4	2.6	0.0	9.6	1.5	2.3	0.1
LnGrp Delay(d),s/veh	32.8	22.7	22.8	32.9	23.7	24.0	32.5	0.0	25.5	33.0	17.2	15.4
LnGrp LOS	C	C	C	C	C	C	C		C	C	B	B
Approach Vol, veh/h		341			630			656			254	
Approach Delay, s/veh		24.1			25.3			26.9			22.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	27.4	9.7	18.9	11.0	25.3	7.6	20.9
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	4.8	19.0	5.5	6.7	6.7	6.4	3.6	10.9
Green Ext Time (p_c), s	0.1	3.4	0.2	2.3	0.3	1.3	0.1	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	360	10	40	520	10	30	0	80	10	0	10
Future Vol, veh/h	0	360	10	40	520	10	30	0	80	10	0	10
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	434	12	48	627	11	36	0	96	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	638	0	0	450	0	0	859	1178	227	946	1179	324
Stage 1	-	-	-	-	-	-	444	444	-	729	729	-
Stage 2	-	-	-	-	-	-	415	734	-	217	450	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	942	-	-	1114	-	-	252	189	779	216	189	672
Stage 1	-	-	-	-	-	-	565	574	-	380	426	-
Stage 2	-	-	-	-	-	-	588	424	-	765	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	942	-	-	1110	-	-	233	176	776	179	176	669
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	176	-	179	176	-
Stage 1	-	-	-	-	-	-	563	572	-	380	397	-
Stage 2	-	-	-	-	-	-	537	396	-	670	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	15.5	18.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	474	942	-	-	1110	-	-	282
HCM Lane V/C Ratio	0.28	-	-	-	0.043	-	-	0.077
HCM Control Delay (s)	15.5	0	-	-	8.4	0.2	-	18.8
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	360	10	10	430	90	20	40	20	70	20	30
Future Volume (veh/h)	20	360	10	10	430	90	20	40	20	70	20	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	24	424	10	12	506	88	24	47	10	82	24	20
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	132	1341	32	122	1124	194	194	140	27	310	37	31
Arrive On Green	0.07	0.38	0.38	0.07	0.37	0.37	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1792	3566	84	1792	3034	525	409	1144	219	1032	302	252
Grp Volume(v), veh/h	24	212	222	12	297	297	81	0	0	126	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1863	1792	1787	1772	1772	0	0	1585	0	0
Q Serve(g_s), s	0.4	2.7	2.7	0.2	4.0	4.1	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	2.7	2.7	0.2	4.0	4.1	1.3	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.30	0.30		0.12	0.65		0.16
Lane Grp Cap(c), veh/h	132	672	701	122	662	656	361	0	0	378	0	0
V/C Ratio(X)	0.18	0.32	0.32	0.10	0.45	0.45	0.22	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	1110	2215	2308	1110	2215	2196	1187	0	0	1108	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	7.1	7.1	14.1	7.7	7.7	13.0	0.0	0.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.7	0.7	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	1.4	0.1	2.1	2.1	0.7	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	14.3	7.5	7.5	14.2	8.4	8.4	13.1	0.0	0.0	13.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		458			606			81			126	
Approach Delay, s/veh		7.9			8.5			13.1			13.6	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	18.1		7.9	6.4	18.0		7.9
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	4.7		4.3	2.4	6.1		3.3
Green Ext Time (p_c), s	0.0	3.9		0.4	0.0	5.7		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		9.1
HCM 2010 LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	30	100	200	50	50	240	780	200	40	520	120
Future Volume (veh/h)	90	30	100	200	50	50	240	780	200	40	520	120
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	96	40	38	213	53	20	255	830	0	43	553	110
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	201	106	86	307	111	42	1471	3296	0	55	1073	209
Arrive On Green	0.06	0.06	0.06	0.09	0.09	0.09	0.87	1.00	0.00	0.03	0.26	0.26
Sat Flow, veh/h	3480	1827	1497	3480	1257	474	3375	5152	0	1740	4179	814
Grp Volume(v), veh/h	96	40	38	213	0	73	255	830	0	43	438	225
Grp Sat Flow(s),veh/h/ln	1740	1827	1497	1740	0	1731	1688	1663	0	1740	1663	1668
Q Serve(g_s), s	3.2	2.5	2.9	7.1	0.0	4.8	1.4	0.0	0.0	2.9	13.5	13.9
Cycle Q Clear(g_c), s	3.2	2.5	2.9	7.1	0.0	4.8	1.4	0.0	0.0	2.9	13.5	13.9
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.00	1.00		0.49
Lane Grp Cap(c), veh/h	201	106	86	307	0	153	1471	3296	0	55	853	428
V/C Ratio(X)	0.48	0.38	0.44	0.69	0.00	0.48	0.17	0.25	0.00	0.78	0.51	0.53
Avail Cap(c_a), veh/h	783	411	337	1009	0	502	1471	3296	0	200	853	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	54.5	54.7	53.1	0.0	52.1	4.4	0.0	0.0	57.7	38.2	38.3
Incr Delay (d2), s/veh	0.7	0.8	1.3	1.1	0.0	0.9	0.0	0.2	0.0	8.8	2.2	4.6
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	1.6	1.3	1.2	3.5	0.0	2.3	0.6	0.1	0.0	1.6	6.5	6.9
LnGrp Delay(d),s/veh	55.4	55.3	56.0	54.2	0.0	52.9	4.5	0.2	0.0	66.5	40.4	42.9
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		174			286			1085			706	
Approach Delay, s/veh		55.5			53.9			1.2			42.8	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	58.3	35.8		11.1	8.8	85.3		14.8
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	3.4	15.9		5.2	4.9	2.0		9.1
Green Ext Time (p_c), s	0.2	2.5		0.3	0.0	12.1		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	500	790	430	1060	1250	410
Future Volume (veh/h)	500	790	430	1060	1250	410
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	526	559	453	1116	1316	180
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1069	492	512	3180	2246	672
Arrive On Green	0.31	0.31	0.29	1.00	0.44	0.44
Sat Flow, veh/h	3476	1599	3476	5305	5305	1536
Grp Volume(v), veh/h	526	559	453	1116	1316	180
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1536
Q Serve(g_s), s	16.0	40.0	16.2	0.0	25.2	9.7
Cycle Q Clear(g_c), s	16.0	40.0	16.2	0.0	25.2	9.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1069	492	512	3180	2246	672
V/C Ratio(X)	0.49	1.14	0.88	0.35	0.59	0.27
Avail Cap(c_a), veh/h	1069	492	722	3180	2246	672
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.53	0.53	0.88	0.88
Uniform Delay (d), s/veh	36.7	45.0	44.8	0.0	27.7	23.3
Incr Delay (d2), s/veh	0.3	83.6	5.1	0.2	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	41.4	8.0	0.0	12.1	4.3
LnGrp Delay(d),s/veh	37.0	128.6	49.9	0.2	28.7	24.2
LnGrp LOS	D	F	D	A	C	C
Approach Vol, veh/h	1085			1569	1496	
Approach Delay, s/veh	84.2			14.5	28.1	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.5		44.5	23.6	61.9		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		42.0	18.2	27.2		
Green Ext Time (p_c), s		16.1		0.0	1.0	7.1		

Intersection Summary		
HCM 2010 Ctrl Delay		37.6
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	0	690	0	0	0	0	1050	810	730	1310	0
Future Volume (veh/h)	440	0	690	0	0	0	0	1050	810	730	1310	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	458	0	618				0	1323	415	760	1365	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	807	0	653				0	2068	571	989	3549	0
Arrive On Green	0.23	0.00	0.23				0.00	0.37	0.37	0.57	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1557	3476	5305	0
Grp Volume(v), veh/h	458	0	618				0	1323	415	760	1365	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1557	1738	1712	0
Q Serve(g_s), s	15.2	0.0	28.1				0.0	25.2	29.9	21.8	0.0	0.0
Cycle Q Clear(g_c), s	15.2	0.0	28.1				0.0	25.2	29.9	21.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	807	0	653				0	2068	571	989	3549	0
V/C Ratio(X)	0.57	0.00	0.95				0.00	0.64	0.73	0.77	0.38	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2068	571	989	3549	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.70	0.70	0.50	0.50	0.00
Uniform Delay (d), s/veh	44.2	0.0	49.1				0.0	34.1	35.6	24.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	21.8				0.0	1.1	5.7	2.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	12.9				0.0	13.3	13.7	10.5	0.1	0.0
LnGrp Delay(d),s/veh	44.7	0.0	70.9				0.0	35.2	41.2	27.7	0.2	0.0
LnGrp LOS	D		E					D	D	C	A	
Approach Vol, veh/h		1076						1738			2125	
Approach Delay, s/veh		59.8						36.6			10.0	
Approach LOS		E						D			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	42.2	52.9		34.9		95.1						
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3						
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0						
Max Q Clear Time (g_c+I1), s	23.8	31.9		30.1		2.0						
Green Ext Time (p_c), s	0.1	1.9		0.1		2.2						
Intersection Summary												
HCM 2010 Ctrl Delay			30.2									
HCM 2010 LOS			C									
Notes												

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	230	80	60	170	420	90	890	30	580	1040	380
Future Volume (veh/h)	510	230	80	60	170	420	90	890	30	580	1040	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	543	213	71	62	175	81	93	918	29	598	1072	221
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	648	242	81	234	246	205	115	1038	33	643	1141	496
Arrive On Green	0.18	0.18	0.18	0.13	0.13	0.13	0.06	0.20	0.20	0.37	0.64	0.64
Sat Flow, veh/h	3583	1341	447	1792	1881	1570	1792	5108	161	3476	3574	1555
Grp Volume(v), veh/h	543	0	284	62	175	81	93	615	332	598	1072	221
Grp Sat Flow(s),veh/h/ln	1792	0	1788	1792	1881	1570	1792	1712	1846	1738	1787	1555
Q Serve(g_s), s	19.0	0.0	20.1	4.1	11.6	6.1	6.7	22.7	22.7	21.5	35.2	9.3
Cycle Q Clear(g_c), s	19.0	0.0	20.1	4.1	11.6	6.1	6.7	22.7	22.7	21.5	35.2	9.3
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	648	0	323	234	246	205	115	696	375	643	1141	496
V/C Ratio(X)	0.84	0.00	0.88	0.26	0.71	0.39	0.81	0.88	0.89	0.93	0.94	0.45
Avail Cap(c_a), veh/h	703	0	351	460	483	403	157	696	375	735	1141	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.45	0.45	0.45	0.78	0.78	0.78
Uniform Delay (d), s/veh	51.4	0.0	51.9	50.9	54.2	51.8	60.0	50.3	50.3	40.1	22.4	17.7
Incr Delay (d2), s/veh	8.0	0.0	20.1	0.2	1.4	0.5	6.8	7.8	13.4	13.4	13.0	2.3
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	10.1	0.0	11.7	2.0	6.1	2.7	3.5	11.5	13.0	11.3	19.0	4.2
LnGrp Delay(d),s/veh	59.5	0.0	72.0	51.1	55.6	52.3	66.8	58.1	63.7	53.5	35.4	19.9
LnGrp LOS	E		E	D	E	D	E	E	E	D	D	B
Approach Vol, veh/h		827			318			1040			1891	
Approach Delay, s/veh		63.8			53.9			60.7			39.3	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.1	31.0		28.0	13.0	46.1		21.5
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.5	26.0		25.5	11.4	41.5		33.4
Max Q Clear Time (g_c+I1), s	23.5	24.7		22.1	8.7	37.2		13.6
Green Ext Time (p_c), s	0.6	1.1		1.1	0.0	3.9		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	50.8
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	420	430	60	240	70	260	300	30	130	530	580
Future Volume (veh/h)	490	420	430	60	240	70	260	300	30	130	530	580
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	510	438	0	62	250	0	271	312	27	135	552	414
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	432	1294	579	89	321	273	305	1230	106	163	1023	457
Arrive On Green	0.24	0.36	0.00	0.05	0.17	0.00	0.17	0.37	0.37	0.09	0.28	0.28
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3361	289	1810	3610	1612
Grp Volume(v), veh/h	510	438	0	62	250	0	271	167	172	135	552	414
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1844	1810	1805	1612
Q Serve(g_s), s	32.0	11.9	0.0	4.5	16.9	0.0	19.6	8.6	8.8	9.8	17.3	33.2
Cycle Q Clear(g_c), s	32.0	11.9	0.0	4.5	16.9	0.0	19.6	8.6	8.8	9.8	17.3	33.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	432	1294	579	89	321	273	305	660	675	163	1023	457
V/C Ratio(X)	1.18	0.34	0.00	0.70	0.78	0.00	0.89	0.25	0.26	0.83	0.54	0.91
Avail Cap(c_a), veh/h	432	1294	579	270	567	482	608	660	675	405	1078	481
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	31.4	0.0	62.7	53.3	0.0	54.4	29.7	29.7	60.0	40.6	46.3
Incr Delay (d2), s/veh	102.6	0.7	0.0	7.1	17.0	0.0	10.1	0.1	0.1	7.8	0.7	20.7
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	28.3	6.0	0.0	2.4	10.4	0.0	10.6	4.3	4.5	5.3	8.8	17.3
LnGrp Delay(d),s/veh	153.6	32.1	0.0	69.8	70.3	0.0	64.5	29.8	29.9	67.8	41.3	67.0
LnGrp LOS	F	C		E	E		E	C	C	E	D	E
Approach Vol, veh/h		948			312			610			1101	
Approach Delay, s/veh		97.4			70.2			45.2			54.2	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	54.0	10.6	53.3	27.1	42.9	36.0	27.9
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	11.8	10.8	6.5	13.9	21.6	35.2	34.0	18.9
Green Ext Time (p_c), s	0.2	1.6	0.1	7.1	1.0	2.8	0.0	3.5

Intersection Summary			
HCM 2010 Ctrl Delay			67.8
HCM 2010 LOS			E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	180	570	430	40	30	180
Future Vol, veh/h	180	570	430	40	30	180
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	186	588	443	41	31	186

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	485	0	-	0	1135	243
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	670	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1081	-	-	-	197	761
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1080	-	-	-	163	760
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	473	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1080	-	-	-	231	760
HCM Lane V/C Ratio	0.172	-	-	-	0.134	0.244
HCM Control Delay (s)	9	-	-	-	23	11.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.6	-	-	-	0.5	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	360	130	70	280	130	90	270	40	200	420	40
Future Volume (veh/h)	70	360	130	70	280	130	90	270	40	200	420	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	74	379	104	74	295	90	95	284	38	211	442	22
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	135	638	173	135	623	186	157	390	52	275	576	481
Arrive On Green	0.08	0.23	0.23	0.08	0.23	0.23	0.09	0.24	0.24	0.15	0.31	0.31
Sat Flow, veh/h	1792	2769	750	1792	2705	809	1792	1624	217	1792	1881	1568
Grp Volume(v), veh/h	74	243	240	74	193	192	95	0	322	211	442	22
Grp Sat Flow(s),veh/h/ln	1792	1787	1731	1792	1787	1727	1792	0	1841	1792	1881	1568
Q Serve(g_s), s	2.4	7.3	7.4	2.4	5.6	5.8	3.1	0.0	9.6	6.8	12.8	0.6
Cycle Q Clear(g_c), s	2.4	7.3	7.4	2.4	5.6	5.8	3.1	0.0	9.6	6.8	12.8	0.6
Prop In Lane	1.00		0.43	1.00		0.47	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	135	412	399	135	412	398	157	0	442	275	576	481
V/C Ratio(X)	0.55	0.59	0.60	0.55	0.47	0.48	0.61	0.00	0.73	0.77	0.77	0.05
Avail Cap(c_a), veh/h	598	895	867	598	895	865	598	0	922	598	942	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	20.5	20.6	26.7	19.9	20.0	26.3	0.0	21.0	24.3	18.8	14.6
Incr Delay (d2), s/veh	3.4	1.9	2.1	3.4	1.2	1.3	3.8	0.0	3.3	4.5	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.8	3.8	1.3	2.9	2.9	1.7	0.0	5.3	3.7	7.1	0.3
LnGrp Delay(d),s/veh	30.2	22.4	22.7	30.2	21.1	21.3	30.1	0.0	24.2	28.8	21.9	14.7
LnGrp LOS	C	C	C	C	C	C	C		C	C	C	B
Approach Vol, veh/h		557			459			417			675	
Approach Delay, s/veh		23.6			22.6			25.6			23.8	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	19.4	8.5	18.8	9.2	23.4	8.5	18.8
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	8.8	11.6	4.4	9.4	5.1	14.8	4.4	7.8
Green Ext Time (p_c), s	0.4	2.5	0.1	3.9	0.2	3.5	0.1	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	570	30	30	440	0	20	0	30	0	0	10
Future Vol, veh/h	10	570	30	30	440	0	20	0	30	0	0	10
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	11	588	31	31	454	0	21	0	31	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	454	0	0	620	0	0	918	1143	311	832	1158	229
Stage 1	-	-	-	-	-	-	627	627	-	516	516	-
Stage 2	-	-	-	-	-	-	291	516	-	316	642	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1103	-	-	963	-	-	228	199	688	262	195	774
Stage 1	-	-	-	-	-	-	440	474	-	510	533	-
Stage 2	-	-	-	-	-	-	695	533	-	670	467	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1103	-	-	962	-	-	214	187	687	239	184	773
Mov Cap-2 Maneuver	-	-	-	-	-	-	214	187	-	239	184	-
Stage 1	-	-	-	-	-	-	433	466	-	502	510	-
Stage 2	-	-	-	-	-	-	655	510	-	630	460	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.8	16.5	9.7
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	365	1103	-	-	962	-	-	773
HCM Lane V/C Ratio	0.141	0.01	-	-	0.032	-	-	0.014
HCM Control Delay (s)	16.5	8.3	0.1	-	8.9	0.2	-	9.7
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	450	30	10	380	100	20	20	10	110	30	20
Future Volume (veh/h)	10	450	30	10	380	100	20	20	10	110	30	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	11	484	27	11	409	85	22	22	1	118	32	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	125	1126	63	124	967	199	260	176	6	363	45	24
Arrive On Green	0.07	0.33	0.33	0.07	0.33	0.33	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1792	3438	191	1792	2952	608	572	1153	39	1084	294	156
Grp Volume(v), veh/h	11	251	260	11	246	248	45	0	0	167	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1842	1792	1787	1773	1764	0	0	1534	0	0
Q Serve(g_s), s	0.2	3.4	3.4	0.2	3.3	3.4	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.2	3.4	3.4	0.2	3.3	3.4	0.6	0.0	0.0	3.2	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.34	0.49		0.02	0.71		0.10
Lane Grp Cap(c), veh/h	125	586	604	124	585	581	441	0	0	432	0	0
V/C Ratio(X)	0.09	0.43	0.43	0.09	0.42	0.43	0.10	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1153	2300	2371	1153	2300	2282	1218	0	0	1163	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.5	8.2	8.2	13.5	8.2	8.2	11.4	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	0.1	0.7	0.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.8	1.8	0.1	1.8	1.8	0.3	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	13.6	8.9	8.9	13.7	8.8	8.9	11.5	0.0	0.0	12.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		522			505			45			167	
Approach Delay, s/veh		9.0			9.0			11.5			12.7	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	16.2		8.7	6.2	16.2		8.7
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	5.4		5.2	2.2	5.4		2.6
Green Ext Time (p_c), s	0.0	4.7		0.5	0.0	4.6		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		9.6
HCM 2010 LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	80	400	240	70	50	490	810	270	40	960	120
Future Volume (veh/h)	230	80	400	240	70	50	490	810	270	40	960	120
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	240	181	148	250	73	31	510	844	0	42	1000	117
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	459	241	203	365	127	54	1275	2602	0	206	1185	138
Arrive On Green	0.13	0.13	0.13	0.10	0.10	0.10	0.73	1.00	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1600	3619	1262	536	3510	5358	0	1810	4698	548
Grp Volume(v), veh/h	240	181	148	250	0	104	510	844	0	42	735	382
Grp Sat Flow(s),veh/h/ln	1810	1900	1600	1810	0	1798	1755	1729	0	1810	1729	1789
Q Serve(g_s), s	8.1	12.0	11.6	8.7	0.0	7.2	7.3	0.0	0.0	2.7	26.3	26.4
Cycle Q Clear(g_c), s	8.1	12.0	11.6	8.7	0.0	7.2	7.3	0.0	0.0	2.7	26.3	26.4
Prop In Lane	1.00		1.00	1.00		0.30	1.00		0.00	1.00		0.31
Lane Grp Cap(c), veh/h	459	241	203	365	0	181	1275	2602	0	206	872	451
V/C Ratio(X)	0.52	0.75	0.73	0.69	0.00	0.57	0.40	0.32	0.00	0.20	0.84	0.85
Avail Cap(c_a), veh/h	974	512	431	969	0	481	1275	2602	0	206	872	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	54.8	54.6	56.5	0.0	55.8	12.3	0.0	0.0	52.3	46.2	46.2
Incr Delay (d2), s/veh	0.3	1.8	1.9	0.9	0.0	1.1	0.1	0.3	0.0	2.2	9.7	17.5
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	4.1	6.4	5.2	4.4	0.0	3.6	3.4	0.1	0.0	1.5	13.7	15.2
LnGrp Delay(d),s/veh	53.4	56.6	56.5	57.3	0.0	56.9	12.4	0.3	0.0	54.5	55.9	63.7
LnGrp LOS	D	E	E	E		E	B	A		D	E	E
Approach Vol, veh/h		569			354			1354			1159	
Approach Delay, s/veh		55.2			57.2			4.9			58.4	
Approach LOS		E			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	53.2	38.8		20.7	20.8	71.2		17.3
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.0	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	9.3	28.4		14.0	4.7	2.0		10.7
Green Ext Time (p_c), s	0.0	3.7		1.3	0.1	12.3		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		36.6
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1: Somersville Rd/Auto Center Dr & SR 4 WB Off-Ramp

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	450	637	444	780	619	230
Future Volume (veh/h)	450	637	444	780	619	230
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	479	267	472	830	659	105
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	646	297	909	3682	2151	654
Arrive On Green	0.19	0.19	0.53	1.00	0.43	0.43
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	479	267	472	830	659	105
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	15.9	20.0	10.7	0.0	10.4	5.1
Cycle Q Clear(g_c), s	15.9	20.0	10.7	0.0	10.4	5.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	646	297	909	3682	2151	654
V/C Ratio(X)	0.74	0.90	0.52	0.23	0.31	0.16
Avail Cap(c_a), veh/h	710	327	909	3682	2151	654
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	0.97	0.97
Uniform Delay (d), s/veh	45.8	47.5	23.0	0.0	22.7	21.1
Incr Delay (d2), s/veh	3.5	24.2	1.8	0.1	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	18.0	5.2	0.0	4.9	2.2
LnGrp Delay(d),s/veh	49.4	71.7	24.8	0.1	23.0	21.7
LnGrp LOS	D	E	C	A	C	C
Approach Vol, veh/h	746			1302	764	
Approach Delay, s/veh	57.3			9.1	22.8	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		92.7		27.3	36.5	56.2		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		22.0	12.7	12.4		
Green Ext Time (p_c), s		10.4		0.8	1.4	3.3		

Intersection Summary		
HCM 2010 Ctrl Delay		25.6
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	0	380	0	0	0	0	964	665	240	1016	0
Future Volume (veh/h)	260	0	380	0	0	0	0	964	665	240	1016	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	292	0	230				0	1358	422	270	1142	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	347	0	281				0	3753	1028	319	4104	0
Arrive On Green	0.10	0.00	0.10				0.00	0.68	0.68	0.19	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1515	3408	5202	0
Grp Volume(v), veh/h	292	0	230				0	1358	422	270	1142	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1515	1704	1679	0
Q Serve(g_s), s	10.1	0.0	9.8				0.0	12.6	14.9	9.2	0.0	0.0
Cycle Q Clear(g_c), s	10.1	0.0	9.8				0.0	12.6	14.9	9.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	347	0	281				0	3753	1028	319	4104	0
V/C Ratio(X)	0.84	0.00	0.82				0.00	0.36	0.41	0.85	0.28	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3753	1028	767	4104	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.72	0.72	0.73	0.73	0.00
Uniform Delay (d), s/veh	53.0	0.0	52.8				0.0	8.2	8.6	48.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	2.3				0.0	0.2	0.9	1.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	3.8				0.0	6.4	6.5	4.4	0.0	0.0
LnGrp Delay(d),s/veh	55.1	0.0	55.1				0.0	8.4	9.5	49.7	0.1	0.0
LnGrp LOS	E		E					A	A	D	A	
Approach Vol, veh/h		522						1780			1412	
Approach Delay, s/veh		55.1						8.7			9.6	
Approach LOS		E						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.4	86.7		16.9		103.1		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	11.2	16.9		12.1		2.0		
Green Ext Time (p_c), s	0.0	2.0		0.1		1.8		

Intersection Summary		
HCM 2010 Ctrl Delay		15.6
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	145	50	61	238	459	120	850	10	346	630	420
Future Volume (veh/h)	300	145	50	61	238	459	120	850	10	346	630	420
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	361	122	56	68	264	180	133	944	11	384	700	187
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	476	162	74	316	332	279	159	1176	14	447	929	413
Arrive On Green	0.13	0.13	0.13	0.18	0.18	0.18	0.09	0.23	0.23	0.04	0.09	0.09
Sat Flow, veh/h	3548	1204	553	1774	1863	1562	1774	5180	60	3442	3539	1572
Grp Volume(v), veh/h	361	0	178	68	264	180	133	618	337	384	700	187
Grp Sat Flow(s),veh/h/ln	1774	0	1756	1774	1863	1562	1774	1695	1850	1721	1770	1572
Q Serve(g_s), s	11.8	0.0	11.7	3.9	16.3	12.8	8.9	20.7	20.7	13.3	23.2	13.6
Cycle Q Clear(g_c), s	11.8	0.0	11.7	3.9	16.3	12.8	8.9	20.7	20.7	13.3	23.2	13.6
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	476	0	236	316	332	279	159	770	420	447	929	413
V/C Ratio(X)	0.76	0.00	0.75	0.21	0.79	0.65	0.84	0.80	0.80	0.86	0.75	0.45
Avail Cap(c_a), veh/h	721	0	357	510	536	449	169	770	420	531	929	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	0.90	0.90	0.90
Uniform Delay (d), s/veh	50.1	0.0	50.0	42.1	47.2	45.8	53.8	43.8	43.8	56.3	51.0	46.6
Incr Delay (d2), s/veh	1.9	0.0	3.6	0.1	1.7	0.9	3.1	0.8	1.5	9.5	5.1	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	5.9	1.9	8.5	5.6	4.5	9.8	10.8	6.9	12.0	6.3
LnGrp Delay(d),s/veh	51.9	0.0	53.7	42.2	48.8	46.7	56.9	44.7	45.4	65.8	56.1	49.8
LnGrp LOS	D		D	D	D	D	E	D	D	E	E	D
Approach Vol, veh/h		539			512			1088			1271	
Approach Delay, s/veh		52.5			47.2			46.4			58.1	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.6	31.9		20.6	15.3	36.1		25.9
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	18.5	25.0		24.4	11.4	31.5		34.5
Max Q Clear Time (g_c+I1), s	15.3	22.7		13.8	10.9	25.2		18.3
Green Ext Time (p_c), s	0.3	1.9		1.5	0.0	4.7		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	51.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Future Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	625	268	0	49	343	0	375	568	60	57	250	115
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	358	1316	589	71	392	333	402	1412	149	80	893	400
Arrive On Green	0.20	0.37	0.00	0.04	0.21	0.00	0.22	0.43	0.43	0.04	0.25	0.25
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3259	343	1792	3574	1599
Grp Volume(v), veh/h	625	268	0	49	343	0	375	311	317	57	250	115
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1815	1792	1787	1599
Q Serve(g_s), s	32.0	8.2	0.0	4.3	28.3	0.0	32.9	19.1	19.2	5.0	9.0	9.3
Cycle Q Clear(g_c), s	32.0	8.2	0.0	4.3	28.3	0.0	32.9	19.1	19.2	5.0	9.0	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	358	1316	589	71	392	333	402	774	786	80	893	400
V/C Ratio(X)	1.75	0.20	0.00	0.69	0.88	0.00	0.93	0.40	0.40	0.72	0.28	0.29
Avail Cap(c_a), veh/h	358	1316	589	224	470	400	504	774	786	336	893	400
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.0	34.5	0.0	75.9	61.4	0.0	60.9	31.1	31.2	75.5	48.4	48.5
Incr Delay (d2), s/veh	346.7	0.3	0.0	8.4	23.0	0.0	22.1	1.6	1.5	8.6	0.8	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	50.3	4.1	0.0	2.3	17.2	0.0	18.7	9.7	9.9	2.7	4.6	4.3
LnGrp Delay(d),s/veh	410.7	34.9	0.0	84.3	84.3	0.0	83.0	32.7	32.7	84.1	49.2	50.3
LnGrp LOS	F	C		F	F		F	C	C	F	D	D
Approach Vol, veh/h		893			392			1003			422	
Approach Delay, s/veh		297.9			84.3			51.5			54.2	
Approach LOS		F			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	74.3	10.4	64.3	40.5	45.0	36.0	38.6
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	7.0	21.2	6.3	10.2	34.9	11.3	34.0	30.3
Green Ext Time (p_c), s	0.1	2.9	0.0	4.3	1.1	2.9	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	137.9
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	118	313	574	26	11	194
Future Vol, veh/h	118	313	574	26	11	194
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	128	340	624	28	12	211

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	655	0	-	0	1070	329
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	935	-	-	-	218	670
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	627	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	933	-	-	-	187	668
Mov Cap-2 Maneuver	-	-	-	-	292	-
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	625	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	933	-	-	-	292	668
HCM Lane V/C Ratio	0.137	-	-	-	0.041	0.316
HCM Control Delay (s)	9.5	-	-	-	17.9	12.9
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.1	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↑	↱
Traffic Volume (veh/h)	59	230	50	92	355	180	120	401	80	75	156	30
Future Volume (veh/h)	59	230	50	92	355	180	120	401	80	75	156	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	66	258	56	103	399	202	135	451	90	84	175	8
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	117	699	149	155	598	299	187	525	105	135	596	498
Arrive On Green	0.07	0.24	0.24	0.09	0.26	0.26	0.10	0.35	0.35	0.08	0.32	0.32
Sat Flow, veh/h	1792	2914	620	1792	2291	1144	1792	1518	303	1792	1881	1571
Grp Volume(v), veh/h	66	156	158	103	310	291	135	0	541	84	175	8
Grp Sat Flow(s),veh/h/ln	1792	1787	1746	1792	1787	1648	1792	0	1821	1792	1881	1571
Q Serve(g_s), s	2.6	5.2	5.4	4.0	11.1	11.3	5.2	0.0	19.7	3.2	5.0	0.2
Cycle Q Clear(g_c), s	2.6	5.2	5.4	4.0	11.1	11.3	5.2	0.0	19.7	3.2	5.0	0.2
Prop In Lane	1.00		0.35	1.00		0.69	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	117	429	419	155	467	430	187	0	630	135	596	498
V/C Ratio(X)	0.56	0.36	0.38	0.67	0.66	0.68	0.72	0.00	0.86	0.62	0.29	0.02
Avail Cap(c_a), veh/h	502	752	734	502	752	693	502	0	766	502	791	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	22.6	22.6	31.6	23.6	23.6	30.9	0.0	21.7	32.0	18.4	16.7
Incr Delay (d2), s/veh	4.2	0.7	0.8	4.9	2.3	2.6	5.1	0.0	9.1	4.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.6	2.7	2.2	5.7	5.4	2.9	0.0	11.5	1.8	2.6	0.1
LnGrp Delay(d),s/veh	36.6	23.3	23.4	36.4	25.9	26.3	36.1	0.0	30.8	36.6	18.7	16.8
LnGrp LOS	D	C	C	D	C	C	D		C	D	B	B
Approach Vol, veh/h		380			704			676			267	
Approach Delay, s/veh		25.7			27.6			31.8			24.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	29.7	10.2	22.1	11.5	27.6	8.7	23.6
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	5.2	21.7	6.0	7.4	7.2	7.0	4.6	13.3
Green Ext Time (p_c), s	0.1	2.9	0.2	2.5	0.3	1.3	0.1	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	365	10	40	524	10	30	0	80	10	0	10
Future Vol, veh/h	0	365	10	40	524	10	30	0	80	10	0	10
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	440	12	48	631	11	36	0	96	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	642	0	0	456	0	0	867	1188	230	953	1189	326
Stage 1	-	-	-	-	-	-	450	450	-	733	733	-
Stage 2	-	-	-	-	-	-	417	738	-	220	456	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	939	-	-	1108	-	-	248	187	775	214	187	670
Stage 1	-	-	-	-	-	-	561	570	-	378	424	-
Stage 2	-	-	-	-	-	-	587	422	-	762	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	939	-	-	1104	-	-	229	174	772	178	174	667
Mov Cap-2 Maneuver	-	-	-	-	-	-	229	174	-	178	174	-
Stage 1	-	-	-	-	-	-	559	568	-	378	395	-
Stage 2	-	-	-	-	-	-	536	393	-	667	565	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	15.7	18.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	939	-	-	1104	-	-	281
HCM Lane V/C Ratio	0.283	-	-	-	0.044	-	-	0.077
HCM Control Delay (s)	15.7	0	-	-	8.4	0.2	-	18.9
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	365	10	10	434	91	20	40	20	71	20	30
Future Volume (veh/h)	20	365	10	10	434	91	20	40	20	71	20	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	24	429	12	12	511	91	24	47	24	84	24	35
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	1330	37	119	1115	198	179	135	60	294	42	53
Arrive On Green	0.07	0.37	0.37	0.07	0.37	0.37	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1792	3548	99	1792	3021	535	319	993	443	895	308	390
Grp Volume(v), veh/h	24	216	225	12	301	301	95	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1859	1792	1787	1770	1755	0	0	1593	0	0
Q Serve(g_s), s	0.4	2.8	2.9	0.2	4.2	4.3	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	0.4	2.8	2.9	0.2	4.2	4.3	1.6	0.0	0.0	2.7	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.30	0.25		0.25	0.59		0.24
Lane Grp Cap(c), veh/h	130	670	697	119	660	653	375	0	0	389	0	0
V/C Ratio(X)	0.19	0.32	0.32	0.10	0.46	0.46	0.25	0.00	0.00	0.37	0.00	0.00
Avail Cap(c_a), veh/h	1081	2156	2244	1081	2156	2135	1143	0	0	1075	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.5	7.4	7.4	14.5	7.9	7.9	13.1	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.1	0.7	0.7	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	1.5	0.1	2.2	2.2	0.8	0.0	0.0	1.3	0.0	0.0
LnGrp Delay(d),s/veh	14.7	7.8	7.7	14.7	8.6	8.7	13.2	0.0	0.0	13.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		465			614			95			143	
Approach Delay, s/veh		8.1			8.8			13.2			13.7	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	18.4		8.5	6.4	18.2		8.5
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	4.9		4.7	2.4	6.3		3.6
Green Ext Time (p_c), s	0.0	4.0		0.4	0.0	5.8		0.3

Intersection Summary		
HCM 2010 Ctrl Delay		9.4
HCM 2010 LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	30	103	200	50	50	244	786	200	40	526	120
Future Volume (veh/h)	90	30	103	200	50	50	244	786	200	40	526	120
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	96	42	39	213	53	53	260	836	0	43	560	128
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	201	106	87	319	76	76	1458	3278	0	55	1043	233
Arrive On Green	0.06	0.06	0.06	0.09	0.09	0.09	0.86	1.00	0.00	0.03	0.26	0.26
Sat Flow, veh/h	3480	1827	1497	3480	830	830	3375	5152	0	1740	4066	909
Grp Volume(v), veh/h	96	42	39	213	0	106	260	836	0	43	456	232
Grp Sat Flow(s),veh/h/ln	1740	1827	1497	1740	0	1660	1688	1663	0	1740	1663	1649
Q Serve(g_s), s	3.2	2.7	3.0	7.1	0.0	7.4	1.5	0.0	0.0	2.9	14.2	14.6
Cycle Q Clear(g_c), s	3.2	2.7	3.0	7.1	0.0	7.4	1.5	0.0	0.0	2.9	14.2	14.6
Prop In Lane	1.00		1.00	1.00		0.50	1.00		0.00	1.00		0.55
Lane Grp Cap(c), veh/h	201	106	87	319	0	152	1458	3278	0	55	853	423
V/C Ratio(X)	0.48	0.40	0.45	0.67	0.00	0.70	0.18	0.26	0.00	0.78	0.53	0.55
Avail Cap(c_a), veh/h	783	411	337	1009	0	481	1458	3278	0	200	853	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.8	54.5	54.7	52.7	0.0	52.9	4.7	0.0	0.0	57.7	38.4	38.6
Incr Delay (d2), s/veh	0.7	0.9	1.4	0.9	0.0	2.1	0.0	0.2	0.0	8.8	2.4	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.4	1.3	3.5	0.0	3.5	0.7	0.1	0.0	1.6	6.8	7.2
LnGrp Delay(d),s/veh	55.4	55.4	56.0	53.6	0.0	55.0	4.8	0.2	0.0	66.5	40.8	43.6
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		177			319			1096			731	
Approach Delay, s/veh		55.6			54.1			1.3			43.2	
Approach LOS		E			D			A			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	35.8		11.1	8.8	84.9		15.2				
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2				
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8				
Max Q Clear Time (g_c+I1), s	3.5	16.6		5.2	4.9	2.0		9.4				
Green Ext Time (p_c), s	0.2	2.6		0.3	0.0	12.2		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			25.9									
HCM 2010 LOS			C									
Notes												

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	500	807	448	1070	1262	410		
Future Volume (veh/h)	500	807	448	1070	1262	410		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881		
Adj Flow Rate, veh/h	526	576	472	1126	1328	178		
Adj No. of Lanes	2	1	2	3	3	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	1	1	1	1	1	1		
Cap, veh/h	1069	492	530	3180	2219	663		
Arrive On Green	0.31	0.31	0.31	1.00	0.43	0.43		
Sat Flow, veh/h	3476	1599	3476	5305	5305	1535		
Grp Volume(v), veh/h	526	576	472	1126	1328	178		
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1535		
Q Serve(g_s), s	16.0	40.0	16.8	0.0	25.7	9.7		
Cycle Q Clear(g_c), s	16.0	40.0	16.8	0.0	25.7	9.7		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	1069	492	530	3180	2219	663		
V/C Ratio(X)	0.49	1.17	0.89	0.35	0.60	0.27		
Avail Cap(c_a), veh/h	1069	492	722	3180	2219	663		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.49	0.49	0.88	0.88		
Uniform Delay (d), s/veh	36.7	45.0	44.1	0.0	28.3	23.7		
Incr Delay (d2), s/veh	0.3	96.7	5.3	0.2	1.1	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	7.7	43.2	8.4	0.0	12.4	4.3		
LnGrp Delay(d),s/veh	37.0	141.7	49.5	0.2	29.3	24.6		
LnGrp LOS	D	F	D	A	C	C		
Approach Vol, veh/h	1102			1598	1506			
Approach Delay, s/veh	91.7			14.7	28.8			
Approach LOS	F			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.5		44.5	24.3	61.2		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		42.0	18.8	27.7		
Green Ext Time (p_c), s		16.4		0.0	1.0	7.2		
Intersection Summary								
HCM 2010 Ctrl Delay			39.9					
HCM 2010 LOS			D					
Notes								

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	0	697	0	0	0	0	1078	824	730	1339	0
Future Volume (veh/h)	440	0	697	0	0	0	0	1078	824	730	1339	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	458	0	632				0	1347	424	760	1395	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	823	0	666				0	2042	563	989	3525	0
Arrive On Green	0.24	0.00	0.24				0.00	0.36	0.36	0.57	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1557	3476	5305	0
Grp Volume(v), veh/h	458	0	632				0	1347	424	760	1395	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1557	1738	1712	0
Q Serve(g_s), s	15.1	0.0	28.7				0.0	26.0	31.0	21.8	0.0	0.0
Cycle Q Clear(g_c), s	15.1	0.0	28.7				0.0	26.0	31.0	21.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	823	0	666				0	2042	563	989	3525	0
V/C Ratio(X)	0.56	0.00	0.95				0.00	0.66	0.75	0.77	0.40	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2042	563	989	3525	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.65	0.65	0.47	0.47	0.00
Uniform Delay (d), s/veh	43.6	0.0	48.8				0.0	34.8	36.4	24.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	22.6				0.0	1.1	6.0	2.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	13.2				0.0	13.7	14.2	10.5	0.1	0.0
LnGrp Delay(d),s/veh	44.1	0.0	71.5				0.0	35.9	42.4	27.5	0.2	0.0
LnGrp LOS	D		E					D	D	C	A	
Approach Vol, veh/h		1090						1771			2155	
Approach Delay, s/veh		60.0						37.4			9.8	
Approach LOS		E						D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	42.2	52.3		35.5		94.5		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0		
Max Q Clear Time (g_c+I1), s	23.8	33.0		30.7		2.0		
Green Ext Time (p_c), s	0.1	1.9		0.0		2.2		

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	261	80	62	178	462	90	890	30	616	1040	380
Future Volume (veh/h)	510	261	80	62	178	462	90	890	30	616	1040	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	581	193	82	64	184	119	93	918	31	635	1072	217
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	656	227	97	242	255	213	127	1019	34	677	1141	496
Arrive On Green	0.18	0.18	0.18	0.14	0.14	0.14	0.07	0.20	0.20	0.39	0.64	0.64
Sat Flow, veh/h	3583	1243	528	1792	1881	1571	1792	5095	172	3476	3574	1555
Grp Volume(v), veh/h	581	0	275	64	184	119	93	616	333	635	1072	217
Grp Sat Flow(s),veh/h/ln	1792	0	1771	1792	1881	1571	1792	1712	1843	1738	1787	1555
Q Serve(g_s), s	20.6	0.0	19.5	4.2	12.2	9.2	6.6	22.8	22.9	22.9	35.2	9.1
Cycle Q Clear(g_c), s	20.6	0.0	19.5	4.2	12.2	9.2	6.6	22.8	22.9	22.9	35.2	9.1
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	656	0	324	242	255	213	127	685	369	677	1141	496
V/C Ratio(X)	0.89	0.00	0.85	0.26	0.72	0.56	0.73	0.90	0.90	0.94	0.94	0.44
Avail Cap(c_a), veh/h	703	0	347	460	483	404	157	685	369	735	1141	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.44	0.44	0.44	0.78	0.78	0.78
Uniform Delay (d), s/veh	51.8	0.0	51.4	50.4	53.9	52.6	59.2	50.7	50.8	38.9	22.4	17.6
Incr Delay (d2), s/veh	12.2	0.0	16.3	0.2	1.5	0.9	4.2	8.8	15.0	15.2	12.9	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.0	11.0	2.1	6.4	4.1	3.4	11.6	13.2	12.2	19.0	4.2
LnGrp Delay(d),s/veh	64.0	0.0	67.7	50.6	55.3	53.4	63.3	59.5	65.7	54.1	35.3	19.8
LnGrp LOS	E		E	D	E	D	E	E	E	D	D	B
Approach Vol, veh/h		856			367			1042			1924	
Approach Delay, s/veh		65.2			53.9			61.9			39.8	
Approach LOS		E			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.3	30.6		28.3	13.8	46.1		22.1
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.5	26.0		25.5	11.4	41.5		33.4
Max Q Clear Time (g_c+I1), s	24.9	24.9		22.6	8.6	37.2		14.2
Green Ext Time (p_c), s	0.5	0.9		1.0	0.0	3.9		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		51.7
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Future Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	510	453	0	66	262	0	271	312	34	135	552	414
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	427	1299	581	93	332	282	305	1196	129	162	1017	454
Arrive On Green	0.24	0.36	0.00	0.05	0.17	0.00	0.17	0.36	0.36	0.09	0.28	0.28
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3282	355	1810	3610	1612
Grp Volume(v), veh/h	510	453	0	66	262	0	271	170	176	135	552	414
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1832	1810	1805	1612
Q Serve(g_s), s	32.0	12.4	0.0	4.9	17.9	0.0	19.8	9.0	9.1	9.9	17.6	33.6
Cycle Q Clear(g_c), s	32.0	12.4	0.0	4.9	17.9	0.0	19.8	9.0	9.1	9.9	17.6	33.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	427	1299	581	93	332	282	305	658	667	162	1017	454
V/C Ratio(X)	1.19	0.35	0.00	0.71	0.79	0.00	0.89	0.26	0.26	0.83	0.54	0.91
Avail Cap(c_a), veh/h	427	1299	581	267	561	477	601	658	667	401	1066	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	31.8	0.0	63.3	53.5	0.0	55.1	30.2	30.3	60.7	41.3	47.0
Incr Delay (d2), s/veh	108.0	0.7	0.0	7.3	17.2	0.0	10.2	0.2	0.2	7.9	0.7	21.7
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	28.7	6.4	0.0	2.6	11.0	0.0	10.8	4.5	4.7	5.3	8.8	17.7
LnGrp Delay(d),s/veh	159.8	32.5	0.0	70.6	70.7	0.0	65.3	30.4	30.4	68.6	42.0	68.7
LnGrp LOS	F	C		E	E		E	C	C	E	D	E
Approach Vol, veh/h		963			328			617			1101	
Approach Delay, s/veh		99.9			70.7			45.7			55.3	
Approach LOS		F			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	54.4	10.9	54.1	27.3	43.2	36.0	29.0
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40
Max Q Clear Time (g_c+I1), s	11.9	11.1	6.9	14.4	21.8	35.6	34.0	19.9
Green Ext Time (p_c), s	0.2	1.6	0.1	7.3	1.0	2.5	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	69.3
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	185	632	474	43	31	188
Future Vol, veh/h	185	632	474	43	31	188
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	191	652	489	44	32	194

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	534	0	-	0	1224	268
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1037	-	-	-	173	733
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	450	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1036	-	-	-	141	732
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	450	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1036	-	-	-	208	732
HCM Lane V/C Ratio	0.184	-	-	-	0.154	0.265
HCM Control Delay (s)	9.3	-	-	-	25.4	11.7
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.7	-	-	-	0.5	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	360	130	71	284	143	90	280	40	204	428	51
Future Volume (veh/h)	88	360	130	71	284	143	90	280	40	204	428	51
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	93	379	137	75	299	151	95	295	42	215	451	25
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	152	613	218	133	528	260	154	396	56	276	591	493
Arrive On Green	0.08	0.24	0.24	0.07	0.23	0.23	0.09	0.25	0.25	0.15	0.31	0.31
Sat Flow, veh/h	1792	2571	915	1792	2313	1138	1792	1610	229	1792	1881	1569
Grp Volume(v), veh/h	93	262	254	75	229	221	95	0	337	215	451	25
Grp Sat Flow(s),veh/h/ln	1792	1787	1699	1792	1787	1664	1792	0	1839	1792	1881	1569
Q Serve(g_s), s	3.1	8.2	8.4	2.5	7.1	7.4	3.2	0.0	10.6	7.2	13.6	0.7
Cycle Q Clear(g_c), s	3.1	8.2	8.4	2.5	7.1	7.4	3.2	0.0	10.6	7.2	13.6	0.7
Prop In Lane	1.00		0.54	1.00		0.68	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	152	426	405	133	408	380	154	0	452	276	591	493
V/C Ratio(X)	0.61	0.61	0.63	0.56	0.56	0.58	0.62	0.00	0.75	0.78	0.76	0.05
Avail Cap(c_a), veh/h	571	855	813	571	855	796	571	0	880	571	900	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	21.3	21.4	28.0	21.4	21.5	27.7	0.0	21.8	25.5	19.4	15.0
Incr Delay (d2), s/veh	4.0	2.0	2.3	3.7	1.7	2.0	4.0	0.0	3.5	4.7	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.2	4.2	1.4	3.7	3.6	1.8	0.0	5.8	3.9	7.5	0.3
LnGrp Delay(d),s/veh	31.7	23.3	23.6	31.7	23.1	23.5	31.7	0.0	25.3	30.2	22.3	15.0
LnGrp LOS	C	C	C	C	C	C	C		C	C	C	B
Approach Vol, veh/h		609			525			432			691	
Approach Delay, s/veh		24.7			24.5			26.7			24.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	20.4	8.7	20.0	9.4	24.7	9.3	19.3
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	9.2	12.6	4.5	10.4	5.2	15.6	5.1	9.4
Green Ext Time (p_c), s	0.4	2.6	0.1	4.1	0.2	3.4	0.2	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	574	30	30	447	0	20	0	30	0	0	10
Future Vol, veh/h	10	574	30	30	447	0	20	0	30	0	0	10
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	11	592	31	31	461	0	21	0	31	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	461	0	0	624	0	0	926	1154	313	841	1169	233
Stage 1	-	-	-	-	-	-	631	631	-	523	523	-
Stage 2	-	-	-	-	-	-	295	523	-	318	646	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1096	-	-	960	-	-	225	196	686	258	192	769
Stage 1	-	-	-	-	-	-	438	473	-	505	529	-
Stage 2	-	-	-	-	-	-	692	529	-	668	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1096	-	-	959	-	-	212	185	685	236	181	768
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	185	-	236	181	-
Stage 1	-	-	-	-	-	-	431	465	-	497	506	-
Stage 2	-	-	-	-	-	-	652	506	-	628	458	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	16.6	9.8
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	362	1096	-	-	959	-	-	768
HCM Lane V/C Ratio	0.142	0.01	-	-	0.032	-	-	0.014
HCM Control Delay (s)	16.6	8.3	0.1	-	8.9	0.2	-	9.8
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	454	30	10	387	101	20	20	10	111	30	20
Future Volume (veh/h)	10	454	30	10	387	101	20	20	10	111	30	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	11	488	32	11	416	109	22	22	11	119	32	22
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	122	1140	75	122	942	244	229	150	55	355	48	31
Arrive On Green	0.07	0.34	0.34	0.07	0.34	0.34	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1792	3401	222	1792	2809	729	451	946	349	1038	305	196
Grp Volume(v), veh/h	11	256	264	11	263	262	55	0	0	173	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1836	1792	1787	1751	1745	0	0	1538	0	0
Q Serve(g_s), s	0.2	3.5	3.6	0.2	3.7	3.7	0.0	0.0	0.0	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.2	3.5	3.6	0.2	3.7	3.7	0.8	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.42	0.40		0.20	0.69		0.13
Lane Grp Cap(c), veh/h	122	599	615	122	599	587	435	0	0	434	0	0
V/C Ratio(X)	0.09	0.43	0.43	0.09	0.44	0.45	0.13	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1122	2238	2299	1122	2238	2193	1174	0	0	1127	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.0	8.2	8.2	14.0	8.3	8.3	11.7	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	0.1	0.7	0.8	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.8	1.9	0.1	1.9	1.9	0.4	0.0	0.0	1.5	0.0	0.0
LnGrp Delay(d),s/veh	14.1	8.9	8.9	14.1	9.0	9.1	11.7	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		531			536			55			173	
Approach Delay, s/veh		9.0			9.1			11.7			12.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	16.7		9.1	6.2	16.7		9.1
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	5.6		5.3	2.2	5.7		2.8
Green Ext Time (p_c), s	0.0	4.8		0.5	0.0	4.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	80	405	240	70	50	494	816	270	40	967	120
Future Volume (veh/h)	230	80	405	240	70	50	494	816	270	40	967	120
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	240	183	150	250	73	52	515	850	0	42	1007	125
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	463	243	204	373	106	76	1263	2585	0	206	1177	146
Arrive On Green	0.13	0.13	0.13	0.10	0.10	0.10	0.72	1.00	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1600	3619	1028	732	3510	5358	0	1810	4663	578
Grp Volume(v), veh/h	240	183	150	250	0	125	515	850	0	42	746	386
Grp Sat Flow(s),veh/h/ln	1810	1900	1600	1810	0	1761	1755	1729	0	1810	1729	1783
Q Serve(g_s), s	8.1	12.1	11.7	8.7	0.0	8.9	7.6	0.1	0.0	2.7	26.7	26.9
Cycle Q Clear(g_c), s	8.1	12.1	11.7	8.7	0.0	8.9	7.6	0.1	0.0	2.7	26.7	26.9
Prop In Lane	1.00		1.00	1.00		0.42	1.00		0.00	1.00		0.32
Lane Grp Cap(c), veh/h	463	243	204	373	0	181	1263	2585	0	206	872	450
V/C Ratio(X)	0.52	0.75	0.73	0.67	0.00	0.69	0.41	0.33	0.00	0.20	0.86	0.86
Avail Cap(c_a), veh/h	974	512	431	969	0	471	1263	2585	0	206	872	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	54.7	54.6	56.2	0.0	56.3	12.7	0.1	0.0	52.3	46.3	46.4
Incr Delay (d2), s/veh	0.3	1.8	1.9	0.8	0.0	1.7	0.1	0.3	0.0	2.2	10.5	18.7
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	4.1	6.5	5.3	4.4	0.0	4.4	3.6	0.1	0.0	1.5	14.0	15.5
LnGrp Delay(d),s/veh	53.3	56.5	56.5	57.0	0.0	58.0	12.8	0.4	0.0	54.5	56.8	65.1
LnGrp LOS	D	E	E	E		E	B	A		D	E	E
Approach Vol, veh/h		573			375			1365			1174	
Approach Delay, s/veh		55.2			57.3			5.1			59.5	
Approach LOS		E			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	52.8	38.8		20.8	20.8	70.8		17.6
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.0	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	9.6	28.9		14.1	4.7	2.1		10.9
Green Ext Time (p_c), s	0.0	3.4		1.3	0.1	12.3		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.2
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Future Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	625	268	0	49	343	0	375	568	60	57	250	115
Adj No. of Lanes	2	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	889	467	397	394	414	352	320	1161	122	81	784	351
Arrive On Green	0.25	0.25	0.00	0.22	0.22	0.00	0.18	0.36	0.36	0.05	0.22	0.22
Sat Flow, veh/h	3583	1881	1599	1792	1881	1599	1792	3259	343	1792	3574	1599
Grp Volume(v), veh/h	625	268	0	49	343	0	375	311	317	57	250	115
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	1881	1599	1792	1787	1815	1792	1787	1599
Q Serve(g_s), s	23.5	18.5	0.0	3.2	25.7	0.0	26.4	20.0	20.1	4.6	8.7	8.9
Cycle Q Clear(g_c), s	23.5	18.5	0.0	3.2	25.7	0.0	26.4	20.0	20.1	4.6	8.7	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	889	467	397	394	414	352	320	637	646	81	784	351
V/C Ratio(X)	0.70	0.57	0.00	0.12	0.83	0.00	1.17	0.49	0.49	0.71	0.32	0.33
Avail Cap(c_a), veh/h	1149	603	513	533	560	476	320	637	646	133	784	351
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	48.7	0.0	46.2	55.0	0.0	60.7	37.1	37.1	69.6	48.4	48.5
Incr Delay (d2), s/veh	4.6	5.1	0.0	0.6	17.2	0.0	105.4	2.7	2.7	8.1	1.1	2.5
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	12.2	10.3	0.0	1.7	15.3	0.0	22.4	10.4	10.6	2.5	4.4	4.2
LnGrp Delay(d),s/veh	55.2	53.8	0.0	46.9	72.1	0.0	166.1	39.7	39.8	77.7	49.5	51.0
LnGrp LOS	E	D		D	E		F	D	D	E	D	D
Approach Vol, veh/h		893			392			1003			422	
Approach Delay, s/veh		54.8			69.0			87.0			53.7	
Approach LOS		D			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.7	57.6		42.0	30.9	37.4		37.5
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	11.0	48.3		47.4	26.4	32.4		44.0
Max Q Clear Time (g_c+I1), s	6.6	22.1		25.5	28.4	10.9		27.7
Green Ext Time (p_c), s	0.0	3.1		11.2	0.0	2.6		4.8

Intersection Summary	
HCM 2010 Ctrl Delay	68.6
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Future Volume (veh/h)	550	236	150	43	302	90	330	500	53	50	220	351
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	625	268	0	49	343	0	375	568	60	57	250	115
Adj No. of Lanes	2	1	1	1	1	1	2	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	908	477	405	399	419	357	444	1113	117	82	914	409
Arrive On Green	0.25	0.25	0.00	0.22	0.22	0.00	0.13	0.34	0.34	0.05	0.26	0.26
Sat Flow, veh/h	3583	1881	1599	1792	1881	1599	3476	3259	343	1792	3574	1599
Grp Volume(v), veh/h	625	268	0	49	343	0	375	311	317	57	250	115
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	1881	1599	1738	1787	1815	1792	1787	1599
Q Serve(g_s), s	22.3	17.5	0.0	3.1	24.5	0.0	14.9	19.6	19.7	4.4	7.9	8.2
Cycle Q Clear(g_c), s	22.3	17.5	0.0	3.1	24.5	0.0	14.9	19.6	19.7	4.4	7.9	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	908	477	405	399	419	357	444	610	620	82	914	409
V/C Ratio(X)	0.69	0.56	0.00	0.12	0.82	0.00	0.84	0.51	0.51	0.70	0.27	0.28
Avail Cap(c_a), veh/h	1201	630	536	557	585	497	649	610	620	139	914	409
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	46.0	0.0	43.9	52.2	0.0	60.3	37.1	37.2	66.5	42.1	42.2
Incr Delay (d2), s/veh	4.2	4.7	0.0	0.6	16.1	0.0	7.5	3.0	3.0	7.7	0.7	1.7
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	11.6	9.8	0.0	1.6	14.6	0.0	7.6	10.2	10.4	2.4	4.0	3.8
LnGrp Delay(d),s/veh	52.0	50.7	0.0	44.5	68.3	0.0	67.8	40.2	40.2	74.2	42.9	43.9
LnGrp LOS	D	D		D	E		E	D	D	E	D	D
Approach Vol, veh/h		893			392			1003			422	
Approach Delay, s/veh		51.6			65.3			50.5			47.4	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	53.3		41.2	22.6	41.2		36.5
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	11.0	48.3		47.4	26.4	32.4		44.0
Max Q Clear Time (g_c+I1), s	6.4	21.7		24.3	16.9	10.2		26.5
Green Ext Time (p_c), s	0.0	3.1		11.5	1.2	2.7		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Future Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	537	416	0	66	262	0	271	312	34	135	552	414
Adj No. of Lanes	2	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	965	507	431	303	318	270	219	1128	122	160	1110	496
Arrive On Green	0.27	0.27	0.00	0.17	0.17	0.00	0.12	0.34	0.34	0.09	0.31	0.31
Sat Flow, veh/h	3619	1900	1615	1810	1900	1615	1810	3282	355	1810	3610	1612
Grp Volume(v), veh/h	537	416	0	66	262	0	271	170	176	135	552	414
Grp Sat Flow(s),veh/h/ln	1810	1900	1615	1810	1900	1615	1810	1805	1832	1810	1805	1612
Q Serve(g_s), s	18.4	29.7	0.0	4.5	19.2	0.0	17.5	9.9	10.0	10.6	18.0	34.5
Cycle Q Clear(g_c), s	18.4	29.7	0.0	4.5	19.2	0.0	17.5	9.9	10.0	10.6	18.0	34.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	965	507	431	303	318	270	219	621	630	160	1110	496
V/C Ratio(X)	0.56	0.82	0.00	0.22	0.82	0.00	1.23	0.27	0.28	0.84	0.50	0.84
Avail Cap(c_a), veh/h	1046	549	467	389	408	347	219	713	724	263	1501	671
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	49.7	0.0	51.9	58.0	0.0	63.4	34.3	34.4	64.8	40.9	46.6
Incr Delay (d2), s/veh	2.3	13.9	0.0	1.6	21.0	0.0	138.5	0.2	0.2	9.7	0.5	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	9.6	17.6	0.0	2.4	12.0	0.0	17.2	5.0	5.1	5.8	9.0	16.5
LnGrp Delay(d),s/veh	47.9	63.5	0.0	53.6	79.0	0.0	201.9	34.5	34.5	74.5	41.3	54.4
LnGrp LOS	D	E		D	E		F	C	C	E	D	D
Approach Vol, veh/h		953			328			617			1101	
Approach Delay, s/veh		54.7			73.9			108.0			50.3	
Approach LOS		D			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.7	54.6		43.8	22.0	49.3		29.1
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	21.0	57.0		41.7	17.5	60.0		31.0
Max Q Clear Time (g_c+I1), s	12.6	12.0		31.7	19.5	36.5		21.2
Green Ext Time (p_c), s	0.1	1.7		6.8	0.0	7.8		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	66.2
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Future Volume (veh/h)	490	435	430	63	252	70	260	300	33	130	530	582
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	537	416	0	66	262	0	271	312	34	135	552	414
Adj No. of Lanes	2	1	1	1	1	1	2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	1001	526	447	309	325	276	331	1053	114	162	1126	503
Arrive On Green	0.28	0.28	0.00	0.17	0.17	0.00	0.09	0.32	0.32	0.09	0.31	0.31
Sat Flow, veh/h	3619	1900	1615	1810	1900	1615	3510	3282	355	1810	3610	1613
Grp Volume(v), veh/h	537	416	0	66	262	0	271	170	176	135	552	414
Grp Sat Flow(s),veh/h/ln	1810	1900	1615	1810	1900	1615	1755	1805	1832	1810	1805	1613
Q Serve(g_s), s	17.1	27.5	0.0	4.3	18.0	0.0	10.3	9.6	9.8	10.0	16.8	32.2
Cycle Q Clear(g_c), s	17.1	27.5	0.0	4.3	18.0	0.0	10.3	9.6	9.8	10.0	16.8	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	1001	526	447	309	325	276	331	579	588	162	1126	503
V/C Ratio(X)	0.54	0.79	0.00	0.21	0.81	0.00	0.82	0.29	0.30	0.84	0.49	0.82
Avail Cap(c_a), veh/h	1113	585	497	414	435	369	453	759	770	280	1598	714
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	45.4	0.0	48.3	54.0	0.0	60.2	34.5	34.6	60.7	37.9	43.1
Incr Delay (d2), s/veh	2.1	11.6	0.0	1.6	19.0	0.0	9.0	0.2	0.2	8.2	0.5	6.4
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	8.9	16.1	0.0	2.3	11.2	0.0	5.4	4.8	5.0	5.4	8.4	15.3
LnGrp Delay(d),s/veh	43.7	57.0	0.0	49.9	73.0	0.0	69.2	34.7	34.8	68.9	38.3	49.6
LnGrp LOS	D	E		D	E		E	C	C	E	D	D
Approach Vol, veh/h		953			328			617			1101	
Approach Delay, s/veh		49.5			68.4			49.9			46.3	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.1	48.5		42.8	17.3	47.3		28.2
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	21.0	57.0		41.7	17.5	60.0		31.0
Max Q Clear Time (g_c+I1), s	12.0	11.8		29.5	12.3	34.2		20.0
Green Ext Time (p_c), s	0.2	1.7		8.0	0.5	8.1		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	480	640	450	820	810	240
Future Volume (veh/h)	480	640	450	820	810	240
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	511	302	479	872	862	106
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	705	324	909	3596	2064	628
Arrive On Green	0.21	0.21	0.53	1.00	0.41	0.41
Sat Flow, veh/h	3408	1568	3408	5202	5202	1531
Grp Volume(v), veh/h	511	302	479	872	862	106
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1531
Q Serve(g_s), s	16.8	22.7	10.9	0.0	14.6	5.3
Cycle Q Clear(g_c), s	16.8	22.7	10.9	0.0	14.6	5.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	705	324	909	3596	2064	628
V/C Ratio(X)	0.73	0.93	0.53	0.24	0.42	0.17
Avail Cap(c_a), veh/h	710	327	909	3596	2064	628
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.80	0.80	0.94	0.94
Uniform Delay (d), s/veh	44.4	46.8	23.1	0.0	25.2	22.4
Incr Delay (d2), s/veh	3.5	32.2	1.8	0.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	20.9	5.3	0.0	6.9	2.3
LnGrp Delay(d),s/veh	47.9	79.0	24.8	0.1	25.8	23.0
LnGrp LOS	D	E	C	A	C	C
Approach Vol, veh/h	813			1351	968	
Approach Delay, s/veh	59.4			8.9	25.5	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.7		29.3	36.5	54.2		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		24.7	12.9	16.6		
Green Ext Time (p_c), s		11.1		0.1	1.4	4.5		

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	0	400	0	0	0	0	990	760	310	1130	0
Future Volume (veh/h)	280	0	400	0	0	0	0	990	760	310	1130	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	315	0	291				0	979	776	348	1270	0
Adj No. of Lanes	2	0	2				0	2	2	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	413	0	335				0	2348	1927	394	4006	0
Arrive On Green	0.12	0.00	0.12				0.00	0.64	0.64	0.23	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	3689	3028	3408	5202	0
Grp Volume(v), veh/h	315	0	291				0	979	776	348	1270	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1514	1704	1679	0
Q Serve(g_s), s	10.7	0.0	12.4				0.0	15.8	15.0	11.8	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	12.4				0.0	15.8	15.0	11.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	413	0	335				0	2348	1927	394	4006	0
V/C Ratio(X)	0.76	0.00	0.87				0.00	0.42	0.40	0.88	0.32	0.00
Avail Cap(c_a), veh/h	738	0	598				0	2348	1927	767	4006	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.64	0.64	0.69	0.69	0.00
Uniform Delay (d), s/veh	51.1	0.0	51.8				0.0	10.8	10.7	45.3	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	2.7				0.0	0.3	0.4	1.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.9				0.0	8.1	6.4	5.6	0.1	0.0
LnGrp Delay(d),s/veh	52.2	0.0	54.5				0.0	11.1	11.1	47.2	0.1	0.0
LnGrp LOS	D		D					B	B	D	A	
Approach Vol, veh/h		606						1755			1618	
Approach Delay, s/veh		53.3						11.1			10.3	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.1	81.7		19.2		100.8		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	13.8	17.8		14.4		2.0		
Green Ext Time (p_c), s	0.1	1.5		0.1		2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	140	60	60	360	470	140	950	20	360	710	480
Future Volume (veh/h)	320	140	60	60	360	470	140	950	20	360	710	480
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	364	145	48	67	400	308	156	1056	22	400	789	192
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	479	180	60	418	439	369	211	1406	29	448	996	443
Arrive On Green	0.13	0.13	0.13	0.24	0.24	0.24	0.12	0.27	0.27	0.13	0.28	0.28
Sat Flow, veh/h	3548	1336	442	1774	1863	1567	1774	5125	107	3442	3539	1573
Grp Volume(v), veh/h	364	0	193	67	400	308	156	698	380	400	789	192
Grp Sat Flow(s),veh/h/ln	1774	0	1778	1774	1863	1567	1774	1695	1841	1721	1770	1573
Q Serve(g_s), s	13.8	0.0	14.7	4.2	29.3	26.2	11.9	26.4	26.4	16.0	28.9	14.0
Cycle Q Clear(g_c), s	13.8	0.0	14.7	4.2	29.3	26.2	11.9	26.4	26.4	16.0	28.9	14.0
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	479	0	240	418	439	369	211	930	505	448	996	443
V/C Ratio(X)	0.76	0.00	0.80	0.16	0.91	0.83	0.74	0.75	0.75	0.89	0.79	0.43
Avail Cap(c_a), veh/h	646	0	324	488	512	431	233	930	505	492	996	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	0.88	0.88	0.88
Uniform Delay (d), s/veh	58.4	0.0	58.8	42.5	52.1	50.9	59.6	46.4	46.4	59.9	46.5	41.2
Incr Delay (d2), s/veh	3.1	0.0	9.0	0.1	17.5	10.3	5.1	3.1	5.7	14.9	5.7	2.7
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	7.0	0.0	7.8	2.1	17.2	12.3	6.1	12.7	14.2	8.5	14.9	6.4
LnGrp Delay(d),s/veh	61.4	0.0	67.7	42.6	69.6	61.2	64.7	49.6	52.1	74.8	52.2	43.9
LnGrp LOS	E		E	D	E	E	E	D	D	E	D	D
Approach Vol, veh/h		557			775			1234			1381	
Approach Delay, s/veh		63.6			63.9			52.3			57.6	
Approach LOS		E			E			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.2	43.0		23.4	21.2	44.0		37.5				
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5				
Max Green Setting (Gmax), s	20.0	38.4		25.5	18.4	39.4		38.5				
Max Q Clear Time (g_c+I1), s	18.0	28.4		16.7	13.9	30.9		31.3				
Green Ext Time (p_c), s	0.2	8.0		1.4	0.1	6.5		1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			58.0									
HCM 2010 LOS			E									
Notes												

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	180	160	70	370	120	400	620	60	100	380	380
Future Volume (veh/h)	410	180	160	70	370	120	400	620	60	100	380	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	466	205	0	80	420	0	455	705	68	114	432	212
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	407	1318	590	104	375	319	413	1218	117	138	763	341
Arrive On Green	0.23	0.37	0.00	0.06	0.20	0.00	0.23	0.37	0.37	0.08	0.21	0.21
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3290	317	1792	3574	1599
Grp Volume(v), veh/h	466	205	0	80	420	0	455	383	390	114	432	212
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1820	1792	1787	1599
Q Serve(g_s), s	33.0	5.6	0.0	6.4	29.0	0.0	33.5	24.9	25.0	9.1	15.7	17.5
Cycle Q Clear(g_c), s	33.0	5.6	0.0	6.4	29.0	0.0	33.5	24.9	25.0	9.1	15.7	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	407	1318	590	104	375	319	413	662	674	138	763	341
V/C Ratio(X)	1.15	0.16	0.00	0.77	1.12	0.00	1.10	0.58	0.58	0.83	0.57	0.62
Avail Cap(c_a), veh/h	407	1318	590	148	375	319	413	662	674	210	763	341
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	30.7	0.0	67.5	58.1	0.0	55.9	36.7	36.7	66.1	51.1	51.8
Incr Delay (d2), s/veh	90.5	0.3	0.0	11.9	82.6	0.0	74.6	3.7	3.6	12.5	3.0	8.3
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	26.5	2.8	0.0	3.5	23.6	0.0	25.1	13.0	13.3	5.0	8.1	8.5
LnGrp Delay(d),s/veh	146.7	31.0	0.0	79.3	140.7	0.0	130.5	40.3	40.3	78.5	54.2	60.1
LnGrp LOS	F	C		E	F		F	D	D	E	D	E
Approach Vol, veh/h		671			500			1228			758	
Approach Delay, s/veh		111.3			130.9			73.7			59.5	
Approach LOS		F			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	58.8	12.4	58.9	38.0	36.0	37.0	34.3
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	17.0	48.0	12.0	49.7	33.5	31.0	33.0	* 29
Max Q Clear Time (g_c+I1), s	11.1	27.0	8.4	7.6	35.5	19.5	35.0	31.0
Green Ext Time (p_c), s	0.1	3.8	0.0	3.6	0.0	3.7	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	87.4
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	4.4					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	150	390	590	30	20	300
Future Vol, veh/h	150	390	590	30	20	300
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	163	424	641	33	22	326

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	677	0	-	0	1202	340
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	917	-	-	-	179	659
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	550	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	915	-	-	-	146	657
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	548	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	915	-	-	-	273	657
HCM Lane V/C Ratio	0.178	-	-	-	0.08	0.496
HCM Control Delay (s)	9.8	-	-	-	19.3	15.8
HCM Lane LOS	A	-	-	-	C	C
HCM 95th %tile Q(veh)	0.6	-	-	-	0.3	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	170	40	90	320	180	90	400	80	110	210	30
Future Volume (veh/h)	50	170	40	90	320	180	90	400	80	110	210	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	56	191	45	101	360	202	101	449	90	124	236	19
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	106	640	147	152	549	302	152	522	105	176	671	561
Arrive On Green	0.06	0.22	0.22	0.08	0.25	0.25	0.08	0.34	0.34	0.10	0.36	0.36
Sat Flow, veh/h	1792	2867	657	1792	2206	1214	1792	1517	304	1792	1881	1572
Grp Volume(v), veh/h	56	117	119	101	290	272	101	0	539	124	236	19
Grp Sat Flow(s),veh/h/ln	1792	1787	1737	1792	1787	1633	1792	0	1821	1792	1881	1572
Q Serve(g_s), s	2.2	3.9	4.1	3.9	10.5	10.8	3.9	0.0	19.9	4.8	6.6	0.6
Cycle Q Clear(g_c), s	2.2	3.9	4.1	3.9	10.5	10.8	3.9	0.0	19.9	4.8	6.6	0.6
Prop In Lane	1.00		0.38	1.00		0.74	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	106	399	388	152	445	406	152	0	626	176	671	561
V/C Ratio(X)	0.53	0.29	0.31	0.66	0.65	0.67	0.66	0.00	0.86	0.71	0.35	0.03
Avail Cap(c_a), veh/h	498	744	724	498	744	680	498	0	759	498	784	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	23.2	23.3	32.0	24.3	24.4	32.0	0.0	22.0	31.5	17.0	15.1
Incr Delay (d2), s/veh	4.0	0.6	0.6	4.9	2.3	2.7	4.9	0.0	9.3	5.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.0	2.1	2.1	5.4	5.1	2.1	0.0	11.5	2.6	3.5	0.2
LnGrp Delay(d),s/veh	36.9	23.8	24.0	36.8	26.6	27.1	36.8	0.0	31.3	36.6	17.5	15.1
LnGrp LOS	D	C	C	D	C	C	D		C	D	B	B
Approach Vol, veh/h		292			663			640			379	
Approach Delay, s/veh		26.4			28.3			32.2			23.6	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	29.8	10.1	21.1	10.1	30.7	8.3	22.9
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	6.8	21.9	5.9	6.1	5.9	8.6	4.2	12.8
Green Ext Time (p_c), s	0.2	2.9	0.2	1.8	0.2	1.9	0.1	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	360	10	40	500	10	30	0	70	10	0	10
Future Vol, veh/h	0	360	10	40	500	10	30	0	70	10	0	10
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	434	12	48	602	11	36	0	84	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	613	0	0	450	0	0	846	1153	227	921	1154	312
Stage 1	-	-	-	-	-	-	444	444	-	704	704	-
Stage 2	-	-	-	-	-	-	402	709	-	217	450	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	962	-	-	1114	-	-	257	196	779	225	196	684
Stage 1	-	-	-	-	-	-	565	574	-	394	438	-
Stage 2	-	-	-	-	-	-	599	435	-	765	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	962	-	-	1110	-	-	238	182	776	190	182	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	182	-	190	182	-
Stage 1	-	-	-	-	-	-	563	572	-	394	409	-
Stage 2	-	-	-	-	-	-	548	406	-	682	568	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	15.5	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	462	962	-	-	1110	-	-	297
HCM Lane V/C Ratio	0.261	-	-	-	0.043	-	-	0.073
HCM Control Delay (s)	15.5	0	-	-	8.4	0.2	-	18.1
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	350	20	10	440	140	40	80	30	80	30	40
Future Volume (veh/h)	30	350	20	10	440	140	40	80	30	80	30	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	35	412	24	12	518	165	47	94	35	94	35	47
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	131	1382	80	109	1038	329	179	163	54	276	64	69
Arrive On Green	0.07	0.40	0.40	0.06	0.39	0.39	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1792	3426	199	1792	2653	840	357	1050	349	809	410	444
Grp Volume(v), veh/h	35	214	222	12	348	335	176	0	0	176	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1838	1792	1787	1707	1756	0	0	1663	0	0
Q Serve(g_s), s	0.7	3.0	3.0	0.2	5.4	5.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	3.0	3.0	0.2	5.4	5.5	3.3	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.49	0.27		0.20	0.53		0.27
Lane Grp Cap(c), veh/h	131	721	741	109	699	668	397	0	0	408	0	0
V/C Ratio(X)	0.27	0.30	0.30	0.11	0.50	0.50	0.44	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	974	1943	1998	974	1943	1855	1033	0	0	968	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.1	7.4	7.4	16.3	8.5	8.5	14.5	0.0	0.0	14.5	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.2	0.8	0.8	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	1.5	0.1	2.8	2.7	1.7	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	16.5	7.8	7.8	16.5	9.2	9.3	14.8	0.0	0.0	14.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		471			695			176			176	
Approach Delay, s/veh		8.4			9.4			14.8			14.8	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	20.8		9.7	6.7	20.4		9.7
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	5.0		5.3	2.7	7.5		5.3
Green Ext Time (p_c), s	0.0	3.9		0.6	0.0	6.8		0.6

Intersection Summary			
HCM 2010 Ctrl Delay			10.4
HCM 2010 LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	30	120	210	50	60	290	800	220	50	730	130
Future Volume (veh/h)	100	30	120	210	50	60	290	800	220	50	730	130
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	106	53	46	223	53	64	309	851	0	53	777	138
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	213	112	92	345	74	89	1422	3187	0	68	1092	192
Arrive On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.84	1.00	0.00	0.04	0.26	0.26
Sat Flow, veh/h	3480	1827	1499	3480	746	900	3375	5152	0	1740	4256	749
Grp Volume(v), veh/h	106	53	46	223	0	117	309	851	0	53	606	309
Grp Sat Flow(s),veh/h/ln	1740	1827	1499	1740	0	1646	1688	1663	0	1740	1663	1680
Q Serve(g_s), s	3.5	3.4	3.6	7.4	0.0	8.3	2.1	0.0	0.0	3.6	19.9	20.1
Cycle Q Clear(g_c), s	3.5	3.4	3.6	7.4	0.0	8.3	2.1	0.0	0.0	3.6	19.9	20.1
Prop In Lane	1.00		1.00	1.00		0.55	1.00		0.00	1.00		0.45
Lane Grp Cap(c), veh/h	213	112	92	345	0	163	1422	3187	0	68	853	431
V/C Ratio(X)	0.50	0.47	0.50	0.65	0.00	0.72	0.22	0.27	0.00	0.78	0.71	0.72
Avail Cap(c_a), veh/h	783	411	337	1009	0	477	1422	3187	0	200	853	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	54.5	54.6	52.0	0.0	52.4	5.6	0.0	0.0	57.2	40.5	40.6
Incr Delay (d2), s/veh	0.7	1.2	1.6	0.8	0.0	2.2	0.0	0.2	0.0	7.1	5.0	9.8
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	1.7	1.7	1.5	3.6	0.0	3.9	0.9	0.1	0.0	1.9	9.7	10.5
LnGrp Delay(d),s/veh	55.2	55.6	56.1	52.8	0.0	54.6	5.7	0.2	0.0	64.2	45.5	50.5
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		205			340			1160			968	
Approach Delay, s/veh		55.5			53.4			1.6			48.1	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	35.8		11.5	9.7	82.7		16.1
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.6	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	4.1	22.1		5.6	5.6	2.0		10.3
Green Ext Time (p_c), s	0.3	2.8		0.4	0.0	12.4		0.9

Intersection Summary		
HCM 2010 Ctrl Delay		29.2
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	560	920	520	1250	1320	470
Future Volume (veh/h)	560	920	520	1250	1320	470
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	589	696	547	1316	1389	196
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1069	492	601	3180	2115	632
Arrive On Green	0.31	0.31	0.35	1.00	0.41	0.41
Sat Flow, veh/h	3476	1599	3476	5305	5305	1534
Grp Volume(v), veh/h	589	696	547	1316	1389	196
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1534
Q Serve(g_s), s	18.4	40.0	19.5	0.0	28.3	11.2
Cycle Q Clear(g_c), s	18.4	40.0	19.5	0.0	28.3	11.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1069	492	601	3180	2115	632
V/C Ratio(X)	0.55	1.41	0.91	0.41	0.66	0.31
Avail Cap(c_a), veh/h	1069	492	722	3180	2115	632
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.26	0.26	0.83	0.83
Uniform Delay (d), s/veh	37.5	45.0	41.6	0.0	30.8	25.8
Incr Delay (d2), s/veh	0.5	198.3	4.3	0.1	1.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	57.0	9.6	0.0	13.6	4.9
LnGrp Delay(d),s/veh	38.0	243.3	45.9	0.1	32.2	26.8
LnGrp LOS	D	F	D	A	C	C
Approach Vol, veh/h	1285			1863	1585	
Approach Delay, s/veh	149.2			13.5	31.5	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.5		44.5	27.0	58.5		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		42.0	21.5	30.3		
Green Ext Time (p_c), s		21.4		0.0	0.9	7.2		

Intersection Summary		
HCM 2010 Ctrl Delay		56.4
HCM 2010 LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	0	800	0	0	0	0	1220	930	820	1420	0
Future Volume (veh/h)	550	0	800	0	0	0	0	1220	930	820	1420	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	573	0	755				0	1522	480	854	1479	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	829	0	671				0	2032	561	989	3516	0
Arrive On Green	0.24	0.00	0.24				0.00	0.36	0.36	0.57	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1557	3476	5305	0
Grp Volume(v), veh/h	573	0	755				0	1522	480	854	1479	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1557	1738	1712	0
Q Serve(g_s), s	19.5	0.0	31.0				0.0	30.7	37.1	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.5	0.0	31.0				0.0	30.7	37.1	27.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	829	0	671				0	2032	561	989	3516	0
V/C Ratio(X)	0.69	0.00	1.13				0.00	0.75	0.86	0.86	0.42	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2032	561	989	3516	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.46	0.46	0.27	0.27	0.00
Uniform Delay (d), s/veh	45.1	0.0	49.5				0.0	36.5	38.5	25.9	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	74.5				0.0	1.2	7.9	2.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	19.0				0.0	16.2	17.1	13.2	0.0	0.0
LnGrp Delay(d),s/veh	47.2	0.0	124.0				0.0	37.7	46.4	28.8	0.1	0.0
LnGrp LOS	D		F					D	D	C	A	
Approach Vol, veh/h		1328						2002			2333	
Approach Delay, s/veh		90.9						39.7			10.6	
Approach LOS		F						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	42.2	52.1		35.7		94.3		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0		
Max Q Clear Time (g_c+I1), s	29.1	39.1		33.0		2.0		
Green Ext Time (p_c), s	0.1	1.9		0.0		2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	270	90	80	200	480	120	1150	40	590	1220	380
Future Volume (veh/h)	590	270	90	80	200	480	120	1150	40	590	1220	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	633	243	84	82	206	214	124	1186	41	608	1258	247
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	710	263	91	293	308	258	136	1381	48	626	1327	579
Arrive On Green	0.20	0.20	0.20	0.16	0.16	0.16	0.08	0.27	0.27	0.18	0.37	0.37
Sat Flow, veh/h	3583	1327	459	1792	1881	1576	1792	5092	176	3476	3574	1559
Grp Volume(v), veh/h	633	0	327	82	206	214	124	797	430	608	1258	247
Grp Sat Flow(s),veh/h/ln	1792	0	1786	1792	1881	1576	1792	1712	1844	1738	1787	1559
Q Serve(g_s), s	25.8	0.0	27.0	6.0	15.4	19.7	10.3	33.2	33.2	26.1	51.2	17.8
Cycle Q Clear(g_c), s	25.8	0.0	27.0	6.0	15.4	19.7	10.3	33.2	33.2	26.1	51.2	17.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	710	0	354	293	308	258	136	929	500	626	1327	579
V/C Ratio(X)	0.89	0.00	0.92	0.28	0.67	0.83	0.91	0.86	0.86	0.97	0.95	0.43
Avail Cap(c_a), veh/h	733	0	365	406	426	357	136	929	500	626	1327	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.61	0.61	0.61	0.69	0.69	0.69
Uniform Delay (d), s/veh	58.6	0.0	59.0	55.0	58.9	60.7	68.8	51.9	51.9	61.1	45.7	35.2
Incr Delay (d2), s/veh	12.7	0.0	28.1	0.2	0.9	8.1	36.0	6.5	11.3	23.0	11.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	0.0	16.1	3.0	8.1	9.2	6.5	16.6	18.5	14.5	27.3	7.9
LnGrp Delay(d),s/veh	71.3	0.0	87.1	55.2	59.9	68.8	104.8	58.4	63.2	84.1	57.1	36.8
LnGrp LOS	E		F	E	E	E	F	E	E	F	E	D
Approach Vol, veh/h		960			502			1351			2113	
Approach Delay, s/veh		76.7			62.9			64.2			62.5	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	31.0	45.3		34.2	16.0	60.3		29.0
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.0	40.7		30.7	11.4	55.7		34.0
Max Q Clear Time (g_c+I1), s	28.1	35.2		29.0	12.3	53.2		21.7
Green Ext Time (p_c), s	0.0	4.9		0.8	0.0	2.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	65.8
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	430	510	80	220	90	320	600	70	130	680	500
Future Volume (veh/h)	440	430	510	80	220	90	320	600	70	130	680	500
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	458	448	0	83	229	0	333	625	73	135	708	346
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	466	1262	565	111	292	248	357	1142	133	164	866	387
Arrive On Green	0.26	0.35	0.00	0.06	0.15	0.00	0.20	0.35	0.35	0.09	0.24	0.24
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3253	379	1810	3610	1612
Grp Volume(v), veh/h	458	448	0	83	229	0	333	346	352	135	708	346
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1827	1810	1805	1612
Q Serve(g_s), s	31.2	11.4	0.0	5.6	14.4	0.0	22.5	19.1	19.2	9.1	23.0	25.8
Cycle Q Clear(g_c), s	31.2	11.4	0.0	5.6	14.4	0.0	22.5	19.1	19.2	9.1	23.0	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	466	1262	565	111	292	248	357	633	641	164	866	387
V/C Ratio(X)	0.98	0.35	0.00	0.75	0.79	0.00	0.93	0.55	0.55	0.82	0.82	0.89
Avail Cap(c_a), veh/h	466	1445	646	160	444	377	360	633	641	262	896	400
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	30.0	0.0	57.3	50.6	0.0	49.0	32.4	32.4	55.5	44.6	45.7
Incr Delay (d2), s/veh	36.8	0.8	0.0	8.4	18.9	0.0	30.7	0.8	0.8	8.6	6.1	22.0
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	20.4	5.9	0.0	3.1	9.1	0.0	14.2	9.7	9.8	5.0	12.2	13.8
LnGrp Delay(d),s/veh	82.6	30.8	0.0	65.7	69.5	0.0	79.7	33.2	33.2	64.1	50.7	67.6
LnGrp LOS	F	C		E	E		E	C	C	E	D	E
Approach Vol, veh/h		906			312			1031			1189	
Approach Delay, s/veh		57.0			68.5			48.2			57.2	
Approach LOS		E			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	48.6	11.6	48.7	29.0	34.8	36.0	24.4
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	18.0	38.0	11.0	49.7	24.7	30.8	32.0	* 29
Max Q Clear Time (g_c+I1), s	11.1	21.2	7.6	13.4	24.5	27.8	33.2	16.4
Green Ext Time (p_c), s	0.1	3.2	0.0	8.3	0.0	2.0	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	55.5
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	200	660	490	70	30	200
Future Vol, veh/h	200	660	490	70	30	200
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	206	680	505	72	31	206

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	578	0	-	0	1298	290
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	756	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	999	-	-	-	155	710
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	427	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	998	-	-	-	123	709
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	427	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	998	-	-	-	253	709
HCM Lane V/C Ratio	0.207	-	-	-	0.122	0.291
HCM Control Delay (s)	9.5	-	-	-	21.2	12.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.4	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	380	140	60	220	130	90	310	60	240	480	40
Future Volume (veh/h)	90	380	140	60	220	130	90	310	60	240	480	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	95	400	147	63	232	137	95	326	63	253	505	22
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	148	608	221	115	481	273	148	410	79	308	672	561
Arrive On Green	0.08	0.24	0.24	0.06	0.22	0.22	0.08	0.27	0.27	0.17	0.36	0.36
Sat Flow, veh/h	1792	2557	927	1792	2189	1242	1792	1531	296	1792	1881	1570
Grp Volume(v), veh/h	95	278	269	63	188	181	95	0	389	253	505	22
Grp Sat Flow(s),veh/h/ln	1792	1787	1697	1792	1787	1644	1792	0	1827	1792	1881	1570
Q Serve(g_s), s	3.6	9.8	10.0	2.4	6.4	6.7	3.6	0.0	13.8	9.5	16.4	0.6
Cycle Q Clear(g_c), s	3.6	9.8	10.0	2.4	6.4	6.7	3.6	0.0	13.8	9.5	16.4	0.6
Prop In Lane	1.00		0.55	1.00		0.76	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	148	425	404	115	393	361	148	0	489	308	672	561
V/C Ratio(X)	0.64	0.65	0.67	0.55	0.48	0.50	0.64	0.00	0.79	0.82	0.75	0.04
Avail Cap(c_a), veh/h	514	769	730	514	769	707	514	0	786	514	810	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	24.0	24.1	31.6	23.7	23.9	31.0	0.0	23.7	27.8	19.7	14.6
Incr Delay (d2), s/veh	4.6	2.4	2.7	4.0	1.3	1.5	4.6	0.0	4.2	5.5	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.1	5.0	1.3	3.3	3.2	2.0	0.0	7.5	5.2	9.3	0.3
LnGrp Delay(d),s/veh	35.6	26.4	26.7	35.7	25.0	25.4	35.6	0.0	27.9	33.3	23.5	14.7
LnGrp LOS	D	C	C	D	C	C	D		C	C	C	B
Approach Vol, veh/h		642			432			484			780	
Approach Delay, s/veh		27.9			26.7			29.4			26.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	23.7	8.5	21.6	9.8	29.9	9.7	20.3
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	11.5	15.8	4.4	12.0	5.6	18.4	5.6	8.7
Green Ext Time (p_c), s	0.5	2.8	0.1	4.3	0.2	3.4	0.2	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	27.5
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	680	30	30	370	0	20	0	40	0	0	10
Future Vol, veh/h	10	680	30	30	370	0	20	0	40	0	0	10
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	11	701	31	31	381	0	21	0	41	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	381	0	0	733	0	0	995	1183	367	816	1198	193
Stage 1	-	-	-	-	-	-	740	740	-	443	443	-
Stage 2	-	-	-	-	-	-	255	443	-	373	755	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1174	-	-	874	-	-	200	188	633	269	184	816
Stage 1	-	-	-	-	-	-	377	421	-	564	574	-
Stage 2	-	-	-	-	-	-	730	574	-	620	415	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1174	-	-	873	-	-	188	177	632	240	173	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	177	-	240	173	-
Stage 1	-	-	-	-	-	-	371	414	-	555	548	-
Stage 2	-	-	-	-	-	-	687	548	-	570	408	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	17.3	9.5
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	1174	-	-	873	-	-	814
HCM Lane V/C Ratio	0.175	0.009	-	-	0.035	-	-	0.013
HCM Control Delay (s)	17.3	8.1	0.1	-	9.3	0.2	-	9.5
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	570	30	10	320	100	20	30	20	130	30	20
Future Volume (veh/h)	20	570	30	10	320	100	20	30	20	130	30	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	22	613	32	11	344	108	22	32	22	140	32	22
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	122	1270	66	111	972	301	183	166	89	362	51	30
Arrive On Green	0.07	0.37	0.37	0.06	0.36	0.36	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1792	3452	180	1792	2689	831	299	943	506	1063	290	173
Grp Volume(v), veh/h	22	317	328	11	227	225	76	0	0	194	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1845	1792	1787	1733	1749	0	0	1526	0	0
Q Serve(g_s), s	0.4	4.8	4.9	0.2	3.3	3.4	0.0	0.0	0.0	2.8	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.8	4.9	0.2	3.3	3.4	1.3	0.0	0.0	4.1	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.48	0.29		0.29	0.72		0.11
Lane Grp Cap(c), veh/h	122	658	679	111	646	627	438	0	0	443	0	0
V/C Ratio(X)	0.18	0.48	0.48	0.10	0.35	0.36	0.17	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	1009	2014	2078	1009	2014	1953	1065	0	0	1004	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.6	8.6	8.6	15.7	8.3	8.3	12.6	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.8	0.8	0.1	0.5	0.5	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	2.6	0.1	1.7	1.6	0.6	0.0	0.0	1.8	0.0	0.0
LnGrp Delay(d),s/veh	15.9	9.4	9.4	15.9	8.8	8.8	12.7	0.0	0.0	13.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		667			463			76			194	
Approach Delay, s/veh		9.6			8.9			12.7			13.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	19.1		10.2	6.4	18.8		10.2
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	6.9		6.1	2.4	5.4		3.3
Green Ext Time (p_c), s	0.0	6.2		0.6	0.0	4.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.2
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	90	450	270	80	60	560	950	310	50	1080	130
Future Volume (veh/h)	260	90	450	270	80	60	560	950	310	50	1080	130
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	271	219	177	281	83	62	583	990	0	52	1125	135
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	530	278	234	414	115	86	1159	2430	0	206	1181	142
Arrive On Green	0.15	0.15	0.15	0.11	0.11	0.11	0.66	0.94	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1602	3619	1006	752	3510	5358	0	1810	4683	561
Grp Volume(v), veh/h	271	219	177	281	0	145	583	990	0	52	831	429
Grp Sat Flow(s),veh/h/ln	1810	1900	1602	1810	0	1758	1755	1729	0	1810	1729	1786
Q Serve(g_s), s	9.0	14.5	13.8	9.7	0.0	10.4	11.0	2.5	0.0	3.4	30.7	30.8
Cycle Q Clear(g_c), s	9.0	14.5	13.8	9.7	0.0	10.4	11.0	2.5	0.0	3.4	30.7	30.8
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		0.31
Lane Grp Cap(c), veh/h	530	278	234	414	0	201	1159	2430	0	206	872	451
V/C Ratio(X)	0.51	0.79	0.76	0.68	0.00	0.72	0.50	0.41	0.00	0.25	0.95	0.95
Avail Cap(c_a), veh/h	974	512	431	969	0	471	1159	2430	0	206	872	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.89	0.89	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	53.5	53.3	55.3	0.0	55.6	16.7	2.3	0.0	52.6	47.8	47.8
Incr Delay (d2), s/veh	0.3	1.9	1.9	0.7	0.0	1.8	0.1	0.5	0.0	2.9	20.8	32.1
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	4.5	7.8	6.2	4.9	0.0	5.1	5.2	1.2	0.0	1.9	17.2	19.2
LnGrp Delay(d),s/veh	51.5	55.4	55.1	56.0	0.0	57.4	16.8	2.7	0.0	55.5	68.6	80.0
LnGrp LOS	D	E	E	E		E	B	A		E	E	E
Approach Vol, veh/h		667			426			1573			1312	
Approach Delay, s/veh		53.7			56.5			7.9			71.8	
Approach LOS		D			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.9	38.8		23.2	20.8	66.9		19.1
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.0	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	13.0	32.8		16.5	5.4	4.5		12.4
Green Ext Time (p_c), s	0.0	0.0		1.5	0.2	13.1		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	480	658	474	830	819	240
Future Volume (veh/h)	480	658	474	830	819	240
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	511	329	504	883	871	104
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	710	327	909	3588	2056	625
Arrive On Green	0.21	0.21	0.53	1.00	0.41	0.41
Sat Flow, veh/h	3408	1568	3408	5202	5202	1531
Grp Volume(v), veh/h	511	329	504	883	871	104
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1531
Q Serve(g_s), s	16.8	25.0	11.8	0.0	14.8	5.2
Cycle Q Clear(g_c), s	16.8	25.0	11.8	0.0	14.8	5.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	710	327	909	3588	2056	625
V/C Ratio(X)	0.72	1.01	0.55	0.25	0.42	0.17
Avail Cap(c_a), veh/h	710	327	909	3588	2056	625
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	0.94	0.94
Uniform Delay (d), s/veh	44.2	47.5	23.3	0.0	25.4	22.5
Incr Delay (d2), s/veh	3.4	51.6	1.9	0.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	24.1	5.7	0.0	7.0	2.3
LnGrp Delay(d),s/veh	47.6	99.1	25.2	0.1	26.0	23.1
LnGrp LOS	D	F	C	A	C	C
Approach Vol, veh/h	840			1387	975	
Approach Delay, s/veh	67.8			9.2	25.7	
Approach LOS	E			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.5		29.5	36.5	54.0		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		27.0	13.8	16.8		
Green Ext Time (p_c), s		11.3		0.0	1.5	4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	0	410	0	0	0	0	1024	776	310	1157	0
Future Volume (veh/h)	280	0	410	0	0	0	0	1024	776	310	1157	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	315	0	318				0	1499	461	348	1300	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	446	0	361				0	3468	949	394	3957	0
Arrive On Green	0.13	0.00	0.13				0.00	0.63	0.63	0.23	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1514	3408	5202	0
Grp Volume(v), veh/h	315	0	318				0	1499	461	348	1300	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1514	1704	1679	0
Q Serve(g_s), s	10.6	0.0	13.6				0.0	16.6	19.6	11.8	0.0	0.0
Cycle Q Clear(g_c), s	10.6	0.0	13.6				0.0	16.6	19.6	11.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	446	0	361				0	3468	949	394	3957	0
V/C Ratio(X)	0.71	0.00	0.88				0.00	0.43	0.49	0.88	0.33	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3468	949	767	3957	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.57	0.57	0.67	0.67	0.00
Uniform Delay (d), s/veh	49.9	0.0	51.2				0.0	11.5	12.0	45.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	4.7				0.0	0.2	1.0	1.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	5.4				0.0	8.5	8.3	5.6	0.1	0.0
LnGrp Delay(d),s/veh	50.7	0.0	55.9				0.0	11.7	13.0	47.1	0.1	0.0
LnGrp LOS	D		E					B	B	D	A	
Approach Vol, veh/h		633						1960			1648	
Approach Delay, s/veh		53.3						12.0			10.1	
Approach LOS		D						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.1	80.5		20.4		99.6		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	13.8	21.6		15.6		2.0		
Green Ext Time (p_c), s	0.1	2.3		0.1		2.1		

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	155	60	61	368	520	140	950	20	397	710	480
Future Volume (veh/h)	320	155	60	61	368	520	140	950	20	397	710	480
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	390	124	67	68	409	367	156	1056	22	441	789	187
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	484	155	84	446	469	395	230	1406	29	485	996	443
Arrive On Green	0.14	0.14	0.14	0.25	0.25	0.25	0.13	0.27	0.27	0.14	0.28	0.28
Sat Flow, veh/h	3548	1133	612	1774	1863	1568	1774	5125	107	3442	3539	1573
Grp Volume(v), veh/h	390	0	191	68	409	367	156	698	380	441	789	187
Grp Sat Flow(s),veh/h/ln	1774	0	1745	1774	1863	1568	1774	1695	1841	1721	1770	1573
Q Serve(g_s), s	14.9	0.0	14.9	4.2	29.5	32.0	11.8	26.4	26.4	17.7	28.9	13.6
Cycle Q Clear(g_c), s	14.9	0.0	14.9	4.2	29.5	32.0	11.8	26.4	26.4	17.7	28.9	13.6
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	484	0	238	446	469	395	230	930	505	485	996	443
V/C Ratio(X)	0.81	0.00	0.80	0.15	0.87	0.93	0.68	0.75	0.75	0.91	0.79	0.42
Avail Cap(c_a), veh/h	646	0	318	488	512	431	233	930	505	492	996	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55	0.87	0.87	0.87
Uniform Delay (d), s/veh	58.6	0.0	58.6	40.8	50.2	51.2	58.2	46.4	46.4	59.3	46.5	41.0
Incr Delay (d2), s/veh	4.9	0.0	9.2	0.1	13.4	24.6	3.5	3.1	5.6	18.3	5.7	2.6
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	7.6	0.0	7.8	2.0	17.0	16.5	6.0	12.7	14.2	9.6	14.9	6.2
LnGrp Delay(d),s/veh	63.5	0.0	67.8	40.8	63.6	75.8	61.6	49.5	52.1	77.6	52.2	43.6
LnGrp LOS	E		E	D	E	E	E	D	D	E	D	D
Approach Vol, veh/h		581			844			1234			1417	
Approach Delay, s/veh		64.9			67.1			51.8			59.0	
Approach LOS		E			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.7	43.0		23.6	22.7	44.0		39.7
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	38.4		25.5	18.4	39.4		38.5
Max Q Clear Time (g_c+I1), s	19.7	28.4		16.9	13.8	30.9		34.0
Green Ext Time (p_c), s	0.0	8.0		1.4	0.1	6.5		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	59.3
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Future Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	466	217	0	86	428	0	455	705	77	114	432	210
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	407	1306	584	110	375	319	413	1202	131	138	763	341
Arrive On Green	0.23	0.37	0.00	0.06	0.20	0.00	0.23	0.37	0.37	0.08	0.21	0.21
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3246	354	1792	3574	1599
Grp Volume(v), veh/h	466	217	0	86	428	0	455	388	394	114	432	210
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1813	1792	1787	1599
Q Serve(g_s), s	33.0	6.0	0.0	6.9	29.0	0.0	33.5	25.4	25.4	9.1	15.7	17.3
Cycle Q Clear(g_c), s	33.0	6.0	0.0	6.9	29.0	0.0	33.5	25.4	25.4	9.1	15.7	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	407	1306	584	110	375	319	413	662	671	138	763	341
V/C Ratio(X)	1.15	0.17	0.00	0.78	1.14	0.00	1.10	0.59	0.59	0.83	0.57	0.62
Avail Cap(c_a), veh/h	407	1306	584	148	375	319	413	662	671	210	763	341
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	31.1	0.0	67.2	58.1	0.0	55.9	36.8	36.8	66.1	51.1	51.8
Incr Delay (d2), s/veh	90.5	0.3	0.0	15.2	90.2	0.0	74.6	3.8	3.7	12.5	3.0	8.1
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	26.5	3.0	0.0	3.9	24.4	0.0	25.1	13.2	13.4	5.0	8.1	8.4
LnGrp Delay(d),s/veh	146.7	31.4	0.0	82.4	148.4	0.0	130.5	40.6	40.5	78.5	54.2	59.8
LnGrp LOS	F	C		F	F		F	D	D	E	D	E
Approach Vol, veh/h		683			514			1237			756	
Approach Delay, s/veh		110.1			137.3			73.7			59.4	
Approach LOS		F			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.2	58.8	12.9	58.4	38.0	36.0	37.0	34.3				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3				
Max Green Setting (Gmax), s	17.0	48.0	12.0	49.7	33.5	31.0	33.0	* 29				
Max Q Clear Time (g_c+I1), s	11.1	27.4	8.9	8.0	35.5	19.3	35.0	31.0				
Green Ext Time (p_c), s	0.1	3.9	0.0	3.8	0.0	3.7	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			88.3									
HCM 2010 LOS			F									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	4.5					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	159	433	645	38	21	304
Future Vol, veh/h	159	433	645	38	21	304
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	173	471	701	41	23	330

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	745	0	-	0	1310	374
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	585	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	865	-	-	-	152	626
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	863	-	-	-	121	624
Mov Cap-2 Maneuver	-	-	-	-	245	-
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	17.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	863	-	-	-	245	624
HCM Lane V/C Ratio	0.2	-	-	-	0.093	0.53
HCM Control Delay (s)	10.2	-	-	-	21.2	17.1
HCM Lane LOS	B	-	-	-	C	C
HCM 95th %tile Q(veh)	0.7	-	-	-	0.3	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	170	40	92	324	200	90	411	80	115	216	40
Future Volume (veh/h)	69	170	40	92	324	200	90	411	80	115	216	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	78	191	45	103	364	225	101	462	90	129	243	21
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	126	681	156	151	534	324	149	523	102	178	675	565
Arrive On Green	0.07	0.24	0.24	0.08	0.25	0.25	0.08	0.34	0.34	0.10	0.36	0.36
Sat Flow, veh/h	1792	2868	657	1792	2119	1286	1792	1525	297	1792	1881	1572
Grp Volume(v), veh/h	78	117	119	103	306	283	101	0	552	129	243	21
Grp Sat Flow(s),veh/h/ln	1792	1787	1738	1792	1787	1618	1792	0	1822	1792	1881	1572
Q Serve(g_s), s	3.2	4.1	4.3	4.3	11.8	12.1	4.2	0.0	21.8	5.3	7.3	0.7
Cycle Q Clear(g_c), s	3.2	4.1	4.3	4.3	11.8	12.1	4.2	0.0	21.8	5.3	7.3	0.7
Prop In Lane	1.00		0.38	1.00		0.79	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	126	425	413	151	450	407	149	0	625	178	675	565
V/C Ratio(X)	0.62	0.28	0.29	0.68	0.68	0.69	0.68	0.00	0.88	0.73	0.36	0.04
Avail Cap(c_a), veh/h	469	702	682	469	702	635	469	0	716	469	739	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	23.8	23.8	34.0	25.8	25.9	34.0	0.0	23.6	33.4	18.0	15.9
Incr Delay (d2), s/veh	4.9	0.5	0.5	5.3	2.6	3.0	5.3	0.0	12.0	5.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.1	2.1	2.3	6.1	5.8	2.3	0.0	13.0	2.9	3.9	0.3
LnGrp Delay(d),s/veh	39.4	24.3	24.4	39.3	28.4	28.9	39.3	0.0	35.7	38.9	18.5	15.9
LnGrp LOS	D	C	C	D	C	C	D		D	D	B	B
Approach Vol, veh/h		314			692			653			393	
Approach Delay, s/veh		28.1			30.2			36.2			25.1	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	31.2	10.4	23.2	10.4	32.4	9.4	24.2				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0				
Max Q Clear Time (g_c+I1), s	7.3	23.8	6.3	6.3	6.2	9.3	5.2	14.1				
Green Ext Time (p_c), s	0.2	2.4	0.2	1.8	0.2	2.0	0.1	4.4				
Intersection Summary												
HCM 2010 Ctrl Delay			30.8									
HCM 2010 LOS			C									
Notes												

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	366	10	40	504	10	30	0	70	10	0	10
Future Vol, veh/h	0	366	10	40	504	10	30	0	70	10	0	10
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	441	12	48	607	11	36	0	84	11	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	457	0	0	856	1165	231	930	1166	314
Stage 1	-	-	-	-	-	-	451	451	-	709	709	-
Stage 2	-	-	-	-	-	-	405	714	-	221	457	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	958	-	-	1107	-	-	253	193	774	222	193	682
Stage 1	-	-	-	-	-	-	560	569	-	391	435	-
Stage 2	-	-	-	-	-	-	596	433	-	761	566	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	958	-	-	1103	-	-	234	179	771	188	179	679
Mov Cap-2 Maneuver	-	-	-	-	-	-	234	179	-	188	179	-
Stage 1	-	-	-	-	-	-	558	567	-	391	406	-
Stage 2	-	-	-	-	-	-	545	404	-	678	564	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.8	15.7	18.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	457	958	-	-	1103	-	-	294
HCM Lane V/C Ratio	0.264	-	-	-	0.044	-	-	0.074
HCM Control Delay (s)	15.7	0	-	-	8.4	0.2	-	18.2
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	356	20	10	444	141	40	80	30	81	30	40
Future Volume (veh/h)	30	356	20	10	444	141	40	80	30	81	30	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	35	419	24	12	522	166	47	94	35	95	35	47
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	1389	79	108	1042	330	179	164	54	276	64	69
Arrive On Green	0.07	0.40	0.40	0.06	0.39	0.39	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1792	3430	196	1792	2654	840	356	1052	349	813	407	441
Grp Volume(v), veh/h	35	218	225	12	351	337	176	0	0	177	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1838	1792	1787	1707	1757	0	0	1662	0	0
Q Serve(g_s), s	0.7	3.1	3.1	0.2	5.5	5.5	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	0.7	3.1	3.1	0.2	5.5	5.5	3.3	0.0	0.0	3.4	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.49	0.27		0.20	0.54		0.27
Lane Grp Cap(c), veh/h	130	724	744	108	702	670	397	0	0	409	0	0
V/C Ratio(X)	0.27	0.30	0.30	0.11	0.50	0.50	0.44	0.00	0.00	0.43	0.00	0.00
Avail Cap(c_a), veh/h	969	1934	1989	969	1934	1847	1029	0	0	963	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.2	7.5	7.5	16.4	8.5	8.5	14.6	0.0	0.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.2	0.8	0.8	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	1.6	0.1	2.8	2.7	1.7	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	16.6	7.8	7.8	16.6	9.3	9.3	14.9	0.0	0.0	14.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		478			700			176			177	
Approach Delay, s/veh		8.4			9.4			14.9			14.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	21.0		9.8	6.7	20.5		9.8
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	5.1		5.4	2.7	7.5		5.3
Green Ext Time (p_c), s	0.0	4.0		0.6	0.0	6.8		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	30	123	210	50	60	294	806	220	50	736	130
Future Volume (veh/h)	100	30	123	210	50	60	294	806	220	50	736	130
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	106	54	47	223	53	64	313	857	0	53	783	138
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	215	113	93	345	74	89	1420	3184	0	68	1094	191
Arrive On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.84	1.00	0.00	0.04	0.26	0.26
Sat Flow, veh/h	3480	1827	1499	3480	746	900	3375	5152	0	1740	4262	745
Grp Volume(v), veh/h	106	54	47	223	0	117	313	857	0	53	609	312
Grp Sat Flow(s),veh/h/ln	1740	1827	1499	1740	0	1646	1688	1663	0	1740	1663	1681
Q Serve(g_s), s	3.5	3.4	3.6	7.4	0.0	8.3	2.2	0.0	0.0	3.6	20.0	20.3
Cycle Q Clear(g_c), s	3.5	3.4	3.6	7.4	0.0	8.3	2.2	0.0	0.0	3.6	20.0	20.3
Prop In Lane	1.00		1.00	1.00		0.55	1.00		0.00	1.00		0.44
Lane Grp Cap(c), veh/h	215	113	93	345	0	163	1420	3184	0	68	853	432
V/C Ratio(X)	0.49	0.48	0.51	0.65	0.00	0.72	0.22	0.27	0.00	0.78	0.71	0.72
Avail Cap(c_a), veh/h	783	411	337	1009	0	477	1420	3184	0	200	853	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	54.4	54.5	52.0	0.0	52.4	5.7	0.0	0.0	57.2	40.6	40.7
Incr Delay (d2), s/veh	0.6	1.2	1.6	0.8	0.0	2.2	0.0	0.2	0.0	7.1	5.1	10.0
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	1.7	1.8	1.5	3.6	0.0	3.9	1.0	0.1	0.0	1.9	9.7	10.6
LnGrp Delay(d),s/veh	55.1	55.6	56.1	52.8	0.0	54.6	5.7	0.2	0.0	64.2	45.7	50.7
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		207			340			1170			974	
Approach Delay, s/veh		55.5			53.4			1.7			48.3	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	56.5	35.8		11.6	9.7	82.6		16.1
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	4.2	22.3		5.6	5.6	2.0		10.3
Green Ext Time (p_c), s	0.3	2.8		0.4	0.0	12.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	560	937	539	1260	1332	470
Future Volume (veh/h)	560	937	539	1260	1332	470
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	589	714	567	1326	1402	196
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1069	492	619	3180	2088	623
Arrive On Green	0.31	0.31	0.36	1.00	0.41	0.41
Sat Flow, veh/h	3476	1599	3476	5305	5305	1533
Grp Volume(v), veh/h	589	714	567	1326	1402	196
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1533
Q Serve(g_s), s	18.4	40.0	20.3	0.0	29.0	11.3
Cycle Q Clear(g_c), s	18.4	40.0	20.3	0.0	29.0	11.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1069	492	619	3180	2088	623
V/C Ratio(X)	0.55	1.45	0.92	0.42	0.67	0.31
Avail Cap(c_a), veh/h	1069	492	722	3180	2088	623
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.22	0.22	0.83	0.83
Uniform Delay (d), s/veh	37.5	45.0	40.9	0.0	31.5	26.2
Incr Delay (d2), s/veh	0.5	214.2	4.1	0.1	1.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	59.2	10.0	0.0	13.9	5.0
LnGrp Delay(d),s/veh	38.0	259.2	45.0	0.1	32.9	27.3
LnGrp LOS	D	F	D	A	C	C
Approach Vol, veh/h	1303			1893	1598	
Approach Delay, s/veh	159.2			13.6	32.2	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.5		44.5	27.6	57.9		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		42.0	22.3	31.0		
Green Ext Time (p_c), s		21.6		0.0	0.9	7.2		

Intersection Summary		
HCM 2010 Ctrl Delay		59.4
HCM 2010 LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	550	0	807	0	0	0	0	1249	944	820	1449	0
Future Volume (veh/h)	550	0	807	0	0	0	0	1249	944	820	1449	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	0	1881				0	1881	1881	1881	1881	0
Adj Flow Rate, veh/h	573	0	767				0	1553	490	854	1509	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	0	1				0	1	1	1	1	0
Cap, veh/h	829	0	671				0	2032	561	989	3516	0
Arrive On Green	0.24	0.00	0.24				0.00	0.36	0.36	0.57	1.00	0.00
Sat Flow, veh/h	3476	0	2814				0	5644	1557	3476	5305	0
Grp Volume(v), veh/h	573	0	767				0	1553	490	854	1509	0
Grp Sat Flow(s),veh/h/ln	1738	0	1407				0	1881	1557	1738	1712	0
Q Serve(g_s), s	19.5	0.0	31.0				0.0	31.6	38.2	27.1	0.0	0.0
Cycle Q Clear(g_c), s	19.5	0.0	31.0				0.0	31.6	38.2	27.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	829	0	671				0	2032	561	989	3516	0
V/C Ratio(X)	0.69	0.00	1.14				0.00	0.76	0.87	0.86	0.43	0.00
Avail Cap(c_a), veh/h	829	0	671				0	2032	561	989	3516	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.38	0.38	0.23	0.23	0.00
Uniform Delay (d), s/veh	45.1	0.0	49.5				0.0	36.7	38.8	25.9	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	81.3				0.0	1.1	7.5	2.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	0.0	19.6				0.0	16.6	17.5	13.2	0.0	0.0
LnGrp Delay(d),s/veh	47.2	0.0	130.8				0.0	37.8	46.3	28.3	0.1	0.0
LnGrp LOS	D		F					D	D	C	A	
Approach Vol, veh/h		1340						2043			2363	
Approach Delay, s/veh		95.0						39.8			10.3	
Approach LOS		F						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	42.2	52.1		35.7		94.3		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 37	46.8		* 31		89.0		
Max Q Clear Time (g_c+I1), s	29.1	40.2		33.0		2.0		
Green Ext Time (p_c), s	0.1	1.8		0.0		2.5		

Intersection Summary		
HCM 2010 Ctrl Delay		40.6
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	301	90	81	208	523	120	1150	40	626	1220	380
Future Volume (veh/h)	590	301	90	81	208	523	120	1150	40	626	1220	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	664	232	84	84	214	266	124	1186	41	645	1258	239
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	715	261	95	341	358	301	136	1381	48	626	1327	579
Arrive On Green	0.20	0.20	0.20	0.19	0.19	0.19	0.08	0.27	0.27	0.18	0.37	0.37
Sat Flow, veh/h	3583	1309	474	1792	1881	1579	1792	5092	176	3476	3574	1559
Grp Volume(v), veh/h	664	0	316	84	214	266	124	797	430	645	1258	239
Grp Sat Flow(s),veh/h/ln	1792	0	1783	1792	1881	1579	1792	1712	1844	1738	1787	1559
Q Serve(g_s), s	27.3	0.0	25.9	6.0	15.6	24.6	10.3	33.2	33.2	27.0	51.2	17.1
Cycle Q Clear(g_c), s	27.3	0.0	25.9	6.0	15.6	24.6	10.3	33.2	33.2	27.0	51.2	17.1
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	715	0	356	341	358	301	136	929	500	626	1327	579
V/C Ratio(X)	0.93	0.00	0.89	0.25	0.60	0.88	0.91	0.86	0.86	1.03	0.95	0.41
Avail Cap(c_a), veh/h	733	0	365	406	426	358	136	929	500	626	1327	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.60	0.60	0.60	0.67	0.67	0.67
Uniform Delay (d), s/veh	59.0	0.0	58.4	51.6	55.5	59.1	68.8	51.9	51.9	61.5	45.7	35.0
Incr Delay (d2), s/veh	17.7	0.0	21.8	0.1	0.6	18.0	35.6	6.4	11.1	37.8	11.2	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	15.3	0.0	14.9	3.0	8.1	12.2	6.4	16.5	18.5	16.2	27.2	7.6
LnGrp Delay(d),s/veh	76.7	0.0	80.2	51.7	56.1	77.1	104.4	58.3	63.0	99.3	57.0	36.5
LnGrp LOS	E		F	D	E	E	F	E	E	F	E	D
Approach Vol, veh/h		980			564			1351			2142	
Approach Delay, s/veh		77.8			65.4			64.0			67.4	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	31.0	45.3		34.4	16.0	60.3		33.1
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	27.0	40.7		30.7	11.4	55.7		34.0
Max Q Clear Time (g_c+I1), s	29.0	35.2		29.3	12.3	53.2		26.6
Green Ext Time (p_c), s	0.0	4.9		0.6	0.0	2.4		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.3
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Future Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	458	458	0	90	238	0	333	625	81	135	708	347
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	463	1257	563	118	300	255	357	1123	145	163	863	385
Arrive On Green	0.26	0.35	0.00	0.07	0.16	0.00	0.20	0.35	0.35	0.09	0.24	0.24
Sat Flow, veh/h	1810	3610	1615	1810	1900	1615	1810	3210	415	1810	3610	1612
Grp Volume(v), veh/h	458	458	0	90	238	0	333	351	355	135	708	347
Grp Sat Flow(s),veh/h/ln	1810	1805	1615	1810	1900	1615	1810	1805	1820	1810	1805	1612
Q Serve(g_s), s	31.6	11.8	0.0	6.1	15.1	0.0	22.7	19.6	19.7	9.2	23.2	26.1
Cycle Q Clear(g_c), s	31.6	11.8	0.0	6.1	15.1	0.0	22.7	19.6	19.7	9.2	23.2	26.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	463	1257	563	118	300	255	357	632	637	163	863	385
V/C Ratio(X)	0.99	0.36	0.00	0.76	0.79	0.00	0.93	0.56	0.56	0.83	0.82	0.90
Avail Cap(c_a), veh/h	463	1434	641	159	440	374	357	632	637	260	889	397
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	30.4	0.0	57.5	50.7	0.0	49.4	32.8	32.8	55.9	45.1	46.2
Incr Delay (d2), s/veh	39.0	0.8	0.0	12.0	19.2	0.0	31.2	0.9	0.9	9.0	6.3	23.0
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	20.8	6.1	0.0	3.5	9.5	0.0	14.4	9.9	10.0	5.0	12.4	14.1
LnGrp Delay(d),s/veh	85.4	31.2	0.0	69.5	69.9	0.0	80.6	33.7	33.8	64.9	51.4	69.2
LnGrp LOS	F	C		E	E		F	C	C	E	D	E
Approach Vol, veh/h		916			328			1039			1190	
Approach Delay, s/veh		58.3			69.8			48.8			58.1	
Approach LOS		E			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	48.8	12.2	48.9	29.2	34.9	36.0	25.0
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3
Max Green Setting (Gmax), s	18.0	38.0	11.0	49.7	24.7	30.8	32.0	* 29
Max Q Clear Time (g_c+I1), s	11.2	21.7	8.1	13.8	24.7	28.1	33.6	17.1
Green Ext Time (p_c), s	0.1	3.2	0.0	8.4	0.0	1.8	0.0	2.3

Intersection Summary		
HCM 2010 Ctrl Delay		56.5
HCM 2010 LOS		E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	205	722	535	74	32	207
Future Vol, veh/h	205	722	535	74	32	207
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	211	744	552	76	33	213

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	629	0	-	0	1389	315
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	798	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	956	-	-	-	135	684
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	406	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	955	-	-	-	105	683
Mov Cap-2 Maneuver	-	-	-	-	233	-
Stage 1	-	-	-	-	404	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	955	-	-	-	233	683
HCM Lane V/C Ratio	0.221	-	-	-	0.142	0.312
HCM Control Delay (s)	9.8	-	-	-	23	12.6
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.5	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	380	140	61	223	143	90	320	60	244	488	52
Future Volume (veh/h)	108	380	140	61	223	143	90	320	60	244	488	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	114	400	147	64	235	151	95	337	63	257	514	35
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	166	604	219	115	439	271	147	419	78	310	684	571
Arrive On Green	0.09	0.24	0.24	0.06	0.21	0.21	0.08	0.27	0.27	0.17	0.36	0.36
Sat Flow, veh/h	1792	2556	927	1792	2115	1303	1792	1540	288	1792	1881	1570
Grp Volume(v), veh/h	114	278	269	64	197	189	95	0	400	257	514	35
Grp Sat Flow(s),veh/h/ln	1792	1787	1696	1792	1787	1631	1792	0	1828	1792	1881	1570
Q Serve(g_s), s	4.4	10.0	10.2	2.5	7.0	7.4	3.6	0.0	14.5	9.8	17.0	1.0
Cycle Q Clear(g_c), s	4.4	10.0	10.2	2.5	7.0	7.4	3.6	0.0	14.5	9.8	17.0	1.0
Prop In Lane	1.00		0.55	1.00		0.80	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	166	422	401	115	371	339	147	0	498	310	684	571
V/C Ratio(X)	0.69	0.66	0.67	0.56	0.53	0.56	0.65	0.00	0.80	0.83	0.75	0.06
Avail Cap(c_a), veh/h	505	756	718	505	756	690	505	0	773	505	796	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	24.5	24.6	32.2	25.0	25.2	31.6	0.0	24.0	28.3	19.8	14.7
Incr Delay (d2), s/veh	4.9	2.5	2.8	4.1	1.7	2.0	4.7	0.0	4.7	5.9	3.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	5.2	5.1	1.3	3.6	3.5	2.0	0.0	7.9	5.4	9.5	0.5
LnGrp Delay(d),s/veh	36.1	27.0	27.3	36.3	26.7	27.2	36.3	0.0	28.7	34.2	23.7	14.8
LnGrp LOS	D	C	C	D	C	C	D		C	C	C	B
Approach Vol, veh/h		661			450			495			806	
Approach Delay, s/veh		28.7			28.3			30.1			26.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	24.3	8.6	21.8	9.8	30.8	10.6	19.7
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	11.8	16.5	4.5	12.2	5.6	19.0	6.4	9.4
Green Ext Time (p_c), s	0.5	2.8	0.1	4.2	0.2	3.5	0.2	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	28.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	685	30	30	377	0	20	0	40	0	0	10
Future Vol, veh/h	10	685	30	30	377	0	20	0	40	0	0	10
Conflicting Peds, #/hr	0	0	1	1	0	0	2	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	97	97	97	97	92	97	92	97	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	11	706	31	31	389	0	21	0	41	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	389	0	0	738	0	0	1004	1196	370	826	1211	197
Stage 1	-	-	-	-	-	-	745	745	-	451	451	-
Stage 2	-	-	-	-	-	-	259	451	-	375	760	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1166	-	-	871	-	-	197	185	630	264	181	811
Stage 1	-	-	-	-	-	-	374	419	-	557	569	-
Stage 2	-	-	-	-	-	-	726	569	-	618	413	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1166	-	-	870	-	-	185	174	629	235	170	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	174	-	235	170	-
Stage 1	-	-	-	-	-	-	368	412	-	548	543	-
Stage 2	-	-	-	-	-	-	683	543	-	568	406	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	17.5	9.5
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	349	1166	-	-	870	-	-	809
HCM Lane V/C Ratio	0.177	0.009	-	-	0.036	-	-	0.013
HCM Control Delay (s)	17.5	8.1	0.1	-	9.3	0.2	-	9.5
HCM Lane LOS	C	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	575	30	10	327	101	20	30	20	131	30	20
Future Volume (veh/h)	20	575	30	10	327	101	20	30	20	131	30	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	22	618	32	11	352	109	22	32	22	141	32	22
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	122	1276	66	110	979	299	183	167	89	362	51	30
Arrive On Green	0.07	0.37	0.37	0.06	0.36	0.36	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1792	3453	179	1792	2698	824	298	944	506	1065	288	172
Grp Volume(v), veh/h	22	319	331	11	231	230	76	0	0	195	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1845	1792	1787	1735	1749	0	0	1525	0	0
Q Serve(g_s), s	0.4	4.9	4.9	0.2	3.4	3.5	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.9	4.9	0.2	3.4	3.5	1.3	0.0	0.0	4.2	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.47	0.29		0.29	0.72		0.11
Lane Grp Cap(c), veh/h	122	660	681	110	649	630	439	0	0	443	0	0
V/C Ratio(X)	0.18	0.48	0.48	0.10	0.36	0.36	0.17	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	1004	2004	2069	1004	2004	1945	1060	0	0	1000	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.7	8.6	8.6	15.8	8.3	8.3	12.6	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.8	0.8	0.1	0.5	0.5	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	2.6	0.1	1.8	1.7	0.6	0.0	0.0	1.8	0.0	0.0
LnGrp Delay(d),s/veh	16.0	9.4	9.4	16.0	8.8	8.8	12.7	0.0	0.0	14.0	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		672			472			76			195	
Approach Delay, s/veh		9.6			9.0			12.7			14.0	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	19.2		10.3	6.4	19.0		10.3
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0
Max Q Clear Time (g_c+I1), s	2.2	6.9		6.2	2.4	5.5		3.3
Green Ext Time (p_c), s	0.0	6.2		0.6	0.0	4.2		0.2

Intersection Summary			
HCM 2010 Ctrl Delay			10.2
HCM 2010 LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	90	455	270	80	60	564	956	310	50	1087	130
Future Volume (veh/h)	260	90	455	270	80	60	564	956	310	50	1087	130
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	271	223	180	281	83	62	588	996	0	52	1132	135
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	537	282	238	414	115	86	1152	2420	0	206	1182	141
Arrive On Green	0.15	0.15	0.15	0.11	0.11	0.11	0.66	0.93	0.00	0.11	0.25	0.25
Sat Flow, veh/h	3619	1900	1602	3619	1006	752	3510	5358	0	1810	4686	558
Grp Volume(v), veh/h	271	223	180	281	0	145	588	996	0	52	835	432
Grp Sat Flow(s),veh/h/ln	1810	1900	1602	1810	0	1758	1755	1729	0	1810	1729	1787
Q Serve(g_s), s	9.0	14.7	14.0	9.7	0.0	10.4	11.3	2.7	0.0	3.4	30.9	31.0
Cycle Q Clear(g_c), s	9.0	14.7	14.0	9.7	0.0	10.4	11.3	2.7	0.0	3.4	30.9	31.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		0.00	1.00		0.31
Lane Grp Cap(c), veh/h	537	282	238	414	0	201	1152	2420	0	206	872	451
V/C Ratio(X)	0.50	0.79	0.76	0.68	0.00	0.72	0.51	0.41	0.00	0.25	0.96	0.96
Avail Cap(c_a), veh/h	974	512	431	969	0	471	1152	2420	0	206	872	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.89	0.89	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	53.4	53.1	55.3	0.0	55.6	17.0	2.4	0.0	52.6	47.9	47.9
Incr Delay (d2), s/veh	0.3	1.9	1.9	0.7	0.0	1.8	0.1	0.5	0.0	2.9	21.7	33.1
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	4.5	7.9	6.3	4.9	0.0	5.1	5.4	1.2	0.0	1.9	17.4	19.4
LnGrp Delay(d),s/veh	51.2	55.3	55.0	56.0	0.0	57.4	17.1	2.9	0.0	55.5	69.6	81.1
LnGrp LOS	D	E	D	E		E	B	A		E	E	F
Approach Vol, veh/h		674			426			1584			1319	
Approach Delay, s/veh		53.6			56.5			8.2			72.8	
Approach LOS		D			E			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.6	38.8		23.5	20.8	66.6		19.1
Change Period (Y+Rc), s	6.0	* 6		* 4.2	6.0	6.0		4.2
Max Green Setting (Gmax), s	8.6	* 33		* 35	14.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	13.3	33.0		16.7	5.4	4.7		12.4
Green Ext Time (p_c), s	0.0	0.0		1.5	0.2	13.0		1.1

Intersection Summary		
HCM 2010 Ctrl Delay		42.2
HCM 2010 LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	480	658	474	830	819	240
Future Volume (veh/h)	480	658	474	830	819	240
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	511	329	504	883	871	104
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	600	694	909	3751	2219	675
Arrive On Green	0.18	0.18	0.53	1.00	0.44	0.44
Sat Flow, veh/h	3408	1568	3408	5202	5202	1532
Grp Volume(v), veh/h	511	329	504	883	871	104
Grp Sat Flow(s),veh/h/ln	1704	1568	1704	1679	1679	1532
Q Serve(g_s), s	17.4	17.8	11.8	0.0	14.0	4.9
Cycle Q Clear(g_c), s	17.4	17.8	11.8	0.0	14.0	4.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	600	694	909	3751	2219	675
V/C Ratio(X)	0.85	0.47	0.55	0.24	0.39	0.15
Avail Cap(c_a), veh/h	710	745	909	3751	2219	675
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	0.94	0.94
Uniform Delay (d), s/veh	47.9	23.6	23.3	0.0	22.7	20.1
Incr Delay (d2), s/veh	8.2	0.4	1.9	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	17.1	5.7	0.0	6.6	2.2
LnGrp Delay(d),s/veh	56.1	24.0	25.2	0.1	23.2	20.6
LnGrp LOS	E	C	C	A	C	C
Approach Vol, veh/h	840			1387	975	
Approach Delay, s/veh	43.5			9.2	22.9	
Approach LOS	D			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		94.4		25.6	36.5	57.9		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		85.5		25.0	32.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		19.8	13.8	16.0		
Green Ext Time (p_c), s		11.3		1.4	1.5	4.6		

Intersection Summary			
HCM 2010 Ctrl Delay			22.4
HCM 2010 LOS			C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	155	60	61	368	520	140	950	20	397	710	480
Future Volume (veh/h)	320	155	60	61	368	520	140	950	20	397	710	480
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	356	172	67	68	409	367	156	1056	22	441	789	187
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	427	410	160	106	479	404	171	1161	24	465	920	409
Arrive On Green	0.12	0.32	0.32	0.06	0.26	0.26	0.10	0.23	0.23	0.23	0.43	0.43
Sat Flow, veh/h	3442	1275	497	1774	1863	1569	1774	5124	107	3442	3539	1572
Grp Volume(v), veh/h	356	0	239	68	409	367	156	698	380	441	789	187
Grp Sat Flow(s),veh/h/ln	1721	0	1772	1774	1863	1569	1774	1695	1841	1721	1770	1572
Q Serve(g_s), s	12.1	0.0	12.7	4.5	25.1	27.2	10.5	24.1	24.1	15.2	24.1	5.9
Cycle Q Clear(g_c), s	12.1	0.0	12.7	4.5	25.1	27.2	10.5	24.1	24.1	15.2	24.1	5.9
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	427	0	570	106	479	404	171	768	417	465	920	409
V/C Ratio(X)	0.83	0.00	0.42	0.64	0.85	0.91	0.91	0.91	0.91	0.95	0.86	0.46
Avail Cap(c_a), veh/h	717	0	570	503	528	444	171	768	417	465	920	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.72	0.72	0.72	0.87	0.87	0.87
Uniform Delay (d), s/veh	51.4	0.0	31.9	55.2	42.4	43.2	53.7	45.2	45.2	46.1	31.9	9.4
Incr Delay (d2), s/veh	3.3	0.0	0.4	2.4	11.0	20.3	34.5	12.9	20.8	26.5	9.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	6.3	2.3	14.4	14.0	6.8	12.6	14.6	8.9	12.8	2.8
LnGrp Delay(d),s/veh	54.6	0.0	32.3	57.6	53.4	63.5	88.1	58.0	66.0	72.6	41.0	12.6
LnGrp LOS	D		C	E	D	E	F	E	E	E	D	B
Approach Vol, veh/h		595			844			1234			1417	
Approach Delay, s/veh		45.7			58.1			64.3			47.1	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.2	31.8	11.7	43.1	16.2	35.8	19.4	35.4
Change Period (Y+Rc), s	4.0	4.6	4.5	4.5	4.6	4.6	4.5	4.5
Max Green Setting (Gmax), s	16.2	27.2	34.0	25.0	11.6	31.2	25.0	34.0
Max Q Clear Time (g_c+I1), s	17.2	26.1	6.5	14.7	12.5	26.1	14.1	29.2
Green Ext Time (p_c), s	0.0	1.0	0.1	0.8	0.0	4.1	0.7	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	54.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Future Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	466	217	0	86	428	0	455	705	77	114	432	210
Adj No. of Lanes	2	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	627	329	280	466	490	416	313	1136	124	138	891	399
Arrive On Green	0.18	0.18	0.00	0.26	0.26	0.00	0.17	0.35	0.35	0.08	0.25	0.25
Sat Flow, veh/h	3583	1881	1599	1792	1881	1599	1792	3246	354	1792	3574	1599
Grp Volume(v), veh/h	466	217	0	86	428	0	455	388	394	114	432	210
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	1881	1599	1792	1787	1813	1792	1787	1599
Q Serve(g_s), s	17.3	15.1	0.0	5.2	30.6	0.0	24.5	25.3	25.3	8.8	14.5	15.9
Cycle Q Clear(g_c), s	17.3	15.1	0.0	5.2	30.6	0.0	24.5	25.3	25.3	8.8	14.5	15.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	627	329	280	466	490	416	313	626	635	138	891	399
V/C Ratio(X)	0.74	0.66	0.00	0.18	0.87	0.00	1.46	0.62	0.62	0.82	0.48	0.53
Avail Cap(c_a), veh/h	758	398	338	523	549	467	313	626	635	166	891	399
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	54.0	0.0	40.4	49.7	0.0	58.0	37.9	37.9	63.8	45.0	45.6
Incr Delay (d2), s/veh	7.8	9.9	0.0	0.9	19.1	0.0	222.0	4.6	4.5	22.5	1.9	4.9
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	9.3	8.7	0.0	2.7	18.5	0.0	31.3	13.3	13.5	5.2	7.4	7.6
LnGrp Delay(d),s/veh	62.7	63.9	0.0	41.2	68.9	0.0	279.9	42.4	42.4	86.4	46.9	50.5
LnGrp LOS	E	E		D	E		F	D	D	F	D	D
Approach Vol, veh/h		683			514			1237			756	
Approach Delay, s/veh		63.1			64.2			129.8			53.8	
Approach LOS		E			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.8	54.2		29.9	29.0	40.0		41.5
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	13.0	47.0		29.7	24.5	35.0		41.0
Max Q Clear Time (g_c+I1), s	10.8	27.3		19.3	26.5	17.9		32.6
Green Ext Time (p_c), s	0.0	3.8		5.3	0.0	4.5		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	86.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Future Volume (veh/h)	410	191	160	76	377	120	400	620	68	100	380	381
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	466	217	0	86	428	0	455	705	77	114	432	210
Adj No. of Lanes	2	1	1	1	1	1	2	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	629	330	281	476	500	425	521	1099	120	139	940	420
Arrive On Green	0.18	0.18	0.00	0.27	0.27	0.00	0.15	0.34	0.34	0.08	0.26	0.26
Sat Flow, veh/h	3583	1881	1599	1792	1881	1599	3476	3246	354	1792	3574	1599
Grp Volume(v), veh/h	466	217	0	86	428	0	455	388	394	114	432	210
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	1881	1599	1738	1787	1813	1792	1787	1599
Q Serve(g_s), s	16.7	14.6	0.0	5.0	29.4	0.0	17.4	24.9	24.9	8.5	13.8	15.1
Cycle Q Clear(g_c), s	16.7	14.6	0.0	5.0	29.4	0.0	17.4	24.9	24.9	8.5	13.8	15.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	629	330	281	476	500	425	521	605	614	139	940	420
V/C Ratio(X)	0.74	0.66	0.00	0.18	0.86	0.00	0.87	0.64	0.64	0.82	0.46	0.50
Avail Cap(c_a), veh/h	757	398	338	554	582	495	627	605	614	185	940	420
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	52.2	0.0	38.4	47.4	0.0	56.5	37.9	37.9	61.7	42.0	42.5
Incr Delay (d2), s/veh	7.7	9.8	0.0	0.8	16.9	0.0	11.7	5.1	5.1	17.1	1.6	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	8.5	0.0	2.6	17.6	0.0	9.2	13.1	13.3	4.9	7.0	7.2
LnGrp Delay(d),s/veh	60.7	62.0	0.0	39.3	64.3	0.0	68.2	43.1	43.0	78.8	43.6	46.7
LnGrp LOS	E	E		D	E		E	D	D	E	D	D
Approach Vol, veh/h		683			514			1237			756	
Approach Delay, s/veh		61.1			60.1			52.3			49.7	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.6	51.0		29.1	24.9	40.7		41.1
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	14.0	46.0		28.7	24.5	35.0		42.0
Max Q Clear Time (g_c+I1), s	10.5	26.9		18.7	19.4	17.1		31.4
Green Ext Time (p_c), s	0.1	3.8		5.1	1.0	4.6		4.7

Intersection Summary		
HCM 2010 Ctrl Delay		54.8
HCM 2010 LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	560	937	539	1260	1332	470
Future Volume (veh/h)	560	937	539	1260	1332	470
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881
Adj Flow Rate, veh/h	589	714	567	1326	1402	196
Adj No. of Lanes	2	1	2	3	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	1069	777	619	3180	2088	623
Arrive On Green	0.31	0.31	0.36	1.00	0.41	0.41
Sat Flow, veh/h	3476	1599	3476	5305	5305	1533
Grp Volume(v), veh/h	589	714	567	1326	1402	196
Grp Sat Flow(s),veh/h/ln	1738	1599	1738	1712	1712	1533
Q Serve(g_s), s	18.4	40.0	20.3	0.0	29.0	11.3
Cycle Q Clear(g_c), s	18.4	40.0	20.3	0.0	29.0	11.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	1069	777	619	3180	2088	623
V/C Ratio(X)	0.55	0.92	0.92	0.42	0.67	0.31
Avail Cap(c_a), veh/h	1069	777	722	3180	2088	623
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.22	0.22	0.83	0.83
Uniform Delay (d), s/veh	37.5	31.1	40.9	0.0	31.5	26.2
Incr Delay (d2), s/veh	0.5	15.9	4.1	0.1	1.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	42.3	10.0	0.0	13.9	5.0
LnGrp Delay(d),s/veh	38.0	46.9	45.0	0.1	32.9	27.3
LnGrp LOS	D	D	D	A	C	C
Approach Vol, veh/h	1303			1893	1598	
Approach Delay, s/veh	42.9			13.6	32.2	
Approach LOS	D			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		85.5		44.5	27.6	57.9		
Change Period (Y+Rc), s		5.0		4.5	4.5	5.0		
Max Green Setting (Gmax), s		80.5		40.0	27.0	49.0		
Max Q Clear Time (g_c+I1), s		2.0		42.0	22.3	31.0		
Green Ext Time (p_c), s		21.6		0.0	0.9	7.2		

Intersection Summary		
HCM 2010 Ctrl Delay		27.8
HCM 2010 LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	301	90	81	208	523	120	1150	40	626	1220	380
Future Volume (veh/h)	590	301	90	81	208	523	120	1150	40	626	1220	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	608	310	84	84	214	266	124	1186	41	645	1258	239
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	657	455	123	105	357	300	136	1289	45	689	1327	579
Arrive On Green	0.19	0.32	0.32	0.06	0.19	0.19	0.08	0.25	0.25	0.20	0.37	0.37
Sat Flow, veh/h	3476	1419	385	1792	1881	1579	1792	5091	176	3476	3574	1559
Grp Volume(v), veh/h	608	0	394	84	214	266	124	797	430	645	1258	239
Grp Sat Flow(s),veh/h/ln	1738	0	1804	1792	1881	1579	1792	1712	1843	1738	1787	1559
Q Serve(g_s), s	25.8	0.0	28.5	6.9	15.6	24.6	10.3	34.0	34.0	27.4	51.2	8.9
Cycle Q Clear(g_c), s	25.8	0.0	28.5	6.9	15.6	24.6	10.3	34.0	34.0	27.4	51.2	8.9
Prop In Lane	1.00		0.21	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	657	0	578	105	357	300	136	867	467	689	1327	579
V/C Ratio(X)	0.92	0.00	0.68	0.80	0.60	0.89	0.91	0.92	0.92	0.94	0.95	0.41
Avail Cap(c_a), veh/h	707	0	578	460	429	360	136	867	467	718	1327	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75	0.67	0.67	0.67
Uniform Delay (d), s/veh	59.8	0.0	44.3	69.8	55.5	59.2	68.8	54.5	54.5	59.2	45.7	9.5
Incr Delay (d2), s/veh	17.1	0.0	3.0	5.3	0.6	18.0	41.6	13.1	21.1	14.2	11.2	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	14.0	0.0	14.7	3.6	8.2	12.3	6.7	17.6	20.0	14.5	27.2	4.0
LnGrp Delay(d),s/veh	76.9	0.0	47.3	75.0	56.1	77.2	110.4	67.6	75.6	73.4	57.0	10.9
LnGrp LOS	E		D	E	E	E	F	E	E	E	E	B
Approach Vol, veh/h		1002			564			1351			2142	
Approach Delay, s/veh		65.3			68.9			74.1			56.8	
Approach LOS		E			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.7	42.6	13.3	52.6	16.0	60.3	32.9	33.0
Change Period (Y+Rc), s	4.0	4.6	4.5	4.5	4.6	4.6	4.5	4.5
Max Green Setting (Gmax), s	31.0	36.7	38.5	26.2	11.4	55.7	30.5	34.2
Max Q Clear Time (g_c+I1), s	29.4	36.0	8.9	30.5	12.3	53.2	27.8	26.6
Green Ext Time (p_c), s	0.3	0.6	0.1	0.0	0.0	2.4	0.6	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	64.4
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Future Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	513	382	0	90	238	0	333	625	81	135	708	347
Adj No. of Lanes	2	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	816	428	364	295	310	263	363	1175	152	164	910	407
Arrive On Green	0.23	0.23	0.00	0.16	0.16	0.00	0.20	0.37	0.37	0.09	0.25	0.25
Sat Flow, veh/h	3619	1900	1615	1810	1900	1615	1810	3210	415	1810	3610	1613
Grp Volume(v), veh/h	513	382	0	90	238	0	333	351	355	135	708	347
Grp Sat Flow(s),veh/h/ln	1810	1900	1615	1810	1900	1615	1810	1805	1820	1810	1805	1613
Q Serve(g_s), s	15.9	24.3	0.0	5.5	14.9	0.0	22.5	19.1	19.1	9.1	22.7	25.5
Cycle Q Clear(g_c), s	15.9	24.3	0.0	5.5	14.9	0.0	22.5	19.1	19.1	9.1	22.7	25.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	816	428	364	295	310	263	363	661	666	164	910	407
V/C Ratio(X)	0.63	0.89	0.00	0.30	0.77	0.00	0.92	0.53	0.53	0.83	0.78	0.85
Avail Cap(c_a), veh/h	833	438	372	421	442	376	414	661	666	261	985	440
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	46.8	0.0	45.9	49.9	0.0	48.8	31.1	31.1	55.7	43.4	44.4
Incr Delay (d2), s/veh	3.7	23.4	0.0	2.7	16.6	0.0	24.0	0.7	0.7	8.8	4.1	14.9
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	8.4	15.5	0.0	2.9	9.3	0.0	13.6	9.6	9.7	5.0	11.8	13.1
LnGrp Delay(d),s/veh	47.2	70.2	0.0	48.6	66.5	0.0	72.8	31.7	31.8	64.5	47.4	59.3
LnGrp LOS	D	E		D	E		E	C	C	E	D	E
Approach Vol, veh/h		895			328			1039			1190	
Approach Delay, s/veh		57.0			61.6			44.9			52.8	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.3	50.6		33.4	29.5	36.4		25.3
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	18.0	45.0		28.7	28.5	34.0		29.0
Max Q Clear Time (g_c+I1), s	11.1	21.1		26.3	24.5	27.5		16.9
Green Ext Time (p_c), s	0.1	3.5		1.8	0.5	3.9		3.1

Intersection Summary	
HCM 2010 Ctrl Delay	52.4
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Future Volume (veh/h)	440	440	510	86	228	90	320	600	78	130	680	501
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	513	382	0	90	238	0	333	625	81	135	708	347
Adj No. of Lanes	2	1	1	1	1	1	2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	938	492	419	305	321	273	407	994	129	167	1016	454
Arrive On Green	0.26	0.26	0.00	0.17	0.17	0.00	0.12	0.31	0.31	0.09	0.28	0.28
Sat Flow, veh/h	3619	1900	1615	1810	1900	1615	3510	3210	415	1810	3610	1613
Grp Volume(v), veh/h	513	382	0	90	238	0	333	351	355	135	708	347
Grp Sat Flow(s),veh/h/ln	1810	1900	1615	1810	1900	1615	1755	1805	1820	1810	1805	1613
Q Serve(g_s), s	13.9	21.1	0.0	4.9	13.5	0.0	10.5	18.9	19.0	8.3	19.9	22.3
Cycle Q Clear(g_c), s	13.9	21.1	0.0	4.9	13.5	0.0	10.5	18.9	19.0	8.3	19.9	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	938	492	419	305	321	273	407	559	564	167	1016	454
V/C Ratio(X)	0.55	0.78	0.00	0.29	0.74	0.00	0.82	0.63	0.63	0.81	0.70	0.76
Avail Cap(c_a), veh/h	1043	548	466	463	486	413	542	653	658	287	1305	583
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	39.0	0.0	41.2	44.8	0.0	49.0	33.5	33.6	50.5	36.4	37.3
Incr Delay (d2), s/veh	2.3	11.4	0.0	2.4	14.4	0.0	7.8	1.2	1.2	6.9	1.5	5.4
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	7.2	12.7	0.0	2.7	8.4	0.0	5.5	9.5	9.8	4.5	10.1	10.6
LnGrp Delay(d),s/veh	38.6	50.3	0.0	43.7	59.2	0.0	56.7	34.7	34.8	57.4	37.9	42.7
LnGrp LOS	D	D		D	E		E	C	C	E	D	D
Approach Vol, veh/h		895			328			1039			1190	
Approach Delay, s/veh		43.6			54.9			41.8			41.5	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.4	40.1		34.7	17.7	36.9		24.1
Change Period (Y+Rc), s	4.0	5.0		5.3	4.5	5.0		5.0
Max Green Setting (Gmax), s	18.0	41.0		32.7	17.5	41.0		29.0
Max Q Clear Time (g_c+I1), s	10.3	21.0		23.1	12.5	24.3		15.5
Green Ext Time (p_c), s	0.1	3.4		6.3	0.7	7.6		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	43.4
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	0	299	0	0	0	0	654	482	204	807	0
Future Volume (veh/h)	225	0	299	0	0	0	0	654	482	204	807	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	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
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	253	0	48				0	944	291	229	907	0
Adj No. of Lanes	2	0	2				0	3	1	2	3	0
Peak Hour Factor	0.89	0.89	0.89				0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	307	0	248				0	3882	1064	279	4163	0
Arrive On Green	0.09	0.00	0.09				0.00	0.70	0.70	0.16	1.00	0.00
Sat Flow, veh/h	3408	0	2760				0	5534	1516	3408	5202	0
Grp Volume(v), veh/h	253	0	48				0	944	291	229	907	0
Grp Sat Flow(s),veh/h/ln	1704	0	1380				0	1845	1516	1704	1679	0
Q Serve(g_s), s	8.8	0.0	1.9				0.0	7.4	8.5	7.8	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	1.9				0.0	7.4	8.5	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	307	0	248				0	3882	1064	279	4163	0
V/C Ratio(X)	0.82	0.00	0.19				0.00	0.24	0.27	0.82	0.22	0.00
Avail Cap(c_a), veh/h	738	0	598				0	3882	1064	767	4163	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.88	0.88	0.86	0.86	0.00
Uniform Delay (d), s/veh	53.7	0.0	50.6				0.0	6.4	6.6	49.3	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.1				0.0	0.1	0.6	2.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.7				0.0	3.8	3.7	3.7	0.0	0.0
LnGrp Delay(d),s/veh	55.8	0.0	50.7				0.0	6.6	7.2	51.3	0.1	0.0
LnGrp LOS	E		D					A	A	D	A	
Approach Vol, veh/h		301						1235			1136	
Approach Delay, s/veh		55.0						6.7			10.4	
Approach LOS		D						A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	89.5		15.5		104.5		
Change Period (Y+Rc), s	* 5.2	5.3		* 4.7		5.3		
Max Green Setting (Gmax), s	* 27	51.8		* 26		84.0		
Max Q Clear Time (g_c+I1), s	9.8	10.5		10.8		2.0		
Green Ext Time (p_c), s	0.0	1.3		0.0		1.3		

Intersection Summary		
HCM 2010 Ctrl Delay		13.7
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	281	106	16	48	214	357	57	478	6	265	446	390
Future Volume (veh/h)	281	106	16	48	214	357	57	478	6	265	446	390
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	312	118	14	53	238	68	63	531	6	294	496	194
Adj No. of Lanes	2	1	0	1	1	1	1	3	0	2	2	1
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	427	196	23	292	306	257	81	1083	12	358	929	413
Arrive On Green	0.12	0.12	0.12	0.16	0.16	0.16	0.05	0.21	0.21	0.03	0.09	0.09
Sat Flow, veh/h	3548	1632	194	1774	1863	1560	1774	5182	58	3442	3539	1572
Grp Volume(v), veh/h	312	0	132	53	238	68	63	347	190	294	496	194
Grp Sat Flow(s),veh/h/ln	1774	0	1825	1774	1863	1560	1774	1695	1851	1721	1770	1572
Q Serve(g_s), s	10.2	0.0	8.2	3.1	14.7	4.6	4.2	10.8	10.9	10.2	16.1	14.1
Cycle Q Clear(g_c), s	10.2	0.0	8.2	3.1	14.7	4.6	4.2	10.8	10.9	10.2	16.1	14.1
Prop In Lane	1.00		0.11	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	427	0	220	292	306	257	81	708	387	358	929	413
V/C Ratio(X)	0.73	0.00	0.60	0.18	0.78	0.26	0.78	0.49	0.49	0.82	0.53	0.47
Avail Cap(c_a), veh/h	721	0	371	510	536	449	169	708	387	531	929	413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.87	0.87	0.87	0.96	0.96	0.96
Uniform Delay (d), s/veh	50.9	0.0	50.0	43.2	48.0	43.8	56.7	41.8	41.8	56.8	47.8	46.9
Incr Delay (d2), s/veh	1.8	0.0	2.0	0.1	1.6	0.2	5.2	2.1	3.9	3.8	2.1	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.3	1.5	7.7	2.0	2.2	5.3	6.0	5.1	8.2	6.6
LnGrp Delay(d),s/veh	52.7	0.0	52.0	43.3	49.6	44.0	61.9	43.9	45.7	60.6	49.9	50.5
LnGrp LOS	D		D	D	D	D	E	D	D	E	D	D
Approach Vol, veh/h		444			359			600			984	
Approach Delay, s/veh		52.5			47.6			46.4			53.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.5	29.7		18.9	10.1	36.1		24.2
Change Period (Y+Rc), s	4.0	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	18.5	25.0		24.4	11.4	31.5		34.5
Max Q Clear Time (g_c+I1), s	12.2	12.9		12.2	6.2	18.1		16.7
Green Ext Time (p_c), s	0.3	5.5		1.2	0.0	7.1		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.5
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	117	131	28	228	80	301	352	17	46	164	182
Future Volume (veh/h)	257	117	131	28	228	80	301	352	17	46	164	182
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	292	133	0	32	259	0	342	400	17	52	186	32
Adj No. of Lanes	1	2	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	319	1125	503	67	327	278	377	1634	69	79	1064	476
Arrive On Green	0.18	0.31	0.00	0.04	0.17	0.00	0.21	0.47	0.47	0.04	0.30	0.30
Sat Flow, veh/h	1792	3574	1599	1792	1881	1599	1792	3492	148	1792	3574	1599
Grp Volume(v), veh/h	292	133	0	32	259	0	342	204	213	52	186	32
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1881	1599	1792	1787	1853	1792	1787	1599
Q Serve(g_s), s	21.5	3.6	0.0	2.4	17.7	0.0	25.0	9.2	9.3	3.8	5.2	1.9
Cycle Q Clear(g_c), s	21.5	3.6	0.0	2.4	17.7	0.0	25.0	9.2	9.3	3.8	5.2	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	319	1125	503	67	327	278	377	836	867	79	1064	476
V/C Ratio(X)	0.92	0.12	0.00	0.48	0.79	0.00	0.91	0.24	0.25	0.66	0.17	0.07
Avail Cap(c_a), veh/h	427	1125	503	267	560	476	600	836	867	400	1064	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	32.8	0.0	63.4	53.1	0.0	51.8	21.5	21.5	63.2	35.0	33.8
Incr Delay (d2), s/veh	19.2	0.2	0.0	3.9	17.5	0.0	13.0	0.7	0.7	6.8	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	1.8	0.0	1.2	10.8	0.0	13.7	4.7	4.9	2.1	2.6	0.9
LnGrp Delay(d),s/veh	73.4	33.0	0.0	67.3	70.7	0.0	64.7	22.2	22.2	70.0	35.3	34.1
LnGrp LOS	E	C		E	E		E	C	C	E	D	C
Approach Vol, veh/h		425			291			759			270	
Approach Delay, s/veh		60.8			70.3			41.4			41.9	
Approach LOS		E			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	67.9	9.0	47.6	32.8	45.0	27.9	28.7				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.3	4.5	5.0	4.0	* 5.3				
Max Green Setting (Gmax), s	30.0	40.0	20.0	40.0	45.0	40.0	32.0	* 40				
Max Q Clear Time (g_c+I1), s	5.8	11.3	4.4	5.6	27.0	7.2	23.5	19.7				
Green Ext Time (p_c), s	0.1	2.0	0.0	2.1	1.2	1.8	0.4	3.6				

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	237	469	5	4	153
Future Vol, veh/h	80	237	469	5	4	153
Conflicting Peds, #/hr	0	0	0	3	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	175	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	87	258	510	5	4	166

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	518	0	-	0	822	261
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	306	-
Critical Hdwy	4.12	-	-	-	6.82	6.92
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	2.21	-	-	-	3.51	3.31
Pot Cap-1 Maneuver	1051	-	-	-	314	741
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1048	-	-	-	286	739
Mov Cap-2 Maneuver	-	-	-	-	388	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	721	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1048	-	-	-	388	739
HCM Lane V/C Ratio	0.083	-	-	-	0.011	0.225
HCM Control Delay (s)	8.7	-	-	-	14.4	11.3
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	135	28	77	297	139	88	354	73	58	125	12
Future Volume (veh/h)	24	135	28	77	297	139	88	354	73	58	125	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	27	152	12	87	334	101	99	398	75	65	140	3
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	89	641	50	152	612	182	164	512	96	128	590	493
Arrive On Green	0.05	0.19	0.19	0.08	0.23	0.23	0.09	0.33	0.33	0.07	0.31	0.31
Sat Flow, veh/h	1792	3349	261	1792	2701	802	1792	1535	289	1792	1881	1571
Grp Volume(v), veh/h	27	80	84	87	219	216	99	0	473	65	140	3
Grp Sat Flow(s),veh/h/ln	1792	1787	1823	1792	1787	1716	1792	0	1824	1792	1881	1571
Q Serve(g_s), s	0.8	2.1	2.2	2.6	6.1	6.3	3.0	0.0	13.2	2.0	3.1	0.1
Cycle Q Clear(g_c), s	0.8	2.1	2.2	2.6	6.1	6.3	3.0	0.0	13.2	2.0	3.1	0.1
Prop In Lane	1.00		0.14	1.00		0.47	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	89	342	349	152	405	389	164	0	608	128	590	493
V/C Ratio(X)	0.30	0.23	0.24	0.57	0.54	0.56	0.60	0.00	0.78	0.51	0.24	0.01
Avail Cap(c_a), veh/h	634	949	968	634	949	911	634	0	968	634	999	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	19.3	19.4	24.9	19.3	19.3	24.7	0.0	16.9	25.3	14.4	13.3
Incr Delay (d2), s/veh	1.9	0.5	0.5	3.4	1.6	1.8	3.5	0.0	3.1	3.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.1	1.4	3.2	3.1	1.6	0.0	7.1	1.1	1.6	0.0
LnGrp Delay(d),s/veh	27.8	19.8	19.9	28.2	20.9	21.1	28.2	0.0	20.0	28.3	14.7	13.4
LnGrp LOS	C	B	B	C	C	C	C		C	C	B	B
Approach Vol, veh/h		191			522			572			208	
Approach Delay, s/veh		21.0			22.2			21.4			18.9	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	23.9	8.8	15.8	9.2	22.7	6.8	17.8
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	30.0	20.0	30.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	4.0	15.2	4.6	4.2	5.0	5.1	2.8	8.3
Green Ext Time (p_c), s	0.1	3.6	0.2	1.2	0.2	1.0	0.0	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	253	7	30	460	1	26	0	69	0	0	1
Future Vol, veh/h	0	253	7	30	460	1	26	0	69	0	0	1
Conflicting Peds, #/hr	0	0	4	4	0	0	5	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	83	83	83	83	92	83	92	83	92	92	92
Heavy Vehicles, %	2	1	1	1	1	2	1	2	1	2	2	2
Mvmt Flow	0	305	8	36	554	1	31	0	83	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	555	0	0	317	0	0	667	940	161	780	944	283
Stage 1	-	-	-	-	-	-	313	313	-	627	627	-
Stage 2	-	-	-	-	-	-	354	627	-	153	317	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.52	6.54	6.92	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.21	-	-	3.51	4.02	3.31	3.52	4.02	3.32
Pot Cap-1 Maneuver	1011	-	-	1247	-	-	346	262	859	285	261	714
Stage 1	-	-	-	-	-	-	675	656	-	438	474	-
Stage 2	-	-	-	-	-	-	639	474	-	834	653	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1011	-	-	1242	-	-	331	250	856	249	249	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	331	250	-	249	249	-
Stage 1	-	-	-	-	-	-	672	653	-	438	454	-
Stage 2	-	-	-	-	-	-	608	454	-	753	650	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	12.5	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	597	1011	-	-	1242	-	-	711
HCM Lane V/C Ratio	0.192	-	-	-	0.029	-	-	0.002
HCM Control Delay (s)	12.5	0	-	-	8	0.1	-	10.1
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	253	8	2	368	84	17	37	12	56	18	26
Future Volume (veh/h)	15	253	8	2	368	84	17	37	12	56	18	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	18	298	5	2	433	75	20	44	3	66	21	13
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	130	1261	21	123	1053	181	209	124	8	311	34	21
Arrive On Green	0.07	0.35	0.35	0.07	0.35	0.35	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1792	3595	60	1792	3037	522	483	1218	80	1051	334	207
Grp Volume(v), veh/h	18	148	155	2	253	255	67	0	0	100	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1868	1792	1787	1772	1781	0	0	1593	0	0
Q Serve(g_s), s	0.3	1.7	1.7	0.0	3.2	3.2	0.0	0.0	0.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	0.3	1.7	1.7	0.0	3.2	3.2	1.0	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.29	0.30		0.04	0.66		0.13
Lane Grp Cap(c), veh/h	130	627	655	123	620	615	341	0	0	366	0	0
V/C Ratio(X)	0.14	0.24	0.24	0.02	0.41	0.41	0.20	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1226	2447	2557	1226	2447	2426	1324	0	0	1229	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	6.7	6.7	12.7	7.3	7.3	12.2	0.0	0.0	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.0	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	0.9	0.0	1.7	1.7	0.5	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	12.9	7.0	7.0	12.7	7.9	7.9	12.3	0.0	0.0	12.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B			B		
Approach Vol, veh/h		321			510			67			100	
Approach Delay, s/veh		7.3			7.9			12.3			12.6	
Approach LOS		A			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	16.2		7.0	6.1	16.1		7.0				
Change Period (Y+Rc), s	4.0	6.0		4.0	4.0	6.0		4.0				
Max Green Setting (Gmax), s	20.0	40.0		20.0	20.0	40.0		20.0				
Max Q Clear Time (g_c+I1), s	2.0	3.7		3.7	2.3	5.2		3.0				
Green Ext Time (p_c), s	0.0	2.6		0.3	0.0	4.7		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			8.5									
HCM 2010 LOS			A									
Notes												

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	22	87	185	42	35	210	620	183	23	427	107
Future Volume (veh/h)	78	22	87	185	42	35	210	620	183	23	427	107
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	83	36	31	197	45	14	223	660	0	24	454	97
Adj No. of Lanes	2	1	1	2	1	0	2	3	0	1	3	0
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, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	187	98	80	290	111	34	1500	3406	0	32	1059	220
Arrive On Green	0.05	0.05	0.05	0.08	0.08	0.08	0.89	1.00	0.00	0.02	0.26	0.26
Sat Flow, veh/h	3480	1827	1494	3480	1330	414	3375	5152	0	1740	4128	857
Grp Volume(v), veh/h	83	36	31	197	0	59	223	660	0	24	363	188
Grp Sat Flow(s),veh/h/ln	1740	1827	1494	1740	0	1743	1688	1663	0	1740	1663	1659
Q Serve(g_s), s	2.8	2.3	2.4	6.6	0.0	3.9	1.0	0.0	0.0	1.6	10.9	11.4
Cycle Q Clear(g_c), s	2.8	2.3	2.4	6.6	0.0	3.9	1.0	0.0	0.0	1.6	10.9	11.4
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.00	1.00		0.52
Lane Grp Cap(c), veh/h	187	98	80	290	0	145	1500	3406	0	32	853	426
V/C Ratio(X)	0.44	0.37	0.39	0.68	0.00	0.41	0.15	0.19	0.00	0.75	0.43	0.44
Avail Cap(c_a), veh/h	783	411	336	1009	0	506	1500	3406	0	200	853	426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	54.8	54.8	53.5	0.0	52.2	3.8	0.0	0.0	58.6	37.2	37.4
Incr Delay (d2), s/veh	0.6	0.8	1.1	1.1	0.0	0.7	0.0	0.1	0.0	12.3	1.6	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	1.4	1.2	1.0	3.2	0.0	1.9	0.4	0.0	0.0	0.9	5.2	5.6
LnGrp Delay(d),s/veh	55.6	55.6	56.0	54.5	0.0	52.9	3.8	0.1	0.0	70.9	38.8	40.7
LnGrp LOS	E	E	E	D		D	A	A		E	D	D
Approach Vol, veh/h		150			256			883			575	
Approach Delay, s/veh		55.7			54.1			1.0			40.7	
Approach LOS		E			D			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	35.8		10.7	7.2	87.9		14.2
Change Period (Y+Rc), s	6.0	* 5		* 4.2	5.0	6.0		4.2
Max Green Setting (Gmax), s	9.0	* 31		* 27	13.8	25.0		34.8
Max Q Clear Time (g_c+I1), s	3.0	13.4		4.8	3.6	2.0		8.6
Green Ext Time (p_c), s	0.2	2.1		0.3	0.0	9.7		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Appendix C: Approved Projects Trip Generation

Approved project	ITE Code	Use	Unit	Quantity	Daily	AM Peak Hour			PM Peak Hour			Procedure used
						Total	In	Out	Total	In	Out	
Arco AM/PM Gas Station and Car Wash	945	Gasoline/Service Station with Convenience market	ksf	3.18	4,580	242	123	119	281	143	138	Average Rate
			Vehicle fueling positions	18	3,697	225	115	110	252	129	123	
Pass by trips					*(2,519)*	*(145)*	*(74)*	*(71)*	*(155)*	*(79)*	*(76)*	
Net New Trips					2,061	97	49	47	126	64	62	
Buchanan Crossings Shops Building E	934	Drive Thru	ksf	3.164	1,491	128	65	63	104	54	50	Average Rate
	934	Drive Thru	ksf	4.339	2,044	175	89	86	142	74	68	Average Rate
	820	Shopping Center	ksf	5	785	155	96	59	60	36	24	Regression Equation
Pass by trips					*(2,003)*	*(198)*	*(107)*	*(92)*	*(141)*	*(75)*	*(67)*	
Net New Trips					*2,317*	*260*	*144*	*115*	*165*	*89*	*75*	
Tri Delta Park & Ride	90	Park & Ride Lot with Bus or Light Rail Service	Parking Spaces	186	644	80	63	17	110	28	83	Regression Equation
Tuscany Meadows Residential Subdivision		Signal Family Homes	units	1292	9940	797	190	607	947	599	348	Exisiting TIA
Sky Ranch II		Signal Family Homes	units	415	3972	311	78	233	419	264	155	Exisiting EIP
Delta Bowl Addition and Remodels	473	Bowling Alley	ksf	5	-	5	5	0	10	7	4	Regression Equation
Granite Expo	812	Building Materials and Lumber Store (Showroom)	ksf	32.756	592	52	33	19	68	32	36	Average Rate
Delta Fair Church/Daycare		Church	ksf	4.7	33	2	1	1	3	1	2	Average Rate
	565	Daycare	ksf	9.3	443	103	55	48	104	49	55	Average Rate
Total Estimated Trip Gen					24,582	1,949	741	1,206	2,233	1,276	956	