San Marco Commercial Center Project

SCH# 2019069103

Draft Environmental Impact Report

Prepared for
City of Pittsburg

July 2020

Prepared by

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

San Marco Commercial Center Project
Draft Environmental Impact Report

SCH# 2019069103

Lead Agency

City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

Hector Rojas, AICP
Senior Planner
(925) 252-4043

Prepared By

Raney Planning and Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834
(916) 372-6100

Contact:
Cindy Gnos
Senior Vice President, AICP

Rod Stinson
Division Manager/Air Quality Specialist

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1. Introduction

1. INTRODUCTION

1.1 TYPE AND PURPOSE OF THE EIR

The San Marco Commercial Center Project Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, Pub. Res. Code §§ 21000-21178, as amended, and the Guidelines for Implementation of the California Environmental Quality Act, Cal. Code Regs. Title 14, §§ 15000-15387 (CEQA Guidelines). The City of Pittsburg is the lead agency for the environmental review of the San Marco Commercial Center Project (proposed project) evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the EIR along with other information that may be presented to the agency.

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues. CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term project refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the City has determined that the proposed development is a *project* within the definition of CEQA, which has the potential for resulting in significant environmental effects.

The lead agency, which is the City of Pittsburg for this project, is required to consider the information in this EIR along with any other available information in deciding whether to approve the application. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth inducing impacts, and cumulative impacts.

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a *project-level EIR* pursuant to CEQA Guidelines Section 15161, which is an analysis that examines the environmental impacts of a specific development project. A *project-level EIR* focuses primarily on the changes in the environment that would result from the development of the project, and examines all phases of the project including planning, construction, and operation.

1.2 KNOWN RESPONSIBLE AND TRUSTEE AGENCIES

"Responsible agency" means a public agency that proposes to carry out or approve a project for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purpose of CEQA, the term responsible agency includes all California public agencies other than the lead agency that have discretionary approval power over the project or an aspect of the project. The following agencies are identified as potential responsible agencies:

- Bay Area Air Quality Management District;
- San Francisco Bay Regional Water Quality Control Board;
- California Department of Transportation (Caltrans);
- Contra Costa Transportation Authority; and
- East Contra Costa Habitat Conservancy.

"Trustee agency" means a State agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the State of California. The only known possible trustee agency is the California Department of Fish and Wildlife (CDFW).

1.3 PROJECT SUMMARY

The project site consists of approximately 3.69 acres located at the southeast intersection of West Leland Road and San Marco Boulevard. The site is located within the City of Pittsburg, identified by Assessor's Parcel Number's (APNs) 091-050-065 and 091-050-066. While both parcels consist of 9.37 acres owned by the City, only the northwest area along West Leland Road would be developed. The project site is bound by San Marco Boulevard to the west, and approximately 0.5-mile south of State Route (SR) 4.

Currently, the project site consists primarily of ruderal grasses, and is absent of structures or other indications of prior development. The site appears to have been cleared in the past and the site is regularly disked for weed suppression. While, the topography of the site is relatively flat, the site generally drains eastward to a depression that contains a stormwater drainage basin. Existing trees line the western border of the project site, along San Marco Boulevard. Surrounding land uses include the Ray Giacomelli Community Park directly east, residential housing to the north, a gas station and convenience store to the northwest, and vacant lands to the east.

The project site is designated Park by the General Plan land use map and zoned as a Planned Development (PD) District. The Project would include a General Plan Amendment to change all 3.69 acres of the site's land use designation to Community Commercial, and a rezone to Community Commercial (CC) District.

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot. The center would total 35,148 square feet (sf) of building area. A 29,822-sf building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock in the rear. A 3,500-sf building intended for restaurant use would be constructed in the northwest corner of the site and would provide 132 interior and 34 exterior seats. Finally, a 1,826-sf building intended for restaurant use would be developed in the northeast corner of the site and would include drive-through and dine-in service. A total of 176 parking stalls would be provided throughout the project site, seven of which would be handicap accessible. It should be noted that development of the proposed project would occur within the flat portion of the site, and leave the existing drainage basin unchanged.

Access would be provided by one 24-foot-wide driveway located off of San Marco Boulevard at the western edge of the site and one 28-foot-wide driveway at the eastern edge of the site by way of the private road. The project would include internal circulation with drive aisle widths meeting the minimum required to accommodate emergency vehicles. Additionally, crosswalks would be provided throughout the development and pedestrian access would be provided by way of connection to the existing sidewalk on West Leland Road. Construction of the proposed project would include grading of the site for the parking area and building pads, trenching for water, sewer, and storm drainage improvements, and construction of three commercial buildings.

The project would require City approval of the following: General Plan Amendment; Rezone; Development Agreement Amendment; Use Permit; and Variance. In addition, the project would require approval of Design Review, a Parcel Map, Improvement Plans, Grading Permit, and Building Permits.

1.4 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, either during a preliminary review of a project or at the conclusion of an Initial Study. Once the decision is made to prepare an EIR, the lead agency sends a Notice of Preparation (NOP) to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP and provide information regarding alternatives and mitigation measures they wish to have explored in the Draft EIR and to provide notification regarding whether the agency will be a responsible agency or a trustee agency for the project. An NOP (see Appendix A), was prepared for the proposed project and circulated for the purpose of informing the public and receiving comments on the scope of the environmental analysis to be prepared for the proposed project. See Section 1.7 below for a summary of comments received on the NOP.

As soon as the Draft EIR was completed, a Notice of Completion was filed with the SCH and a public notice of availability was published to inform interested parties that a Draft EIR was available for agency and public review. In addition, the notice provided information regarding the location of copies of the Draft EIR available for public review and any public meetings or hearings that are scheduled. The Draft EIR was circulated for a period of 45 days, during which time reviewers may make comments. The lead agency must respond to comments in writing, describing the disposition of any significant environmental issues raised and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. During the Draft EIR public review period, a public meeting will be held before the Planning Commission in order to receive verbal comments on the Draft EIR. If significant new information, as defined in CEQA Guidelines section 15088.5, is added to an EIR after public notice of availability is given but before certification of the EIR, the revised EIR or affected chapters must be recirculated for an additional public review period with related comments and responses.

A Final EIR will be prepared, containing comments and responses to comments on the Draft EIR. The Final EIR will also include any changes to the Draft EIR text made as a result of public comment. Before approving a project, the lead agency shall certify that the Final EIR has been completed in compliance with CEQA, and that the Final EIR has been presented to the decision-making body of the lead agency, which has reviewed and considered the EIR. The lead agency shall also certify that the Final EIR reflects the lead agency's independent judgment and analysis.

The findings prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA. If the decision-making body elects to proceed with a project that would have unavoidable significant impacts, then a Statement of Overriding Considerations explaining the decision to balance the benefits of the project against unavoidable environmental impacts must be prepared.

1.5 SCOPE OF THE EIR

This EIR constitutes a project-level analysis for the proposed project and, pursuant to CEQA Guidelines Section 15161, covers "all phases of the project including planning, construction, and operation." State CEQA Guidelines § 15126.2(a) states, in pertinent part:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

Pursuant to the CEQA Guidelines, the scope of this EIR addresses specific issues and concerns identified as potentially significant in the Initial Study prepared for the proposed project.

Environmental Issues Addressed in this EIR

The sections of the CEQA Guidelines Appendix G Checklist identified for study in this EIR include the following:

- Air Quality and Greenhouse Gas Emissions;
- Recreation; and
- Transportation.

The evaluation of effects is presented on a resource-by-resource basis in Chapters 4.1 through 4.3 of the EIR. Each chapter is divided into the following four sections: Introduction, Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures. Impacts that are determined to be significant in Chapters 4.1 through 4.3, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 5 presents a discussion of growth-inducing impacts, a summary of cumulative impacts, a discussion of energy related impacts, and significant irreversible as well as significant unavoidable environmental changes associated with the project. Alternatives to the proposed project are discussed in Chapter 6 of the EIR.

1.6 NOTICE OF PREPARATION AND SCOPING

In accordance with CEQA Guidelines Section 15082, an NOP was circulated to the public, local, State and federal agencies, and other known interested parties for a 30-day public and agency review period on June 26, 2019 (included as Appendix A). The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit public input on the scope and content of the document.

An NOP for the proposed project was prepared and circulated to agencies and the public from June 26, 2019 to July 26, 2019. In addition, pursuant to CEQA Guidelines Section 15082, the City of Pittsburg held an NOP scoping meeting during the 30-day review period, on July 17, 2019, for the purpose of receiving comments on the scope of the environmental analysis to be prepared for the proposed project. Agencies and members of the public were invited to attend and provide input on the scope of the EIR. A total of two comment letters were received during the NOP public review period. The comment letters are provided as Appendix B to this EIR. All comments were taken into consideration during the preparation of this Draft EIR. A summary of the NOP comments received is provided in Section 1.7 below.

1.7 COMMENTS RECEIVED ON THE NOTICE OF PREPARATION

During the NOP public review period, the City of Pittsburg received two comment letters. A copy of the letters are provided in Appendix B of this EIR. The comment letters received during the NOP public review period were authored by the following representatives of public agencies and groups:

- Contra Costa Mosquito & Vector Control District – Jeremy Shannon; and
- California Department of Transportation (Caltrans) – Wahida Rahid.

The list below, categorized by issue, summarizes the concerns brought forth in the comment letters received on the NOP. Verbal comments were not received during the NOP Scoping Meeting, held July 17, 2019.

Hazards and Hazardous Materials	Concerns related to: • Increases in the potential exposure of the public to disease vectors. • Increases in the potential mosquito/vector breeding habit.
Transportation and Circulation	Concerns related to: • Queue formation issues at on-ramps and freeway segments near the project. • Vehicle traffic turning movements. • Access for pedestrians and cyclists to transit facilities. • Active transportation access to and from the project site.

1.8 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR is being circulated for public review and comment for a period of 45 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Release of the Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA Guidelines Section 15105. The public can review the Draft EIR at the City's website at:

http://www.ci.pittsburg.ca.us/publicreviews

or at following address during normal business hours, unless City Hall is closed to the public due to a health order related to COVID-19:

City of Pittsburg, Planning Division
65 Civic Avenue
Pittsburg, CA 94565

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the hearing will be published in local newspapers, mailed to property owners and residents surrounding the project, emailed to residents that have requested to be placed on the project's email notification list, posted on the City's website, and posted at and adjacent to the site prior to the hearing.

All comments or questions regarding the Draft EIR should be addressed to:

Hector Rojas, AICP, Senior Planner
City of Pittsburg, Planning Division
65 Civic Avenue
Pittsburg, CA 94565
(925) 252-4043
fax (925) 252-4814
hrojas@ci.pittsburg.ca.us

1.9 ORGANIZATION OF THE DRAFT EIR

The EIR is organized into the following sections:

Chapter 1 – Introduction

Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR and summaries of the issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary

Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.

Chapter 3 – Project Description

Provides a detailed description of the proposed project, including the project's location, background information, objectives, and technical characteristics.

Chapter 4.0 – Environmental Setting, Impacts, and Mitigation

Contains a project-level and cumulative analysis of environmental issue areas associated with the proposed project. The section for each environmental issue contains an introduction and description of the setting of the project site, identifies impacts, and recommends appropriate mitigation measures.

Chapter 4.1 – Air Quality and Greenhouse Emissions

The Air Quality and Greenhouse Gas Emissions chapter of the EIR describes the impacts of construction and operation of the proposed project related to air quality and global climate change. The chapter was prepared using methodologies and assumptions recommended within the CEQA Air Quality Handbook of the Bay Area Air Quality Management District.

Chapter 4.2 – Recreation

The Recreation chapter of the EIR describes the existing parks and recreational facilities within the project area and the associated potential impacts resulting from the proposed project. This section will address the adequacy of the recreational facilities and whether construction or expansion of recreational facilities is necessary.

Chapter 4.3 – Transportation

The Transportation chapter of the EIR discusses existing transportation and circulation conditions within the project area and the effects to the roadway network as a result of the proposed project and future, projected growth. The analysis includes consideration of automobile traffic impacts on roadway capacity, transit impacts, bicycle impacts, and pedestrian impacts.

Chapter 5 – Statutorily Required Sections

The Statutorily Required Sections chapter of the EIR provides discussions required by CEQA regarding impacts that would result from the proposed project, including a summary of cumulative impacts, potential growth-inducing impacts, significant and unavoidable impacts, and significant irreversible changes to the environment.

Chapter 6 – Alternatives Analysis

The Alternatives Analysis chapter of the EIR describes and evaluates the alternatives to the proposed project. It should be noted that the alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow for a meaningful comparison of impacts

Chapter 7 – EIR Authors and Persons Consulted

The EIR Authors and Persons Consulted chapter of the EIR lists EIR and technical report authors who provided technical assistance in the preparation and review of the EIR.

Chapter 8 – References

The References chapter of the EIR provides bibliographic information for all references and resources cited.

Appendices

The Appendices include the NOP, comments received during the NOP comment period, the IS, and all technical reports prepared for the proposed project.

2. Executive Summary

2. EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Executive Summary chapter of the EIR provides an overview of the San Marco Commercial Center Project (proposed project) and summarizes the conclusions of the environmental analysis provided in Chapters 4.1 through 4.3. In addition, this chapter outlines the mitigation monitoring plan, summarizes the alternatives to the proposed project that are described in Chapter 6, Alternatives Analysis, identifies the Environmentally Superior Alternative, and discusses areas of controversy and issues to be resolved. Table 2-1 found at the end of this chapter, provides a summary of the environmental effects of the proposed project, as identified in each technical section of the EIR and the Initial Study prepared for the project (see Appendix C). Table 2-1 also contains the potential environmental impacts associated with the proposed project, the significance of the impacts, the proposed mitigation measures for the impacts, and the significance of the impacts after implementation of the mitigation measures.

2.2 PROJECT LOCATION AND DESCRIPTION

The project area is located southeast of the intersection of West Leland Road and San Marco Boulevard, approximately one-half mile south of State Route (SR) 4, the California Delta Highway, in the City of Pittsburg, California. The project area includes two existing, city-owned parcels, totaling 9.37 acres, identified by Assessor's Parcel Numbers (APNs) 091-050-065 and -066. It should be noted that the proposed project only includes development in the northwest area, along West Leland Road, and, therefore, the project includes a request for a parcel map from the City, which would adjust the property lines between the park to the east and the proposed development, resulting in a 3.57-acre property. The proposed project also includes off-site frontage improvements within the City right-of-way, which results in a total project area of 3.69 acres. Therefore, this EIR provides analysis of the entire 3.69-acre area and is referred to herein as the "project site".

Currently, the project site consists primarily of ruderal grassland and is absent of structures or other indications of prior development. The site appears to have been cleared in the past and the site is regularly disked for weed suppression. A small portion of the northeast corner of the site contains a gravel driveway and small dirt area. The two-acre parcel immediately east of the project site is the Ray Giacomelli Community Park. The park features picnic tables, barbeque grills, children's playground equipment, and a large grass area. Across San Marco Boulevard to the west is vacant land designated as low density residential. To the north, across West Leland Road are single-family residences. The nearest home to the north of the site is approximately 120 feet from the site boundary. On the northwest corner of West Leland Road and San Marco Boulevard is a gas station and convenience store. Beyond the vacant land to the south of the site are single-family residences, located approximately 700 feet away.

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot. A 29,822-square foot (sf) building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock in the rear. A 3,500-sf building intended for restaurant use would be constructed in the northwest corner of the site. Finally, a 1,826-sf building also intended for restaurant use would be developed in the northeast corner of the site and would include a drive-through and dine-in service.

Access on-site would be accommodated by an entrance at the western edge of the site and a driveway at the eastern edge of the site by way of the private road which separates the project site from the Community Park. The internal drive aisles would range from 22 to 27 feet wide with several crosswalks and 176 parking stalls provided throughout the site.

Overall, construction of the proposed project would include grading of the site for the parking area and building pads, trenching for water, sewer, and storm drainage improvements, and construction of three commercial buildings. Construction would also include improvements along San Marco Boulevard to develop a new driveway with access to the western portion of the site.

The proposed project would require the following discretionary actions by the City of Pittsburg:

- Certification of the EIR;
- General Plan Amendment to change 3.69 acres from Park to Community Commercial;
- Rezone of the project site from PD District to CC District;
- An amendment to the Southwest Development Agreement (Ordinance No. 90-990, as amended);
- Use Permit to allow the proposed uses within the CC zoning district;
- Variance from off-street parking standards; and
- Design Review.

In addition, the proposed project would require the following ministerial approvals:

- Approval of a Parcel Map to adjust the property lines between the park to the east and the proposed development;
- Approval of Improvement Plans;
- Approval of Grading Permit; and
- Approval of Building Permits.

2.3 MITIGATION MONITORING PLAN

Section 15097 of the California Environmental Quality Act (CEQA) requires all State and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of environmental findings related to environmental impact reports (see Guidelines Section 15091 for Findings). In order to ensure that the mitigation measures and project revisions identified in the EIR are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

Consistent with CEQA Section 15097, implementation of the proposed project would require adoption of a Mitigation Monitoring Plan (MMP) by the City of Pittsburg. The MMP, to be included in the Final EIR, specifies the methods for monitoring mitigation measures required to eliminate or reduce the project's significant effects on the environment.

2.4 ENVIRONMENTAL IMPACTS AND REQUIRED MITIGATION MEASURES

Under CEQA, a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the existing physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Mitigation measures must be implemented as part of the proposed project to reduce potential adverse impacts to a less-than-significant level. Such mitigation measures are noted in the Initial Study (Appendix C) and the following sections of Chapter 4 of this EIR: Air Quality and Greenhouse Gas Emissions, Recreation, and Transportation.

A summary of the identified impacts in the technical sections of the EIR is presented in Table 2-1. In addition, the table includes a summary of the potentially significant impacts for which the Initial Study set forth mitigation necessary to reduce the impacts to less-than-significant levels. Table 2-1 includes the level of significance of each impact, any mitigation measures required for each impact, and the resulting level of significance after implementation of mitigation measures for each impact.

2.5 ALTERNATIVES TO THE PROPOSED PROJECT

This section presents a summary of the alternatives considered for the proposed project, which include the following:

- No Project (No Build) Alternative;
- Buildout Pursuant to General Plan Alternative; and
- Reduced Intensity Alternative.

The following summary provides brief descriptions of the three alternatives to the proposed project that are evaluated in this EIR. In addition, the summary explains the alternatives relative to the objectives for the proposed project (see page 3-4 of Chapter 3, Project Description, for a list of the project objectives). For a more thorough discussion of project alternatives, refer to Chapter 6, Alternatives Analysis.

Summary of the No Project (No Build) Alternative

The project site is currently vacant and covered in ruderal vegetation. The northeastern portion of the site contains a gravel driveway and exposed dirt area. Under the No Project (No Build) Alternative, the project site would remain in the current condition, and the site would not be developed. The No Project (No Build) Alternative would not be considered to meet any of the project objectives.

Because the No Project (No Build) Alternative would not involve construction, construction emissions would not occur and construction-related air quality impacts would be eliminated. In addition, the No Project (No Build) Alternative would not result in operation of a shopping and dining area on the project site and, thus, the Alternative would not result in operational greenhouse gas (GHG) emissions. Under the Alternative, the undeveloped parcel would remain available for eventual development of a park, and could contribute towards City parkland in the future. As such, the No Project (No Build) Alternative would result in fewer impacts to recreation compared to the proposed project. Further, the No Project (No Build) Alternative would not result in impacts related to construction vehicle traffic or traffic hazards. As a result, impacts to transportation would be eliminated under the No Project (No Build) Alternative.

Overall, the No Project (No Build) Alternative would result in fewer impacts related to air quality and GHG emissions, recreation, and transportation, compared to the proposed project.

Summary of the No Project (Buildout Pursuant to General Plan) Alternative

The project site is currently designated Park. Under the No Project (Buildout Pursuant to General Plan) Alternative, the 3.69-acre project site would be developed as a park, pursuant to the existing land use designation. The No Project (Buildout Pursuant to General Plan) Alternative would not meet any of the project objectives, and is considered a type of 'no project' alternative.

Development of the No Project (Buildout Pursuant to General Plan) Alternative would result in construction of a community park, the construction of which would be lower intensity compared to the proposed project. Operations of the park would generate fewer vehicle trips than under the proposed project, and the park would not generate emissions related to refrigeration or natural gas use. Therefore, operations of a park under the No Project (Buildout Pursuant to General Plan) Alternative would result in fewer impacts related to air quality and GHG emissions.

Policy 8-P-1 of the City's General Plan requires the City to maintain five acres of park space per 1,000 residents. The City has currently designated 301.9 acres of park space, but would require a total of 362 acres of park space to achieve the ratio set forth in the General Plan. Even without the construction of the 3.69-acre park under the Alternative, the City still would not meet the goal of five acres per 1,000 residents. However, considering the Alternative would contribute towards park facilities in the City, impacts to recreation would be fewer under the No Project (Buildout Pursuant to General Plan) Alternative.

The No Project (Buildout Pursuant to General Plan) Alternative would add a reduced number of vehicles to the existing transportation network compared to the proposed project. However, potential impacts related to construction traffic and traffic hazards would remain under the No Project (Buildout Pursuant to General Plan) Alternative. As such, Mitigation Measures 4.3-2 and 4.3-4 set forth in the EIR would likely still be required under the Alternative and, thus, impacts related to transportation would be similar to the proposed project.

Based on the analysis included in Chapter 6 of this EIR, the No Project (Buildout Pursuant to General Plan) Alternative was determined to result in fewer impacts related to air quality and GHG emissions and recreation, and similar impacts to transportation, compared to the proposed project.

Summary of the Reduced Intensity Alternative

Under the Reduced Intensity Alternative, the project site would be developed with a small grocery store, with the total square footage reduced to 11,928 sf. Buildout of the Reduced Intensity Alternative would not involve construction of any restaurants. Because the Alternative would provide shopping but not dining opportunities, the Alternative would only partially achieve Objectives #1 and #2.

Under the Reduced Intensity Alternative, the intensity of construction would likely be lower than the proposed project. In addition, operations of the small store would generate fewer vehicle trips than under the proposed project, and the small store would generate fewer emissions related to refrigeration, natural gas, and electricity compared to the proposed project. Therefore, operations of the Reduced Intensity Alternative would be anticipated to result in fewer emissions of criteria pollutants and GHGs compared to the emissions estimated for the proposed project.

Like the proposed project, the Reduced Intensity Alternative would include a General Plan Amendment to change 3.69 acres of the site's land use designation from Park to Community Commercial. Because the Reduced Intensity Alternative would not include development of the site with park uses, the Alternative would not contribute towards recreational facilities within the City nor help the City achieve the goal set forth in the General Plan, and impacts to recreation would be similar to the proposed project under the Reduced Intensity Alternative.

Because of the Reduced Intensity Alternative's reduced scale, the Alternative would add a reduced number of vehicles, pedestrians, bicyclists, and transit passengers to the existing transportation network compared to the proposed project. However, the mitigation measure related to construction traffic and traffic hazards would likely still apply, and impacts to transportation would be similar to the proposed project. In addition, because the Reduced Intensity Alternative would provide limited nearby shopping options and internal site capture, VMT would be increased from the proposed project because residents would still be required to drive to restaurants and larger supermarkets located off-site and potentially farther away.

Based on the analysis included in Chapter 6 of this EIR, the Reduced Intensity Alternative was determined to result in fewer impacts related to air quality and GHG emissions and similar impacts related to transportation and recreation, compared to the proposed project.

2.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." All of the significant impacts identified for the proposed project would not occur or would be fewer under the No Project (No Build) Alternative. Thus, the No Project (No Build) Alternative would be considered the environmentally superior alternative. However, given that a 'no project' alternative shall not be selected as the environmentally superior alternative, the No Project (No Build) Alternative may not be chosen as the environmentally superior alternative, and the environmentally superior alternative among the other alternatives should be chosen.

Both the No Project (No Build) Alternative and the No Project (Buildout Pursuant to General Plan) would not be considered to meet any of the project objectives. The Reduced Intensity Alternative would only partially meet Objectives #1 and #2.

Compared to the proposed project, all of the alternatives would result in fewer impacts related to air quality and GHG emissions. The Reduced Intensity Alternative would result in similar impacts related to recreation, compared to the proposed project. Under all alternatives, VMT would be slightly increased compared to what would occur under the proposed project because the internal trip capture would no longer occur or would occur at a lesser extent. The No Project (No Build)

Alternative would result in fewer impacts to transportation, and the mitigation measure presented within the EIR would not be required. However, the No Project (Buildout Pursuant to General Plan) Alternative would result in similar impacts to transportation, while the Reduced Intensity Alternative would result in greater impacts to transportation as compared to the proposed project.

Pursuant to Section 15126(e)(2) of the CEQA Guidelines, because No Project (Buildout Pursuant to General Plan) cannot be selected as the environmentally superior alternative, the Reduced Intensity Alternative would be considered the environmentally superior alternative to the proposed project.

2.7 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The CEQA Guidelines, Section 15123(b), require that this EIR consider areas of controversy known to the lead agency, including issues raised by agencies and the public. Areas of controversy that were identified in NOP comment letters and verbal comments received at the public scoping meeting held on July 17, 2019 should be considered, as well. The areas of known controversy for the project site include the following:

- Increases in the potential exposure of the public to disease vectors;
- Increases in the potential mosquito/vector breeding habit;
- Queue formation issues at on-ramps and freeway segments near the project site;
- Vehicle traffic turning movements into and out of the project site;
- Access for pedestrians and cyclists to transit facilities; and
- Active transportation access to and from the project site.

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1 Air Quality and Greenhouse Gas Emissions			
4.1-1 Generation of short-term construction-related criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10}.	S	*4.1-1(a) The project applicant must comply with one of the following options:* *1. On-site and off-site construction activity shall not occur simultaneously during any phase of project construction. For the purposes of this mitigation measure, off-site construction activities are considered to be any activity related to off-site utility improvements. Should the project applicant elect to begin on-site construction first, the on-site improvements shall be accepted as complete by the City, prior to initiation of any off-site construction activity. Inversely, should the project applicant elect to begin off-site construction first, proof of completion of all off-site construction activity shall be submitted for review and approval to the Building Official, prior to initiation of any on-site construction activity.* *2. If any portion of on-site and off-site construction must occur simultaneously, prior to approval of any Improvement Plans, the project applicant shall show on the Improvement Plan via notation that the contractor shall submit to the Bay Area Air Quality Management District (BAAQMD) a*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		comprehensive equipment inventory (e.g., make, model, year, emission rating) of all off-road diesel-powered equipment over 25 horsepower (including owned, leased, and subcontractor equipment) used in either (a) all on-site construction activities or (b) all off-site construction activities. The contractor is only required to submit one equipment inventory, for either on-site or off-site construction. *With submittal of the equipment inventory, the contractor shall provide a written calculation to the BAAQMD for approval demonstrating that the heavy-duty off-road vehicles over 25 horsepower to be used in off-site construction, including owned, leased and subcontractor vehicles, will achieve a fleet-average of 20 percent of NOX reduction as compared to the California Air Resources Board (CARB) statewide fleet average emissions. The fleet average shall be calculated based only on those pieces of equipment used for the off-site improvements. Acceptable options for reducing emissions may include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		other options as they become available. If any new equipment is added after submission of the inventory, the contractor shall contact the BAAQMD prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the BAAQMD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman. In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer's specifications. *4.1-1(b) Project construction shall comply with the following requirements:* • *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.* • *Idling shall be limited to five minutes or less for all on-road related and/or delivery trucks in accordance with CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.	
4.1-2 Generation of operational criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10} and conflict with or obstruct implementation of the 2017 Clean Air Plan, and/or the 2001 Ozone Attainment Plan.	LS	*None required.*	N/A
4.1-3 Exposure of sensitive receptors to substantial levels of pollutant concentrations.	LS	*None required.*	N/A
4.1-4 Generation of cumulative criteria air pollutant emissions in excess of 10 tons/year for ROG, NO_X, and $PM_{2.5}$ and 15 tons/year for PM_{10}.	LCC	*None required.*	N/A
4.1-5 Generation of a cumulatively considerable contribution to GHG emissions in excess of 1,100 $MTCO_2e$/year or 4.6 $MTCO_2e$/SP/year by the first year of project operations, 660 $MTCO_2e$/year or 2.76 $MTCO_2e$/SP/year by 2030, conflict with an applicable plan, policy, or regulation adopted for	CC	*4.1-5 Improvement Plans and building plans for the proposed project shall identify all feasible mitigation measures developed in coordination with the BAAQMD and as determined by the City of Pittsburg Community Development Department to reduce significant impacts to the extent feasible. Mitigation Measures may include, but would not be limited to, BAAQMD's recommended mitigation measures such as the following:*	CC/SU

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
the purpose of reducing the emissions of GHGs.		• *Orient buildings to maximize passive solar heating;* • *Promote ridesharing, transit, bicycling, and walking for work trips through dedication of preferential parking spaces, provision of on-site bicycle parking, provision of end-of-trip facilities such as bicycle lockers and on-site showers;* • *Subsidize employee transit passes;* • *Install electric vehicle charging infrastructure in excess of existing CBSC requirements;* • *Provide charging stations and preferential parking spots for electric vehicles;* • *Install energy star appliances;* • *Install solar water heating;* • *Install on-site renewable energy systems;* • *Install dedicated electrical outlets sufficient to provide power to any truck mounted refrigerated units accessing the loading docks, at all proposed loading docks and loading areas;* • *All loading docks and loading areas shall be equipped with signage stating the following: "State regulations prohibit engine idling in excess of five minutes";* • *Use water efficient landscapes and native/drought-tolerant vegetation;*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Provide outdoor electrical outlets to allow for use of electrically powered landscaping equipment;* • *Construct on-site or fund off-site carbon sequestration projects (such as tree plantings or reforestation projects); and* • *Purchase carbon credits to offset project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, BAAQMD, or the City of Pittsburg.* *If off-site mitigation measures are proposed, the applicant must be able to show that the emission reductions from identified projects are real, permanent through the duration of the project, enforceable, and are equal to the pollutant type and amount of the project impact being offset. In addition, any off-site measures shall be subject to review and approval by the City of Pittsburg Community Development Department. BAAQMD recommends that off-site mitigation projects occur within the nine-county Bay Area in order to reduce localized impacts and capture potential co-benefits. If BAAQMD has established an off-site mitigation program at the time a development application is submitted, as an off-site mitigation measure, the applicant may choose to enter into an agreement*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
			with BAAQMD and pay into the established off-site mitigation program fund, where BAAQMD would commit to reducing the type and amount of emissions identified in the agreement.	
4.2 Recreation				
4.2-1	Result in substantial adverse physical impacts associated with the provisions of new or physically altered park and recreation facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios or other performance objectives for park facilities.	LS	*None required.*	N/A
4.2-2	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.	LS	*None required.*	N/A
4.2-3	Development of the proposed project, in combination with future buildout in the City of Pittsburg, would increase	LS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
demand for additional park and recreation facilities.			
4.3 Transportation			
4.3-1 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	LS	*None required.*	N/A
4.3-2 Conflict with a program, plan, ordinance, or policy addressing the circulation system during construction activities.	S	*4.3-2 Prior to grading permit issuance, the project applicant shall prepare a Construction Traffic Plan for review and approval by the Community Development Department. As part of the plan, the applicant shall ensure the following:* • *Truck drivers shall be notified of and required to use the most direct route between the site and SR 4, as determined by the City Community Development Department;* • *All ingress and egress shall occur only at the main driveways to the project site and construction activities shall include installation of temporary (or ultimate) traffic signals as determined by the City Engineer;* • *Designated travel routes for large vehicles shall be monitored and controlled by flaggers for large construction vehicle ingress and egress;* • *Warning signs indicating frequent truck entry and exit shall be posted on San Marco Boulevard and West Leland Road; and*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *Any debris and mud on nearby streets caused by trucks shall be monitored daily and shall include a street cleaning program.* *The plan shall indicate how parking for construction workers will be provided during construction. If the project is built in phases, each phase shall be subject to a Traffic Control Plan and oversight by the City Engineer.*	
4.3-3 Conflict with a program, plan, ordinance or policy addressing transit, bicycle and pedestrian facilities.	LS	*None required.*	N/A
4.3-4 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) or result in inadequate emergency access.	S	*4.3-4 Prior to approval of a landscaping plan, the proposed landscaping shall be submitted for review and approval by the City Engineer. The plan shall demonstrate that any fences do not deteriorate sight distance at the project access points. Any landscaping shall be designed and maintained so that ground cover is a maximum of two feet high and all trees are limbed up to at least eight feet.*	LS
4.3-5 Result in cumulative conflicts or inconsistencies with CEQA Guidelines Section 15064.3, subdivision (b).	LS	*None required.*	N/A
4.3-6 Result in cumulative conflicts with a program, plan, ordinance or policy addressing transit, bicycle and pedestrian facilities.	LS	*None required.*	N/A

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
Initial Study Impacts Requiring Mitigation			
I-d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	S	*I-1. Prior to the approval of Improvement Plans and issuance of Building Permits for any development on the project site, the project applicant shall submit a lighting plan for the project to the City of Pittsburg Planning Division for review and approval. The lighting plan shall include, but not necessarily be limited to, the following provisions:* • *Shield or screen lighting fixtures to direct the light downward and prevent light spill on adjacent properties;* • *Place and shield or screen flood and area lighting needed for construction activities and/or security so as not to disturb adjacent residential areas and passing motorists;* • *For public lighting, prohibit the use of light fixtures that are of unusually high intensity or brightness (e.g., harsh mercury vapor, low-pressure sodium, or fluorescent bulbs) or that blink or flash;* • *Use appropriate building materials (such as low-glare glass, low-glare building glaze or finish, neutral, earth-toned colored paint and roofing materials), shielded or screened lighting, and appropriate signage to prevent light and glare from adversely affecting motorists on nearby roadways; and*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		▪ • *The proposed location, mounting height, and aiming point of all outdoor lighting used during project operations and/or construction.*	
IV-a. Would the project 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?	S	*ECCC HCP/NCCP Covered Plants and Wildlife* *IV-1. Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Development Fee in effect for Zone II in compliance with Section 15.108.070 of the Pittsburg Municipal Code. The Development Fee will cover the development of habitat that primarily includes ruderal grassland. Payment of the Development Fee would address the loss of potential habitat of special-status plant and wildlife species associated with on-site ruderal grasslands. The fees would be used in part to protect these affected special-status plant and wildlife species by bringing existing populations of the species under protection.* *Alternately, the project applicant may, in accordance with the terms of Pittsburg Municipal Code Chapter 15.108, offer to dedicate land or create and restore wetlands in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed, prior to the issuance of a grading permit for the project.*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The Pittsburg Community Development Department and the Contra Costa County Conservancy shall approve the final method of compliance with the ECCC HCP/NCCP provisions. *Swainson's Hawk* *IV-2. Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15 – September 15), a qualified biologist shall conduct a preconstruction survey no more than one month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy shall be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below). A written summary of the survey results shall be submitted to the City of Pittsburg Community Development Department.* *During the nesting season (March 15 – September 15), covered activities within 1,000 feet of occupied nests or nests under construction shall be prohibited to prevent nest abandonment. If site-specific*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size. *If young fledge prior to September 15, covered activities shall proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant may apply to the City of Pittsburg Community Development Department for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.* *Western Burrowing Owl* *IV-3. The project applicant shall retain a qualified biologist to conduct a pre-construction survey for western burrowing owls within the disturbance footprint and within 500 feet from the perimeter of the footprint where possible. Surveys shall take place no more than 30 days prior to construction and shall be conducted near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls shall be identified and mapped. During the breeding*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		season (February 1 to August 31), surveys shall document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1 to January 31), surveys shall document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results shall be valid only for the season (breeding or nonbreeding) during which the survey is conducted. Surveys shall be submitted to the City Community Development Department for review. If the survey does not identify any nesting burrowing owls on the project site, further mitigation is not required. *If burrowing owls are found during the breeding season (February 1 to August 31), the project proponent shall avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance shall include establishment of a non-disturbance buffer zone of at least 250 feet around each occupied burrow (nest site) in which no construction activities shall occur. The buffer shall be delineated by highly visible, temporary construction fencing.* *If burrowing owls are found during the nonbreeding season (September 1 to January 31), the project proponent shall avoid the owls and the burrows they*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		are using, if possible. Avoidance shall include the establishment of a buffer zone of 160 feet around each burrow. The buffer shall be delineated by highly visible, temporary construction fencing. *If occupied burrows for burrowing owls are not avoided, passive relocation shall be implemented. Owls shall be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. The doors shall be in place for 48 hours prior to excavation. The project area shall be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure shall be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.* *Golden Eagle* *IV-4(a).* *Prior to any ground disturbance related to activities covered under the ECCCHCP/NCCP, a qualified biologist shall conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, Planning Surveys). A written summary of the survey results shall be*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		submitted to the City of Pittsburg Planning Department. *IV-4(b). If nests are occupied, minimization requirements and construction monitoring shall be required.* *Covered activities shall be prohibited within 0.5-mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the project applicant shall coordinate with CDFW/USFWS to determine the appropriate buffer size.* *Construction monitoring shall focus on ensuring that covered activities do not occur within the buffer zone established around an active nest. Although known golden eagle nest sites do not occur within or near the Urban Limit Line (ULL), covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring shall ensure that direct effects to golden eagles are minimized.*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

		San Joaquin Kit Fox *IV-5(a).* *Prior to any ground disturbance related to activities covered under the ECCCHCP/NCCP, a USFWS/CDFW-approved biologist shall conduct a preconstruction survey of the two-acre project site. The surveys shall establish the presence or absence of San Joaquin kit foxes and/or suitable dens, and evaluate use by kit foxes in accordance with USFWS survey guidelines. Preconstruction surveys shall be conducted within 30 days of ground disturbance. On the parcel where the activity is proposed, the biologist shall survey the proposed disturbance footprint and a 250-foot radius from the perimeter of the proposed footprint in order to identify kit foxes and/or suitable dens.* *Adjacent parcels under different land ownership shall not be surveyed. The status of all dens shall be determined and mapped. Written results of the preconstruction survey shall be submitted to the City of Pittsburg Planning Department within five working days after survey completion and before the start of ground disturbance. Concurrence is not required prior to initiation of activities covered under the ECCCHCP/NCCP. If San Joaquin kit foxes and/or suitable dens are identified in the survey area, Mitigation Measure IV-2(b) shall be implemented. If kit foxes and/or suitable dens are not discovered, then further mitigation is not necessary.* *IV-5(b).* *If a San Joaquin kit fox den is discovered in the proposed disturbance footprint during the surveys required under Mitigation Measure IV-5(a), the following measures shall be implemented by a USFWS/CDFW-approved biologist:*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *The den shall be monitored for three days by a USFWS/CDFW-approved biologist, using a tracking medium or an infrared beam camera to determine if the den is currently being used.* • *Unoccupied dens shall be destroyed immediately to prevent subsequent use.* • *If a natal or pupping den is found, USFWS and CDFW shall be notified immediately. The den shall not be destroyed until the pups and adults have vacated, and then only after further consultation with USFWS and CDFW.* • *If kit fox activity is observed at the den during the initial monitoring period, the den shall be monitored for an additional five consecutive days from the time of the first observation to allow any resident animals to move to another den while den use is actively discouraged. For dens other than natal or pupping dens, use of the den could be discouraged by partially plugging the entrance with soil such that any resident animal could easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after five or more consecutive days of plugging and monitoring, the den may*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		have to be excavated when, in the judgment of the biologist, the den is temporarily vacant (i.e., during the animal's normal foraging activities). *If a San Joaquin kit fox den is discovered outside of the proposed disturbance footprint during the surveys required by Mitigation Measure IV-5(a), exclusion zones around each den entrance or cluster of entrances shall be demarcated. The configuration of exclusion zones shall be circular, with a radius measured outward from the den entrance(s). Covered activities shall not occur within the exclusion zones. Exclusion zone radii for potential dens shall be at least 50 feet and shall be demarcated with four to five flagged stakes. Exclusion zone radii for known dens shall be at least 100 feet and demarcated with staking and flagging that encircles each den or cluster of dens, but does not prevent access to the den by kit fox.* *Nesting Migratory Birds* *IV-6. A pre-construction survey 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). If site*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact		Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
				disturbance commences outside the breeding season, a pre-construction survey for nesting birds is not required. If active nests of migratory birds are not detected within approximately 250 feet of the project site, further mitigation is not required. Results of the pre-construction survey shall be submitted to the City's Planning Department for verification. *If nesting raptors or other migratory birds are detected on or adjacent to the site during the survey, the City's Planning Department shall be notified, and an appropriate construction-free buffer shall be established around all active nests. Actual size of the 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.*	
V-a.	Would the project cause a substantial adverse change in the significance of a historical	S	*V-1.*	*If any prehistoric or historic artifacts, or other indications of cultural deposits are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease, the*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
resource pursuant to Section 15064.5? V-b. Would the project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5? V-c. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?		*Community Development Department shall be notified, and the find(s) shall be immediately evaluated by a qualified archaeologist. If the find is determined to be a historical or unique paleontological or 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).* *V-2. 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. 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,*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures		Level of Significance After Mitigation
			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 City's Community Development Department.	
VII-aiii. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-	S	*VII-1.*	*Prior to grading permit issuance, the applicant shall submit a final geotechnical evaluation of the project site that addresses soil stability including soil expansion, lateral spreading, subsidence, landslides, liquefaction, and collapse. The report shall identify any on-site soil and seismic hazards*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
related ground failure, including liquefaction? VII-aiv. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides? VII-c. Would the project 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?		*and provide design recommendations for onsite soil and seismic conditions. The geotechnical evaluation shall be reviewed and approved by the Director of Public Works/City Engineer and a qualified Geotechnical Engineer to ensure that all geotechnical recommendations specified in the geotechnical report are properly incorporated and used in the project design.*	
VII-b. Would the project result in substantial soil erosion or the loss of topsoil?	S	*VII-2. Prior to issuance of grading permits, the project applicant shall submit, for the review and approval by the City Engineer, an erosion and sediment 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, cribbing, walls, or terracing;* • *Placement of erosion control measures within drainage ways and ahead of drop inlets;*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
		• *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.*	
VII-d. Would the project be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	S	*VII-3. Implement Mitigation Measure VII-1.*	LS
VII-f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	S	*VII-4. Implement Mitigation Measure V-I.*	LS
X-a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? X-ci. Would the project 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	S	*X-1. Prior to issuance of grading permits, the applicant 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 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*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site? X-cii. Would the project 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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite? X-ciii. Would the project 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 create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage		*effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable.* *X-2. In addition to a SWPPP, prior to issuance of grading permits, the project applicant shall create an interim and final erosion and sediment control plan which shall include a delineation and brief description of the measures to be undertaken to retain sediment on the site, including but not limited to, the design and specifications of berms and sediment detention basins and a schedule for maintenance. The plan shall also contain a delineation and brief description of the surface runoff and erosion control measures, including but not limited to, types and method of applying mulches, and designs and specifications for diverters, dikes, and drains. The plan shall be reviewed and approved by the City Community Development Department.* *X-3. The project applicant shall submit a complete Stormwater Control Plan and Report compliant with the requirements set forth in the City's most current NPDES permit. The C.3 treatment facilities shall be adequately sized to treat the stormwater runoff from*	

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
systems or provide substantial additional sources of polluted runoff?		*the associated drainage management areas. The grading and/or building plans shall include drawings and specifications necessary to implement all measures in the approved Stormwater Control Plan. Design features shall incorporate low impact development design standards as outlined in the most current edition of the Contra Costa Clean Water Program's C.3 Guidebook. All plans shall be reviewed and approved by the City Community Development Department.*	
XVIII-a. 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 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)?	S	*XVIII-1. Implement Mitigation Measures V-1 and V-2.*	LS

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

Table 2-1
Summary of Impacts and Mitigation Measures

Impact	Level of Significance Prior to Mitigation	Mitigation Measures	Level of Significance After Mitigation
XVIII-b. 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 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?			

NI = *No Impact*; N/A = *Not Applicable*; LS = *Less Than Significant*; LCC = *Less Than Cumulatively Considerable*; S = *Significant*; CC = *Cumulatively Considerable*; SU = *Significant and Unavoidable*

3. Project Description

3. PROJECT DESCRIPTION

3.1 INTRODUCTION

Pursuant to CEQA Guidelines Section 15124, an EIR is required to include a project description that provides the following information: project objectives, project location, a general description of the project's technical, economic and environmental characteristics, a statement briefly describing the intended uses of the EIR including a list of agencies expected to use the EIR, a list of permits and other approvals required to implement the project, and a list of related environmental review required by federal, state or local laws, regulations or policies. According to Section 15124 of CEQA Guidelines, the project description is not required to supply, extensive detail beyond that needed for evaluation and review of the environmental impacts.

The Project Description chapter of the EIR provides a comprehensive description of the San Marco Commercial Center Project (proposed project) in accordance with CEQA Guidelines Section 15124. A detailed description of the project location, project setting and surrounding uses, project objectives, project components, and project approvals is presented below.

3.2 PROJECT LOCATION

The project area is located southeast of the intersection of West Leland Road and San Marco Boulevard, approximately one-half mile south of State Route (SR) 4, the California Delta Highway, in the City of Pittsburg, California. (see Figure 3-1 and Figure 3-2). The project area includes two existing, city-owned parcels, totaling 9.37 acres, identified by Assessor's Parcel Numbers (APNs) 091-050-065 and -066. It should be noted that the proposed project only includes development in the northwest area, along West Leland Road, and, therefore, the project includes a request for a parcel map from the City, which would adjust the property lines between the park to the east and the proposed development, resulting in a 3.57-acre property. The proposed project also includes off-site frontage improvements within the City right-of-way, which results in a total project area of 3.69 acres. Therefore, this EIR provides analysis of the entire 3.69-acre area and is referred to herein as the "project site".

3.3 SETTING AND SURROUNDING LAND USES

The following sections describe the regional setting of the project site, the characteristics of the site, and the surrounding land uses in the project vicinity. Please note that detailed discussions of the existing setting in compliance with CEQA Guidelines Section 15125, specific to each environmental resource area, are included in each corresponding technical chapter of this EIR.

Regional Setting

The City of Pittsburg is located along the Sacramento River in eastern Contra Costa County. The City is bordered by the cities of Concord and Antioch to the west and east, respectively. While the northern portion of the City is relatively flat, the southern portion of the City is marked by hilly landscapes and slightly higher elevations. The City's Planning Area includes 41.1 square miles of land, within which lie both the City's Sphere of Influence (SOI) and the city limits.

Several geographic features distinguish the planning area, including the Sacramento River to the north of the City, as well as the steep, hilly terrain that defines the southern boundary of the City. The Black Diamond Mines Regional Preserve abuts the southeastern limits of the planning area.

Site Characteristics and Setting

The project site is bound by San Marco Boulevard to the west and West Leland Road to the north. The site is located approximately 0.5-mile south of SR 4 and the San Marco Boulevard/Willow Pass Road exit. Tri Delta Transit system operates an eastbound bus stop on the project site frontage along West Leland Road. Currently, the project site consists primarily of ruderal grasses and is absent of structures or other indications of prior development. The site appears to have been cleared in the past and the site is regularly disked for weed suppression. The grasses appear to be regularly maintained. A small portion of the northeast corner of the site contains a gravel driveway and small dirt area. The site does not currently contain any trees or shrubs.

Existing trees border the western side of the site along San Marco Boulevard, outside of the project site boundaries, and are maintained by the City. The topography of the site is relatively flat, with elevations ranging from a low of approximately 220 feet along the eastern portions of the site to a high of approximately 240 feet along the western portion of the site adjacent to San Marco Boulevard. Thus, the site slopes gently to the east, but does not contain any hills or undulations.

The project site is designated Park by the General Plan land use map (see Figure 3-3) and zoned as a Planned Development (PD) District.

Surrounding Land Uses

The two-acre parcel immediately east of the project site is the Ray Giacomelli Community Park. The park provides picnic tables, barbeque grills, children's playground equipment, and a large grass area. A small paved road with entrance from West Leland Road separates the project site from the Community Park. Beyond the park to the east is a vacant parcel designated medium density residential. Across San Marco Boulevard to the west is vacant land designated as low density residential. To the north, across West Leland Road are single-family residences. The nearest home to the north of the site is approximately 120 feet from the site boundary. On the northwest corner of West Leland Road and San Marco Boulevard is a gas station and convenience store. Further northwest along West Leland Road, are the San Marco Villas Apartments, a gated multi-family subdivision. Immediately south of the project site is vacant land covered in grasses and shrubs with hilly terrain.

In addition to the grassland and urban uses in the area, a drainage basin exists directly south of the site. The project site boundary is separated from the vacant parcel by a chain link fence. Across the vacant land to the south are single-family residences, located approximately 700 feet away. Delta View Elementary School is located approximately 2,000 feet southwest of the project site. Predominant land uses in the project vicinity are single-family residences and an apartment complex (San Marco Villas).

Figure 3-1
Regional Location

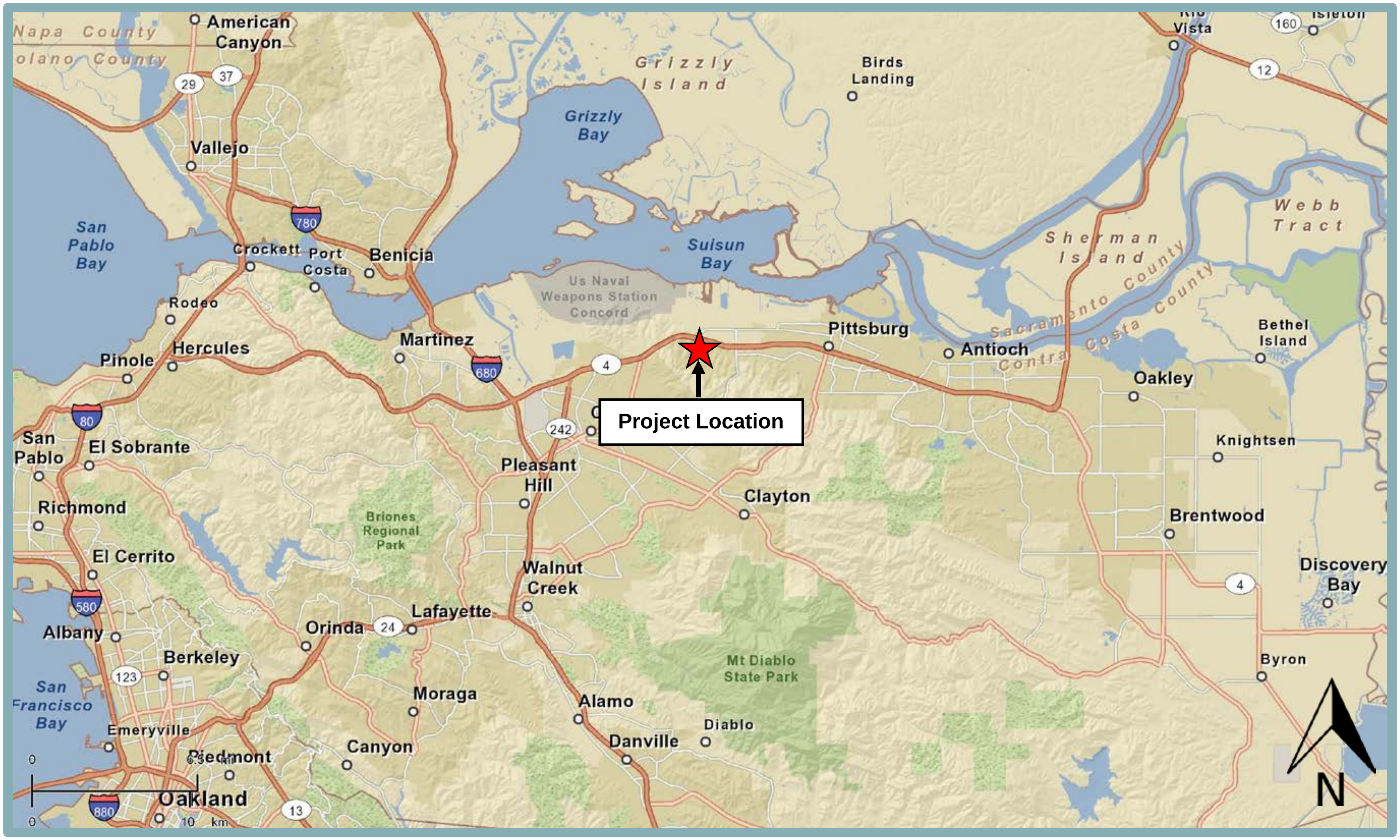
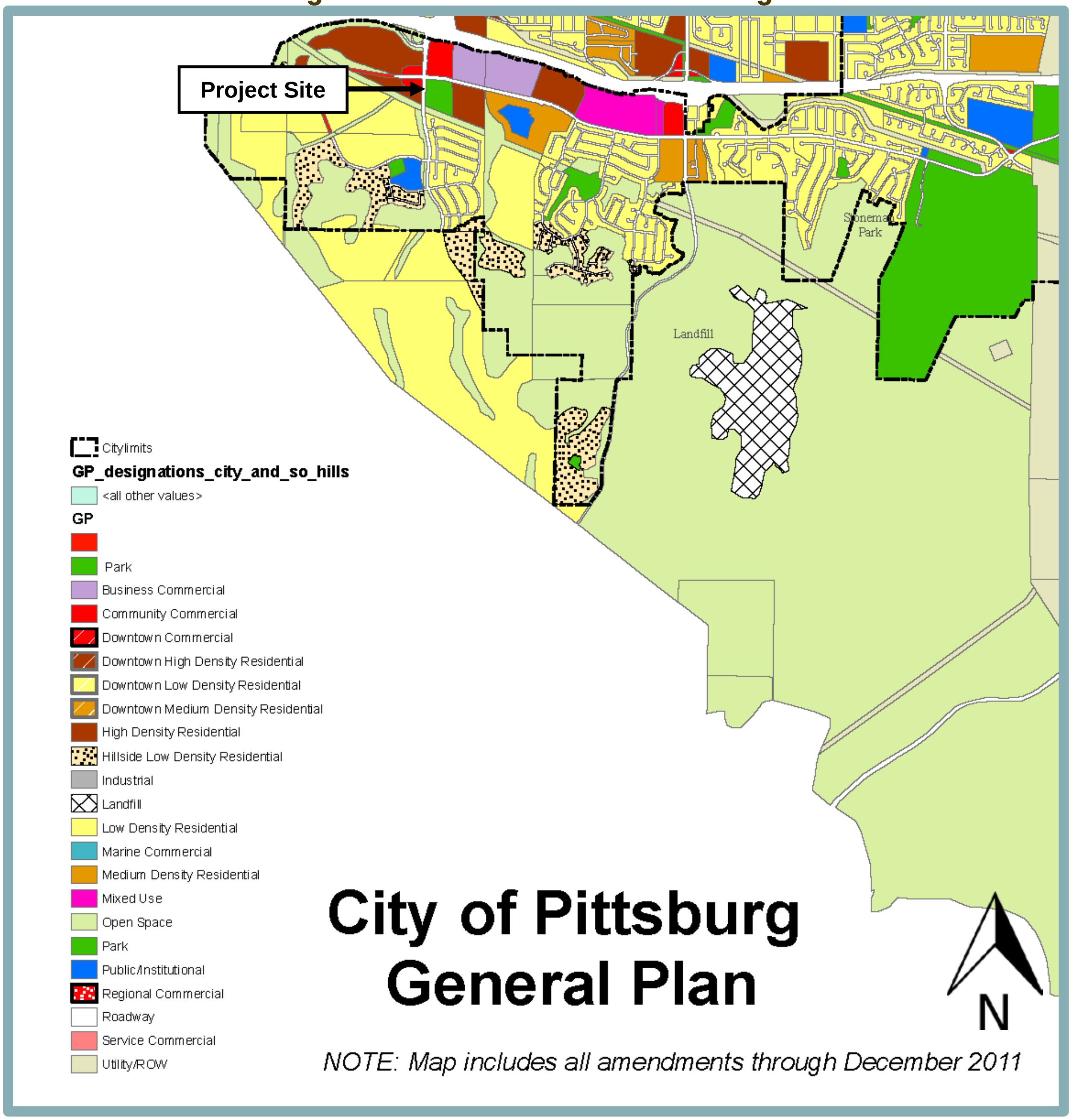


Figure 3-2
Project Location and Adjacent Uses

Figure 3-3
Existing General Plan Land Use Designation



3.4 PROJECT OBJECTIVES

The following project objectives have been developed by the project applicant:

1. Construct an attractive, high-quality project that addresses the shortage of shopping and dining opportunities in the San Marco neighborhood;
2. Reduce, to the maximum extent possible, vehicle miles traveled by San Marco residents currently shopping or dining outside of Pittsburg to meet their needs;
3. Provide safe access for bicyclists and pedestrians living within a quarter-mile of the project site;

3.5 PROJECT COMPONENTS

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot (see Figure 3-4). The center would total 35,148 square feet (sf) of building area. A 29,822-sf building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock in the rear. A 3,500-sf building intended for restaurant use would be constructed in the northwest corner of the site. Finally, a 1,826 sf building also intended for restaurant use would be developed in the northeast corner of the site and would include a drive-through and dine-in service. Together, the restaurants would provide seating for up to 166 people. A total of 176 parking stalls would be provided throughout the project site, seven of which would be handicap accessible.

Access and Circulation

Access would be provided by one driveway located off of San Marco Boulevard at the western edge of the site and one driveway at the eastern edge of the site by way of the private road separating the project site from the Community Park to the east. The western entrance would be 24-feet wide while the eastern entrance would be 28-feet wide, and each would be stop controlled. Internal drive aisles would circulate the entire site and would range from 22 to 27-feet wide. All lanes and drive aisles would meet the minimum width that can accommodate an emergency vehicle. Additionally, crosswalks would be provided throughout the development and pedestrian access would be provided by way of connection to the existing sidewalk on West Leland Road.

The 1,826-sf restaurant would provide a queuing lane along the eastern side of the building for entrance into the drive-through lane, which would wrap around the building to the west with an exit into the parking area.

Utilities

Figure 3-5 and Figure 3-6 below display the full preliminary utilities plan for the proposed project. Water services would be provided by the City through infrastructure developed by the applicant and dedicated to the City. The infrastructure would be maintained by the City of Pittsburg. The City obtains water from the Contra Costa Water District (CCWD), through the Central Valley Project.

Additionally, the City operates a water treatment plant and associated infrastructure facilities, which primarily serve customers within the City limits. Treated water is distributed throughout the City by way of a 122-mile system of pipelines. The proposed project would include construction of a new six-inch water lateral between all of the proposed buildings with connection to an existing 20-inch public water main located within West Leland Road.

Figure 3-4
Project Site Plan

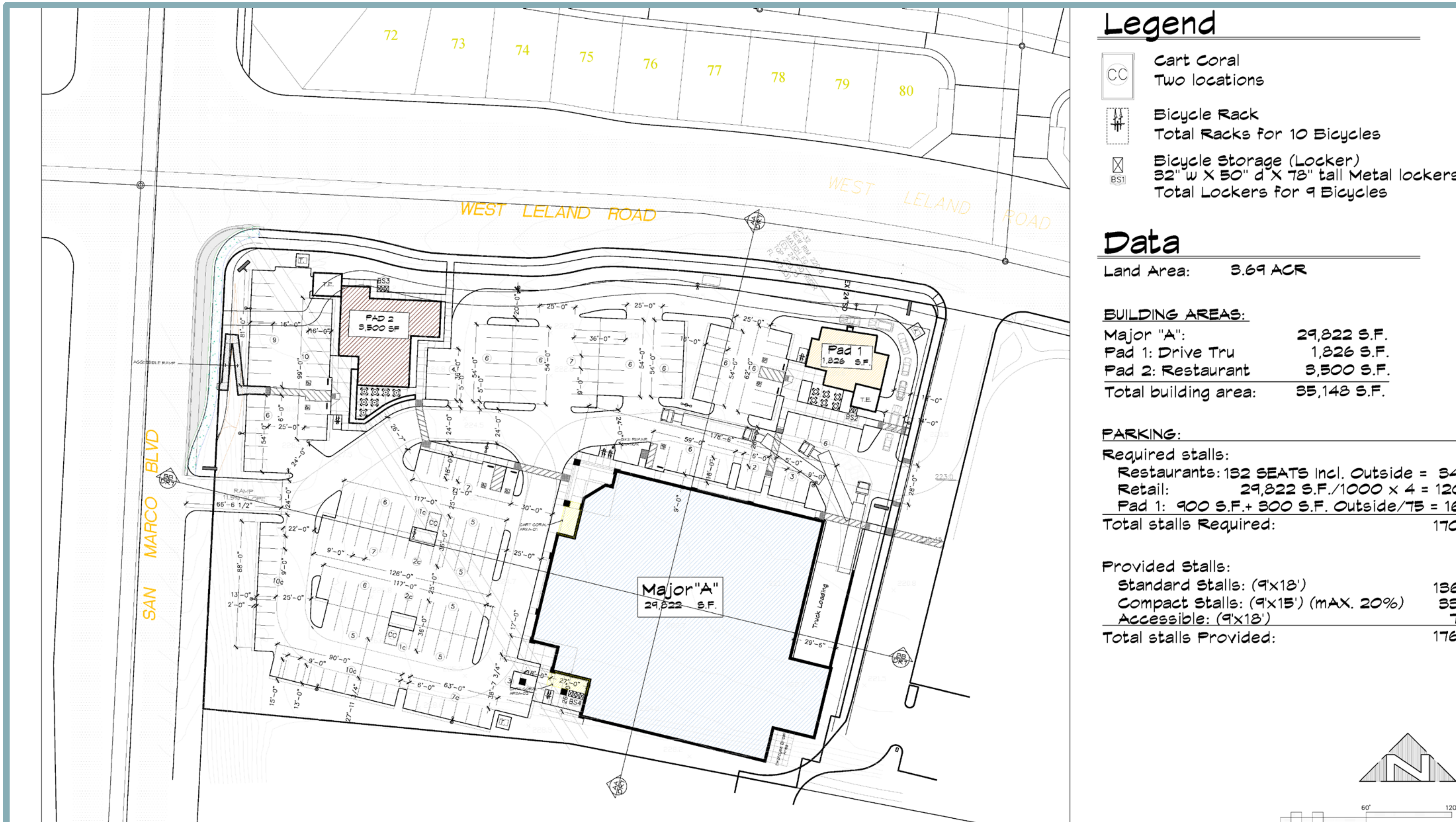


Figure 3-5
Preliminary Utilities Plan (Western Side of Project Site)

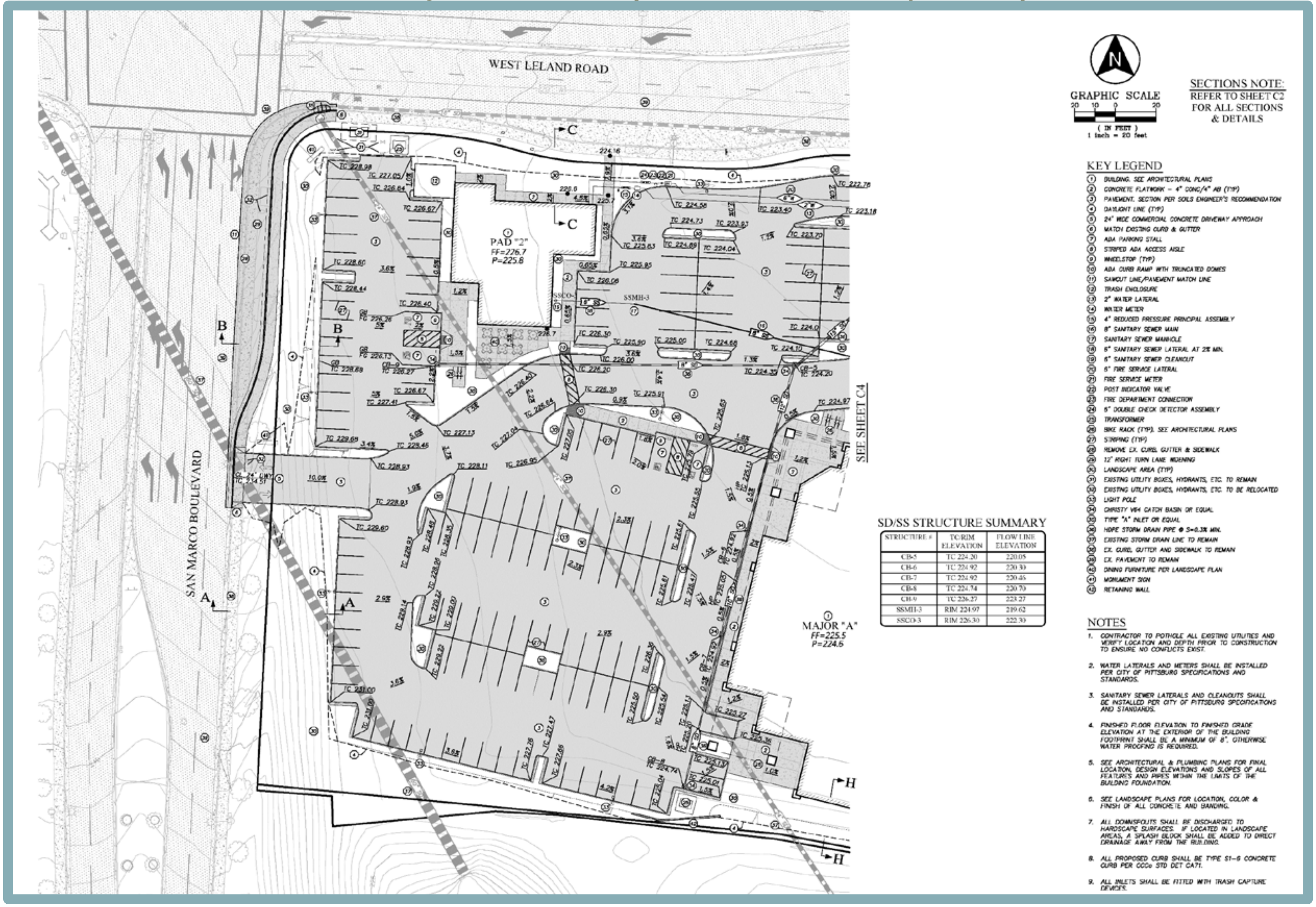
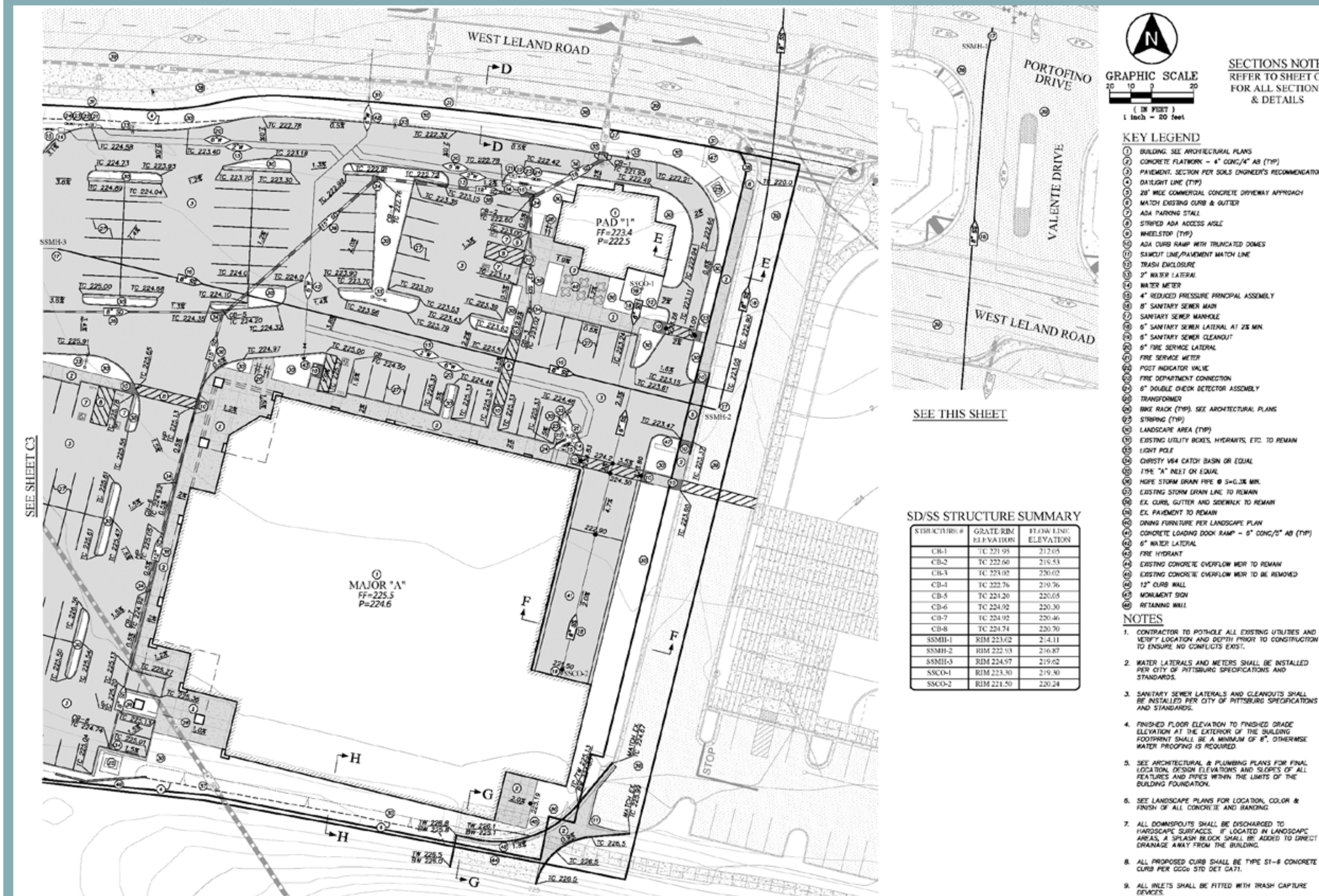


Figure 3-6
Preliminary Utility Plan (Eastern Side of Project Site)



SD/SS STRUCTURE SUMMARY

STRUCTURE #	GRATE/RIM ELEVATION	FLOW LINE ELEVATION
CB-1	TC 221.95	212.05
CB-2	TC 222.60	219.53
CB-3	TC 223.02	220.02
CB-4	TC 222.76	219.76
CB-5	TC 224.20	220.05
CB-6	TC 224.92	220.30
CB-7	TC 224.92	220.46
CB-8	TC 224.74	220.70
SSMH-1	RIM 223.02	214.11
SSMH-2	RIM 222.93	216.87
SSMH-3	RIM 224.97	219.62
SSCO-1	RIM 223.30	219.30
SSCO-2	RIM 221.50	220.24

Stormwater on the project site would be collected through a series of new storm drains, varying in size from 10, 12, 15, and 18-inches. The storm drains would convey water to several Christy V64 catch basins for stormwater treatment according to City standards. The new storm drains would then connect to an existing 18-inch public storm drain within West Leland Road.

The proposed project would include construction of a new eight-inch sewer main as well as three sanitary sewer cleanouts on-site. The sewer main would extend along the eastern side of the project site, approximately 200 feet across West Leland Road for connection to an existing eight-inch sanitary sewer line in Portofino Drive. The City would provide wastewater collection services to the project site by conveyance of wastewater through the City of Pittsburg transmission system, to the Delta Diablo District wastewater treatment plant. The City's collection system consists of approximately 95 miles of sewer lines ranging in diameter from six to 36 inches, and one sewage lift station.

Solid waste pickup and disposal for the City is provided by the Mt. Diablo Resource Recovery. Residential and commercial solid waste is disposed of at Potrero Hills Landfill, located east of Suisun City, while non-recyclable industrial waste is transported to Keller Canyon Landfill, located southeast of the city limits. The proposed project would include trash enclosures along the side of each building.

Construction

Construction of the proposed project would require grading of the site for the proposed parking area and building pads, trenching for water, sewer, and storm drainage improvements, and the construction of three commercial buildings. Construction would also be required along San Marco Boulevard to include a new driveway with access to the western side of the site.

3.6 PROJECT APPROVALS

The project would require City approval of the following: General Plan Amendment; Rezone; Development Agreement Amendment; Use Permit; Variance from off-street parking standards, and Design Review. The details of the required approvals are described in further detail below.

General Plan Amendment and Rezone

As noted previously, the project site is currently designated Park by the City's General Plan. The project would include a General Plan Amendment to change 3.69 acres of the site's land use designation to Community Commercial. The Community Commercial designation is intended to provide sites for retail shopping areas containing a wide variety of business, including retail stores, eating and drinking establishments, commercial recreation, and services.

Additionally, the proposed project would include a Rezone of the project site from a PD District to Community Commercial (CC) District. The CC District is meant to provide commercial centers and individual structures on sites that are located within reasonable distance of high densities of residences or that are served by local and regional transportation and transit systems.

Development Agreement Amendment

On April 3, 1990, the City Council adopted Ordinance No. 90-990, adopting a Negative Declaration authorizing execution of the Southwest Development Agreement. The Southwest Development Agreement allowed for the construction of 2,938 residential units on 639 acres of land within the Southwest Hills Boundary Reorganization Area, within which the project site is located. An amendment to the Southwest Development Agreement would take the project site out of the Agreement and allow development of the site for other uses.

Use Permit

Per Section 18.52.010 of the Pittsburg Municipal Code, grocery stores, outdoor dining, and restaurants with drive-through service require approval of a Use Permit within the CC zoning district. As mentioned in Section 3.5, the proposed project would include all three of the abovementioned uses and thus, would require a Use Permit within the CC zoning district.

Variance

Per Section 18.78.040 of the Municipal Code, grocery stores are required to provide one parking space per 200 sf of building area. Currently, the Site Plan provides one parking space per every 250 sf of building area. However, per Section 18.78.040 of the City's Municipal Code, grocery stores are required to include one parking space per 200 sf. Full-service restaurants are required to include one parking space for every four seats or one parking space per 50 sf for both indoor and outdoor areas. Drive-through restaurants are required to include one parking space per 75 sf of seating area, plus vehicle queue space for at least five separate cars from parking or access driveways. Thus, the project would be required to include 149 parking spaces for the grocery store, 33 parking spaces for the drive-through restaurant, and 17 parking spaces for the other restaurant, for a total of 199 parking spaces. In total, the project would supply 176 parking spaces, which would be 23 fewer spaces than required by the City. Thus, the proposed project would require a Variance to permit fewer parking spaces than the City's minimum requirement.

Design Review

Per Chapter 18.36 of the City's Municipal Code, the proposed project would be subject to Design Review by the City. Section 18.36.210 of the City's Municipal Code specifies that the Planning Commission will review the design of the building proposed in the application for a land use permit or building permit in each land use district other than single-family residential. Such review is intended to ensure that new development within the City generally contributes to the character and image of the City, conforms with the nature of the neighborhood, and is in harmony with existing developments in the general area.

Discretionary Actions

The proposed project would require the following discretionary actions by the City of Pittsburg:

- Certification of the EIR;
- General Plan Amendment to change 3.69 acres from Park to Community Commercial;
- Rezone of the project site from PD District to CC District;
- An amendment to the Southwest Development Agreement (Ordinance No. 90-990, as amended);
- Use Permit to allow the proposed uses within the CC zoning district;
- Variance from off-street parking standards; and
- Design Review.

In addition, the proposed project would require the following ministerial approvals:

- Approval of a Parcel Map to adjust the property lines between the park to the east and the proposed development;

- Approval of Improvement Plans;
- Approval of Grading Permit; and
- Approval of Building Permits.

4.0 Introduction to the Analysis

4.0 INTRODUCTION TO THE ANALYSIS

4.0.1 INTRODUCTION

The technical chapters of the EIR analyze the potential impacts of buildout of the proposed project on a range of environmental issue areas. Chapters 4.1 through 4.3 of the EIR include the following: the environmental setting as the setting relates to the specific issue; standards of significance; method of analysis; and project-specific impacts and mitigation measures. Additionally, Chapters 4.1 through 4.3 describe the cumulative impacts of the project combined with past, present and reasonably probable future projects for each issue area. The format of each of the technical chapters is described at the end of this chapter. It should be noted that all technical reports are either attached to this EIR or available at the City by request.

4.0.2 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code § 21068). The Guidelines implementing CEQA direct that this determination be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each section and are consistent with significance criteria set forth in the CEQA Guidelines.

4.0.3 ENVIRONMENTAL ISSUES DISMISSED IN THE INITIAL STUDY

The Initial Study prepared for the proposed project (Appendix C) includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as “no impact,” “less than significant,” “less than significant with mitigation incorporated,” and “potentially significant.”

Impacts identified in the Initial Study as less than significant or no impact are presented below. All remaining issues identified in the Initial Study as potentially significant are discussed in the subsequent technical chapters of this EIR.

- *Aesthetics (All Sections):* The proposed project is located near State Route 4, which has been designated as an Eligible State Scenic Highway; however, the proposed project is not expected to further impair views from the highway as the project area is characterized by urban development. As such, views of the site would not be degraded as a result of implementation of the proposed project. In addition, the project site is primarily vacant and would not include removal of trees, rock outcroppings or historic buildings. The proposed project would also introduce new sources of light and glare to the site; however, with implementation of the provided mitigation, the impact on the surrounding area would not be substantial. Based on the above, the proposed project would result in ***less-than-significant*** impacts to Aesthetics.

- *Agriculture and Forest Resources (All Sections):* The project site is currently designated as “Urban and Built-Up Land” and is not currently zoned or designated by the General Plan for agriculture use. In addition, the project site is not under a Williamson Act Contract or zoned for Timberland Production. Therefore, the proposed project would have ***no impact*** related to agriculture and forest resources.

- *Air Quality (d):* Typical sources of objectionable odor include wastewater treatment plants, landfills, and composting facilities, which are not proposed as part of the project, nor are such uses located near the project site. Diesel fumes from construction equipment and delivery trucks are often found to be objectionable; however, future construction of the project site would be temporary, and permanent sources of odor are not currently present or proposed on the project site. Therefore, the proposed project is not likely to create objectionable odors affecting a substantial number of people, and a ***less-than-significant*** impact would occur.

- *Biological Resources (All Sections):* The proposed project could potentially impact special-status wildlife species in the area; however, implementation of Mitigation Measures IV-1 through IV-6 would ensure the impact is less-than-significant. Furthermore, the project site is currently vacant and does not consist of any riparian vegetation or protected trees nor does the project site serve as a wildlife movement corridor. In addition, the proposed project would adhere to the East Contra Costa County Habitat Conservation Plan and, thus, would not conflict with the provisions of an adopted Habitat Conservation Plan. Therefore, a ***less-than-significant*** impact would occur.

- *Cultural Resources (All Sections).* According to the Pittsburg General Plan EIR, officially designated historical structures related to the coal and steel era exist within the City; however, the project site is vacant, containing primarily ruderal grasses. The project site does not contain any farm structures that could be eligible for historical consideration by the City, nor does the site contain any historic structures listed by the California Register of Historic Resources, National Register of Historic Places, or the California Register of Historical Landmarks. However, considering that unknown archaeological resources, including human remains, and/or historic resources have the potential to exist on-site, ground-disturbing activity related to project construction could encounter such resources. Implementation of Mitigation Measures V-1 and V-2, which require all work to be stopped within 100 feet of a newly discovered archeological, paleontological, and/or tribal cultural resource, and coordination with the Contra Costa County Coroner and the Native American Heritage Commission in the event that human bone is discovered on the site, would reduce all potential construction-related impacts to a ***less-than-significant*** level.

- *Energy (All Sections):* The proposed project is anticipated to experience increased energy usage during construction and operations of the project. The increase in energy use during construction would be temporary in nature and would not significantly impact local or regional energy supplies. During operations, the proposed project would be required to adhere to the California Building Standards code to ensure efficient operational energy use. Based on the above, the proposed project would result in a ***less-than-significant*** impact to energy.

- *Geology and Soils (All Sections):* Although the project site is not located within an Alquist-Priolo Special Studies Zone, the General Plan EIR determined that the City of Pittsburg is within a seismically active zone which could expose people or structures to substantial adverse effects. Conformance to the design standards of the California Building Standards Code would ensure seismic-related effects would not cause substantial impacts. On-site soils may be vulnerable to liquefaction, landslides, lateral spreading, subsistence, or settlement. Implementation of Mitigation Measures VII-1, which require the recommendations from a design-level geotechnical report for approval by the City Engineer prior to issuance of a grading permit, would reduce the above impacts to a less-than-significant level.

In addition, the potential exists for ground disturbing activities associated with implementation of the proposed project to result in top soil erosion. Implementation of Mitigation Measure VII-1 would reduce the potential impact to a *less-than-significant* level. In addition, expansive soils located on-site have the potential to expose structures to associated risks. Mitigation Measure IV-3, which reiterates the requirements from Mitigation Measure IV-1, would reduce impacts to a *less-than-significant* level. Although known paleontological resources do not exist on the project site, the potential exists for ground disturbing activities to discover such resources. Implementation of Mitigation Measure IV-4 reiterates the requirements from Mitigation Measure IV-1 and reduces the level of impact. Therefore, the proposed project would result in a ***less-than-significant*** impact to Geology and Soils.

- *Hazards and Hazardous Materials (All Sections):* Operations of the proposed project would not be expected to require the use of hazardous materials, and any use of hazardous materials would be subject to review and approval by the City. In addition, the site is not listed on a Cortese List which indicates the site has not been exposed to hazardous materials. The proposed project would include construction of storm drain infrastructure that would reduce the amount of standing water on the project site, thereby reducing potential exposure of people to vectors for disease. Furthermore, the project site is not located within close proximity to a school or airport, would not impair or physically interfere with an adopted emergency response plan, and is not located within or adjacent to wildlands which could expose people or structures to wildfires. Therefore, the proposed project would result in ***less-than-significant*** impacts related to hazards and hazardous materials.

- *Hydrology and Water Quality (All Sections):* Construction and buildout associated with the proposed project could result in increased stormwater runoff or the degradation of water quality. However, implementation of Mitigation Measure X-1, X-2, and X-3 which requires permanent stormwater control, treatment, and attenuation features, would reduce impacts related to the violation of storm water quality standards, the creation of stormwater runoff in exceedance of capacity, and the substantial degradation of water quality to a *less-than-significant* level. Based on the Pittsburg Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the project site is not located within a Special Flood Hazard Area, and development of the proposed project would not place housing within a 100-year flood hazard zone nor place structures within a 100-year floodplain such that flood flows would be impeded or redirected, and restrictions on development or special requirements associated with flooding are not required for the project. Therefore, the proposed project would not expose people or structures to a risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam, and *no impact* would occur. In addition, because the project site is not located near a closed body of water or coastline, ***less-than-significant*** impact related to seiches, tsunamis, or mudflows would occur.

- *Land Use and Planning (All Sections):* Given the project site is vacant, the proposed project would not physically divide an established community and the project would be consistent with the surrounding urban development. In addition, the proposed project would provide new commercial services to the surrounding area. As such, the proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Thus, a ***less-than-significant*** impact would occur.

- *Mineral Resources (All Sections):* The project site has been previously disturbed and does not constitute a likely source of minerals. Currently, the City does not contain any significant mineral deposits or active mining operations. Because the project would not result in the loss of availability of a known mineral resource or locally important recovery site, ***no impact*** would occur.

- *Noise (All Sections):* Construction of the proposed project would result in increased noise levels; however, the noise levels would be temporary in nature. Operation of the proposed project would involve sources of noise that would be similar to the surrounding area, such as vehicle noise from employee trips to and from the site, delivery trucks, and other limited noise sources. The nearest sensitive noise receptor to the project site is a residential development located approximately 120-feet away. Based on the Caltrans Transportation and Construction Vibration Guidance Manual, vibration generated by construction activities associated with implementation of the proposed project would not be expected to result in structural damage to nearby residences and impacts would be *less-than-significant*. Furthermore, the project site is not located within an airport land use plan or in the vicinity of a private airstrip and ***no impact*** would occur.

- *Population and Housing (All Items):* The proposed project would require approval of a rezone to change the designation of the project site to Community Commercial. The requested changes to the site would not be expected to induce population growth for the area beyond what has been analyzed in the General Plan EIR. Therefore, the a *less-than-significant* impact would occur. In addition, the project site is predominantly vacant containing primarily ruderal vegetation. As such, the project would not require demolition of existing structures and would not result in the loss of housing or displacement of existence residents. Therefore, ***no impact*** would occur related to the displacement of existing people or housing.

- *Public Services (a-c, e):* The proposed project would be used for commercial purposes. Residences would not be developed as part of the project, and thus, an increase in schools or other public facilities would not be necessary. Based on the above, the project would not result in substantial adverse physical impacts associated with the provision of new or altered governmental facilities, and thus, a ***less-than-significant*** impact would occur.

- *Tribal Cultural Resources (All Items):* According to a search of the California Historical Resource Information System and the California Register of Historical Resources, the project site is not eligible for listing as a historical resource. Compliant with AB 52 (Public Resources Code Section 21080.3.1), on July 24, 2019, project notification letters were distributed to local Native American Tribes. The City did not receive any requests for consultation. A low potential exists for ground disturbing activities associated with implementation of the proposed project to unearth undiscovered surficial Native American resources. Implementation of Mitigation Measures V-1 and V-2, which require all work to be stopped within 100 feet of a newly discovered archeological, paleontological, and/or tribal cultural resource, and coordination with the Contra Costa County Coroner and the

Native American Heritage Commission in the event that human bone is discovered on the site, would reduce all potential construction-related impacts to a ***less-than-significant*** level.

- *Utilities and Service Systems (All Sections):* The proposed project would include utility improvements to water, storm drainage, and sewer infrastructure, which would be adequately sized to meet demands from the proposed development. Per the City of Pittsburg's 2015 Urban Water Management Plan (UWMP) and the Delta Diablo 2008 Sewer System Management Plan, adequate water supply capacity exists within the Contra Costa Water District (CCWD) and adequate sewer capacity exists within the Delta Diablo sewage treatment plant to service projected project demands. In addition, pipes and other infrastructure in the project area are planned to accommodate project buildout. Specifically, new connections to a 20-inch water main, a new eight-inch sewer main, and three sanitary sewer cleanouts would be constructed to service project needs. Furthermore, the proposed project would not generate solid waste beyond the capacity of the local Potrero Hills Landfill or in excess of State or local standards, and the project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Therefore, the proposed project would result in a ***less-than-significant*** impact related to utilities and service systems.

- *Wildfire (All Sections):* The project site is located on a relatively flat surface in an urbanized area surrounded by existing commercial and residential development in the City of Pittsburg. In addition, the California Department of Forestry and Fire Protection Fire and Resource Assessment Program indicates that the project site is not located within or adjacent to a Very High Fire Hazard Severity Zone. Therefore, a ***less-than-significant*** impact would occur.

4.0.4 SECTION FORMAT

Each technical chapter addressing a specific environmental issue begins with an **introduction** describing the purpose of the section. The introduction is followed by a description of the project's **existing environmental setting** as the setting pertains to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion, which contains the **standards of significance**, followed by the **method of analysis**. The **impact and mitigation** discussion includes impact statements prefaced by a number in bold-faced type (for both project-level and cumulative analyses). An explanation of each impact and an analysis of the impact's significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement (see below). The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance.

4.x-1 Statement of Project-Specific Impact

Discussion of impact for the proposed project in paragraph format.

Statement of ***level of significance*** of impact prior to mitigation is included at the end of each impact discussion. The following levels of significance are used in the EIR: less than significant, significant, or significant and unavoidable. If an impact is determined to be significant, mitigation will be included in order to reduce the specific impact to the maximum extent feasible.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

4.x-1(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-1(b) *Required additional mitigation measure, if necessary.*

Cumulative Impacts and Mitigation Measures

The following discussion of cumulative impacts is based on implementation of the proposed project in combination with cumulative development within the applicable area or region.

4.x-2 Statement of Cumulative Impact

Discussion of cumulative impacts for the proposed project in paragraph format.

As discussed in detail in Chapter 5, Statutorily Required Sections, of the EIR, the cumulative setting for the proposed project is generally considered to be development anticipated to occur upon buildout of the Pittsburg General Plan (i.e., Pittsburg city limits), as well as buildout of a number of approved or reasonably foreseeable projects within the project region.

Statement of ***level of significance*** of cumulative impact prior to mitigation is included at the end of each impact discussion. The following levels of significance are used in the EIR for cumulative impacts: less than significant, less than cumulatively considerable, cumulatively considerable, or significant and unavoidable. If an impact is determined to be cumulatively considerable, mitigation will be included in order to reduce the specific impact to the maximum extent feasible.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures.

4.x-2(a) *Required mitigation measure(s) presented in italics and listed in consecutive order.*

4.x-2(b) *Required additional mitigation measure, if necessary.*

4.1 Air Quality and Greenhouse Gas Emissions

4.1 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

4.1.1 INTRODUCTION

The Air Quality and Greenhouse Gas Emissions chapter of this EIR describes the effects of the proposed project on local and regional air quality as well as greenhouse gas (GHG) emissions and global climate change. The chapter includes a discussion of the existing air quality and GHG setting, construction-related emissions, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts. The chapter is primarily based on information and guidance within the Bay Area Air Quality Management District (BAAQMD) *California Environmental Quality Act Air Quality Guidelines* (CEQA Guidelines),[1] as well as the City of Pittsburg General Plan[2] and associated EIR.[3] In addition, the results of the air quality modeling prepared for this analysis are included as Appendix D.

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following setting information provides an overview of the existing air quality in the proposed project area, which is located in the City of Pittsburg.

Air Basin Characteristics

The project site is located in the eastern portion of the nine-county San Francisco Bay Area Air Basin (SFBAAB), and is within the jurisdictional boundaries of the BAAQMD. The SFBAAB consists of coastal mountain ranges, inland valleys, and bays. The proposed project is located on the south side of the San Joaquin River delta, east of the Carquinez Strait, and would be considered to be within the Carquinez Strait region of the SFBAAB. Being located between the greater Bay Area and the Central Valley has great influence on the climate and air quality of the area. During the summer and fall months, marine air is drawn eastward through the Carquinez Strait, with common wind speeds of 15 to 20 miles per hour throughout the region. The general west-to-east flow of the winds in the straits tends to move pollutants east. Thus, the winds dilute pollutants and transport them away from the area, so that emissions released in the project area have more influence on air quality in the Sacramento and San Joaquin Valleys than locally. However, stationary sources located in upwind cities could influence the local air quality.

Average daily maximum temperatures (in degrees Fahrenheit) are in the mid to high 50s in the winter and the high 80s in the summer. Average minimum temperatures are in the high 30s to low 40s in the winter and the mid-50s in the summer. Rainfall amounts in the region vary from 13 inches annually in Antioch to 22 inches annually in Fairfield.

---

1 Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines.* May 2017.
2 City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century*. Adopted November 16, 2001.
3 City of Pittsburg. *City of Pittsburg General Plan Draft Environmental Impact Report (SCH#1999072109)*. January, 2001.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. The federal standards are divided into primary standards, which are designed to protect the public health, and secondary standards, which are designed to protect the public welfare. The ambient air quality standards for each contaminant represent safe levels that avoid specific adverse health effects. Pollutants for which air quality standards have been established are called “criteria” pollutants. Table 4.1-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and California ambient air quality standards (NAAQS and CAAQS, respectively) are summarized in Table 4.1-2. The NAAQS and CAAQS were developed independently with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the State of California standards are more stringent, particularly for ozone and particulate matter (PM), than the federal standards.

A description of each criteria pollutant and its potential health effects is provided below.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_X) emissions in the presence of sunlight. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation. The primary source of ozone precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment.

Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.

Reactive Organic Gas

ROG is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

NO_X are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_X, nitrogen dioxide (NO_2), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_X. NO_X reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_X emissions are a major component of acid rain. Health effects related to NO_X include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Table 4.1-1
Summary of Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog.	• Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma	Combustion sources such as factories, automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure.	• Lung irrigation and damage • Increased risk of acute and chronic respiratory disease	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels.	• Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter (PM_{10} and $PM_{2.5}$)	A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs.	• Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks	Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust.
Lead	A metal found naturally in the environment as well as in manufactured products.	• Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract	Industrial sources and combustion of leaded aviation gasoline.

Sources:
- ***California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed April 2020.***
- ***Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. Air Quality Information for the Sacramento Region. Available at: http://www.sparetheair.com/health.cfm?page=healthoverall. Accessed April 2020.***
- ***California Air Resources Board. Glossary of Air Pollution Terms. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed April 2020.***

Table 4.1-2
Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.070 ppm	0.070 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	-
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.030 ppm	53 ppb	Same as primary
	1 Hour	0.18 ppm	100 ppb	-
Sulfur Dioxide	24 Hour	0.04 ppm	-	-
	3 Hour	-	-	0.5 ppm
	1 Hour	0.25 ppm	75 ppb	-
Respirable Particulate Matter (PM_{10})	Annual Mean	20 ug/m^3	-	Same as primary
	24 Hour	50 ug/m^3	150 ug/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 ug/m^3	12 ug/m^3	15 ug/m^3
	24 Hour	-	35 ug/m^3	Same as primary
Lead	30 Day Average	1.5 ug/m^3	-	-
	Calendar Quarter	-	1.5 ug/m^3	Same as primary
Sulfates	24 Hour	25 ug/m^3	-	-
Hydrogen Sulfide	1 Hour	0.03 ppm	-	-
Vinyl Chloride	24 Hour	0.010 ppm	-	-
Visibility Reducing Particles[1]	8 Hour	see note below	-	-

ppm = parts per million
ppb = parts per billion
µg/m^3 = micrograms per cubic meter

1 Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

***Source:** California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed April 2020.*

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_X, suspended sulfur oxide particles, including SO_2, contribute to poor visibility. Sulfur oxide particles are also a component of PM_{10}.

Particulate Matter

Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health impacts. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller (PM_{10}) because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, the particles could affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($PM_{2.5\text{-}10}$)," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $PM_{2.5\text{-}10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($PM_{2.5}$)," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. $PM_{2.5}$ particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- “Ultrafine particles (UFP),” which are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $PM_{2.5}$, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately, but is analyzed as part of $PM_{2.5}$.

PM_{10}, $PM_{2.5\text{-}10}$, and UFP include primary pollutants (emitted directly to the atmosphere) as well as secondary pollutants (formed in the atmosphere by chemical reactions among precursors). Generally speaking, $PM_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been phased out in California, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) and could become re-suspended into the air.

Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur and are colorless gases. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. The sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard established by CARB is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces (800 ppm can cause death).

Vinyl Chloride

Vinyl Chloride (C_2H_3Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloro-ethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

Visibility Reducing Particles are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are also a category of environmental concern. TACs are present in many types of emissions with varying degrees of toxicity. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Common stationary sources of TACs include gasoline stations, dry cleaners, and diesel backup generators, which are subject to BAAQMD stationary source permit requirements. The other, often more significant, common source type is on-road motor vehicles, such as cars and trucks, on freeways and roads, and off-road sources such as construction equipment, ships, and trains.

Fossil fueled combustion engines, including those used in cars, trucks, and some pieces of construction equipment, release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, toluene, xylenes, and acetaldehyde. Gasoline vapors contain several TACs, including benzene, toluene, and xylenes. Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust, DPM, is composed of carbon particles and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of such chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and NO_X. Due to the published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects, the CARB has identified DPM from diesel-fueled engines as a TAC. Although a variety of TACs are emitted by fossil fueled combustion engines, the cancer risk due to DPM exposure represents a more significant risk than the other TACs discussed above.[4]

More than 90 percent of DPM is less than one micrometer in diameter, and, thus, DPM is a subset of $PM_{2.5}$. As a California statewide average, DPM comprises about eight percent of $PM_{2.5}$ in outdoor air, although DPM levels vary regionally due to the non-uniform distribution of sources throughout the State. Most major sources of diesel emissions, such as ships, trains, and trucks, operate in and around ports, rail yards, and heavily-traveled roadways. Such areas are often located near highly populated areas. Accordingly, elevated DPM levels are mainly an urban problem, with large numbers of people exposed to higher DPM concentrations, resulting in greater health consequences compared to rural areas.

Due to the high levels of diesel activity, high volume freeways, stationary diesel engines, rail yards and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Construction-related activities also have the potential to generate concentrations of DPM from on-road haul trucks and off-road equipment exhaust emissions.

The size of diesel particulates that are of the greatest health concern are fine particles (i.e., $PM_{2.5}$) and ultrafine particles (UFPs), which are a subset of $PM_{2.5}$. UFPs have a small diameter (on the order of 0.1 micrometers).[5] The small diameter of UFPs imparts the particulates with unique attributes, such as high surface areas and the ability to penetrate deeply into lungs. Once UFPs have been deposited in lungs, the small diameter allows the UFPs to be transferred to the bloodstream. The high surface area of the UFPs also allows for a greater adsorption of other chemicals, which are transported along with the UFPs into the bloodstream of the inhaler, where the chemicals can eventually reach critical organs.[6] The penetration capability of UFPs may contribute to adverse health effects related to heart, lung, and other organ health.[7] UFPs are a subset of DPM and activities that create large amounts of DPM, such as the operations involving heavy diesel-powered engines, also release UFPs. Considering that UFPs are a subset of DPM,

---

4 California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 6, 2002.
5 South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.
6 Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.
7 South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.

and DPM is considered a subset of $PM_{2.5}$, estimations of either concentrations or emissions of $PM_{2.5}$ or DPM include UFPs.

Health risks from TACs are a function of both the concentration of emissions and the duration of exposure, which typically are associated with long-term exposure and the associated risk of contracting cancer. Health effects of exposure to TACs other than cancer include birth defects, neurological damage, and death. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to criteria air pollutants that have established AAQS. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an AAQS or emission-based threshold.

Attainment Status and Regional Air Quality Plans

Areas not meeting the NAAQS presented in Table 4.1-2 above are designated by the USEPA as nonattainment. Further classifications of nonattainment areas are based on the severity of the nonattainment problem, with marginal, moderate, serious, severe, and extreme nonattainment classifications for ozone. Nonattainment classifications for PM range from marginal to serious. The Federal Clean Air Act (FCAA) requires areas violating the NAAQS to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures for states to use to attain the NAAQS. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, rules, and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA reviews SIPs to determine if they conform to the mandates of the FCAA amendments and would achieve air quality goals when implemented.

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The CCAA classifies ozone nonattainment areas as moderate, serious, severe, and extreme based on severity of violations of the CAAQS. For each nonattainment area classification, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment areas, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air districts with air quality that is in violation of CAAQS are required to prepare an air quality attainment plan that lays out a program to attain the CCAA mandates.

Table 4.1-3 presents the current attainment status of the SFBAAB, including Contra Costa County. As shown in the table, the area is currently designated as a nonattainment area for the State and federal ozone, State and federal $PM_{2.5}$, and State PM_{10} standards. The SFBAAB is designated attainment or unclassified for all other AAQS.

In compliance with the FCAA and CCAA, 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 were prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

Table 4.1-3
Contra Costa County Attainment Status Designations

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone	1 Hour	**Nonattainment**	Revoked in 2005
	8 Hour	**Nonattainment**	**Nonattainment**
Carbon Monoxide	8 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
Nitrogen Dioxide	Annual Mean	-	Attainment
	1 Hour	Attainment	Unclassified
Sulfur Dioxide	Annual Mean	Attainment	Attainment
	24 Hour	Attainment	Attainment
	3 Hour	-	Unclassified
	1 Hour	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Annual Mean	**Nonattainment**	-
	24 Hour	**Nonattainment**	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	**Nonattainment**	Attainment
	24 Hour	-	**Nonattainment**
Lead	30 Day Average	-	-
	Calendar Quarter	-	Attainment
	Rolling 3-Month Average	-	Attainment
Sulfates	24 Hour	Attainment	-
Hydrogen Sulfide	1 Hour	Unclassified	-
Visibility Reducing Particles	8 Hour	Unclassified	-

***Source:** Bay Area Air Quality Management District. Air Quality Standards and Attainment Status. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed March 2020.*

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which is a proposed revision to the Bay Area part of the SIP to achieve the federal ozone standard.[8] The plan was adopted on October 24, 2001 and approved by the CARB on November 1, 2001.

The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017.[9] The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, TACs, and GHGs. The control strategies included in the 2017 Clean Air Plan serve as the backbone of the 2017 Clean Air Plan, and build upon existing regional, state, and national programs for emissions reductions. The 2017 Clean Air Plan includes 85 control measures, which provide an integrative approach to reducing ozone, PM, TAC, and GHG emissions.

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 standards within the SFBAAB. The plans are based on population and employment projections provided by local governments, usually developed as part of the General Plan update process.

8 Bay Area Air Quality Management District. *Air Quality Plans*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans.aspx. Accessed April 2020.
9 *Ibid.*

Local Air Quality Monitoring

Air quality is monitored by BAAQMD and CARB at various locations in the region that provide information on ambient concentrations of criteria air pollutants and TACs to help determine which air quality standards are being violated, and to direct the BAAQMD emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. The proposed project site is located nearest to the Concord monitoring site, which is located approximately 6.5 miles west of the project site at 2975 Treat Boulevard. Table 4.1-4 shows historical occurrences of pollutant levels exceeding the State and federal AAQS for the three-year period from 2016 to 2018. The number of days that each standard was exceeded is presented in the tables as well.

Table 4.1-4
Air Quality Data Summary for the Concord Air Quality Monitoring Site (2016-2018)

Pollutant	Standard	Days Standard Was Exceeded		
		2016	2017	2018
1-Hour Ozone	State	1	0	0
	Federal	0	0	0
8-Hour Ozone	State	2	0	0
	Federal	2	0	0
24-Hour PM_{10}	State	0	0	1
	Federal	0	0	0
24-Hour $PM_{2.5}$	Federal	0	6	14
1-Hour Nitrogen Dioxide	State	0	0	0
	Federal	0	0	0

***Source:** California Air Resources Board, Aerometric Data Analysis and Management (iADAM) System, http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed April 2020.*

As shown in the table, the State AAQS and the federal 8-hour AAQS for ozone were exceeded. In addition, the State PM_{10} and State and federal $PM_{2.5}$ AAQS were exceeded. All other State and federal AAQS were met in the area.

Sensitive Receptors

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. The BAAQMD defines sensitive receptors 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 land uses to the proposed project site would be the residences located approximately 120 feet north of the site, across West Leland Road. Additional residential developments exist to the northwest of the project site, diagonally across the intersection of West Leland Road and San Marco Boulevard from the project site. More distant residential developments exist to the east, south, and southwest of the project site.

Greenhouse Gas Emissions

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols. Since the beginning of the Industrial Revolution, global atmospheric concentrations of GHGs have increased due to human activities such as the burning of fossil fuels, clearing of forests and other activities. The increase in atmospheric concentrations of GHG due to human activities has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change.[10]

The primary GHG emitted by human activities is CO_2, with the next largest components being CH_4 and N_2O. The primary sources of CH_4 emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N_2O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and stationary fuel combustion. Emissions of GHG by economic sector indicate that energy-related activities account for the majority of U.S. emissions. Electricity generation is the largest single-source of GHG emissions, and transportation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of GHG emission sources.[11] Emissions of GHG are partially offset by uptake of carbon and sequestration in forests, trees in urban areas, agricultural soils, landfilled yard trimmings and food scraps, and absorption of CO_2 by the earth's oceans; however, the rate of emissions of GHGs currently outpaces the rate of uptake, thus causing global atmospheric concentrations to increase.[12] Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the USEPA, the global warming potential of a gas, or aerosol, to trap heat in the atmosphere is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for comparison is CO_2. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO_2, as well as the decay rate of each gas relative to that of CO_2. Each gas's GWP is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO_2, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 25 times greater than that of CO_2, as shown in Table 4.1-5.

---

10 U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases*. Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed April 2020.

11 U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions. Accessed May 2020.

12 U.S. Environmental Protection Agency. *Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases.* Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed May 2020.

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 22,800 times that of CO_2. The "specified time horizon" is related to the atmospheric lifetimes of such GHGs, which are estimated by the USEPA to vary from 50 to 200 years for CO_2, to 50,000 years for tetrafluoromethane. Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the global warming potential of a gas. The common indicator for GHG is expressed in terms of metric tons of CO_2 equivalents ($MTCO_2e$).

Table 4.1-5
Global Warming Potentials and Atmospheric Lifetimes of Select GHGs

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50-200[1]	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298
HFC-23	270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF_4)	50,000	7,390
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

1. For a given amount of carbon dioxide emitted, some fraction of the atmospheric increase in concentration is quickly absorbed by the oceans and terrestrial vegetation, some fraction of the atmospheric increase will only slowly decrease over a number of years, and a small portion of the increase will remain for many centuries or more.

Source: USEPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013. April 15, 2017.

Effects of Global Climate Change

Uncertainties exist as to exactly what the climate changes will be in various local areas of the Earth. According to the Intergovernmental Panel on Climate Change's Working Group II Report, *Climate Change 2007: Impacts, Adaptation and Vulnerability*,[13] as well as the California Natural Resources Agency's report *Safeguarding California: Reducing Climate Risk*[14] climate change impacts to California may include:

- Increasing evaporation;
- Rearrangement of ecosystems as species and ecosystems shift northward and to higher elevations;
- Increased frequency, duration, and intensity of conditions conducive to air pollution formation (particularly ozone);
- Reduced precipitation, changes to precipitation and runoff patterns, reduced snowfall (precipitation occurring as rain instead of snow), earlier snowmelt, decreased snowpack, and increased agricultural demand for water;
- Increased experiences of heat waves;

13 Intergovernmental Panel on Climate Change. *Climate Change 2007: Impacts, Adaptation, and Vulnerability.* 2007.
14 California Natural Resources Agency. *Safeguarding California: Reducing Climate Risk*. July 2014.

- Increased growing season and increased growth rates of weeds, insect pests and pathogens;
- Inundation by sea level rise, and exacerbated shoreline erosion; and
- Increased incidents and severity of wildfire events and expansion of the range and increased frequency of pest outbreaks.

4.1.3 REGULATORY CONTEXT

Air quality is monitored through the efforts of various international regulations and federal, State, regional, and local government agencies. The agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality and GHG emissions within the City of Pittsburg area are discussed below.

Federal Regulations

The most prominent federal regulation is the FCAA, which is implemented and enforced by the USEPA.

FCAA and USEPA

The FCAA requires the USEPA to set NAAQS and designate areas with air quality not meeting NAAQS as nonattainment. The USEPA is responsible for enforcement of NAAQS for atmospheric pollutants and regulates emission sources that are under the exclusive authority of the federal government including emissions of GHGs. The USEPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990. The USEPA has adopted policies consistent with FCAA requirements demanding states to prepare SIPs that demonstrate attainment and maintenance of the NAAQS.

State Regulations

California has adopted a variety of regulations aimed at reducing air pollution emissions. Only the most prominent and applicable California air quality-related legislation is included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the CARB website (http://www.arb.ca.gov/html/lawsregs.htm).

CCAA and CARB

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that air quality plans be prepared for areas of the State that have not met the CAAQS for ozone, CO, NO_X, and SO_2. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls. The CARB, California's air quality management agency, regulates and oversees the activities of county air pollution control districts and regional air quality management districts. The CARB regulates local air quality indirectly using State standards and vehicle emission standards, by conducting research activities, and through planning and coordinating activities. In addition, the CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the USEPA. Furthermore, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

Air Quality and Land Use Handbook

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.[15] The CARB Handbook draws upon studies evaluating the health effects of traffic traveling on major interstate highways in metropolitan California centers within Los Angeles (I-405 and I-710), the San Francisco Bay, and San Diego areas. The recommendations identified by CARB, including siting residential uses a minimum distance of 500 feet from freeways or other high-traffic roadways, are consistent with those adopted by the State of California for location of new schools. Specifically, the CARB Handbook recommends, "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day" (CARB 2005).

Importantly, the Introduction chapter of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: "[l]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind." CARB recognizes that there may be land use objectives as well as meteorological and other site-specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, "[t]hese recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues" (CARB 2005).

Assembly Bill 1807

Assembly Bill (AB) 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use, which is regulated by the California Department of Pesticide Regulation.

AB 2588

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 TACs, including DPM, and is the primary air contaminant legislation in California. Under the act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

In 2002, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17, Section 93105, of the California Code of Regulations) went into effect, which requires each air pollution control and air quality management

[15] California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

district to implement and enforce the requirements of Section 93105 and propose their own asbestos ATCM as provided in Health and Safety Code section 39666(d).[16]

Senate Bill 656

In 2003, the Legislature passed Senate Bill (SB) 656 to reduce public exposure to PM_{10} and $PM_{2.5}$ above the State CAAQS. The legislation requires the CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM_{10} and $PM_{2.5}$ emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Categories addressed by SB 656 include measures for reduction of emissions associated with residential wood combustion and outdoor green waste burning, fugitive dust sources such as paved and unpaved roads and construction, combustion sources such as boilers, heaters, and charbroiling, solvents and coatings, and product manufacturing. Some of the measures include, but are not limited to, the following:

- Reduce or eliminate wood-burning devices allowed;
- Prohibit residential open burning;
- Permit and provide performance standards for controlled burns;
- Require water or chemical stabilizers/dust suppressants during grading activities;
- Limit visible dust emissions beyond the project boundary during construction;
- Require paving/curbing of roadway shoulder areas; and
- Require street sweeping.

Under SB 656, each air district is required to prioritize the measures identified by CARB, based on the cost effectiveness of the measures and their effect on public health, air quality, and emission reductions. Per SB 656 requirements, the BAAQMD amended the existing public awareness project to provide additional outreach and educational resources, enhanced the existing wood-burning ordinance, and amended the existing program aimed at the voluntary curtailment of wood burning by adjusting the “Spare the Air Tonight” thresholds.

Heavy-Duty Vehicle Idling Emission Reduction Program

On October 20, 2005, CARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth equipped diesel trucks.[17] The regulation consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck’s main engine. For example, the regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling, or optionally meet a stringent NO_X emission standard. The regulation also requires operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California beginning in 2008. Emission producing alternative technologies such as diesel-fueled auxiliary power systems and fuel-fired heaters are also required to meet emission performance requirements that ensure emissions are not exceeding the emissions of a truck engine operating at idle.

[16] California Air Resources Board. *2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations*. Available at: http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm. Accessed April 2020.

[17] California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm. Accessed April 2020.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California.[18] Such vehicles are used in construction, mining, and industrial operations. The regulation is designed to reduce harmful emissions from vehicles by subjecting fleet owners to retrofit or accelerated replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The idling limits require operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to less than five minutes. The idling requirements are specified in Title 13 of the California Code of Regulations.

State Regulations Related to Greenhouse Gases

The following regulations address GHG and climate change within California.

AB 1493

California AB 1493 (Stats. 2002, ch. 200) (Health & Safety Code, §§42823, 43018.5), known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state.” On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State’s GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allows for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government’s. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The second phase of the Pavley regulations (Pavley II) is expected to affect model year vehicles from 2016 through 2020. The CARB estimates that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

On September 19, 2019 the federal government revoked the 2013 California Clean Air Act Waiver, which prevents the state from setting vehicle emissions standards. As a separate action, the USEPA has proposed amendments to the corporate average fuel economy (CAFE) standards that would weaken the previously approved fuel economy standards. Both actions by the federal government have been legally challenged by California as well as various other states, cities, and the District of Columbia. Although the fate of judicial proceedings regarding California’s waiver and the CAFE standards are currently unknown, should the federal government’s actions be allowed to take effect, ambient air quality could degrade throughout the state, including in the project area.

Methodologies for analyzing air pollution resulting from vehicle use within California are predicated on the implementation of the Pavley standards as well as the more stringent CAFE. Consequently, in revoking California’s 2013 California Clean Air Act Waiver, and with the potential amendment to weaken CAFE standards, the federal government has invalidated the CARB’s mobile source emissions factor (EMFAC) model, which is used extensively within the State to

18 California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed May 2020.

estimate mobile emissions. Further discussion of the implications of the invalidation of the EMFAC model is provided in the method of analysis section below.

Renewable Portfolio Standard (RPS)

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country. The RPS program 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.

Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

To comply with the Executive Order, the Secretary of the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

AB 32

In September 2006, AB 32, the California Climate Solutions Act of 2006, was enacted (Stats. 2006, ch. 488) (Health & Saf. Code, §38500 et seq.). AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008 and updated in 2014.[19] The 2008 Scoping Plan identified GHG reduction measures that would be necessary to reduce statewide emissions as required by AB 32. Many of the GHG reduction measures identified in the 2008 Scoping Plan have been adopted, such as the Low Carbon Fuel Standard, Pavley, Advanced Clean Car standards, Renewable Portfolio Standard (RPS), and the State's Cap-and-Trade system.

Building upon the 2008 Scoping plan, the 2013 Scoping Plan Update introduced new strategies and recommendations to continue GHG emissions reductions. The 2013 Scoping Plan Update created a framework for achievement of 2020 GHG reduction goals and identified actions that may be built upon to continue GHG reductions past 2020, as required by AB 32. A second update to the Scoping Plan has recently been prepared and was adopted by CARB on December 14, 2017.[20]

---

[19] California Air Resources Board. *First Update to the Climate Change Scoping Plan*. May 22, 2014.
[20] California Air Resources Board. *California's 2017 Climate Change Scoping Plan*. November 2017.

California GHG Cap-and-Trade Program

The AB 32 Scoping Plan identifies a cap-and-trade program as one of the strategies California will employ to reduce the GHG emissions that cause climate change.[21] The program will help put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors would be established by the cap-and-trade program and facilities subject to the cap would be able to trade permits (allowances) to emit GHGs. The CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. On January 1, 2014 California linked the state's cap-and-trade plan with Quebec's, and on January 1, 2015 the program expanded to include transportation and natural gas fuel suppliers.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020. The Order also requires that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

SB 97

As amended, SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. As directed by SB 97, the OPR amended the CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in CEQA documents. The amendments included revisions to the *Appendix G Initial Study Checklist* that incorporated a new subdivision to address project-generated GHG emissions and contribution to climate change. The new subdivision emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. Under the revised CEQA Appendix G checklist, an agency should consider whether a project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and whether a project conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing emission of GHGs.

Further guidance based on SB 97 suggests that the lead agency make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. When assessing the significance of impacts from GHG emissions on the environment, lead agencies should consider the extent to which the project may increase or reduce GHG, as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance determined applicable to the project, and/or the extent to which the project complies with adopted regulations or requirements to implement a state wide, regional, or local plan for the reduction or mitigation of GHG emissions. Feasible mitigation under SB 97 includes on-site and off-site measures, such as GHG emission-reducing design features and GHG sequestration.

[21] California Air Resources Board. *AB 32 Scoping Plan*. Available at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed August 2019.

SB 375

In September 2008, SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, was enacted, which is intended to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction targets to be achieved by the State's 18 metropolitan planning organizations (MPOs), including the Association of Bay Area Governments (ABAG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

Executive Order S-13-08

Then-Governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

AB 197 and SB 32

On September 8, 2016, AB 197 and SB 32 were enacted with the goal of providing further control over GHG emissions in the State. SB 32 built on previous GHG reduction goals by requiring that the CARB ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. Achieving a 40 percent reduction of statewide GHG emissions by 2030 represents a critical milestone on the path to reducing statewide GHG Emissions by 80 percent by 2050, as required by Executive Order S-03-05. Additionally, SB 32 emphasizes the critical role that reducing GHG emissions would play in protecting disadvantaged communities and public health from adverse impacts of climate change. Enactment of SB 32 was predicated on the enactment of AB 197, which seeks to make the achievement of SB 32's mandated GHG emission reductions more transparent to the public and responsive to the Legislature. Transparency to the public is achieved by AB 197 through the publication of an online inventory of GHG and TAC emissions from facilities required to report such emissions pursuant to Section 38530 of California's Health and Safety Code. AB 197 further established a six-member Joint Legislative Committee on Climate Change Policies, which is intended to provide oversight and accountability of the CARB, while also adding two new legislatively-appointed, non-voting members to the

CARB. Additionally, AB 197 directs the CARB to consider the "social costs" of emission reduction rules and regulations, with particular focus on how such measures may impact disadvantaged communities.

The CARB has recently prepared an update to the State's Climate Change Scoping Plan in accordance with the 2030 GHG emissions targets codified by SB 32, which was adopted by CARB on December 14, 2017.

California Building Standards Code

California's building codes (California Code of Regulations [CCR], Title 24) are published on a triennial basis, and contain standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Standards Commission is responsible for the administration and implementation of each cycle of the California Building Standards Code (CBSC), which includes the proposal, review, and adoption process. Supplements and errata are issued throughout the cycle to make necessary mid-term corrections. The 2019 code has been prepared and will become effective January 1, 2020. The California building code standards apply State-wide; however, a local jurisdiction may amend a building code standard if the jurisdiction makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which will become effective with the rest of the CBSC on January 1, 2020. 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.

The CALGreen Code encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC (CCR Title 24, Parts 6 and 11) expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards resulting in a seven percent reduction in energy consumption from the 2016 standards for commercial structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

Local Regulations

The following are the regulatory agencies and regulations pertinent to the proposed project on a local level.

Plan Bay Area

Plan Bay Area is a long-range integrated transportation and land use/housing strategy through 2040 for the San Francisco Bay Area, designed to reduce GHG emissions from cars and light-duty trucks. On July 18, 2013, the Plan was jointly approved by the MTC and the ABAG. Pursuant to SB 375, the Plan includes the region's Sustainable Communities Strategy and 2040 Regional Transportation Plan. Plan Bay Area provides a strategy for meeting 80 percent of the region's future housing needs in Priority Development Areas (PDAs).[22] Plan Bay Area anticipates that from 2010 to 2040, Contra Costa County is projected to experience 12 percent of the total regional housing growth, or an estimated 93,390 additional households. The County will also take 11 percent of the region's job growth, or 70,300 new jobs, the majority of which will be in PDAs. Both job and housing growth will cluster along San Pablo Avenue in the western part of the County, including Richmond, as well as in the suburbs of Antioch, Pittsburg, Walnut Creek, and San Ramon. A PDA is identified in the area surrounding the Pittsburg/Bay Point BART station, but the PDA does not include the project site.

The plan assists jurisdictions seeking to implement the plan at the local level by providing funding for PDA planning and transportation projects. Plan Bay Area also provides jurisdictions with the option of increasing the efficiency of the development process for projects consistent with the plan and other criteria included in SB 375.

Bay Area Air Quality Management District

The BAAQMD is the public agency entrusted with regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The BAAQMD has prepared their own *CEQA Air Quality Guidelines* (May 2017), which is intended to be used for assistance with CEQA review. The BAAQMD CEQA Air Quality Guidelines include thresholds of significance and project screening levels for criteria air pollutants (ROG, NO_X, PM_{10}, and $PM_{2.5}$), GHGs, TACs, CO, and odors, as well as methods to assess and mitigate project-level and plan-level impacts.

Regional Air Quality Plans

As discussed above, the 2001 Ozone Attainment Plan was prepared as a revision to the Bay Area part of the SIP to achieve the federal ozone standard. The plan was adopted on October 24, 2001, approved by the CARB on November 1, 2001, and was submitted to the USEPA on November 30, 2001 for review and approval as a revision to the SIP. In addition, in order to fulfill federal air quality planning requirements, the BAAQMD adopted a $PM_{2.5}$ emissions inventory for the year 2010, which was submitted to the USEPA on January 14, 2013 for inclusion in the SIP.

The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, TACs, and GHGs. Although the CCAA does not require the region to submit a plan for achieving the State PM_{10} standard, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. It should be noted that on January 9, 2013, the USEPA issued a final rule to determine that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ federal standard, which suspends federal SIP planning requirements for the Bay Area.

---

22 Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2040: Final.* Available at: http://2040.planbayarea.org/reports. Accessed May 2020.

The aforementioned applicable 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 standards within the SFBAAB. The plans are based on population and employment projections provided by local governments, usually developed as part of the General Plan update process.

Rules and Regulations

All projects under the jurisdiction of the BAAQMD are required to comply with all applicable BAAQMD rules and regulations. Applicable BAAQMD's regulations and rules include, but are not limited to, the following:

- Regulation 6: Particulate Matter and Visible Emissions
    - Rule 3: Wood-burning Devices
- Regulation 7: Odorous Substances
- Regulation 8: Organic Compounds
    - Rule 3: Architectural Coatings

City of Pittsburg General Plan

The following are applicable General Plan goals and policies related to air quality from the City of Pittsburg General Plan:

Goal 9-G-9 Work toward improving air quality and meeting all Federal and State ambient air quality standards by reducing the generation of air pollutants from stationary and mobile sources.

Goal 9-G-10 Reduce the potential for human discomfort or illness due to local concentrations of toxic contaminants, odors and dust.

Goal 9-G-11 Reduce the number of motor vehicle trips and emissions accounted to Pittsburg residents and encourage land use and transportation strategies that promote use of alternatives to the automobile for transportation, including bicycling, bus transit, and carpooling.

Policy 9-P-29 Cooperate with the Bay Area Air Quality Management District to achieve emissions reductions for ozone and its precursor, PM_{10}.

Policy 9-P-30 Cooperate with Bay Area Air Quality Management District to ensure compliance with dust abatement measures during construction.

These measures would reduce particulate emissions from construction and grading activities.

Policy 9-P-33 Encourage new residential development and remodeled existing homes to install clean-burning fireplaces and wood stoves.

Residential woodburning is a growing source of localized air pollution. Woodsmoke released from fireplaces and wood stoves contains carbon monoxide, nitrogen dioxide, and PM_{10}. Pollution can be reduced by installing gas fireplaces or EPA certified wood heaters.

4.1.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to air quality and GHG emissions. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Based on the recommendations of BAAQMD, City of Pittsburg standards, and consistent with Appendix G of the CEQA Guidelines, the proposed project would result in a significant impact related to air quality and GHG emissions if the project would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations (including localized CO concentrations and TAC emissions);
- Result in other emissions (such as those leading to odors) affecting a substantial number of people;
- 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 of an agency adopted for the purpose of reducing the emissions of GHGs.

This chapter of the EIR considers a significant impact associated with air quality and/or GHG emissions to occur if the proposed project would result in any of the following specific thresholds:

- Generation of short-term construction-related or operational criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10}, or
- Conflict with or obstruct implementation of the 2017 Clean Air Plan and/or the 2001 Ozone Attainment Plan;
- Exposure of sensitive receptors to substantial levels of pollutant concentrations (i.e., localized CO emissions of 20.0 ppm for 1-hour averaging time or 9.0 ppm for 8-hour averaging time);
- An increase in cancer risk levels of more than 10 persons in one million;
- A non-cancer (chronic or acute) hazard index greater than 1.0;
- An annual average $PM_{2.5}$ concentration of 0.3 micrograms per cubic meter ($\mu g/m^3$) or greater;
- Generation of cumulative criteria air pollutant emissions in excess of 10 tons/year for ROG, NO_X, and $PM_{2.5}$ and 15 tons/year for PM_{10}; and/or
- Generation of a cumulatively considerable contribution to GHG emissions in excess of 1,100 $MTCO_2e$/year or 4.6 $MTCO_2e$/SP/year by 2020, 660 $MTCO_2e$/year or 2.76 $MTCO_2e$/SP/year by 2030, or an 80 percent reduction from 1990 levels by 2050.

In addition, as noted above, an impact associated with TACs would occur if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project, would exceed the following:

- An increase in cancer risk levels (from all local sources) of more than 100 persons in one million;
- A chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- An annual average $PM_{2.5}$ concentration (from all local sources) of 0.8 µg/m^3 or greater.

Further discussion of each of the above thresholds is provided below.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) determined that development of the proposed project would result in a less-than-significant impact related to the following:

- Result in other emissions (such as those leading to odors) affecting a substantial number of people;

For the reasons cited in the Initial Study, the impacts discussed above are not analyzed further in this EIR.

Criteria Pollutant Emissions

The air quality emissions analysis in this EIR uses the thresholds for criteria pollutant emissions as discussed below.

The BAAQMD thresholds of significance for ozone precursor and PM emissions are presented in Table 4.1-6 and are expressed in pounds per day (lbs/day) for construction and operational average daily emissions and tons per year (tons/year) for maximum annual operational emissions. In addition to the thresholds of significance presented below for criteria air pollutants of particular concern for the Bay Area, BAAQMD has developed thresholds for GHG emissions, localized CO emissions, and TACs. Pursuant to CEQA Guidelines Section 15064.4(b)(2), the lead agency is charged with determining a threshold of significance that is applicable to the project. For the analysis within this EIR, the City has elected to use the BAAQMD's thresholds of significance.

Table 4.1-6
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.

Localized CO Emissions

If a project would cause localized CO emissions to exceed the 1-hour and 8-hour CAAQS of 20.0 parts per million (ppm) and 9.0 ppm, respectively, BAAQMD would consider the project to result in a significant impact to air quality. 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 project would result in a less-than-significant impact related to localized CO emission concentrations if the following screening criteria are met:

- 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.).

TAC Emissions

According to BAAQMD, a significant impact related to TACs would occur if a project would cause any of the following:

- An increase in cancer risk levels of more than 10 persons in one million;
- A non-cancer (chronic or acute) hazard index greater than 1.0; or
- An annual average $PM_{2.5}$ concentration of 0.3 micrograms per cubic meter ($\mu g/m^3$) or greater.

An impact associated with TACs would also occur if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project, would exceed the following:

- An increase in cancer risk levels (from all local sources) of more than 100 persons in one million;
- A chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- An annual average $PM_{2.5}$ concentration (from all local sources) of 0.8 $\mu g/m^3$ or greater.

GHG Emissions

The BAAQMD developed a threshold of significance for project-level GHG emissions in 2009. The District's approach to developing the threshold was to identify a threshold level of GHG emissions for which a project would not be expected to substantially conflict with existing California legislation. At the time that the thresholds were developed, the foremost legislation regarding GHG emissions was AB 32, which established an emissions reductions goal of reducing statewide emissions to 1990 levels by 2020.[23] If a project would generate GHG emissions above the threshold level, the project would be considered to generate significant GHG emissions and conflict with AB 32. The GHG emissions thresholds of significance recommended by BAAQMD to determine compliance with AB 32 are as follows:

[23] Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. December 7, 2009.

- 1,100 $MTCO_2e$/year; or
- 4.6 $MTCO_2e$/SP/year, where "SP" equates to service population, which is the total residents plus employees.

Because BAAQMD emissions thresholds include both a mass emissions threshold (i.e., 1,100 $MTCO_2e$/year), and an emissions efficiency threshold (i.e., 4.6 $MTCO_2e$/SP/year), a project may result in operational emissions in excess of 1,100 $MTCO_2e$/year, but still avoid a significant impact by resulting in emissions below the 4.6 $MTCO_2e$/SP/year efficiency threshold, or vice versa. It should be noted that the foregoing thresholds are intended for use in assessing operational GHG emissions only. However, construction of a proposed project would result in GHG emissions over a short-period of time. To capture the construction-related GHG emissions due to buildout of the proposed project, such emissions are amortized over the duration of the construction period and added to the operational GHG emissions. Given that construction-related GHG emissions would not occur concurrently with operational emissions and would cease upon completion of construction activities, combining the two emissions sources represents a conservative estimate of total project GHG emissions.

Since the adoption of BAAQMD's GHG thresholds of significance, the State legislature has passed AB 197 and SB 32, which builds off of AB 32 and establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030. Considering the legislative progress that has occurred regarding statewide reduction goals since the adoption of BAAQMD's standards, the emissions thresholds presented above would determine whether a proposed project would be in compliance with the 2020 emissions reductions goals of AB 32, but would not demonstrate whether a project would be in compliance with SB 32. In accordance with the changing legislative environment, the BAAQMD has begun the process of updating the District's CEQA Guidelines; however, updated thresholds of significance have not yet been adopted. In the absence of BAAQMD-adopted thresholds to assess a project's compliance with SB 32, the City has chosen to consider additional GHG emissions thresholds.

The BAAQMD has determined that projects with operational emissions equal to or less than 1,100 $MTCO_2e$/year or 4.6 $MTCO_2e$/SP/year would comply with the emission reductions target of 1990 levels by 2020 set forth by AB 32. SB 32 requires that by 2030 statewide emissions be reduced by 40 percent beyond the 2020 reduction target set by AB 32; therefore, in the absence of specific guidance from BAAQMD or the CARB, the City assumes that in order to meet the reduction targets of SB 32, a proposed project would be required to reduce emissions by an additional 40 percent beyond the emissions reductions currently required by BAAQMD for compliance with AB 32. Assuming a 40 percent reduction from current BAAQMD targets would be in compliance with SB 32, a proposed project would be in compliance with SB 32 if the project's emissions did not exceed the following thresholds:

- 660 $MTCO_2e$/year; or
- 2.76 $MTCO_2e$/SP/year.

In addition to the quantitative thresholds described above, the City has also determined that a qualitative analysis assessing the project's compliance with the CARB's 2017 Scoping Plan is warranted. The CARB's 2017 Scoping Plan establishes a strategy to meet California's 2030 GHG targets; accordingly, should the project be shown to comply with the 2017 Scoping Plan, the proposed project would be considered consistent with Statewide reduction targets for the year

2030. Based on recommendations from BAAQMD, a project's compliance with the local actions contained in Appendix B of the 2017 Scoping Plan may be used to assess a project's compliance with the 2017 Scoping Plan.[24]

By using the BAAQMD thresholds of significance for GHG and the updated SB 32 thresholds discussed above, the City would comply with Section 15064.4(b)(3) of the CEQA Guidelines, which suggests that lead agencies consider the extent that the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction of GHG emissions.

Method of Analysis

A comparison of the proposed project's emissions to the thresholds discussed above shall determine the significance of the proposed project's potential impacts to air quality and climate change. Emissions attributable to the proposed project which exceed the significance thresholds could have a significant effect on regional air quality and the attainment of the federal and State AAQS. Where potentially significant air quality impacts are identified, mitigation measures are described that would reduce or eliminate the impact.

Construction Emissions

The proposed project's short-term on-site construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects.[25] The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model. Based on information provided by the project applicant, the following assumptions were made for the construction modeling:

- Demolition would not be required;
- Construction was assumed to commence in June 2020 and would occur over approximately two-years; and
- A total of 3.69 acres would be disturbed during the grading phase.

At the time the modeling was conducted, June 2020 was the anticipated construction start date. Due to project delays, the timeframe for construction has since shifted. However, use of June 2020 as the date of initiation of construction represents a conservative approach to analysis. In particular, CalEEMod assumes that construction fleets will become more efficient in future years due to the implementation of statewide emissions reductions programs, such as the In-Use Off-Road Vehicle Regulation. Thus, construction of the proposed project beginning in the year 2020 would result in higher emissions than if the project were assumed to begin construction in the year 2021 or later. CalEEMod includes similar assumptions for operational emissions, with operational emissions generally decreasing into the future. By assuming an earlier initiation of construction activity, the first operational year of the project would also be assumed to occur earlier. As such, the use of June 2020 as an initiation date of construction activity allows for the conservative analysis of project-related emissions during both construction and operations. In

[24] Flores, Areana, Bay Area Air Quality Management District. Personal communication [phone], Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning & Management. September 17, 2019.

[25] BREEZE Software and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.2*. November 2017.

addition, the modeling was performed for a previous iteration of the project, which consisted of approximately 179 parking spaces. The site plan has since been updated and the project would only include 176 parking spaces. The minor reduction in parking spaces would likely result in an associated minor reduction in emissions, if emissions would change at all. As such, the modeling presented below represents a conservative analysis, and all conclusions presented herein remain applicable.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. Results of the modeling are expressed in lbs/day for criteria air pollutant emissions and MTCO_2*e*/yr for GHG emissions, which allows for comparison between the model results and the thresholds of significance. All CalEEMod modeling results are included in Appendix D to this EIR.

Off-site Construction Emissions

In addition to the estimation of on-site construction emissions, emissions were estimated related to placement of a proposed eight-inch sewer line from the project site to a connection point with existing sewer infrastructure in Portofino Drive, north of the project site. For proposed linear projects, such as utility line improvements, the Roadway Construction Emissions Model (RoadMod), prepared by the Sacramento Metropolitan Air Quality Management District (SMAQMD),[26] provides a model for calculating emissions. All RoadMod results are included in Appendix D to this EIR.

Operational Emissions

The proposed project's operational emissions were estimated using CalEEMod. Based on the construction information provided by the project applicant, the first full year of project operations is anticipated to occur in the year 2023.

The modeling performed for the proposed project included compliance with BAAQMD rules and regulations (i.e., low-volatile organic compound [VOC] paints), as well as with the California Building Energy Efficiency Standards Code. The proposed project's compliance with the California Building Energy Efficiency Standards would be verified as part of the City's building approval review process. As mentioned above, the 2019 Building Energy Efficiency Standards are anticipated to result in 30 percent less energy consumption for commercial buildings over the previous energy standards. Furthermore, the CO_2 intensity factor was adjusted within CalEEMod in order to reflect PG&E's anticipated progress towards the State RPS goal by 2023.[27] The project-specific trip rate data provided by Abrams Associates, Inc. was applied to the project modeling as well.

The results of emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. Results of the modeling are expressed in lbs/day for project-level emissions, tons/year for cumulative emissions, and MTCO_2*e*/year for GHG emissions, which allows for comparison between the model results and the thresholds of significance. All CalEEMod modeling results are included in Appendix D to this EIR.

CalEEMod relies on estimates of mobile emissions rates from the CARB's EMFAC model, which in-turn is based on the existing state legislation and CAFE standards that require increased

---

26 Sacramento Metropolitan Air Quality Management District. *Roadway Construction Emissions Model*. May 2016.

27 California Public Utilities Commission. *California Renewables Portfolio Standard*. March 25, 2015. Available at: http://www.cpuc.ca.gov/PUC/energy/Renewables/. Accessed May 2020.

vehicle fuel efficiency and decreased vehicle emissions into the future. As discussed in the Regulatory Context section above, the federal government has recently moved to revoke the 2013 California Clean Air Act Waiver and weaken the CAFE standards. Both actions have been legally by California as well as various other states, cities, and the District of Columbia. Although the fate of judicial proceedings regarding California's waiver and the CAFE standards are currently unknown, should the federal government's actions be allowed to take effect, future vehicle emissions would increase from the levels otherwise anticipated to occur by EMFAC and CalEEMod. Because the federal government's actions in revoking the 2013 California Clean Air Act Waiver and weakening the CAFE standards are subject to judicial proceedings, the ultimate fate of such actions is speculative. Consequently, the potential effect of the federal government's actions related to future GHG emissions from passenger vehicles is speculative and cannot be determined at this time.

Based on the speculative nature of future judicial proceedings, this analysis reflects the baseline conditions in place at the time of release of the NOP for the proposed project, which was prior to the revocation of California's waiver and the proposed weakening of the CAFE standards.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.1-1 Generation of short-term construction-related criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10}. Based on the analysis below, and with implementation of mitigation, the impact would be *less than significant*.

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site and in off-site improvement areas. Construction exhaust emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction workers' commute, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM_{10} and $PM_{2.5}$ emissions. As construction of the proposed project would generate air pollutant emissions intermittently within the site, and in the vicinity of the site, until all construction has been completed, construction is a potential concern because the proposed project is in a nonattainment area for ozone and PM.

The proposed project is required to comply with all BAAQMD rules and regulations including Regulation 8, Rule 3 related to architectural coatings. In addition, all projects under the jurisdiction of the BAAQMD are recommended to implement all of the Basic Construction Mitigation Measures provided in the BAAQMD CEQA Guidelines, which include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. 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.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. 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.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 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.
7. 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.
8. 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.

Although BAAQMD recommends that all construction activity within the SFBAAB implement the above listed Basic Construction Mitigation Measures, the proposed project was modeled without the inclusion of such measures to provide a conservative, worst-case emissions scenario. If project construction included any of the Basic Construction Mitigation Measures, PM emissions would likely be reduced from what is presented in this Chapter.

Modeling assumptions are discussed in the Method of Analysis section above. As noted in the Method of Analysis section, the modeling assumed that both on-site and off-site construction would occur with implementation of the proposed project. For analysis purposes, on-site and off-site construction are assumed to occur simultaneously. However, for informational purposes, the anticipated emissions that would result from on- and off-site construction activity are presented separately in Table 4.1-7 and Table 4.1-8 below, while the combined total of on- and off-site emissions are presented in Table 4.1-9.

Table 4.1-7
Maximum Unmitigated On-site Construction Emissions (lbs/day)

Pollutant	On-site Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	5.37	54	**NO**
NO_x	36.48	54	**NO**
PM_{10} (exhaust)	1.84	82	**NO**
PM_{10} (fugitive)	6.23	None	**N/A**
$PM_{2.5}$ (exhaust)	1.74	54	**NO**
$PM_{2.5}$ (fugitive)	3.35	None	**N/A**
Source: CalEEMod, October 2019 (see Appendix D).			

Table 4.1-8
Maximum Unmitigated Off-site Construction Emissions (lbs/day)

Pollutant	Off-site Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	3.03	54	**NO**
NO_x	21.07	54	**NO**
PM_{10} (exhaust)	1.47	82	**NO**
PM_{10} (fugitive)	0.14	None	**N/A**
$PM_{2.5}$ (exhaust)	1.29	54	**NO**
$PM_{2.5}$ (fugitive)	0.03	None	**N/A**

Source: RoadMod, October 2019 (see Appendix D).

Table 4.1-9
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Total On- and Off-site Emissions	Threshold of Significance	Exceeds Threshold?
ROG	8.40	54	**NO**
NO_x	57.55	54	**YES**
PM_{10} (exhaust)	3.31	82	**NO**
PM_{10} (fugitive)	6.37	None	**N/A**
$PM_{2.5}$ (exhaust)	3.03	54	**NO**
$PM_{2.5}$ (fugitive)	3.38	None	**N/A**

Source: CalEEMod and RoadMod, October 2019 (see Appendix D).

As presented in Table 4.1-7 and Table 4.1-8, when considered separately, on- and off-site construction activities resulting from implementation of the proposed project would result in construction-related emissions of ROG, NO_X, $PM_{10,}$ and $PM_{2.5}$ below the applicable thresholds of significance. Accordingly, should implementation of off-site and on-site construction activity occur at different times (i.e., on-site and off-site construction activity never occurs on the same day), maximum daily emissions during construction would not exceed the BAAQMD's thresholds. However, should on- and off-site construction occur simultaneously, the combined emissions could exceed the threshold of significance for NO_X emissions, as shown in Table 4.1-9. Although emissions of ROG and PM_{10} from on- and off-site construction would remain below the applicable BAAQMD thresholds of significance for each pollutant, because NO_X emissions would exceed the BAAQMD's applicable threshold, the simultaneous implementation of on- and off-site construction would contribute substantially to the region's nonattainment status for ozone.

Therefore, the propose project could have the potential to contribute to the region's nonattainment status of ozone and violate an air quality standard, and a ***significant*** impact could result.

Mitigation Measure(s)

Based on the above, implementation of the proposed project could comply with BAAQMD's thresholds of significance by ensuring that on- and off-site construction activity does not occur simultaneously (Option 1 in Mitigation Measure 4.1-1 below), or by ensuring that emissions from off-site or on-site construction equipment are sufficiently reduced to ensure that the combined emission of NO_X from simultaneous implementation of on- and off-site construction does not exceed BAAQMD's standards (Option 2 in Mitigation Measure 4.1-1 below). Should Option 1 of Mitigation Measure 4.1-1 be selected, maximum daily emissions from on- and off-site construction would not coincide, and, thus, maximum daily emissions would occur separately at the levels presented in Table 4.1-7 and Table 4.1-8. Should Option 2 be selected, maximum emissions would occur as presented in Table 4.1-10 and Table 4.1-11, respectively. Mitigation Measure 4.1(b) would be required of the project applicant regardless of either option chosen. Consequently, Mitigation Measure 4.1-1 below would ensure that construction of the proposed project does not exceed the BAAQMD's thresholds and implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

Table 4.1-10
Maximum Construction Emissions with Implementation of Option 2 – Mitigated Off-site Emissions (lbs/day)

Pollutant	On-site Emissions	Mitigated Off-site Emissions	Total Construction Emissions	Threshold of Significance	Exceeds Threshold?
NO_x	36.48	16.86	53.34	54	**NO**
Source: CalEEMod and RoadMod, October 2019 (see Appendix D).					

Table 4.1-11
Maximum Construction Emissions with Implementation of Option 2 – Mitigated On-site Emissions (lbs/day)

Pollutant	Mitigated On-site Emissions	Off-site Emissions	Total Construction Emissions	Threshold of Significance	Exceeds Threshold?
NO_x	29.18	21.07	50.25	54	**NO**
Source: CalEEMod and RoadMod, October 2019 (see Appendix D).					

4.1-1(a) The project applicant must comply with one of the following options:

1. *On-site and off-site construction activity shall not occur simultaneously during any phase of project construction. For the purposes of this mitigation measure, off-site construction activities are considered to be any activity related to off-site utility improvements. Should the project applicant elect to begin on-site construction first, the on-site improvements shall be accepted as complete by the City, prior to initiation of any off-site construction activity. Inversely, should the project applicant elect to begin off-site construction first, proof of completion of all off-site construction activity shall be submitted for review and approval to the Building Official, prior to initiation of any on-site construction activity.*

2. *If any portion of on-site and off-site construction must occur simultaneously, prior to approval of any Improvement Plans, the*

project applicant shall show on the Improvement Plan via notation that the contractor shall submit to the Bay Area Air Quality Management District (BAAQMD) a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all off-road diesel-powered equipment over 25 horsepower (including owned, leased, and subcontractor equipment) used in either (a) all on-site construction activities or (b) all off-site construction activities. The contractor is only required to submit one equipment inventory, for either on-site or off-site construction.

With submittal of the equipment inventory, the contractor shall provide a written calculation to the BAAQMD for approval demonstrating that the heavy-duty off-road vehicles over 25 horsepower to be used in off-site construction, including owned, leased and subcontractor vehicles, will achieve a fleet-average of 20 percent of NO_X reduction as compared to the California Air Resources Board (CARB) statewide fleet average emissions. The fleet average shall be calculated based only on those pieces of equipment used for the off-site improvements. Acceptable options for reducing emissions may include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. If any new equipment is added after submission of the inventory, the contractor shall contact the BAAQMD prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the BAAQMD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman. In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer's specifications.

4.1-1(b) Project construction shall comply with the following requirements:

- *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.*
- *Idling shall be limited to five minutes or less for all on-road related and/or delivery trucks in accordance with CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.*

4.1-2 Generation of operational criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10} and conflict with or obstruct implementation of the 2017 Clean Air Plan, and/or the 2001 Ozone Attainment Plan. Based on the analysis below, the impact would be *less than significant*.

Operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ would be generated by the proposed project from both mobile and stationary sources. Day-to-day activities such as employee/customer vehicle trips and the movement of goods to and from the project site would make up the majority of the mobile emissions. Emissions would occur from area sources such as natural gas combustion from heating mechanisms, landscape maintenance equipment exhaust, and consumer products (e.g., deodorants, cleaning products, spray paint, etc.).

The proposed project's daily unmitigated operational emissions have been estimated using CalEEMod and are presented in Table 4.1-12below. The various assumptions included in the modeling are discussed above.

As shown in the table below, the proposed project would result in operational emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ below the applicable thresholds of significance. Because the proposed project would generate long-term operational criteria air pollutant emission below BAAQMD's thresholds, the project would not substantially contribute to the region's nonattainment status of ozone and/or violate an air quality standard.

Table 4.1-12
Maximum Unmitigated Project Operational Emissions (lbs/day)

Pollutant	Project Emissions				Threshold of Significance	Exceeds Threshold?
	Area	Energy	Mobile	Total		
ROG	0.89	0.05	2.56	**3.49**	54	**NO**
NO_x	0.00	0.41	10.30	**10.71**	54	**NO**
PM_{10} (exhaust)	0.00	0.03	0.05	**0.08**	82	**NO**
PM_{10} (fugitive)	-	-	4.68	**4.68**	None	**N/A**
$PM_{2.5}$ (exhaust)	0.00	0.03	0.05	**0.08**	54	**NO**
$PM_{2.5}$ (fugitive)	-	-	1.25	**1.25**	None	**N/A**

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

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 Clean Air Plan The air quality plans contain mobile source controls, stationary source controls, and TCMs to be implemented within the region to attain the State and federal ozone standards within the SFBAAB. According to the BAAQMD CEQA Guidelines, if a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the air quality plans. Additionally, if approval of a project would not cause the disruption, delay, or otherwise hinder the implementation of any air quality plan control measure, the project may be considered consistent with the air quality plans. Because the proposed project is expected to generate long-term operational criteria air pollutant emission below BAAQMD's thresholds of significance, the project would not be considered to conflict with or obstruct implementation of regional air quality plans.

Based on the above, the proposed project would result in a ***less-than-significant*** impact associated with the generation of operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ in excess of thresholds and a conflict with or obstruction of implementation of regional air quality plans.

Mitigation Measure(s)
None required.

4.1-3 Exposure of sensitive receptors to substantial levels of pollutant concentrations. Based on the analysis below, the impact would be *less than significant*.

The major pollutant concentrations of concern are localized CO emissions and 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. Implementation of the proposed project would increase traffic volumes on streets near the project site; therefore, the project would be expected to increase local CO concentrations. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Consequently, the BAAQMD has established preliminary screening criteria for determining whether the effect that a project would have on any given intersection would cause localized CO emissions in excess of the applicable thresholds of significance, including compliance with an applicable congestion management program and a contribution of additional traffic such that traffic volumes at an affected intersection would increase to 44,000 vehicles per hour, or 24,000 vehicles per hour where mixing is limited.

As demonstrated in the Traffic Impact Study prepared by Abrams Associates for the project, none of the intersections in the project study area experience vehicle volumes in excess of 44,000 vehicles per hour or 24,000 vehicles per hour where air mixing is limited. Furthermore, the addition of project-related traffic to study intersections would not result in vehicle traffic at any of the study intersections exceeding the aforementioned vehicle per hour screening volumes. Consequently, the proposed project would not result in any intersections experiencing vehicle volumes sufficient to exceed BAAQMD's screening thresholds and 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 recommendations for siting new sensitive land uses near sources typically associated with significant levels of TAC emissions, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards.[28] The CARB has identified 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. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure.

The proposed project would include development of commercial land uses in proximity to existing sensitive receptors. The nearest existing sensitive receptors to the project site would be the residences located to the north of the site, across West Leland Road, with more distant residential receptors located to the east, south, southwest, and northwest of the project site.

The proposed commercial uses would involve restaurant and grocery uses, long-term operations of the foregoing land uses would not involve operation of stationary sources of TACs, including stationary sources of DPM. The CARB's Handbook considers facilities (distribution centers) with associated diesel truck trips of more than 100 heavy-duty trucks per day, or 40 trucks per day if each truck is equipped with a transportation refrigeration unit (TRU), as a source of substantial TAC emissions, specifically DPM, and recommends that such facilities should not be cited within 1,000 feet of nearby sensitive receptors. The proposed project would not experience more than 100 heavy-duty trucks per day, and, based on the types of uses included in the project, would not be considered a distribution center. Because the project would involve grocery and restaurant uses, trucks with TRUs may transport goods to and from the site. Nevertheless, the number of TRUs accessing the site each day is not anticipated to exceed 40 trucks. Consequently, project operations would not result in a substantial amount of DPM emissions related to heavy-duty truck traffic or on-site TRU use, and, overall, operation of the proposed project would not result in impacts related to the emission of TACs.

Construction-related activities have the potential to generate concentrations of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, construction would be temporary and would occur over a relatively short duration in comparison to the operational lifetime of the proposed project. While methodologies for conducting health risk assessments are associated with long-term exposure periods (e.g., over a 30-year period or longer), construction activities associated with the proposed project were estimated to occur over an approximately two-year period, which would include all off-site work as well. Only portions of the site or off-site improvement areas would be disturbed at a time throughout the construction period, with operation of construction equipment occurring intermittently throughout the course of a day rather than continuously at any one location on the project site or within the off-site improvement areas. In addition, all construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation includes emissions

28 California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

reducing requirements such as limitations on vehicle idling, disclosure, reporting, and labeling requirements for existing vehicles, as well as standards relating to fleet average emissions and the use of Best Available Control Technologies. Considering the intermittent nature of construction equipment operating within an influential distance to the nearest sensitive receptors, the duration of construction activities in comparison to the operational lifetime of the project, the typical long-term exposure periods associated with conducting health risk assessments, and compliance with regulations, the likelihood that any one nearby sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low.

Consequently, the proposed project would not be anticipated to result in the exposure of sensitive receptors to substantial concentrations of TACs during project construction or operations.

Conclusion

As discussed above, the proposed project would not cause any substantial levels of localized CO concentrations or involve long-term operations of any stationary diesel engine or other major on-site stationary source of TACs. Construction-related emissions would be temporary, intermittent throughout the day, spread over the project site, and regulated. Thus, the proposed project would be expected to result in a ***less-than-significant*** impact associated with exposure of sensitive receptors to substantial levels of pollutant concentrations.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

A project’s emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The geographic context for the proposed project cumulative air quality analysis includes the City of Pittsburg and surrounding areas within the SFBAAB that are designated nonattainment for ozone and PM.

Global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. The standards of significance described above focus on a project’s contribution to cumulative global climate change impacts.

4.1-4 Generation of cumulative criteria air pollutant emissions in excess of 10 tons/year for ROG, NO_X, and $PM_{2.5}$ and 15 tons/year for PM_{10}. Based on the analysis below, the project's incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

The long-term emissions associated with operation of the proposed project in conjunction with other existing or planned development in the area would incrementally contribute to impacts to the region's air quality. The proposed project's contribution to cumulative emissions of criteria air pollutants were calculated using CalEEMod and are presented in Table 4.1-.

Table 4.1-13
Unmitigated Project Cumulative Emissions (tons/yr)

Pollutant	Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	**0.64**	10	**NO**
NO_X	**1.93**	10	**NO**
PM_{10} (Exhaust)	**0.02**	15	**NO**
$PM_{2.5}$ (Exhaust)	**0.01**	10	**NO**
Source: CalEEMod, October 2019 (see Appendix D).			

As shown in the table, the proposed project's operational cumulative emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ would be below BAAQMD's thresholds of significance for cumulative project emissions. Therefore, unmitigated emissions resulting from project operations would not have the potential to result in a cumulatively considerable net increase in criteria pollutant emissions, for which the region is in nonattainment for federal and state ozone standards. As such, the proposed project's incremental contribution to regional air quality impacts would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

4.1-5 Generation of a cumulatively considerable contribution to GHG emissions in excess of 1,100 $MTCO_2e$/year or 4.6 $MTCO_2e$/SP/year by the first year of project operations, 660 $MTCO_2e$/year or 2.76 $MTCO_2e$/SP/year by 2030, conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Based on the analysis below, because the proposed project would result in GHG emissions in excess thresholds, and cannot be shown to comply with the CARB's 2017 Scoping Plan at this time, even with mitigation, the impact would be *cumulatively considerable* and *significant and unavoidable*.

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 that are associated with global climate change. Estimated GHG emissions attributable to future development would be primarily associated with increases of CO_2 and, to a lesser extent, other GHG pollutants, such as CH_4 and N_2O. Sources of GHG emissions include area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste.

Potential impacts resulting from project implementation are considered in comparison with BAAQMD's adopted thresholds of significance and the year 2030 thresholds of significance discussed above, as well in comparison with the Local Actions included in Appendix B of the CARB's Scoping Plan.

GHG Emissions Thresholds

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the City nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Nonetheless, the proposed project's construction GHG emissions have been estimated. The CalEEMod emissions estimates prepared for the proposed project determined that unmitigated project construction would result in total emissions of 1,171.03 MTCO$_2$*e*.

Following estimation of construction related emissions, such emissions were amortized and included in the annual operational GHG emissions. Amortizing the construction GHG emissions (a one-time release that would occur only during construction of the project) and including them in the annual operational emissions (which would occur every year over the lifetime of the entire project) represents a conservative analysis for the annual operational emissions. The BAAQMD does not recommend any specific operational lifetimes for use in amortizing construction-related GHG emissions; however Based on existing research and building standards, structures built within the project site are anticipated to exist for approximately 50 years.[29] In the absence of specific BAAQMD recommendations, a 50-year operational lifetime is used for this analysis. Therefore, the total construction emissions amortized over 50 years would be 23.42 MTCO$_2$*e*/year.

According to the US Green Building Council and based on the type of land uses proposed for inclusion in the proposed project, operations of the project are anticipated

29 For instance, building codes in the European Union have used target building life spans of 50-years for typical modern buildings since at least the year 2010. See EN 1990: 2002+A1. *Eurocode – Basis of Structural Design*. Updated April 2010. With recent analyses demonstrating that a lifespan of 50-years is the most frequently used building life span employed in life-cycle analyses of building performance: Janjua, Shahana Y., Arker, Prabir K., and Biswas, Wahidul K. *Impact of Service Life on the Environmental Performance of Buildings*. Published January 2, 2019.

to involve a minimum of 88 employees within the project site.[30] The number of employees is used below to calculate the annual emissions per service population for project operations.

The proposed project's operational GHG emission estimations were conducted using CalEEMod and are included in Appendix D to this EIR.

Compliance with AB 32

As shown in Table 4.1-14, the project's total unmitigated annual GHG emissions in the first year of project operation, 2023, including amortized construction-related emissions, were estimated to be approximately 1,353.75 MTCO_2*e*/year, which results in emissions of 15.38 MTCO_2*e*/SP/year. Thus, implementation of the proposed project would result in emissions in excess of the BAAQMD's 4.6 MTCO_2*e*/SP/year threshold of significance for GHG emissions, and the proposed project would be considered to conflict with the emissions reductions targets of AB 32.

Table 4.1-14
Unmitigated Year 2023 Project GHG Emissions

	Annual GHG Emissions
Construction-Related GHG Emissions	23.42 MTCO_2*e*/year
Operational GHG Emissions:	1,330.33 MTCO_2*e*/year
Area	0.00 MTCO_2*e*/year
Energy	244.90 MTCO_2*e*/year
Mobile	958.63 MTCO_2*e*/year
Waste	116.13 MTCO_2*e*/year
Water	10.68 MTCO_2*e*/year
Total Annual GHG Emissions	1,353.75 MTCO_2*e*/year
Total Annual GHG Emissions Per Service Population[1]	**15.38 MTCO_2*e*/SP/year**
BAAQMD AB 32 Threshold	4.6 MTCO_2*e*/SP/year
Exceeds Threshold?	**YES**

Note:
[1] Service population for project calculated to be 88 based on proposed land uses.

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

Compliance with SB 32

As shown in Table 4.1-15, the project's total unmitigated annual GHG emissions in the year 2030, including amortized construction-related emissions, were estimated to be approximately 1,157.14 MTCO_2*e*/year, which results in emissions of 13.15 MTCO_2*e*/SP/year. Thus, implementation of the proposed would result in emissions above the 660 MTCO_2*e*/year and 2.76 MTCO_2*e*/SP/year thresholds of significance being used for GHG emissions in the year 2030, and, thus, the proposed project would be considered to conflict with SB 32.

30 U.S. Green Building Council. *Building Area Per Employee by Business Type*. May 13, 2008.

Table 4.1-15 Unmitigated Year 2030 Project GHG Emissions	
	Annual GHG Emissions
Construction-Related GHG Emissions	23.46 $MTCO_2e$/year
Operational GHG Emissions:	1,133.68 $MTCO_2e$/year
Area	0.00 $MTCO_2e$/year
Energy	193.20 $MTCO_2e$/year
Mobile	814.77 $MTCO_2e$/year
Waste	116.13 $MTCO_2e$/year
Water	9.57 $MTCO_2e$/year
Total Annual GHG Emissions	1,157.14 $MTCO_2e$/year
Total Annual GHG Emissions Per Service Population[1]	**13.15 $MTCO_2e$/SP/year**
BAAQMD SB 32 Threshold	2.76 $MTCO_2e$/SP/year
Exceeds Threshold?	**YES**

Note:
[1] Service population for project calculated to be 88 based on proposed land uses.

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

Project Consistency with the 2017 Scoping Plan

Appendix B to the CARB's 2017 Scoping Plan provides a examples of potentially feasible mitigation measures that could be considered to assess a project's compliance with the 2017 Scoping Plan. Because the 2017 Scoping Plan represents the CARB's strategy for meeting the State's 2030 GHG emissions reductions goals, compliance with the Local Actions within the 2017 Scoping Plan would demonstrate the project's compliance with SB 32. The project's consistency with the Local Actions within the 2017 Scoping Plan is assessed in Table 4.1-16 below.

Table 4.1-16 Project Consistency with the 2017 Scoping Plan	
Suggested Measure	**Consistency Discussion**
Construction	
Enforce idling time restrictions for construction vehicles.	Mitigation Measure 4.1-1(b) requires enforcement of idling time restrictions for on-road and off-road construction vehicles. Thus, the proposed project would comply with this suggested measure.
Require construction vehicles to operate with the highest tier engines commercially available.	Mitigation Measure 4.1-1(a) presents two options to comply with BAAQMD's criteria pollutant thresholds. Implementation of Option 2 would likely require the use of construction equipment meeting high engine tier standards. Even under Option 1 of Mitigation Measure 4.1-1(a), the fleet of construction equipment used in project implementation would be required to comply with statewide fleet standards, which include the use of high tier engines. Nevertheless, should Option 1 of Mitigation Measure 4.1-1(a) be chosen for implementation of the project, the project contractor would not be required to utilize higher engine tiers than what is typically used. As a result, project compliance with this measure is uncertain.
Divert and recycle construction and demolition waste, and use locally-	The 2019 CALGreen Code and Chapter 8.10 of the City's Municipal Code require the diversion of construction and

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
sourced building materials with a high recycled material content to the greatest extent feasible.	demolition waste, and the proposed project would be required to comply with the requirements within the most up-to-date CALGreen Code. The project applicant has not committed to using locally-sourced building materials or materials with a high recycled content, and, thus, compliance with this suggested measure is uncertain at this time.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance.	Existing vegetation within the site is limited to annual grasses over the majority of the site, and several ornamental street trees along the western boundary of the site. Implementation of the proposed project would result in removal of the existing annual grasses and some of the existing ornamental street trees. However, following removal of the small ornamental trees and annual grasses, the project would include placement of substantial landscaping throughout the site, which would result in a greater number of on-site trees and shrubs than currently exists. Consequently, the project would comply with this measure.
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators.	The project applicant has not committed to the use of grid power for electric energy rather than operating temporary power generators; thus, compliance with this suggested measure is uncertain at this time.
Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available.	The project applicant has not committed to the use of alternatively fueled construction equipment. Furthermore, the commercial availability of renewable diesel in the project area is currently unknown. Consequently, compliance with this suggested measure is uncertain at this time.
Require diesel equipment fleets to be lower emitting than any current emission standard.	As discussed above, Option 2 of Mitigation Measure 4.1-1(a) may result in the use of lower emitting diesel equipment than current fleet standards would otherwise require. However, the project applicant may elect to implement Option 1, which would not require the use of lower emitting diesel equipment. As such, compliance with this suggested measure is uncertain at this time.
Operations	
Comply with lead agency's standards for mitigating transportation impacts under SB 743.	The City of Pittsburg has not yet adopted standards for mitigating transportation impacts under SB 743. Nevertheless, Abrams Associates qualitatively considered the potential for the proposed project to result in impacts related to vehicle miles travelled (VMT). As further discussed in the Traffic Impact Analysis prepared for the project by Abrams Associates, the project would be considered a locally serving retail project, which are considered by the Governor's Office of Planning and Research (OPR) to typically result in a less-than-significant transportation impact.[3] In this case, the City concurs with OPR's general findings because the proposed project would provide commercial land uses in a largely residential area. The provision of commercial land uses near existing residences would allow nearby residents to reduce vehicle usage by walking or combining trips, which would have the effect of reducing VMT. Despite the lack

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
	of local policies, the project is considered to comply with the intention of SB 743 by reducing local VMT.
Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals.	Per the 2019 CALGreen Code, the project is required to provide the infrastructure necessary to facilitate installation of EV charging systems in six percent of total on-site parking spaces. Compliance with the 2019 CALGreen Code would ensure that the proposed project provides sufficient EV charging infrastructure to comply with this suggested measure.
Allow for new construction to install fewer on-site parking spaces than required by local municipal building code, if appropriate.[1]	Based on the proposed uses, the project would be required to provide 199 parking stalls per the City's Municipal Code. As proposed, the project would include 176 parking stalls. However, the City has not required the project to reduce parking supply. Thus, the proposed project would not conflict with this measure.
Dedicate on-site parking for shared vehicles.	The project applicant has not committed to providing on-site parking for shared vehicles. Therefore, compliance with this suggested measure is uncertain at this time.
Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects.	Bicycle parking would be provided at each of the proposed structures to accommodate employees and customers. Accordingly, the project would comply with this measure.
Provide on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or implement relevant improvements identified in an applicable bicycle and/or pedestrian master plan.	Pedestrian, transit, and bicycle infrastructure currently exist on San Marco Boulevard and on West Leland Road. Despite minor changes to the alignment of San Marco Boulevard, the project would maintain the existing infrastructure. Furthermore, the project would provide internal pedestrian walkways to facilitate pedestrian circulation on-site. Consequently, the project would comply with this measure.
Require on-site renewable energy generation.	The 2019 Building Energy Efficiency Standards require that nonresidential buildings under three stories require solar-ready rooftops with infrastructure capable of supporting future photovoltaic systems. In addition, the project would be required to comply with Section D of the City's Development Review Design Guidelines, which mandates that commercial projects install rooftop renewable energy systems unless the system is determined to be substantially cost prohibitive. As such, the project would be required to include a solar-ready rooftop, and may install the associated solar panels. However, because the economic feasibility of the panels has not yet been determined, and the applicant has not committed to the implementation of an on-site renewable energy system, compliance with this measure is uncertain at this time.
Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over a certain size development.	The proposed project would not include wood-burning fireplaces. Thus, the proposed project would comply with this suggested measure.
Require cool roofs and "cool parking" that promotes cool surface treatment for new parking facilities as well as	The 2019 Building Energy Efficiency Standards contain requirements for the thermal emittance, three-year aged reflectance, and Solar Reflectance Index (SRI) of roofing

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
existing surface lots undergoing resurfacing.	materials used in new construction and re-roofing projects. Such standards, with which the project would be required to comply, would help to reduce heating and cooling costs associated with the proposed project. Therefore, the proposed project would generally comply with the suggested measure.
Require solar-ready roofs.	The 2019 Building Energy Efficiency Standards requires that new non-residential structures be built with solar-ready roofs. Therefore, the proposed project would be required to provide solar-ready roofs and would comply with this suggested measure.
Require organic collection in new developments.	Chapter 8.04 Rubbish Removal and Disposal requires that all property owners maintain a subscription for refuse collection. Although the City's Municipal Code includes requirements for the storage of yard wastes, the City does not maintain requirements for the collection of such wastes or other organics. Thus, compliance with this measure is uncertain at this time.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Project landscaping has been designed to integrate very low, low, and moderate water use plants to the maximum extent feasible. To minimize water use within the site, the proposed landscaping has been separated into hydrozones for low or moderate water use. Separation of the site into hydrozones would allow for irrigation water amounts to be tailored to the water demand for each zone, minimizing the potential for overwatering within the site. The project has been demonstrated to comply with the MWELO. Consequently, the proposed project would include low-water use landscaping in compliance with this measure.
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code.	The project applicant has not committed to achieving Zero Net Energy. Thus, compliance with this suggested measure is uncertain at this time.
Encourage new construction, including municipal building construction, to achieve third-party green building certifications, such as the GreenPoint Rated program, LEED rating system, or Living Building Challenge.	The project applicant has not committed to achieving third-party green building certification. Consequently, compliance with this suggested measure is uncertain at this time.
Require the design of bike lanes to connect to the regional bicycle network.	Bike lanes currently exist in San Marco Boulevard and West Leland Road. All existing bike lanes would be maintained following implementation of the proposed project. Other regional bicycle infrastructure does not exist within the project area. Thus, the project would comply with this measure.
Expand urban forestry and green infrastructure in new land development.	The project would include landscaping throughout the site, which would result in an increase in the total number of trees on-site, compared to the existing site conditions. Therefore, the project would expand urban forestry and comply with this measure.
Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter	The project applicant has not committed to dedicating preferential spaces for carpooling, vanpooling, electric vehicles, or park and ride spaces for commuter bus and rail service use.

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
bus, electric vehicles, and rail service use.	Thus, compliance with this suggested measure is uncertain at this time.
Require a transportation management plan for specific plans which establishes a numeric target for non-single occupancy vehicle travel and overall VMT.	The proposed project is not a specific plan. As a result, the measure does not apply to the proposed project.
Develop a rideshare program targeting commuters to major employment centers.	Although project operations would involve employee commutes to the site, the project site is not considered a major employer. Consequently, the measure does not apply to the proposed project.
Require the design of bus stops/shelters/express lanes in new developments to promote the usage of mass-transit.	The proposed project does not involve the construction of new bus stops/shelters/express lanes. However, project improvements would preserve an existing bus turnout along the project frontage to West Leland Road. Because new bus infrastructure is not required for project implementation, the suggested measure is not applicable to the proposed project.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.[2]	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require electric vehicle charging station (Conductive/inductive) and signage for non-residential developments.	Per the 2019 CALGreen Code, the project is required to provide the infrastructure necessary to facilitate future installation of EV charging systems in six percent of total on-site parking spaces. However, the project applicant has not committed to installing signed, operational EV charging stations. Therefore, compliance with this suggested measure is uncertain at this time.
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands.	The proposed project does not include parks or public/quasi-public lands, and, as such, the suggested measure is not applicable to the proposed project.
Require each residential unit to be "solar ready," including installing the appropriate hardware and proper structural engineering.	The proposed project is not a residential project. Consequently, the suggested measure is not applicable to the proposed project.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans.	The proposed project would be required to comply with the energy efficiency measures set forth in Title 20, Appliance Efficiency Regulations, of the California Code of Regulations,

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
	and the 2019 Building Energy Efficiency Standards. Thus, the project would generally comply with this suggested measure.
Require each residential and commercial building equip buildings [sic] with energy efficient AC units and heating systems with programmable thermostats/timers.	As noted above, the project would comply with all applicable standards included within the CBSC, which requires the use of energy efficient appliances and building systems. As such, the project would generally comply with the suggested measure.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use.	The project applicant has not committed to reporting energy use or setting specific energy use targets. Accordingly, compliance with this suggested measure is uncertain at this time.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets (see CALGreen Divisions 4.3 and 5.3 as well as Appendices A4.3 and A5.3).	The proposed project would be required to comply with the non-residential water efficiency regulations within CALGreen. Thus, the proposed project would comply with this suggested measure.
Require the use of energy-efficient lighting for all street, parking, and area lighting.	Plans for street, parking, and area lighting have not been finalized. However, Chapter 6, Outdoor Lighting, of the 2019 Nonresidential Compliance Manual for Title 24 includes standards related to energy efficient street, parking, and area lighting. The project would be required to comply with such standards and, therefore, the project would comply with this suggested measure.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch.	The project would comply with all applicable standards within Article VII, Landscaping, Irrigation, and Hydroseeding, of Chapter 18.84 of the City's Municipal Code. As noted therein, a minimum of one tree per six parking spaces must be distributed throughout the parking lot, and landscaping designs shall include a minimum two-inch layer of mulch on exposed soils. As such, the landscaping plans would be required to include tree planting throughout the proposed parking areas and the use of compost/mulch. Thus, the proposed project would comply with this suggested measure.
Incorporate water retention in the design of parking lots and landscaping, including using compost/mulch.	As noted above, the project would be required to include mulch within landscaped areas associated with the proposed parking lots. In addition, the project would comply with Section 18.84.310, Water-efficient landscape standards, of the Municipal Code, which requires projects to minimize runoff and increase on-site stormwater retention and filtration. Accordingly, the project would comply with this suggested measure.
Require the development project to propose an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from California Air Pollution Control Officers Association	The project applicant has not committed to an off-site mitigation project that would generate carbon credits. Consequently, compliance with this suggested measure is uncertain at this time.

(Continued on next page)

Table 4.1-16
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
(CAPCOA), the California Air Resources Board, or other similar entities determined acceptable by the local air district.	
Require the project to purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registry determined to be acceptable by the local air district.	The project applicant has not committed to purchasing carbon credits. Accordingly, compliance with this suggested measure is uncertain at this time.
Encourage the applicant to consider generating or purchasing local and California-only carbon credits as the preferred mechanism to implement its off-site mitigation measure for GHG emissions and that will facilitate the State's efforts in achieving the GHG emission reduction goal.	The project applicant has not committed to purchasing local or California-only carbon credits. Therefore, compliance with this suggested measure is uncertain at this time.

Notes:
1. This is not to be confused with the Americans with Disabilities Act (ADA) requirements or other minimum parking requirements for dedicating space to clean air vehicles and/or EV charging infrastructure
2. The requirements for outdoor receptacle outlets are located in the California Electrical Code, Article 210.52(E).
3. Governor's Office of Planning and Research. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.

***Source:** California Air Resources Board. AB 32 Scoping Plan [Appendix B]. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed April 2020.*

As shown in Table 4.1-16 the proposed project would comply with most of the suggested measures. However, compliance with some of the foregoing measures is uncertain at this time, and, therefore, the project's compliance with the 2017 Scoping Plan cannot be ensured at this time. Because the 2017 Scoping Plan is the CARB's strategy for meeting the State's 2030 emissions goals established by SB 32, the project would be considered to conflict with SB 32.

Conclusion

Based on the above, project emissions in the year 2023 would be above the BAAQMD's threshold of significance and could be considered in conflict with the emissions reductions required by AB 32. Moreover, project emissions in the year 2030 would not achieve the emissions reductions required by SB 32 and the project would conflict with the 2017 Scoping Plan, which is the CARB's strategy for achieving the emissions reductions goals of SB 32. Therefore, the proposed project would be considered to conflict with the goals of AB 32 and SB 32, and would contribute to a ***cumulatively considerable*** impact related to GHG emissions.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce GHG emissions from operation of the proposed project. However, unless subsequent GHG emissions analysis can be performed to show otherwise, the impact is assumed to remain *cumulatively considerable* and *significant and unavoidable*.

4.1-5 *Improvement Plans and building plans for the proposed project shall identify all feasible mitigation measures developed in coordination with the BAAQMD and as determined by the City of Pittsburg Community Development Department to reduce significant impacts to the extent feasible. Mitigation Measures may include, but would not be limited to, BAAQMD's recommended mitigation measures such as the following:*

- *Orient buildings to maximize passive solar heating;*
- *Promote ridesharing, transit, bicycling, and walking for work trips through dedication of preferential parking spaces, provision of on-site bicycle parking, provision of end-of-trip facilities such as bicycle lockers and on-site showers;*
- *Subsidize employee transit passes;*
- *Install electric vehicle charging infrastructure in excess of existing CBSC requirements;*
- *Provide charging stations and preferential parking spots for electric vehicles;*
- *Install energy star appliances;*
- *Install solar water heating;*
- *Install on-site renewable energy systems;*
- *Install dedicated electrical outlets sufficient to provide power to any truck mounted refrigerated units accessing the loading docks, at all proposed loading docks and loading areas;*
- *All loading docks and loading areas shall be equipped with signage stating the following: "State regulations prohibit engine idling in excess of five minutes";*
- *Use water efficient landscapes and native/drought-tolerant vegetation;*
- *Provide outdoor electrical outlets to allow for use of electrically powered landscaping equipment;*
- *Construct on-site or fund off-site carbon sequestration projects (such as tree plantings or reforestation projects); and*
- *Purchase carbon credits to offset project annual emissions. Carbon offset credits shall be verified and registered with The Climate Registry, the Climate Action Reserve, or another source approved by CARB, BAAQMD, or the City of Pittsburg.*

If off-site mitigation measures are proposed, the applicant must be able to show that the emission reductions from identified projects are real, permanent through the duration of the project, enforceable, and are equal to the pollutant type and amount of the project impact being offset. In addition, any off-site measures shall be subject to review and approval by the City of Pittsburg Community Development Department. BAAQMD *recommends that off-site mitigation projects occur within the nine-county Bay Area in order to reduce localized impacts and capture potential co-benefits. If BAAQMD has established an off-site mitigation program at the time a development application is submitted, as an off-site mitigation measure, the applicant may choose to enter into an agreement with BAAQMD and pay into the established off-site mitigation program fund, where BAAQMD would commit to reducing the type and amount of emissions identified in the agreement.*

4.2 Recreation

4.2 RECREATION

4.2.1 INTRODUCTION

The Recreation chapter of this EIR summarizes setting information and identifies potential new impacts on parks and recreation. Information for this chapter was drawn from project information provided by the Pittsburg General Plan[1] and the associated EIR.[2]

4.2.2 EXISTING ENVIRONMENTAL SETTING

The existing environmental setting section describes the existing parks and recreation facilities within the City.

Parks and Recreation

Pittsburg's Parks and Recreation Department manages the maintenance of the City's park facilities, while the Recreation Department manages the operation of the parks. The Development Services Department is responsible for acquisition and development of park facilities. Pittsburg's current park and recreation facilities (including parks currently under construction) are listed in Table 4.2-1. The primary source of funding for park maintenance comes from the Citywide Landscaping and Lighting Assessment District. Park maintenance is also provided by developer fees and the General Fund.

Community parks are developed primarily to meet the recreational needs of a large portion of the City. Community parks range in size according to purpose, and often feature one-of-a-kind community facilities or natural resources. For example, Riverview Park offers paths and amenities along the Delta waterfront, while Small World Park features small replicas of a fort, mission, railroad ride, lagoon, riverboat, and a full-scale carousel. Community parks, such as Buchanan Park, may also contain a greater variety of recreational facilities, such as swimming pools, community centers, public rest rooms, bocce ball and horseshoe areas, trails, athletic fields, and pond fishing.

Neighborhood parks primarily serve a small portion of the City, usually within one-half mile radius of the park. Neighborhood parks are generally oriented toward the recreational needs of children and youth. For example, Marina Park provides playground equipment, as well as softball, baseball, and soccer fields.

All of the City's neighborhood parks are located near collector streets in residential neighborhoods, while community parks lie along arterial roadways to serve the larger City population. The parks located closest to the project site include the Giacomelli Park, located directly east, and the Larry Lasater Park located south of the project site.

---

[1] City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century*. Adopted November 16, 2001.
[2] City of Pittsburg. *City of Pittsburg General Plan Draft Environmental Impact Report (SCH#1999072109)*. January, 2001.

Table 4.2-1
City of Pittsburg Parks

	Name	Location	Acres	Type
1	8th St. Greenbelt	8th St.	4.7	LP
2	Americana Park	N. Parkside Dr.	2	NP
3	Buchanan Park	4150 Harbor St.	16	CP
4	Buckley Park Plaza	525 Railroad Ave.	1	CP
5	California Seasons Park	Seasons Way	2.5	NP
6	Central Harbor Park	Marina Boulevard	1.5	CP
7	Central Park	Pittsburg / Antioch Highway	8	CP
8	City Park	17th & Railroad Ave.	28	CP
9	Columbia Linear Park	Columbia Ave.	4.4	LP
10	De Anza Park	Trident Dr.	3.5	NP
11	Giacomelli Park	2011 W. Leland Road	2	CP
12	Heritage Park Plaza	East 4th St.	0.1	NP
13	Highlands Park	Golden Hill Dr. & St. Paul Cir.	4.5	NP
14	Highlands Ranch Park	Buchanan Rd.	10	CP
15	Hillsdale Park	Doffodil & Jacqueline Dr.	3.5	NP
16	John Henry Johnson Park	W. Leland & John Henry Johnson Pkwy.	8	CP
17	Larry Lasater Park	San Marcos Blvd.	3	NP
18	Marina Walk Park	W. 6th & Cutter	1.7	NP
19	Mariner Park	8th St. & Herb White Way	3.6	CP
20	Oak Hills Park	Southwood Dr.	5	NP
21	Riverview Park	Bayside Dr.	4	CP
22	Small World Park	2551 Harbor St.	8	SF
23	Stoneman Trailhead	W. Leland & John Henry Johnson Pkwy.	190	CP
24	Santa Fe Linear Park	Santa Fe Ave.	2.6	LP
25	Woodland Hills Park	Crestview & Alta Vista Dr.	2.4	NP
26	Village Park at New York Landing	Cambria Dr.	2	NP

Note: CP = Community Park; NP = Neighborhood Park; MP = Mini Park; LP = Linear Park; SF = Special Facility.

Source: ***City of Pittsburg Parks and Recreation Department. Parks and Rentals. Available at:*** **http://www.ci.pittsburg.ca.us/index.aspx?page=440*. Accessed May 2020.***

In addition to City parks, regional trails provide opportunities for hiking, biking, and jogging along open space corridors throughout the region. The Delta De Anza Regional Trail is a paved multi-use hiking, bicycling and equestrian trail currently spanning over 15 miles of the planned 25-mile length, which is easily accessible from the project site. When completed, the Delta De Anza Regional Trail would generally follow the East Bay Municipal Utility District's corridor and the Contra Costa Water District's canal. The trail intersects Bailey Road east of the project site, near the Bailey Road State Route 4 overpass, approximately 1.5 miles away from the project site. The trail also connects the cities of Concord, Bay Point, Pittsburg, Antioch, and Oakley and provides access to Contra Loma Regional Park (and Black Diamond Mines Regional Preserve) through Antioch Community Park. The Black Diamond Mines Regional Preserve offers tours of abandoned coal mining tunnels and many miles of hiking trails. The Delta De Anza Regional Trail and the Black Diamond Mines Regional Preserve are under the jurisdiction of the East Bay Regional Park District (EBRPD).

Project Site

The entire project site consists of 9.37 acres owned by the City and is designated Park by the City's General Plan and zoned PD. Considering the size of the project site and the current designations, the project site could have been developed as a Community Park. As described in the City's General Plan, Community Parks are intended to meet the recreational needs of a large portion of the City. Such parks often feature natural resources, or connections to natural resources, as well as recreational facilities, including swimming pools, community centers, public restrooms, bocce ball and horseshoe areas, trails, athletic fields, and/or pond fishing. As part of the proposed project, 3.69 acres of the project site would be redesignated and rezoned to Community Commercial, while the remaining 5.68 acres would stay designated as Park.

4.2.3 REGULATORY CONTEXT

The following discussion contains a summary review of regulatory controls pertaining parks and recreation, including State and local laws and ordinances.

State Regulations

The following are the State environmental laws and policies relevant to parks and recreation.

Quimby Act

California Government Code Section 66477 of the Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The required dedication and/or fee are based upon the residential density, parkland cost, and other factors. Land dedication and fees collected pursuant to the Quimby Act may be used for acquisition, improvement, and expansion of park, playground, and recreational facilities or the development of public school grounds.

Local Regulations

The following are the local environmental policies relevant to parks and recreation.

City of Pittsburg General Plan

The City of Pittsburg General Plan goals and policies related to public services and utilities applicable to the proposed project are presented below:

Open Space, Youth and Recreation Element

Goal 8-G-1 Develop a high-quality public park system for Pittsburg that provides varied recreational opportunities accessible to all City residents.

Goal 8-G-2 Provide parks that reflect the diversity of Pittsburg's natural setting, including creeks and waterways, tree stands, rock outcroppings, and topography.

Policy 8-P-1 Maintain a neighborhood and community park standard of 5 acres of public parkland per 1,000 residents.

Policy 8-P-2 Pursue the development of park and recreation facilities within reasonable walking distance of all homes.

Policy 8-P-3 Develop public parks and recreational facilities that are equitably distributed throughout the urbanized area, and provide neighborhood recreation facilities in existing neighborhoods where such facilities are presently lacking.

Policy 8-P-4 Consider park accessibility, use and character as more valuable than size in the acquisition and development of new parks.

The City's current park classification system (see above) is based more on the use and character of park facilities than their size. For example, many community parks that fulfill important community needs, such as shoreline access, are smaller than those proposed by national and regional recreation agencies.

Policy 8-P-5 Maintain park and recreation facility standards for new development to serve both residents and employees, attainable through dedication of parkland or payment of in-lieu fees.

The demand by new residential development for parks and open space facilities is a well-known calculation among Californian cities, but the additional demands on park facilities by employees of local businesses (for example, eating lunch in a park or jogging along the waterfront after work) who are not residents must also be considered.

Policy 8-P-6 Revise the City's Park Dedication Ordinance to define useable area for parkland dedication requirements. Proposed park sites should be:

- Designed such that 80 percent of the site has slopes of less than 3 percent that are suitable for active recreational play;
- Sized according to the City's park standard of 5 acres per 1,000 residents (for example, a 200-unit subdivision would yield about 600 residents, and a dedication requirement of 3 acres);
- Available for year-round use, so that detention basins are not designated as parkland or shared park facilities; and
- A minimum of 2 contiguous acres in new residential neighborhoods.

Policy 8-P-7 Encourage the development or provision of facilities that cater to diverse recreational interests.

These facilities could provide hard-surface courts in-lieu of turf areas, which include but are not limited to activities such as tennis, skateboarding, hand/racquetball, bocce ball, basketball, volleyball, badminton, and roller hockey. These may be provided within existing parks or constructed as specific-use facilities.

Policy 8-P-11 Encourage dedication of fully developed parks rather than in-lieu fees. When in-lieu fees are collected, ensure that they are spent acquiring and developing new park sites or enhancing existing park facilities.

Due to significant increases in land values over time, the City's purchasing power can be diminished as time lapses between the collection of in-lieu fees and the actual acquisition of parkland. Dedication of usable parkland prevents the potential depreciation of park fees while the City searches for appropriate and affordable parkland.

Policy 8-P-12 Ensure that all parks acquired through dedication are at least 2 acres in size within new residential developments (target 5 acres). Accept smaller visual open space areas in new commercial and industrial development for parkland dedications.

Several of the newer mini-parks contained within residential developments lack necessary park amenities, such as benches. The provision of visual open space as parkland dedication in commercial developments is reasonable. However, residential developments must provide more usable open space areas.

Policy 8-P-13 Limit parkland dedications to flat, usable parcels within new residential neighborhoods (see Policy 8-P-6 above). Ensure that such park sites provide open, grassy areas for informal recreational play (such as football or soccer).

Policy 8-P-14 Develop a maintenance-funding plan for all City parks. Consider participation in parkland maintenance districts as a condition of development approval for new residential subdivisions.

Maintenance of existing and new parks is essential in the on-going use of developed parkland. A citywide plan for funding the maintenance and improvement of all City parks will ensure that the citizens of Pittsburg derive the full benefits of City parkland. Requiring new residential development to secure funding sources for the maintenance of new parks will allow the City to continue developing and maintaining recreational facilities on a limited budget.

Policy 8-P-16 Encourage dedication of public parks in new residential developments with more than 150 units.

Current and proposed parks are not sufficient to meet City's park standard (See Policy 8-P-1). The City should consider new sites to add to its park system.

Pittsburg Municipal Code

The City of Pittsburg Municipal Code sections relating to parks and recreation that are applicable to the proposed project are presented below:

Section 17.32.020. Park dedication

Section 17.32.020 (D)(2) of the Pittsburg Municipal Code specifies park land dedication requirements for new residential development based on a standard of 1.73 acres per 100 dwelling units.

4.2.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to parks and recreation. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, a parks and recreation impact may be considered to be significant if any potential effects of the following conditions would result with the proposed project's implementation:

- Result substantial adverse physical impacts associated with the provision of new or physically altered parks facilities, need for new or physically altered parks facilities, the construction of which could cause significance environmental impacts, in order to maintain acceptable service ratios or other performance objectives;
- 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; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) did not dismiss any of the issues related to recreation. As such, all of the issue areas included as part of Appendix G of the CEQA Guidelines related to transportation and circulation are discussed below.

Method of Analysis

The Recreation chapter identifies any impacts of the proposed project on existing parks and recreation services that could occur if the project as currently proposed is approved and implemented. The standards of significance listed above were used to delineate the significance of any potential impacts associated with parks and recreation as a result of the proposed project. The City's General Plan and General Plan EIR were used as a basis for the analysis contained herein, and information from the General Plan and General Plan EIR was supplemented through preparation of an updated inventory of existing parkland with the City, which was compared to the potential loss of park acreage that would result with implementation of the project.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on the implementation of the proposed project in comparison with the standards of significance identified above.

4.2-1 Result in substantial adverse physical impacts associated with the provisions of new or physically altered park and recreation facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios or other performance objectives for park facilities. Based on the analysis below, the impact would be *less than significant*.

Development of the proposed project would result in a General Plan Amendment to change 3.69 acres of the site's current Park designation to Community Commercial. Thus, the overall park land anticipated by the General Plan would be reduced. According to Section 17.32.020 (M) of the Pittsburg Municipal Code, commercial and industrial development in which new dwelling units are not added are exempt from park dedication requirements. However, given that the proposed project would convert future potential park space to commercial uses, the loss of land could create an impact on parks and recreation throughout the City.

Policy 8-P-1 requires the City maintain a neighborhood and community park standard of five acres per 1,000 residents, which is the maximum permitted under the Quimby Act. Based on data from the United States Census Bureau, the 2018 population in the City was 72,437.[3] Thus, a total of 362 acres of park space throughout the City would be required to fulfill Policy 8-P-1. Per population estimates that conservatively cover the time horizon during which the project would be constructed and open to the public (i.e., 2030), the Association of Bay Area Governments estimates that the City of Pittsburg's population will reach 81,300 people, necessitating approximately 406.5 acres of parks. The City's current park area, as listed in Table 4.2-1 totals 301.9 acres, but the City's General Plan Open Space, Youth and Recreation Element, contemplates the development of additional parks (including the project site and other San Marco neighborhood properties) such that a total of approximately 417 acres of parks would be provided.[4] If the loss of park acreage associated with the project site is subtracted from the total, there would be a new net total of approximately 413.3 acres of parks capable of servicing 82,660 residents. This service population exceeds the projected population of 81,300. As such, the existing and planned park space is adequate to meet the City's standards. Therefore, the proposed project would result in a ***less-than-significant*** impact associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios or other performance objectives for park facilities.

Mitigation Measure(s)

None required.

[3] United States Census Bureau. *Pittsburg, California.* Available at: https://www.census.gov/quickfacts/pittsburgcitycalifornia. Accessed August 2, 2019.

[4] City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century* [pg. 8-5]. Adopted November 16, 2001.

4.2-2 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. Based on the analysis below, the impact would be *less than significant*.

Although the proposed project includes a request to amend the General Plan designation of 3.69-acres of the project site from Park to Community Commercial, it is important to note that the 3.69-acre portion of the project site that would be redesignated is not currently developed for recreational uses. As such, implementation of the proposed project would not result in the loss of recreational facilities in a manner that could result in increased use and deterioration of other existing recreational facility. Moreover, the project would not interfere or alter operation of Giacomelli Park adjacent to the site. Therefore, nearby residents would continue to have access to recreational facilities in the project area, and the project would not accelerate the deterioration of existing facilities through the proposed redesignation.

Demand on recreational facilities is typically driven by residents and residential developments. The proposed project only includes commercial type developments; thus, the project would not result in any new residents residing at the project site that could cause an increase in demand on existing recreational facilities. The potential exists that employees and commercial center patrons at the project site may use the existing facilities at Giacomelli Park; however, the total number of employees that would work at the site would be relatively limited, and only a fraction of employees at the site would be anticipated to use the existing facilities at Giacomelli Park.

Considering the above, the proposed project would not have the potential to result in the substantial physical deterioration of any existing recreational facilities, and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)
None required.

Cumulative Impacts and Mitigation Measures
As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the proposed project in combination with other proposed and pending projects in the region. Other proposed and pending projects in the region under the cumulative context would include buildout of the City of Pittsburg General Plan, as well as development of the most recent planned land uses within the vicinity of the project area. Cumulative development in the cumulative geographic context could have combined effects on public services, such as exacerbating an existing response time deficiency in certain areas of the City or increased degradation of certain facilities, and on utilities, such as reaching or exceeding capacity of infrastructure and depleting availability of sources.

4.2-3 Development of the proposed project, in combination with future buildout in the City of Pittsburg, would increase demand for additional park and recreation facilities. Based on the analysis below, the cumulative impact would be *less than significant*.

The analysis presented in Impact 4.2-1 above presented a comprehensive analysis of the citywide demand for park facilities. Considering that the cumulative context for this analysis is the City of Pittsburg, the analysis presented in Impact 4.2-1 represents an analysis of project-level and cumulative impacts that could occur with implementation of the project. Consequently, because the proposed project would result in the removal of 3.69-acres of land that is currently designated for parkland and redesignation for commercial uses, the proposed project would result in an incremental contribution towards the City's existing lack of adequate park space.

However, the proposed project would be required to pay all necessary fees or dedicate necessary land to support adequate provisions for park and recreation facilities within the City. Similar to the proposed project, other future development projects would be required by the City to pay their fair-share fees toward the provision of adequate public services and facilities, including towards the necessary upgrades and expansions of park facilities and equipment. Furthermore, the proposed commercial project is intended to serve the local neighborhood and, therefore, is not likely to draw new patrons from outside of the area that would create a significant additional unanticipated demand on Giacomelli Park. In other words, the addition of the proposed commercial center is not expected to attract faraway visitors who would increase demand on local recreational facilities. Therefore, the proposed project in combination with future buildout in the City of Pittsburg would not result in a significant cumulative impact related to park and recreation facilities.

Therefore, the proposed project's incremental contribution to increases in demand for parks and recreation facilities would not be cumulatively considerable and a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

4.3 Transportation

4.3 TRANSPORTATION

4.3.1 INTRODUCTION

The Transportation chapter of the EIR addresses the existing and cumulative transportation and circulation conditions associated with the development of the proposed project. The analysis includes consideration of proposed project impacts related to transit facilities and services, bicycle facilities, pedestrian facilities, vehicle miles traveled (VMT), along with traffic safety issues. The information contained within this chapter is based on the Traffic Impact Analysis (TIA) prepared for the proposed project by Abrams Associates Traffic Engineering, Inc. (Abrams Associates) (see Appendix E)[1] and peer reviewed by Fehr & Peers,[2] and a VMT analysis prepared by Abrams Associates (see Appendix F).[3] All technical intersection operation calculations are included as an appendix to the TIA.

It should be noted that as a result of Senate Bill (SB) 743, discussed further below, local jurisdictions have been directed to not rely on vehicle Level of Service (LOS) and similar measures related to delay as the sole basis for determining the significance of transportation impacts under CEQA. While the TIA primarily includes analysis of vehicle LOS in the project area, the TIA is provided as an appendix to this EIR and is available upon request at the City of Pittsburg Planning Division.

4.3.2 EXISTING ENVIRONMENTAL SETTING

The section below describes the transportation, traffic, and circulation study area and the physical and operational characteristics of the existing transportation system within the study area, including the surrounding roadway network, transit, bicycle, and pedestrian facilities. In addition, a summary of existing transportation improvement funding mechanisms is provided.

Roadway Network

The principal arterial roadways located within the vicinity of the project site include the following:

State Route (SR) 4/SR 4 Bypass

SR 4 is the primary east-west corridor in Contra Costa County. SR 4 connects Interstate (I) 80 in the City of Hercules to the west with SR 160 and the cities of Oakley and Brentwood to the east. SR 4 is currently a two-lane roadway through Oakley and Brentwood and is a divided freeway from I-680 east through Concord, Pittsburg, and Antioch. Interchanges along SR 4 within the study area include San Marco Boulevard and Bailey Road.

---

1 Abrams Associates Traffic Engineering, Inc. *Traffic Impact Analysis, San Marco Commercial Center, City of Pittsburg*. June 16, 2020.

2 Fehr & Peers. Subject: Technical Peer Review of San Marco Commercial Center Transportation Impact Analysis. August 6, 2019.

3 Abrams Associates Traffic Engineering, Inc. *Re: Vehicle Miles Traveled Analysis for the San Marco Commercial Center Project.* March 4, 2020.

San Marco Boulevard

San Marco Boulevard is a four-lane arterial which starts at the SR 4 freeway interchange. San Marco Boulevard currently is the main access for a series of single-family neighborhoods and Delta View Elementary School. San Marco Boulevard is planned to be extended south until the arterial intersects with Bailey Road, providing another point of access into the area. In the Pittsburg 2020 General Plan, San Marco Boulevard is expected to be a Route of Regional Significance once it is extended to Bailey Road.

West Leland Road

West Leland Road is a four-lane arterial which starts just west of San Marco Boulevard and extends to the east to end at Century Boulevard where it continues as Delta Fair Boulevard. West Leland Road provides two lanes in each direction with a landscaped center median and bike lanes in the project vicinity.

Willow Pass Road

Willow Pass Road is a discontinuous four lane roadway with a center two-way left turn lane. The speed limit on Willow Pass Road is 35 mph in the project study area. Two sections of Willow Pass Road exist in the area. One is the western segment that extends into downtown Concord and the other is the eastern segment in Bay Point which eventually becomes West 10th Street before it extends into downtown Pittsburg.

Bailey Road

Bailey Road is a major north south arterial extending from Willow Pass Road to the north and to the City of Concord on the south. Bailey Road varies in width, providing one to three lanes in each direction through the project study area.

Study Intersections

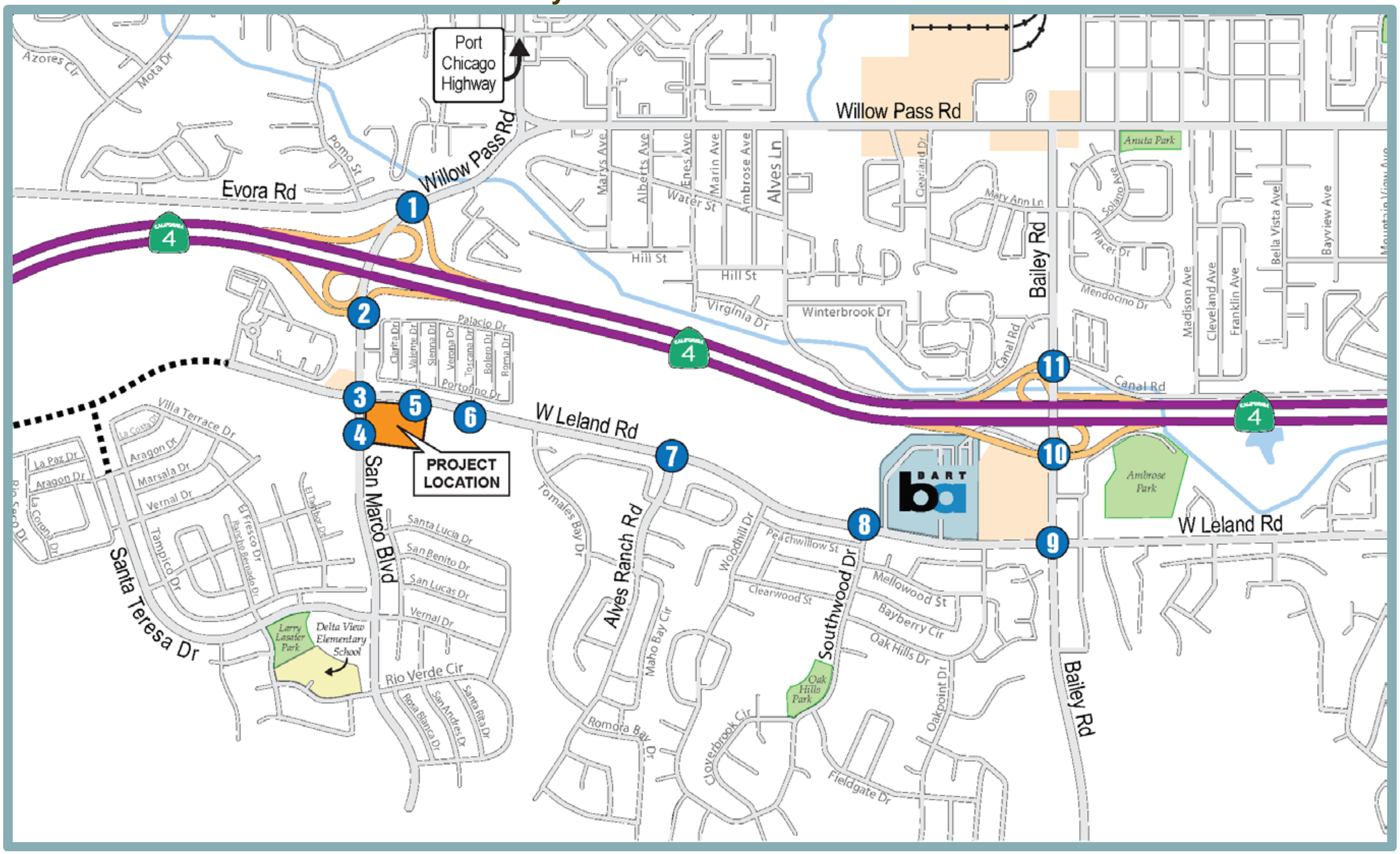
Based on the project's trip generation and the potential for traffic impacts, the following 11 intersections were selected to be included in the study area (see Figure 4.3-1):

1. SR 4 Westbound Off-Ramp/Evora Road and Willow Pass Road;
2. SR 4 Eastbound Off-Ramp and San Marco Boulevard/Willow Pass Road;
3. San Marco Boulevard and West Leland Road;
4. San Marco Boulevard and the Project Entrance;
5. West Leland Road and the Project Entrance/Valente Drive;
6. West Leland Road and Toscana Drive;
7. West Leland Road and Alves Ranch Road;
8. West Leland Road and Southwood Drive;
9. West Leland Road and Bailey Road;
10. SR 4 Eastbound On-Ramp/BART Entrance and Bailey Road; and
11. SR 4 Westbound On-Ramp/Canal Road and Bailey Road.

Common Traffic Analysis Terms

Per the CEQA Guidelines, VMT is the primary metric used to identify transportation impacts under CEQA. VMT is a measure of the total amount of vehicle travel occurring on a given roadway system. Per Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts.

Figure 4.3-1
Study Intersection Locations



Source: Abrams Associates Traffic Engineering, Inc., 2020.

While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, LOS methodology does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving.

Vehicle Miles Traveled

The project site is located in an area which consists primarily of residential development. Residents currently have to travel west to the nearest grocery and retail centers. The nearest commercial center and large grocery store from the site is located at the intersection of West Leland Road and Bailey Road, approximately 1.25 miles to the east. The next nearest commercial center and large grocery store from the site is located at the intersection of Railroad Avenue and Bliss Avenue, approximately 4.0 miles to the east. Thus, residents in the project vicinity have to drive at least 1.25 miles in order to access the nearest commercial center and large grocery store.

Routes of Regional Significance

Routes of Regional Significance are major roadway and freeway corridors that serve regional traffic. Routes of Regional Significance are identified in Action Plans adopted by the Contra Costa Transportation Authority (CCTA) under the countywide Measure J program. Within the project vicinity, SR 4, West Leland Road, Willow Pass Road, and Bailey Road are all identified as Routes of Regional Significance in the East County Action Plan.

Pedestrian and Bicycle Facilities

Sidewalks are provided along most of the roadways within the vicinity of the project site, including along the project frontages. In addition, marked crosswalks, pedestrian push buttons, and pedestrian signals are provided at the adjacent signalized intersection of West Leland Road at San Marco Boulevard. It should be noted that pedestrians were not observed crossing West Leland Road in the vicinity of the project site and Ray Giacomelli Park during the traffic counts conducted as part of the TIA.

Bicycle paths, lanes, and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the following three classes:

- *Class I* – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- *Class II* – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.
- *Class III* – Provides a route designated by signs or permanent markings and shared with pedestrians and motorists.

Within the project area, West Leland Road currently includes Class II bicycle lanes. Class II facilities are provided on Bailey Road between Willow Pass Road and south of the City limit, and on San Marco Boulevard between West Leland Road and Willow Pass Road. In addition, several Class I trails are provided in the project area, including the Delta De Anza Regional Trail and a Class I trail along the west side of San Marco Boulevard.

Transit System

Three major public mass transit operators provide service within or adjacent to the study area, including Bay Area Rapid Transit (BART), the Eastern Contra Costa Transit Authority (or Tri Delta Transit), and the County Connection.

Bay Area Rapid Transit

BART is a rapid mass transit system which provides regional transportation connections to much of the Bay Area. BART runs from the North Bay Area in Richmond to the South Bay Area in Fremont. In the east-west direction BART runs from Pittsburg to the San Francisco Airport and Milbrae with several connections in Oakland. The Pittsburg/Bay Point BART station, which is approximately one mile east of the project site, serves all of Pittsburg, Bay Point, Antioch, and all other surrounding cities and runs from 4:00 AM to 12:00 AM daily, with a weekday frequency of 15 minutes. An E-BART extension to Hillcrest Avenue in Antioch connects with BART at the Bay Point BART station. An additional E-BART Station is located at Railroad Avenue in Pittsburg.

Tri Delta Transit

Tri Delta Transit serves the East County including Brentwood, Oakley, Pittsburg, Antioch, Bay Point and unincorporated areas of East County. Tri Delta Transit operates 14 local bus routes from Monday to Friday, including three express services, and four local bus routes during weekends and holidays. The Tri Delta Transit route that runs closest to the proposed project is Route 200 with an eastbound stop adjacent to the project site on West Leland Road and the eastbound stop across the street on San Marco Boulevard. Route 200 operates on weekdays from approximately 6:30 AM to 6:00 PM with approximately one-hour headways. The route provides a connection to the Pittsburg/Bay Point BART station, where 10 of the 19 Tri Delta Transit bus routes make connections (Routes 200, 201, 380, 387, 388, 389, 390, 392, 394 and 396).

County Connection

The County Connection currently operates a total of 31 fixed-route bus routes on weekdays throughout Central Contra Costa County with limited service to the East County area. Routes 10, 11, 15, and 19 operate within the study area. The County Connection connects passengers to the Antioch Park-and-Ride, Kaiser Medical Center, Pittsburg/Bay Point BART Station, Tri Delta Transit Station, various local schools, Brentwood Park-and-Ride, and the Streets of Brentwood. In addition, County Connection provides convenient connections to many locations in the City and connections to other local and regional transit routes.

4.3.3 REGULATORY CONTEXT

Existing transportation policies, laws, regulations, and funding programs that would apply to the proposed project are summarized below and provide a context for the impact discussion related to the project's consistency with the applicable regulatory conditions and funding programs. Federal plans, policies, regulations, or laws related to transportation and circulation are not directly applicable to the proposed project.

State Regulations

Caltrans has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to such roadways would require Caltrans approval.

Guide for the Preparation of Traffic Impact Studies

Caltrans' *Guide for the Preparation of Traffic Impact Studies* (December 2002) provides guidance for Caltrans staff who review local development and land use change proposals. The Guide provides consistent guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze the traffic impacts to state highway facilities, which include freeway segments, on- or off-ramps, and signalized intersections.

Senate Bill 743

SB 743 (Stats. 2013, ch. 386) requires the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metric beyond TPAs. In response, OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. SB 743 requires that as of April 27, 2019, vehicle LOS and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts. Determination of impacts based on VMT is required Statewide as of July 1, 2020.

Local Regulations and Funding Programs

Local rules and regulations applicable to the proposed project are discussed below.

Contra Costa Countywide Transportation Plan

The CCTA is a public agency formed by the Contra Costa voters to manage the County's transportation sales tax program and to perform countywide transportation planning. The 2017 Countywide Comprehensive Transportation Plan, adopted September 20, 2017, is the CCTA's most recent, broadest policy and planning document.[4] The Plan identifies the criteria for analyzing transportation impacts and sets forth plans for future roadway improvements in the County. In addition, the Plan relies on collaboration with and between partners, both on the countywide and regional levels. Each of the County's five Regional Transportation Planning Committees created an Action Plan, which identifies a complete list of actions to be completed as a result of the Action Plan.

Contra Costa Congestion Management Program

The CCTA is responsible for preparing and adopting a Congestion Management Program (CMP) and updating the Program every other year. The CCTA adopted the County's first CMP in October 1991. The 2019 Contra Costa CMP Update represents the 14th biennial update.

The 2019 update, which was prepared with help from and consultation with representatives of local, regional and State agencies, transit operators and the public, responds to changes in regional transportation planning, projects, and programs made since 2017. The 2019 CMP focuses primarily on bringing the required seven-year CIP up-to-date, while also responding to primarily technical changes and corrections from the 2017 CMP.

East County Action Plans

As part of the Action Plan process, each Regional Transportation Planning Committee identified projects and programs in the form of actions to be included in the Action Plan for the Routes of

4 Contra Costa County Transportation Authority. *2017 Countywide Comprehensive Transportation Plan.* Adopted September 20, 2017.

Regional Significance. Each Action Plan states the vision, goals, and policies; designates Routes of Regional Significance; sets objectives for such routes; and presents specific actions to achieve established objectives. The actions are listed on both a route-by-route and a regional scale, and aim to support the transportation objectives as specified by each Regional Transportation Planning Committee. The latest *East County Action Plan for Routes of Regional Significance* was adopted September 2017.

City of Pittsburg General Plan

The following are applicable policies related to transportation, traffic, and circulation from the Transportation Element of the Pittsburg General Plan.

Goal 7-G-2 Work with Caltrans and the CCTA to achieve timely construction of programmed freeway and interchange improvements.

Goal 7-G-3 Coordinate circulation system plans with other jurisdictions' and agencies' plans, including Antioch and Concord, the CCTA, and Caltrans.

Goal 7-G-4 Work with the CCTA to manage morning commute traffic from East to Central CCC by studying and implementing arterial metering management plans.

Goal 7-G-6 Locate high traffic-generating uses so that they have direct access or immediate secondary access to arterial roadways.

Goal 7-G-7 Complete arterial roadway improvements required to mitigate traffic impacts of an approved project before the project is fully occupied. Arterial improvements should be completed by creating funding sources, which include but are not limited to Traffic Mitigation Fees, Development Agreements, and Assessment Districts.

Policy 7-P-1 Require mitigation for development proposals that are not part of the Traffic Mitigation Fee program which contribute more than one percent of the volume to an existing roadway or intersections with inadequate capacity to meet cumulative demand.

Development projects that contribute to future traffic congestion on existing roadways shall provide mitigation to ensure adequate future capacities. Traffic analysis of development plans will determine the proportion of cumulative impact each project is creating.

Policy 7-P-2 Use the adopted Regional and Local Transportation Impact Mitigation Fee ordinances to ensure that all new development pays an equitable pro-rata share of the cost of transportation improvements. Review the Traffic Impact Mitigation Fee schedule annually and update every five years at a minimum.

Policy 7-P-3 Review and update the City's Engineering Design Standards for each functional roadway classification, according to Table 7-1 of the Pittsburg General Plan.

Roadway standards are illustrated in the City's Engineering Design Standards for typical midblock applications. Additional right-of-way may be needed for turn lanes at some intersection approaches.

Policy 7-P-4 Require that all traffic studies be conducted by professional transportation consultants selected by the Planning and Building and Engineering Departments, with the City acting as the lead agency. Ensure that all costs associated with the traffic study are paid by the applicant.

Policy 7-P-5 Apply for federal Congestion Mitigation Air Quality grant funding, designed to improve air quality through roadway improvement projects.

Policy 7-P-7 Endeavor to implement Transportation Element improvements prior to deterioration in levels of service below those set forth in Goal 7-G-1.

Development approvals should require reasonable demonstration that traffic improvements necessary to serve the development will be in place in time to accommodate trips generated by the project.

Policy 7-P-9 Implement the intersection improvements (including signalization and additional or reallocated lanes) as illustrated in Appendix A of the Pittsburg General Plan.

Policy 7-P-10 Require mitigation for development proposals which result in projected parking demand that would exceed the proposed parking supply on a regular and frequent basis.

Policy 7-P-11 Maximize the carrying capacity of arterial roadways by controlling the number of intersections and driveways, minimizing residential access, implementing Transportation Systems Management (TSM) measures, and requiring sufficient on-site parking to meet the needs of each project (see also Table 7-1 of the Pittsburg General Plan).

Additional guidelines for arterial access include providing smooth ingress/egress to development. This includes designing parking areas so that traffic turning into the parking areas does not stack up on the arterial roadway; combining driveways to serve small parcels; and maintaining adequate distance between driveways and intersections to permit efficient traffic merges. In the built environment, roadway right-of-way may not be available to increase arterial capacity. Therefore, improving the efficiency of existing arterials through TSM measures should be one of the first considerations to meet level of service standards. TSM measures include signal coordination, channelization and signal improvements at intersections, and implementation of new traffic control technology.

Policy 7-P-12 Continue to collect fees, plan and design for the future construction of Buchanan Bypass. Ensure preparation of a feasibility and environmental impact study to determine the precise alignment, costs, mitigation measures, and impacts on adjacent uses.

Policy 7-P-13 Upgrade or extend the hillside access routes from Bailey Road, Buchanan Road, Kirker Pass Road, and proposed San Marco Boulevard, as development potential warrants.

Policy 7-P-14 Increase access to alternative north-south routes providing connection to SR 4, other than Railroad Avenue.

Policy 7-P-15 Support Caltrans' planned improvements to the Railroad Avenue and Loveridge Road interchanges in conjunction with SR 4 widening projects. Work with Federal, State and regional authorities to ensure timely completion of these projects needed to adequately serve local circulation needs.

Policy 7-P-16 Continue to collect fees for the extension of West Leland Road to Willow Pass Road, subject to the Traffic Mitigation Fee program. As established by nexus, require new development adjacent to the extension to dedicate right-of-way and construct or fund new intersections and frontage improvements.

Policy 7-P-21 Design local residential streets and implement traffic-control measures to keep traffic below 5,000 vehicles per day.

Policy 7-P-22 Avoid adding traffic roadways carrying volumes above the standards, and consider traffic control measures where perceived nuisance is severe.

Policy 7-P-23 Develop procedures and guidelines to mitigate neighborhood traffic impacts in areas where traffic speeds or volumes exceed posted speed limits or standards established in the Pittsburg General Plan.

Measures that may be considered include:

- Installation of way-finding signs on arterial routes that encourage motorists to use routes that do not pass through residential areas.
- Operational changes, such as signalization, turn lanes and extended turning bays on arterial streets that encourage their use as inter-community connectors.
- Traffic calming measures such as curb extensions or gateway features at intersections on streets leading into

residential areas to inform motorists that they are entering a neighborhood area.

- Community educational and awareness programs to promote selection of routes within the City that do not pass through residential areas.

Goal 7-G-8 Cooperate with public agencies and other jurisdictions to promote local regional public transit serving Pittsburg and provide an express bus system between Pittsburg, Brentwood, Oakley, Antioch, and the Pittsburg/Bay Point BART Station.

The City should encourage transit development, expansion, coordination and aggressive marketing throughout eastern CCC to serve a broader range of local and regional transportation needs including commuter and express service.

Policy 7-P-26 Require mitigation for development proposals which increase transit demand above the service levels provided by public transit operators and agencies.

Policy 7-P-27 Support the expansion of the existing transit service area and an increase in the service levels of existing transit. Support increased Tri- Delta and County Connection express bus service to the Pittsburg/Bay Point BART Station to reduce traffic demand on SR 4.

Policy 7-P-28 Encourage the extension of BART to Railroad Avenue within the median of SR 4. Cooperate with BART and regional agencies to develop station area plans and transit-oriented development patterns.

Policy 7-P-29 Preserve options for future transit use when designing improvements for roadways. Ensure that developers provide bus turnouts and/or shelters, where appropriate, as part of projects.

Policy 7-P-30 Work with Tri-Delta and planning area residents to plan for local bus routes that more effectively serve potential riders within local neighborhoods.

Goal 7-G-10 Study the feasibility of a comprehensive network of on- and off-road bike routes to encourage the use of bikes for commute, recreational and other trips.

A continuous network of safe and convenient bikeways has the potential to connect neighborhoods with major activity centers, parks, schools, employment centers, civic uses, the waterfront, and the County bicycle system.

Goal 7-G-11 Coordinate with neighboring communities and regional agencies to establish a continuous regional system of bicycle and pedestrian facilities.

Goal 7-G-14 Develop urban design and streetscape standards and guidelines to improve pedestrian environments and accessibility in new development projects and in Downtown.

Goal 7-G-15 Encourage walking as a regular means of transportation for people who live within a half-mile walk of school, work, or routine shopping destinations.

Goal 7-G-16 Ensure that current bicycle-friendly roadways, featuring wide shoulders or marked bicycle lanes, are not redesigned to improve traffic LOS, unless all other alternative roadways possible to alleviate congestion are exhausted.

Policy 7-P-33 Require mitigation for development proposals which result in potential conflicts, or fail to provide adequate access, for pedestrians and bicycles.

Policy 7-P-34 As part of development approval, ensure that safe and contiguous routes for pedestrians and bicyclists are provided within new development projects and on any roadways that are impacted as a result of new development.

Policy 7-P-36 Ensure continued compliance with Title 24 of the Uniform Building Code, requiring removal of all barriers to disabled persons on arterial and collector streets.

Policy 7-P-38 Develop a series of continuous pedestrian systems within Downtown and residential neighborhoods, connecting major activity centers and trails with City and County open space areas.

Sidewalks should be creatively designed to invite safe use by pedestrians, and be free of obstacles, such as newspaper racks, bus benches, utility poles, and fire hydrants.

Policy 7-P-39 Ensure that residential and commercial developments provide pedestrian pathways between lots for direct routes to commercial centers, schools, and transit facilities.

Policy 7-P-41 Ensure the provision of multi-use trails or trailheads within new hillside developments, preferably connecting to the regional trail network.

Policy 7-P-42 Improve pedestrian crossing safety at heavily used intersections by installing crossing controls that provide adequate time for pedestrians to cross the street.

Policy 7-P-43 Provide adequate roadway width dedications for bicycle lanes, paths, and routes as designated in Figure 7-4 of the Pittsburg General Plan.

Policy 7-P-45 During review of development projects, encourage secure bicycle facilities and other alternative transportation facilities at employment sites, public facilities, and multi-family residential complexes.

Policy 7-P-46 Construction or expansion of roadways and intersections within the City shall not result in the severance of an existing bicycle route, unless an alternative exists or is provided.

Policy 7-P-48 Ensure that construction of bulb-outs and curb extensions at intersections for pedestrian safety does not endanger bicyclists by forcing them into traffic lanes.

Policy 7-P-52 Require that new arterial and collector streets accommodate bicyclists.

Policy 7-P-53 Require that any grind and overlay of existing arterial and collector streets consider the needs of bicyclists.

Policy 7-P-54 Amend engineering standards to require the use of bicycle grates on all new catch basins and storm drain inlet replacements on streets.

Pittsburg Local Traffic Mitigation Fee

The City of Pittsburg has a local traffic mitigation fee (LTMF) for development projects within the City of Pittsburg. The fee was designed to aid in funding for capital improvement projects within the City limits, such as the extension of West Leland Road and/or the widening of Avila Road and Willow Pass Road. In addition, the fee may be used for implementing signal interconnect on local roadways, installing traffic signals and other intersection improvements. The City of Concord has a similar program, the traffic mitigation fee (TMF) program, which collects fees from developers to aid in the funding of capital improvement projects.

Pittsburg 5-Year Capital Improvement Program

The City of Pittsburg's 5-Year Capital Improvement Program (CIP) is a multi-year planning instrument for the construction of new and expansion, rehabilitation, or replacement of existing City-owned assets. The 5-Year CIP is used by City staff members as a guide for project prioritization to accomplish community goals. The Program is updated annually to account for projects that have been completed, changing priorities, new priorities, and funding availability.

The 5-Year CIP for Fiscal Year 2019/2020 through 2023/2024 includes various projects for the Pittsburg area. Each of the projects meets some or all of the following criteria:

- Elimination of potentially hazardous or unsafe conditions and potential liabilities;
- Replacement of high maintenance and inefficient/ineffective infrastructure;
- Improvement to and/or creation of new services to the public;
- Outside agency regulatory requirements and mandates;
- Stimulation of the local economy/eliminate blighted conditions;
- Compliance with the City of Pittsburg General Plan; and
- Preservation of existing assets.

The schedule for capital improvement projects is based on available funding, public benefit, and funding restrictions. The project schedule is updated annually with the annual 5-Year CIP update.

Regional Transportation Development Impact Mitigation

The East Contra Costa Regional Fee & Financing Authority (ECCRFFA) establishes a funding source for capital improvements projects in Eastern Contra Costa County. The fee was designed to collect funds for regional transportation improvements, such as the W. Leland Road extension, the SR 4 bypass, and the widening of SR 4 through Pittsburg and Antioch.

Concord Capital Improvement Program

The City of Concord Adopted Capital Improvement & Transportation Improvement Program, 2010/2011–2019/2020 10-Year Plan, contains various transportation and infrastructure improvement projects planned by the City of Concord. The CIP is included in the City Budget. The City Council adopted the CIP on June 22, 2010 by City Council Resolution 10-47 and the CIP budget took effect on July 1, 2010.

4.3.4 IMPACTS AND MITIGATION MEASURES

This section describes the standards of significance and methodology utilized to analyze and determine the proposed project's potential impacts related to transportation and circulation.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the proposed project would be considered to result in a significant adverse impact on the environment in relation to transportation and circulation if the project would result in any of the following:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

Specific application of the general thresholds is provided in the following section, based on guidance from the City of Pittsburg and the CCTA.

VMT

Per the OPR guidelines, lead agencies are recommended to set project-level thresholds for VMT analysis; however, such thresholds have not yet been established by the City of Pittsburg. Per Section 15064.3(b)(3) of the CEQA Guidelines, a lead agency has discretion to choose the most appropriate methodology to evaluate a project's VMT, including whether to express the change in absolute terms, per capita, per household or in any other measure. Thus, a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc.

As lead agency, City of Pittsburg does not currently have established VMT significance thresholds for environmental review purposes. Existing guidance available in the OPR Technical Advisory: On Evaluating Transportation Impacts in CEQA does not include recommended numeric thresholds for land use projects other than residential, office, and retail projects. The OPR Technical Advisory states that lead agencies may develop their own specific thresholds, which may include other land use types, using more location-specific information.

Issues Not Discussed Further

The Initial Study prepared for the proposed project (see Appendix C) did not dismiss any of the issues related to transportation and circulation. As such, all of the issue areas included as part of Appendix G of the CEQA Guidelines related to transportation and circulation are discussed below.

Method of Analysis

The analysis methodology provided in the Traffic Impact Analysis prepared for the proposed project by Abrams Associates Traffic Engineering, Inc. is discussed below.

Project Trip Generation

The proposed project would consist of a shopping center with a 3,500-square-foot (sf) restaurant, an 1,826-sf fast food restaurant with a drive through, and a 29,822-sf commercial building which has been assumed to be a supermarket as a worst-case scenario. Table 4.3-1 includes the estimated trip generation associated with the proposed project. The trip generation rates are based on a High Turnover Sit-Down Restaurant (Land Use Code 932), and Fast Food Restaurant with a drive through (Land Use Code 5934) and for a Supermarket (Land Use Code 850) from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

The total trip generation reflects all vehicle trips that would be counted at the project driveways, both inbound and outbound. As shown in Table 4.3-1, the proposed project would generate approximately 2,692 average daily trips (ADT). For a full analysis of trip generation associated with the proposed project, please refer to the TIA (see Appendix E).

Table 4.3-1
Project Trip Generation

Land Use	Unit / Quantity	Daily Trips
Restaurant Trip Generation	3,500 sf	393
Reduction for Pass-by/Non-Auto Trips (43%)	--	169
Subtotal for the Restaurant	--	*224*
Fast Food Trip Generation	1,826 sf	860
Reduction for Pass-by/Non-Auto Trips (50%)	--	430
Subtotal for Fast Food	--	*430*
Supermarket Trip Generation	29,822 sf	3,184
Reduction for Pass-by/Non-Auto Trips (50%)	--	1,146
Subtotal for the Supermarket	--	*2,038*
Total		**2,692**

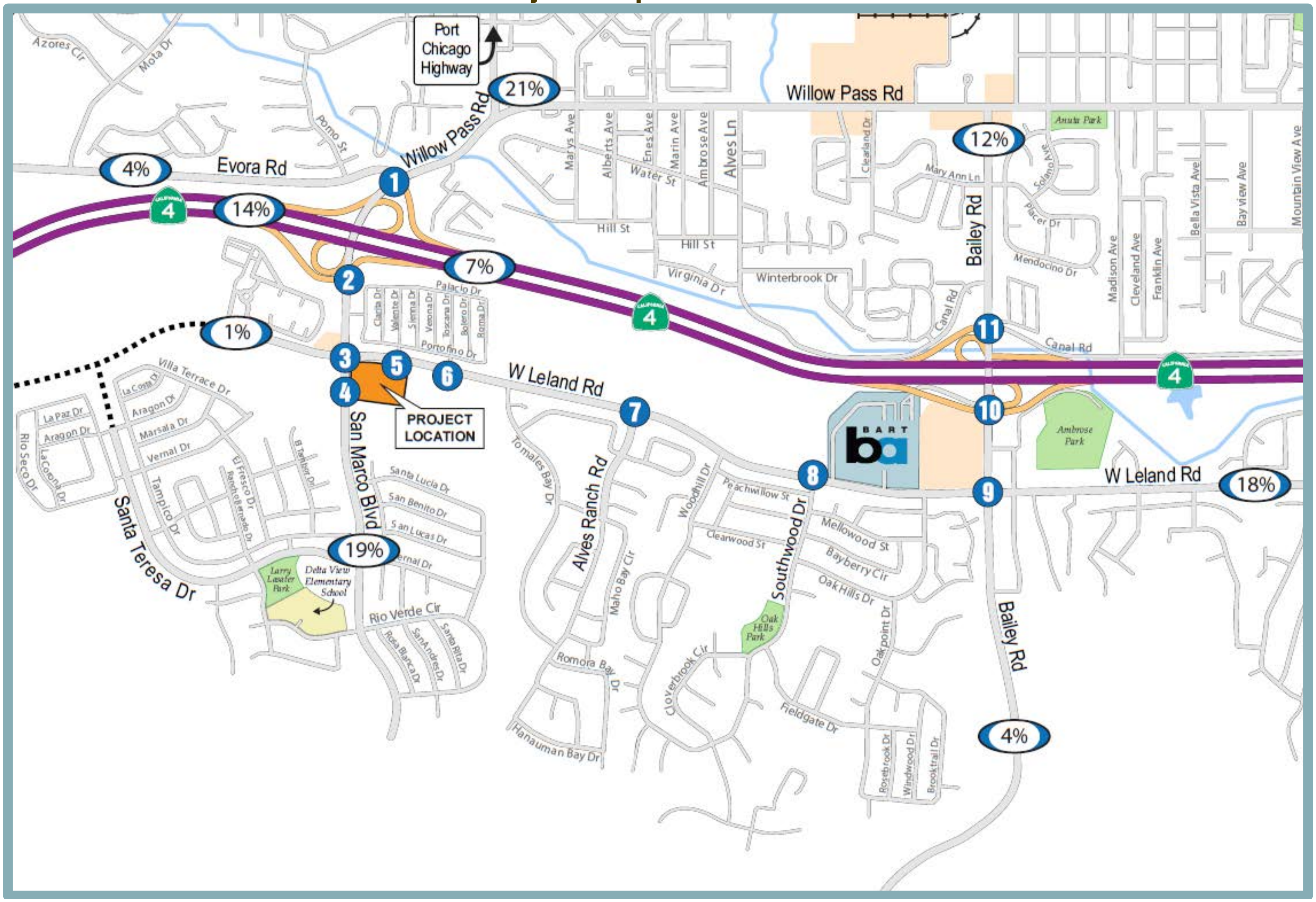
Source: Abram Associates Traffic Engineering, Inc., 2020.

Project Trip Distribution

The trip distribution assumptions have been based on the project's proximity to freeway interchanges, the existing directional split at nearby residential neighborhoods and local intersections, and the overall land use patterns in the area as determined from the Countywide Travel Demand Model.

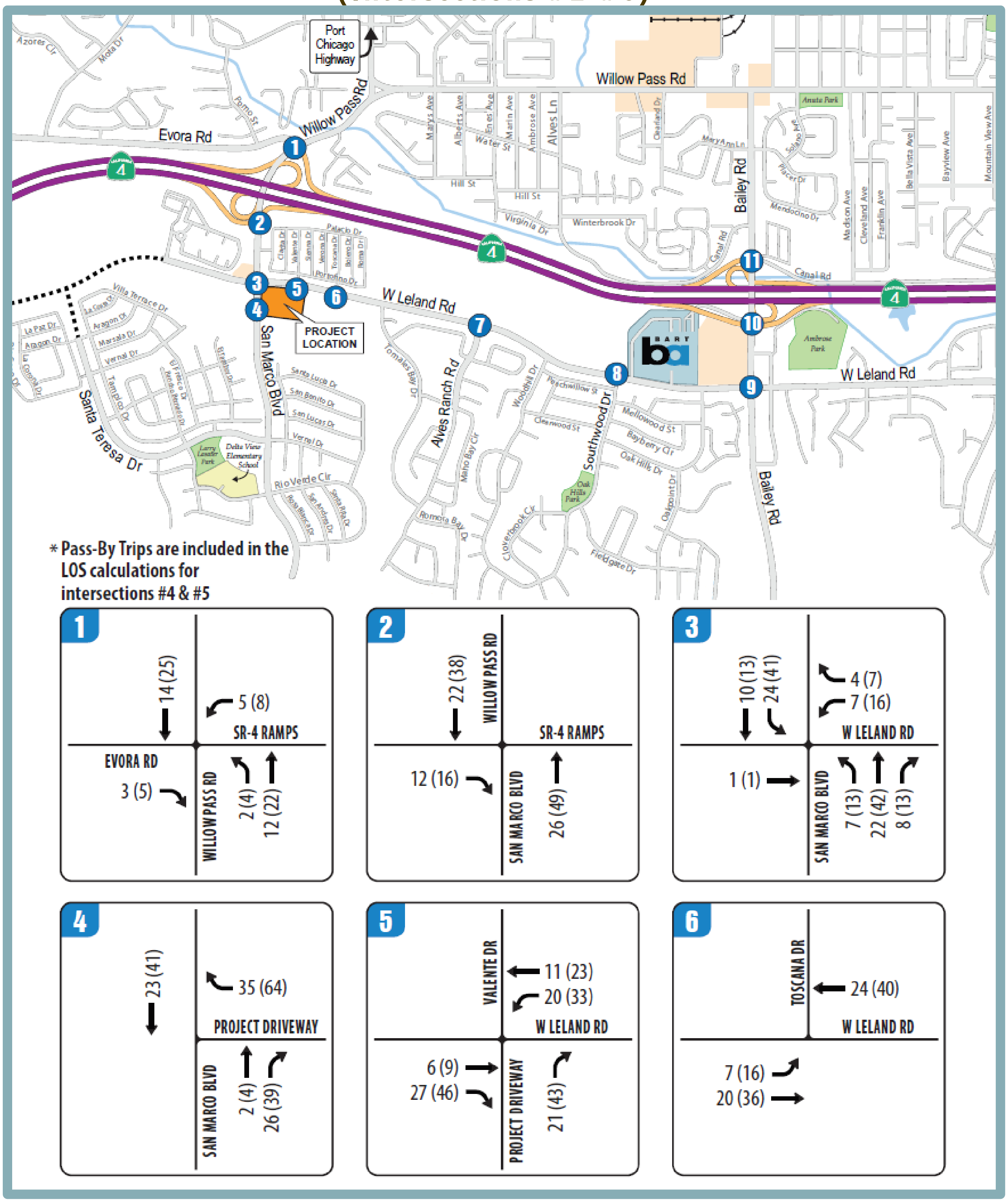
Figure 4.3-2 shows the percentage of project traffic assigned to various study roadways. Figure 4.3-3 and Figure 4.3-4 show the project traffic that would be added at each of the study intersections.

Figure 4.3-2
Project Trip Distribution



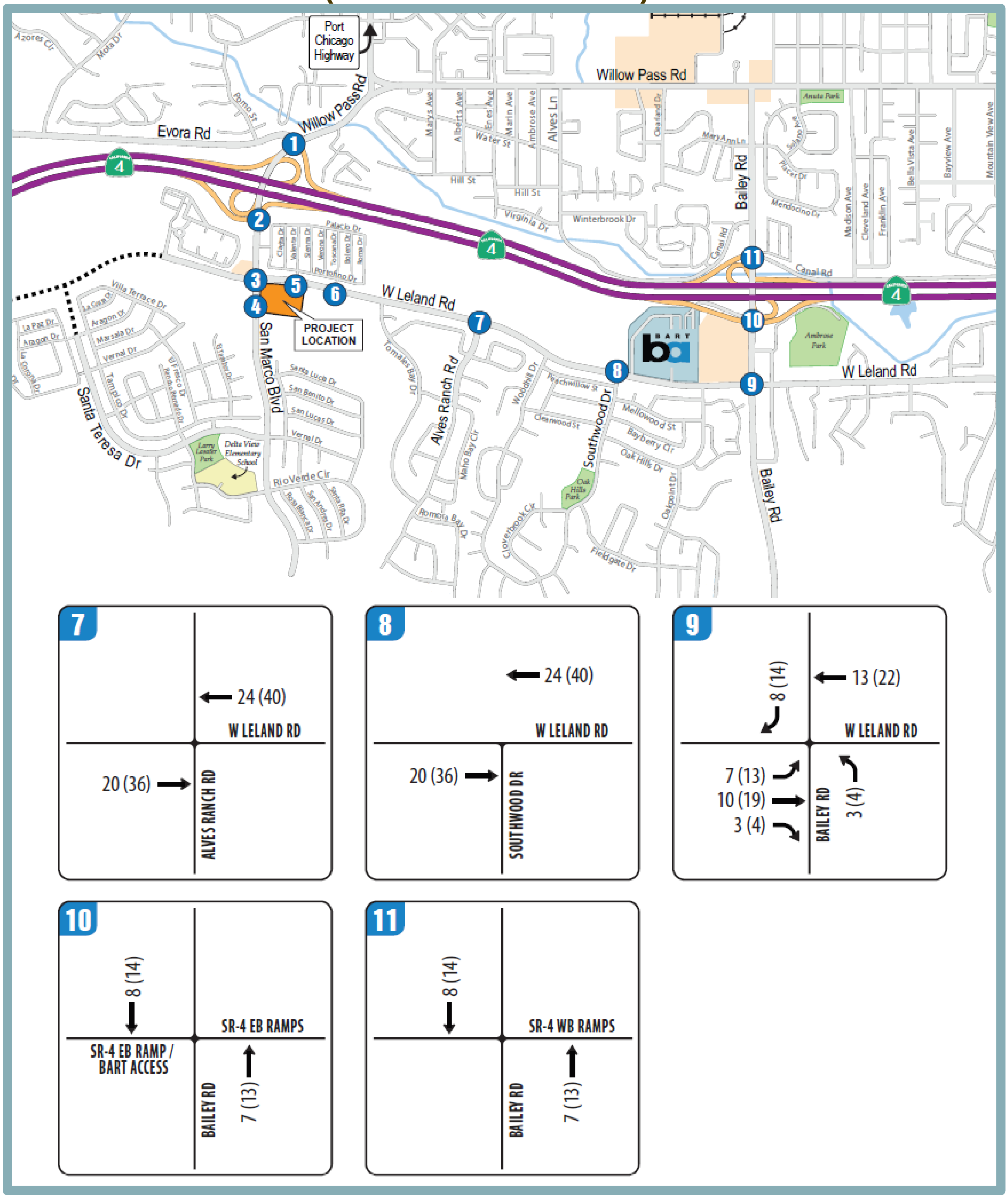
Source: Abram Associates Traffic Engineering, Inc., 2020.

Figure 4.3-3
Traffic Volumes and Lane Configurations – Existing Conditions (Intersections #1-#6)



Source: Abram Associates Traffic Engineering, Inc., 2020.

Figure 4.3-4
Traffic Volumes and Lane Configurations – Existing Conditions (Intersections #7-#11)



Source: Abram Associates Traffic Engineering, Inc., 2020.

Project-Specific Impacts and Mitigation Measures

The proposed project impacts on the transportation system are evaluated in this section based on the thresholds of significance and methodology described above. Each impact is followed by recommended mitigation to reduce the identified impacts, if needed.

4.3-1 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). Based on the analysis below, the impact is *less than significant*.

Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of 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. Although neither the City of Pittsburg nor the CCTA has established any standards or thresholds on VMT, pursuant to 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.

According to OPR's 2018 Technical Advisory, by adding retail opportunities into the urban fabric and improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. OPR's 2018 Technical Advisory then states that because lead agencies will best understand their own communities and the likely travel behaviors of future project users, the lead agencies are likely in the best position to decide when a project will likely be local-serving.

Generally, however, retail development including stores larger than 50,000 sf might be considered regional-serving. Therefore, subject to City approval, the proposed project would not be more than about 35,000 sf of space and would be considered a local serving retail project.

Additionally, bus service is currently provided in the project region by Tri Delta Transit, and a bus stop is located on West Leland Road along the project site frontage. As noted previously, bicycle and pedestrian facilities are provided in the vicinity of the project site, including along West Leland Road and San Marco Boulevard. The availability of such transit, bicycle, and pedestrian infrastructure in the site vicinity would help to reduce VMT associated with residents, workers, and guests travelling to and from the project site.

In addition, as shown in Table 4.3-1, the specific ITE pass-by reductions for each use indicate that the total number of trips would be reduced as a portion of customers that would come to the project site would result from traffic already passing by the site. Because the number of overall trips would be reduced, VMT would likely be reduced as a result. Furthermore, the proposed project would include development of a locally-serving commercial center with a grocery store, a restaurant with a drive through and dine-in service, and another building intended for restaurant use. As such, residents in the project area may rely in part on the on-site commercial uses, as opposed to travelling to more distant existing commercial uses, and a portion of the workers at the proposed commercial uses would likely reside in the project area. Such internal trip capture would further reduce VMT associated with the project.

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.

Mitigation Measure(s)

None required.

4.3-2 Conflict with a program, plan, ordinance, or policy addressing the circulation system during construction activities. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

Construction of the project, including site preparation, grading, building construction, and delivery activities, would generate contractor employee trips and a variety of construction-related vehicles. As a result, construction activities could include disruptions to the transportation network near the project site, including the possibility of temporary lane closures, street closures, sidewalk closures, and bikeway closures. The increase in traffic as a result of construction activities associated with the proposed project has been quantified assuming a worst-case single-phase construction period of 24 months.

Heavy Equipment

Heavy equipment transport to and from the site could temporarily increase traffic on area roadways and intersections in the vicinity of the project site during construction. Approximately five pieces of heavy equipment are estimated to be transported on and off the site each month during construction activities. Heavy equipment transport to and from the site could result in a significant impact to traffic conditions in the vicinity of the project site. However, each load would be required to abide by the conditions included in the grading and building permits for the proposed project. In addition, eight loads of heavy equipment being hauled to and from the site each month would be short-term and temporary.

Employees

The weekday work is expected to begin around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. The peak hours are slightly before the citywide commute peaks. It should be noted that the number of trips generated during construction would be temporary and substantially less upon completion of the proposed project. Based on past construction of similar projects, construction workers could require parking for up to 75 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities would generate peak non-worker parking demand of 10 to 15 trucks and automobiles per day. Therefore, up to 85 vehicle parking spaces would be required during the peak construction period for workers. In order to ensure that parking for construction workers could be accommodated on the project site, implementation of a Construction Traffic Plan would be required.

Construction Material Import/Export

The project would also require the importation of construction material, including raw materials for the building pads, the buildings, the parking areas, and landscaping. Importing this material would require trucks for raw materials, concrete, and trucks for the parking lots, asphalt paving, and landscaping material. During the maximum peak construction period, the project could generate approximately 50 truck trips per day. It should be noted that project construction is not anticipated include substantial net soil import or export, as the site would be balanced.

Conclusion

Based on the above, without proper planning of construction activities, construction traffic and potential street closures could interfere with existing roadway operations during the construction phase. Therefore, project traffic related to construction activities could result in a ***significant*** impact.

Mitigation Measure(s)

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

4.3-2 *Prior to grading permit issuance, the project applicant shall prepare a Construction Traffic Plan for review and approval by the Community Development Department. As part of the plan, the applicant shall ensure the following:*

- *Truck drivers shall be notified of and required to use the most direct route between the site and SR 4, as determined by the City Community Development Department;*
- *All ingress and egress shall occur only at the main driveways to the project site and construction activities shall include installation of temporary (or ultimate) traffic signals as determined by the City Engineer;*
- *Designated travel routes for large vehicles shall be monitored and controlled by flaggers for large construction vehicle ingress and egress;*
- *Warning signs indicating frequent truck entry and exit shall be posted on San Marco Boulevard and West Leland Road; and*
- *Any debris and mud on nearby streets caused by trucks shall be monitored daily and shall include a street cleaning program.*

The plan shall indicate how parking for construction workers will be provided during construction. If the project is built in phases, each phase shall be subject to a Traffic Control Plan and oversight by the City Engineer.

4.3-3 Conflict with a program, plan, ordinance or policy addressing transit, bicycle and pedestrian facilities. Based on the analysis below, the impact is *less than significant*.

The following discussion evaluates whether the proposed project would result in impacts to existing or planned transit facilities and services, bicycle facilities, or pedestrian facilities within the project area.

Transit Facilities and Services

Residents would have the option of driving, walking, or bicycling to the project site. Public transit in the project vicinity includes a bus stop on West Leland Road, along the project site frontage. Tri Delta Transit provides a bus route (200), which goes to Martinez and operates during the weekdays. Additional bus stops are located further east along West Leland Road and include routes which operate throughout the area. Furthermore, the Pittsburg/Bay Point BART station is approximately 1.1 miles from the project site. According to the TIA, the proposed project could potentially help support existing bus services and BART service with additional transit ridership and would not conflict with any transit plans or goals of BART or Tri Delta Transit.

In December 2018, the California Governor's Office of Planning and Research issued Technical Advisory providing that, when "evaluating impacts to multi-modal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact. An infill development may add riders to transit systems and the additional boarding and alighting may slow transit vehicles, but it also adds destinations, improving proximity and accessibility. Such development also improves regional vehicle flow by adding less vehicle travel onto the regional network." The Technical Advisory further provides that "increased demand throughout a region may, however, cause a cumulative impact by requiring new or additional transit infrastructure."

The introduction of a local, neighborhood-serving commercial center is not expected to significantly increase transit ridership. Significant existing capacity is currently available on the bus lines and project-related transit users would not result in ridership even nearing capacity limits. It is important to understand, too, that ridership impacts that could be remedied by the provision of more buses is not a CEQA impact; rather, the question is whether increases in transit ridership would be so great as to warrant the construction of new facilities (e.g., maintenance yards, bus depots). As such, there is little likelihood of any significant adverse transit impacts.

Therefore, the proposed project would not conflict with a program, plan, ordinance, or policy addressing transit facilities, and a less-than-significant impact would occur.

Bicycle and Pedestrian Facilities

Within the project area, West Leland Road currently includes Class II bicycle lanes. Class II facilities are provided on Bailey Road between Willow Pass Road and south of the City limit, and on San Marco Boulevard between West Leland Road and Willow Pass Road. In addition, several Class I trails are provided in the project area, including the Delta De Anza Regional Trail and a Class I trail along the west side of San Marco Boulevard. Although the proposed project could add some bicyclists in the area, the volumes added would not be expected to conflict with existing bicycle facilities. Furthermore, bicycle traffic at nearby intersections is minimal, and at times is less than five bicyclists per hour. To the extent the project would attract more bicycle users, given the significant capacity in existing systems, it is unlikely additional bicyclist would cause any issues in terms of bike infrastructure capacity. Moreover, the project would not change bicyclist traffic volumes to any significant degree because the introduction of more local commercial uses would shift bicycle traffic patterns (i.e., San Marco residents would redirect bicycle traffic away from the Bailey Road commercial uses to the local commercial uses), as is the case with vehicle traffic, and that the project maintains all bicycle lane connections and other facilities. Therefore, the proposed project would not cause substantial changes to the bicycle traffic in the area and would not adversely affect or require changes to the design of any existing bicycle facilities.

The proposed project would generate additional pedestrian traffic in the area, thereby potentially increasing conflicts between vehicles, bicycles, and pedestrians. Sidewalks currently exist on San Marco Boulevard and West Leland Road, which would provide pedestrian connectivity to the adjacent land uses. However, consistent with the City and County General Plans, the proposed project would be required to provide adequate pedestrian facilities that connect to the surrounding pedestrian network. As part of the TIA, the potential for a marked crosswalk across West Leland Road was evaluated. Based on a review of the roadway geometry and the existing (and future) pedestrian and traffic volumes, a crosswalk across West Leland Road was not recommended at uncontrolled locations. It should be noted that pedestrian crossings would most likely occur in the area during off-peak hours, given the park on one side of West Leland Road and a residential neighborhood on the other. Because the proposed project could increase the tendency of residents to cross West Leland Road at the project driveway, the proposed project could conflict with existing pedestrian facilities. The TIA recommends that the City continue to direct pedestrians to cross West Leland Road at the safest locations, which would be the signalized intersection at San Marco Boulevard and the future signalized intersection at Toscana Drive; however, additional improvements would be required. As noted in the TIA, the applicant would be required to construct median fencing with pedestrian prohibition signage on West Leland Road. In addition, the project applicant would be required to distribute educational materials to nearby residential neighborhoods, warning pedestrians of the dangers of crossing West Leland Road and the prohibition of crossing West Leland Road at Valente Road. The City of Pittsburg would require the applicant to adhere to the aforementioned recommendations as a condition of approval. With the completion of additional pedestrian improvements, the proposed project would result in a ***less-than-significant*** impact to pedestrian facilities.

Mitigation Measure(s)

None required.

4.3-4 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) or result in inadequate emergency access. Based on the analysis below, with implementation of mitigation, the impact is *less than significant*.

Site access would be provided by one driveway located on San Marco Boulevard and an additional driveway on the eastern side of the site by way of the private road which separates the site from the Community Park. The western entrance would be 24-feet wide and the eastern entrance would be 28-feet wide. The proposed project would include drive aisles that would range from 22 to 27-feet wide, allowing access to the commercial buildings. "Pad 1" would also include a drive-through which would have an entrance at the southeast side of the building, wrap around the building to the west, and exit in to the parking lot. Stop controlled intersections would be provided at the access points to the site.

As part of the TIA, an analysis of sight distance was conducted at the driveway access to San Marco Boulevard. The TIA determined that the proposed driveway locations would have over 500 feet of sight distance, which would meet the Caltrans standards even with sloping topography in the area. However, should fences need be located within the sight distance areas, the fences could limit visibility from the project driveways. In addition, any landscaping proposed in the areas adjacent to the project driveways could interfere with sight distance. Should the proposed project result in inadequate sight distance, the proposed project could increase hazards due to a geometric design feature.

The City of Pittsburg approved an Emergency Operations Plan (EOP) in December 2018 designed to assist the City in responses to disasters, emergency incidents, and pre-planned events. The EOP provides an overview of the City's organization, policies, and approach to all phases of emergency preparedness. The proposed project would provide drive aisles with widths to accommodate emergency access vehicles.

In addition, as noted above, the proposed project would include a drive-through. Currently, standard traffic engineering practices do not include formal recommendations on queuing for fast food drive-through windows. In the past, the primary source of data was a study conducted by the ITE technical council that was published in the ITE Journal and specified a 95 percent probability that the maximum queue at a drive-through restaurant would be 10 vehicles or less. A more recent study of drive through queuing is based on 14 days of drive-through surveys at six different drive-through restaurants.[5] The results of the surveys found that the average maximum queue was eight vehicles with a maximum design queue of 12 vehicles. Based on a preliminary review of the site plan, the drive through would allow for the queuing of approximately 10 vehicles. While the queuing could exceed 10 vehicles during busy hours, the proposed project would not conflict with circulation of roadways in the project area (San Marco Boulevard or West Leland Road). It is important to note

5 Drive-Through Queue Generation, Mike Spack, PE, PTOE, Max Moreland, EIT, Lindsay de Leeuw, Nate Hood, Countingcars.com, Minneapolis, MN, February 2012.

that even if there were to be occasions where the queues slightly exceed the drive through lane storage capacity this should not result in any significant problems for circulation on the area (i.e. blocking major roadways like San Marco Boulevard or West Leland Road). The effect that would be expected if the queue were to extend back to about 12 vehicles is that it could potentially extend back out into the adjacent drive aisle and also potentially out onto the access road for the Ray Giacomelli Park. In summary, the proposed site plan would have adequate space for queuing for a typical drive through and there is no information to indicate that drive through queuing would result in significant circulation problems or cause traffic to back up onto major roadways.

Furthermore, per Chapter 18.36 of the City's Municipal Code, the proposed project would be subject to Site Plan and Design Review by the City. Section 18.36.210 of the City's Municipal Code specifies that the Planning Commission will review the design of the building proposed in the application for a land use permit or building permit in each land use district other than single-family residential. As part of the review, the Planning Commission would ensure that the proposed access points and drive aisles within the site are designed in a safe manner, and would not create any hazardous design elements or limit access to emergency vehicles.

Based on the above, because the proposed project would include landscaping along the project site boundaries, sight distance at the proposed driveways could be affected. Thus, buildout of the project site could result in a ***significant*** impact with respect to substantially increasing hazards due to a design feature or resulting in inadequate emergency access.

Mitigation Measure(s)

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

4.3-4 *Prior to approval of a landscaping plan, the proposed landscaping shall be submitted for review and approval by the City Engineer. The plan shall demonstrate that any fences do not deteriorate sight distance at the project access points. Any landscaping shall be designed and maintained so that ground cover is a maximum of two feet high and all trees are limbed up to at least eight feet.*

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

4.3-5 Result in cumulative conflicts or inconsistencies with CEQA Guidelines Section 15064.3, subdivision (b). Based on the analysis below, the cumulative impact is *less than significant*.

Impact 4.3-1 provides an evaluation of potential project impacts to VMT. As discussed above, by adding retail opportunities into the urban fabric and improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Generally, however, retail development including stores larger than 50,000 sf might be considered regional-serving. Therefore, subject to City approval, the proposed project would not be more than about 35,000 sf and would be considered a local serving retail project that would not significantly increase VMT. The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA indicates that VMT efficiency metrics are not appropriate for CEQA cumulative analysis. Instead, the Technical Advisory recommends that an impact finding from an efficiency-based project-specific VMT analysis would imply an identical impact finding for a cumulative VMT analysis. Therefore, because the proposed project would be considered a local serving retail project and result in a less-than-significant impact to project-related VMT, a ***less-than-significant*** impact would occur as it relates to cumulative VMT.

4.3-6 Result in cumulative conflicts with a program, plan, ordinance or policy addressing transit, bicycle and pedestrian facilities. Based on the analysis below, the cumulative impact is *less than significant*.

New reasonably foreseeable bicycle or pedestrian facilities would not be constructed within the vicinity of the project site under cumulative conditions. Under cumulative conditions, only modest increases in background bicycle and pedestrian activity would occur within the vicinity of the project. More substantial increases in background vehicle traffic would occur on study area roadways due to growth elsewhere in and around the City of Pittsburg. However, growth in background vehicle traffic would not result in adverse effects to bicycle and pedestrian facilities that would be attributable to the proposed project. In addition, consistent with City and County General Plans, the proposed project would be required to provide adequate pedestrian facilities that connect to the surrounding pedestrian network. For example, sidewalks currently exist on San Marco Boulevard and West Leland Road, which would provide pedestrian connectivity between the project site and the adjacent land uses. Given that the proposed project would be consistent the City's General Plan as it relates to pedestrian and bicycle facilities, the cumulative impacts of such have been anticipated by the City and analyzed in the General Plan EIR.

Similarly, as noted above, the proposed project would not conflict with any transit plans or goals of BART or Tri Delta Transit. As such, the introduction of a local, neighborhood-serving commercial center is not expected to result in a cumulative impact to transit facilities. Therefore, the proposed project would not conflict with a program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities. Therefore, the cumulative impact would be ***less-than-significant***.

5. Statutorily Required Sections

5. Statutorily Required Sections

5.1 INTRODUCTION

The Statutorily Required Sections chapter of the Draft EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to CEQA Guidelines, Section 15126.2. The chapter includes a discussion of the proposed project's potential to result in growth-inducing impacts; the cumulative setting analyzed in this EIR; significant irreversible environmental changes; and significant and unavoidable impacts caused by the proposed project.

5.2 GROWTH-INDUCING IMPACTS

State CEQA Guidelines section 15126.2(d) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval.

The CEQA Guidelines are clear that while an analysis of growth-inducing effects is required, it should not be assumed that induced growth is necessarily significant or adverse. A number of issues must be considered when assessing the growth-inducing effects of development plans, such as the proposed project, including the following:

- **Elimination of Obstacles to Growth:** The extent to which infrastructure capacity provided to accommodate the proposed project would allow additional development in surrounding areas; and
- **Economic Effects**: The extent to which development of the proposed project could cause increased activity in the local or regional economy.

Growth-inducing impacts associated with the proposed project would be considered to be any effects of the project allowing for additional growth or increases in population beyond that proposed by the project or anticipated in the Pittsburg General Plan. Considering the proposed project would require a General Plan Amendment and Rezone, development of the proposed project was not anticipated under the Pittsburg General Plan and, thus, not analyzed within the General Plan EIR. The proposed project would include the development of a vacant lot of land with a commercial center comprised of three buildings and an associated parking lot. The proposed buildings would include a 29,822-sf grocery store, and two restaurants (1,826-sf and 3,500-sf). Together, the restaurants would provide seating for up to 166 people. A total of 179 parking stalls would be provided throughout the project site, seven of which would be handicap accessible. Although the proposed project is not consistent with current General Plan and zoning designations, project approvals would allow for the project site to be designated as Community Commercial and zoned as a Community Commercial (CC) district, respectively. The proposed project is intended to provide commercial centers accessible to off-site high-density residences and those that are served by local and regional transportation and transit systems.

Given that the proposed project would not create housing, the nature of the project would not directly induce population growth. The project site is located within the vicinity of existing residential land uses, directly north of the project site across West Leland Road. Thus, housing opportunities are available in the project area should employees need to relocate for new employment at the proposed commercial establishments

A physical obstacle to growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services, would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth. The primary infrastructure systems installed as part of the proposed project include a new access road, water and wastewater service, and storm drain systems. All utilities would be appropriately scaled to meet on the demands created by the proposed project. In addition, utility lines currently exist in the project vicinity and the proposed project would connect to the existing PG&E power lines.

Therefore, because the proposed project would not directly induce population growth and infrastructure required for the proposed project would be sized to meet the demands created solely by the project, the proposed project would not be expected to result in any growth-inducing impacts.

5.3 CUMULATIVE IMPACTS

CEQA Guidelines, Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, Section 15355). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects" (CEQA Guidelines, Section 15355, subd. [a]). "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines, Section 15355, subd. [b]).

The need for cumulative impact assessment reflects the fact that, although a project may cause an "individually limited" or "individually minor" incremental impact that, by itself, is not significant, the increment may be "cumulatively considerable," and, thus, significant, when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines, Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). Accordingly, particular impacts may be less than significant on a project-specific basis but significant on a cumulative basis if their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable. However, it should be noted that CEQA Guidelines, Section 15064, Subdivision (h)(5) states, "[…]the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." Therefore, even where cumulative impacts are significant, any level of incremental contribution is not necessarily deemed cumulatively considerable.

Section 15130(b) of CEQA Guidelines indicates that the level of detail of the cumulative analysis need not be as great as for the project impact analyses, but that analysis should reflect the severity of the impacts and their likelihood of occurrence, and that the analysis should be focused, practical, and reasonable. To be adequate, a discussion of cumulative effects must include the following elements:

> (1) Either (a) a list of past, present and probable future projects, including, if necessary, those outside the agency's control, or (b) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provide that such documents are reference and made available for public inspection at a specified location;
>
> (2) A summary of the individual projects' environmental effects, with specific reference to additional information and stating where such information is available; and
>
> (3) A reasonable analysis of all of the relevant projects' cumulative impacts, with an examination of reasonable, feasible options for mitigating or avoiding the project's contribution to such effects (Section 15130[b]).

For some projects, the only feasible mitigation measures will involve the adoption of ordinances or regulations, rather than the imposition of conditions on a project-by-project basis (Section 15130[c]). Section 15130(a)(3) states that an EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund the project's fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

A discussion of cumulative impacts is provided within each of the technical chapters of this EIR pursuant to CEQA Guidelines Section 15130.

Cumulative Setting

The lead agency should define the relevant geographic area of inquiry for each impact category (id., Section 15130, subd. [b][3]), and should then identify the universe of "past, present, and probable future projects producing related or cumulative impacts" relevant to the various categories, either through the preparation of a "list" of such projects or through the use of "a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact" (id., subd. [b][1]).

As discussed above, there are two approaches to identifying cumulative projects and their associated impacts. The "list" approach identifies individual projects known to be occurring or proposed in the surrounding area in order to identify potential cumulative impacts. The "projection" approach uses a summary of projections in adopted General Plans or related planning documents to identify potential cumulative impacts. This EIR uses the projection approach for the cumulative analysis and considers the development anticipated to occur upon buildout of the City of Pittsburg General Plan, as well as other reasonably foreseeable projects within the project region.

Limited situations exist where the geographic setting differs for the various resource areas. For example, the cumulative geographic setting for air quality is the San Francisco Bay Area Air Basin (SFBAAB), which is the air basin that the proposed project is located within. Global climate change is, by nature, a cumulative impact. Emissions of greenhouse gases (GHG) contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA, and due to the regulatory context pertaining to GHG emissions and global climate change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

As discussed in Chapter 4.3, Transportation, of this EIR, the cumulative traffic analysis relied on the Countywide Contra Costa Transportation Agency (CCTA) Travel Demand Model. The growth assumptions included in the CCTA Travel Demand Model include buildout of land uses identified in the City's General Plan, buildout of other nearby areas, and other development forecast as part of the CCTA's Land Use Information System (LUIS). The LUIS lists the existing and forecast number of households and jobs by Traffic Analysis Zones (TAZs). CCTA developed such forecasts from census-tract-level forecasts prepared by the Association of Bay Area Governments (ABAG). Cumulative intersection traffic volumes were based on the existing turning movements plus incremental growth in background traffic based on the County's traffic model and consistent with the Alves Ranch Traffic Impact Analysis (TIA). Forecasts for intersections not included in the Alves Ranch TIA were developed based on the County's traffic model and adjusted to be consistent with the nearest study intersections included in the Alves Ranch study. Future traffic was also added from the planned apartment project (Village M) on the south side of West Leland Road at Toscana Drive, consistent with the TIA for the Toscana Project. Future roadway improvements in the study area include the extension of West Leland Road to Avila Road, providing a connection to Willow Pass Road in Concord.

Cumulative impacts are analyzed in each of the technical chapters of this EIR, where the specific cumulative setting for each resource area is presented along with the cumulative impact discussion in the relevant resource area section of the EIR.

5.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Per CEQA Guidelines Section 15126.2(c), this EIR is required to include consideration of significant irreversible environmental changes that would be caused by the proposed project, should the project be implemented. An impact would be determined to be a significant and irreversible change in the environment if:

- Buildout of the project area could involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of development could generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- Development of the proposed project could involve uses in which irreversible damage could result from any potential environmental accidents associated with the project; or

- The phasing and eventual development of the project could result in an unjustified consumption of resources (e.g., the wasteful use of energy).

The proposed project would likely result in, or contribute to, the following significant irreversible environmental changes:

- Conversion of vacant land to a commercial development, thus precluding alternative land uses in the future;
- Irreversible consumption of goods and services associated with the future operations; and
- Irreversible consumption of energy and natural resources, such as water, electricity, and natural gas, associated with the future operations.

5.6 SIGNIFICANT AND UNAVOIDABLE IMPACTS

According to CEQA Guidelines, an EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented (CEQA Guidelines §15126.2[b]). Such impacts would be considered unavoidable when the determination is made that either mitigation is not feasible or only partial mitigation is feasible such that the impact is not reduced to a level that is less-than-significant.

Based on the analysis provided in Chapters 4.1 through 4.3 of this EIR, the below listed impact was determined to be significant and unavoidable. All other impacts identified in this EIR could be eliminated or reduced to a less-than-significant level by mitigations imposed by the City. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the City as part of the City's certification action.

4.1-5 Generation of a cumulatively considerable contribution to GHG emissions in excess of 1,100 $MTCO_2$*e*/year or 4.6 $MTCO_2$*e*/SP/year by the first year of project operations, 660 $MTCO_2$*e*/year or 2.76 $MTCO_2$*e*/SP/year by 2030, conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

6. Alternatives Analysis

6. Alternatives Analysis

6.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the proposed project, as required per CEQA Guidelines Section 15126.6. Generally, the chapter includes discussions of the following: the purpose of an alternatives analysis; alternatives considered but dismissed; a reasonable range of project alternatives and their associated impacts in comparison to the proposed project's impacts; and the environmentally superior alternative.

It should be noted that the alternatives included are intended to avoid or substantially lessen any of the significant effects of the project pursuant to Section 15126.6(c). Because significant impacts related to air quality and greenhouse gas (GHG) emissions are identified, the alternatives discussion below focus on evaluation of potential air quality and GHG emissions related to the analyzed alternatives. However, discussion of Recreation and Transportation, as well as issues addressed in the attached Initial Study, are also included as applicable.

6.2 PURPOSE OF ALTERNATIVES

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to "[…] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, "The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." Section 15126.6(f) of CEQA Guidelines further states:

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).

- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).
- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination […] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

Based on the above, reasonable alternatives to the project must be capable of feasibly attaining most of the basic objectives of the project. As discussed in Chapter 3, Project Description, of this EIR, the following objectives have been developed for the proposed project by the City of Pittsburg and the project applicant:

1. Construct an attractive, high-quality project that addresses the shortage of shopping and dining opportunities in the San Marco neighborhood;
2. Reduce, to the maximum extent possible, vehicle miles traveled by San Marco residents currently shopping or dining outside of Pittsburg to meet their needs;
3. Provide safe access for bicyclists and pedestrians living within a quarter-mile of the project site;

Significant Impacts Identified in the EIR

In addition to attaining the majority of project objectives, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. A summary of the environmental impacts identified for the proposed project are provided below.

Significant and Unavoidable

Impacts of the proposed project that have been determined to remain significant and unavoidable, even after implementation of the feasible mitigation measures set forth in this EIR, include the following:

- ***Air Quality and GHG Emissions:*** The EIR determined that the proposed project could result in significant and unavoidable impacts related to the generation of a cumulatively considerable contribution to GHG emissions in excess of State and BAAQMD standards. The EIR requires mitigation to minimize impacts as much as possible; however, despite implementation of mitigation measures, the proposed project would still result in significant and unavoidable impacts.

Less Than Significant with Mitigation

Significant environmental impacts of the proposed project that have been identified as requiring mitigation measures to ensure that the level of significance is ultimately less than significant include the following:

- ***Air Quality and GHG Emissions:*** The EIR determined that implementation of the proposed project could result in a significant impact related to generation of short-term construction-related criteria air pollutant emissions. The EIR requires mitigation in order to ensure that the impact is reduced to a less-than-significant level.

- ***Recreation:*** The EIR determined that implementation of the proposed project could result in substantial adverse physical impacts associated with the provisions of new or physically altered park facilities, and/or the need for new or physically altered park facilities. The EIR requires mitigation in order to ensure that the impacts are reduced to less-than-significant levels.

- ***Transportation:*** The EIR determined that implementation of the proposed project could result in significant impacts related to the traffic circulation system during project-related construction activities and project-related hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) or result in inadequate emergency access. The EIR requires mitigation in order to ensure that the aforementioned impacts are reduced to less-than-significant levels.

Less Than Significant or No Impact

As discussed in each respective section of Chapter 4 within this EIR, the proposed project would result in no impact or a less-than-significant impact related to the following topics associated with the resource areas indicated:

- ***Air Quality and Greenhouse Gas Emissions***
  - Generation of operational criteria air pollutant emissions in excess of 54 lbs/day for ROG, NO_X, and $PM_{2.5}$ and 82 lbs/day for PM_{10} and conflict with or obstruct

implementation of the 2017 Clean Air CAP, and/or the 2001 Ozone Attainment Plan.
- Exposure of sensitive receptors to substantial levels of pollutant concentrations.
- Generation of cumulative criteria air pollutant emissions in excess of 10 tons/year for ROG, NO_X, and $PM_{2.5}$ and 15 tons/yr for PM_{10}.

- ***Recreation***
  - Result in substantial adverse physical impacts associated with the provision of new or physically altered parks facilities, need for new or physically altered parks facilities, the construction of which could cause significance environmental impacts, in order to maintain acceptable service ratios or other performance objectives;
  - 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; or
  - Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

- ***Transportation***
  - Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
  - Conflict with a program, plan, ordinance or policy addressing transit, bicycle and pedestrian facilities.

The Initial Study prepared for the proposed project during the scoping period (see Appendix C) includes a detailed environmental checklist addressing a range of technical environmental issues. For each technical environmental issue, the Initial Study identifies the level of impact for the proposed project. The Initial Study identifies the environmental effects as either “no impact,” “less-than-significant,” “less-than-significant with mitigation incorporated,” or “potentially significant.” Impacts identified for the proposed project in the Initial Study as “no impact,” “less-than-significant,” or “less-than-significant with mitigation incorporated” are listed below, and summarized further in Chapter 4, Introduction to the Analysis, of this EIR.

- Aesthetics (All Items);
- Agriculture and Forest Resources (All Items);
- Air Quality (d);
- Biological Resources (All Items);
- Cultural Resources (All items);
- Energy (All Items);
- Geology and Soils (All Items);
- Hazards and Hazardous Materials (All Items);
- Hydrology and Water Quality (All items);
- Land Use and Planning (All Items);
- Mineral Resources (All Items);
- Noise (All Items);
- Population and Housing (All Items);
- Public Services (Items a through c, and e);
- Tribal and Cultural Resources (All Items);

- Utilities and Service Systems (All Items); and
- Wildfire (All Items).

The alternatives discussed herein have been chosen based on feasibility to meet project objectives, as well as the ability to reduce potential impacts analyzed within this EIR. It should be noted that the alternatives included are intended to avoid or substantially lessen any of the significant effects of the project.

6.3 SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the environmental impacts of the proposed project. Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to "set forth only those alternatives necessary to permit a reasoned choice." As stated in Section 15126.6(a), an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6(f):

> The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

First and foremost, alternatives in an EIR must be feasible. In the context of CEQA Guidelines Section 21061.1, "feasible" is defined as:

> ...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative."

Alternatives Considered But Dismissed

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the basic project objectives. Any alternative that would have impact identical to or more severe than the proposed project, and/or that would not meet any or most of the project objectives were dismissed from further consideration.

As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

i. Failure to meet most of the basic project objectives;
ii. Infeasibility; or
iii. Inability to avoid significant environmental impacts.

Regarding item (ii), infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent). Not one of these factors establishes a fixed limit on the scope of reasonable alternatives.

One alternative, which was considered but dismissed from detailed analysis in this EIR, is discussed below, along with the reasons for dismissal, within the context of the three above-outlined permissible reasons.

Off-Site Alternative

The possibility of an off-site location was considered as an alternative to the project. The purpose of an alternatives analysis is to develop alternatives to the proposed project that substantially lessen at least one of the significant environmental effects identified as a result of the project, while still meeting most, if not all, of the basic project objectives.

Although the San Marco neighborhood does contain several vacant parcels, impacts related to air quality and GHG emissions and transportation associated with development of an off-site alternative would be similar to the impacts of the proposed project. For example, development of the vacant parcel to the west of the project site would have similar constraints regarding traffic, because traffic would be routed through the same roadway facilities as the proposed project. Furthermore, because an Off-Site Alternative would be developed at the same density as the proposed project, and within the same air district, the air quality impacts would be similar. Although some impacts related to recreation could occur if the proposed project were developed on an off-site parcel that is not designated Park, foreseeable impacts would be less than significant and long-term impacts are speculative and, to the extent that a substitute parcel within the San Marco neighborhood (or elsewhere) were designated to permit the construction of housing, development of that parcel as a park would impact the critical shortage of housing in the area by preventing the development of housing to address that shortage.

If an Off-Site Alternative were to be developed outside of the San Marco neighborhood, Objectives #1 and #2 would not be met. Furthermore, an Off-Site Alternative outside of the San Marco neighborhood would not necessarily provide safe access for bicyclists and pedestrians living within one quarter-mile of the site or provide an adequate amount of off-street parking. Therefore, Objective #3 could not be guaranteed to be met.

Overall, an environmentally feasible off-site location that would meet the requirements of CEQA, as well as meet the basic objectives of the proposed project, does not exist. An Off-Site Alternative in the project vicinity that might meet certain project objectives would also fail to substantially lessen any project impacts, and would require the sacrifice of land dedicated for housing, which is not acceptable from the standpoint of policy, as reflected in the City's Housing Element and other planning documents. Therefore, the Off-Site Alternative was dismissed from detailed analysis within this EIR.

6.4 ALTERNATIVES CONSIDERED IN THIS EIR

A total of three alternatives were developed based on input from City of Pittsburg staff, input from the public during the NOP review period, and the technical analysis performed to identify the significant environmental effects of the proposed project. The following alternatives are considered potentially feasible alternatives to the project, and are evaluated in further detail in this section:

- No Project (No Build) Alternative;
- No Project (Buildout Pursuant to General Plan) Alternative; and
- Reduced Intensity Alternative.

Each of the project alternatives is described in detail below, with a corresponding analysis of each alternative's impacts in comparison to the proposed project. While an effort has been made to include quantitative data for certain analytical topics, where possible, qualitative comparisons of the various alternatives to the project are primarily provided. Such an approach to the analysis is appropriate as evidenced by CEQA Guidelines Section 15126.6[d], which states that the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed. The analysis evaluates impacts that would occur with the alternatives relative to the significant impacts identified for the proposed project. When comparing the potential impacts resulting from implementation of the foregoing alternatives, the following terminology is used:

- "Fewer" = Less than Proposed Project;
- "Similar" = Similar to Proposed Project; and
- "Greater" = Greater than Proposed Project.

When the term "fewer" is used, the reader should not necessarily equate this to elimination of significant impacts identified for the proposed project. For example, in many cases, an alternative would reduce the relative intensity of a significant impact identified for the proposed project, but the impact would still be expected to remain significant under the alternative, thereby requiring mitigation. In other cases, the use of the term "fewer" may mean the actual elimination of an impact identified for the proposed project altogether. Similarly, use of the term "greater" does not necessarily imply that an alternative would require additional mitigation beyond what has been required for the proposed project. To the extent possible, this analysis will distinguish between the two implications of the comparative words "fewer" and "greater".

A comparison of the environmental impacts resulting from the considered alternatives and the proposed project is provided in Table 6-2 at the end of this chapter.

No Project (No Build) Alternative

CEQA requires the evaluation of the comparative impacts of the "No Project" alternative (CEQA Guidelines Section 15126.6[e]). Analysis of the no project alternative shall:

> "… discuss […] existing conditions […] as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (*Id.*, subd. [e][2]) "If the project is other than a land use or regulatory plan, for example a development project on identifiable property, the 'no project' alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of

> the property remaining in the property's existing state versus environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed. In certain instances, the no project alternative means 'no build,' wherein the existing environmental setting is maintained. However, where failure to proceed with the project would not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment." (*Id.*, subd. [e][3][B]).

Consistent with CEQA Guidelines, the City has evaluated a No Project (No Build) Alternative, which assumes that the project site would remain in its current state and not be developed. As discussed in this EIR, the project site is currently vacant and covered in ruderal vegetation. The northeastern portion of the site contains a gravel driveway and exposed dirt area.

The analysis of this section assumes that under the No Project (No Build) Alternative, the project site would remain in the current condition, and the site would not be developed. The No Project (No Build) Alternative would not be considered to meet any of the project objectives.

Air Quality and GHG Emissions

The No Project (No Build) Alternative would involve the continuation of the existing conditions on the project site. Because the No Project (No Build) Alternative would not involve construction, construction emissions would not occur. Thus, construction-related air quality impacts would be eliminated under the No Project (No Build) Alternative as compared to the proposed project, and Mitigation Measure 4.1-1 of this EIR would not be required.

Additionally, the No Project (No Build) Alternative would not result in operation of a shopping and dining area on the project site. Therefore, the Alternative would not result in operational GHG emissions in excess of the Bay Area Air Quality Management District's (BAAQMD) applicable threshold of significance, and a conflict with the emissions reductions targets of Assembly Bill (AB) 32 and Senate Bill (SB) 32 would not occur. Mitigation Measure 4.1-5 would not be required, and a significant and unavoidable impact related to generation of a cumulatively considerable contribution of GHG emissions would not occur. Overall, the No Project (No Build) Alternative would not result in any impacts related to air quality and GHG emissions.

Recreation

The No Project (No Build) Alternative would involve the site remaining in the current vacant and undeveloped condition, and the Alternative would not result in the conversion of 3.69 acres of land designated Park by the City's General Plan. The No Project (No Build) Alternative would not include development of the site with park uses. Thus, the Alternative would not contribute towards recreational facilities within the City, and would not help the City maintain the goal set forth in Policy 8-P-1, which requires five acres of park space per 1,000 residents. Although this Alternative provides that the portion of the parcel that would contain the proposed project and would not be available for eventual development of a park, the remaining 5.68 acres of the parcel would remain available for eventual development of a park, and could contribute towards City parkland in the future. Also, Ray Giacomelli Community Park is located adjacent to the site of the proposed project and provides existing recreational facilities for the San Marco neighborhood. The No Project (No Build) Alternative may result in slightly fewer impacts to recreation than the proposed project.

Transportation

Construction activities would not occur under the No Project (No Build) Alternative. Accordingly, the No Project (No Build) Alternative would not result in impacts related to construction vehicle traffic, and Mitigation Measure 4.3-2, which requires the preparation of a Construction Traffic Plan, would not be required. Under the Alternative, the project would not conflict with existing pedestrian facilities nor involve landscaping that could affect sight distance. As such, Mitigation Measure 4.3-4 would not be required. In addition, the No Project (No Build) Alternative would not contribute to traffic at nearby intersections or along SR 4. As noted in Chapter 4.3, VMT would be reduced with implementation of the proposed project due to the internal trip capture. As such, under the No Project (No Build) Alternative, VMT would remain as is, which is greater than the level of VMT that would occur with implementation of the project.

Overall, the No Project (No Build) Alternative would result in fewer impacts related to transportation and circulation than the proposed project.

Other Issue Areas

Under the No Project (No Build) Alternative, impacts related to issues addressed within the attached Initial Study would be fewer than the proposed project.

With respect to aesthetics, this Alternative would not include development within the site and, thus, would not substantially change the existing visual character of the site or create a new source of substantial light or glare which would adversely affect day or night-time views in the area. As such, Mitigation Measure I-1 would not be required as part of the proposed project and impacts to aesthetics would be fewer. In addition, the Alternative would not result in impacts to any biological resources within the site and, thus, Mitigation Measures IV-1 through IV-6 would not be required and impacts to biological resources would be fewer.

Furthermore, the Initial Study found that the proposed project could result in impacts related to cultural and tribal resources and geology and soils. Under the No Project (No Build) Alternative, grading and development of the site would not occur and impacts related to the potential discovery of unknown cultural resources and seismic-related ground failure, including landslides, liquefaction, lateral spreading, and subsidence or settlement would not occur. Thus, implementation of Mitigation Measures V-1 and V-2 and VII-1 through VII-4 would not be required under the Alternative. Similarly, impacts related to hydrology and water quality would not occur and implementation of the associated Mitigation Measures included in the Initial Study would not be required, and overall impacts would be fewer.

No Project (Buildout Pursuant to General Plan) Alternative

As discussed throughout this EIR, the project site is currently designated Park. Accordingly, under the No Project (Buildout Pursuant to General Plan) Alternative, the 3.69-acre project site would be developed with a park, per the current land use designation. The park would be located adjacent to the existing Ray Giacomelli Community Park.

Because the No Project (Buildout Pursuant to General Plan) Alternative would not develop shopping and dining opportunities to address the shortage of options in the San Marco neighborhood, Objective #1 would not be met. Additionally, development of the project site with a park would continue to require San Marco neighborhood residents to travel outside of the neighborhood for shopping and dining needs. Thus, Objective #2 would not be met. Furthermore, because the design of the park under the Alternative could not be guaranteed to provide safe access for bicyclists and pedestrians or provide an adequate amount of off-street parking, Objective #3 may not be met.

Air Quality and GHG Emissions

Development of the project site pursuant to the General Plan land use designation would result in construction of a community park. Construction of the park would likely require grading and use of some heavy duty, diesel-powered construction equipment, but the intensity of construction would likely be smaller under the No Project (Buildout Pursuant to General Plan) Alternative. The proposed project includes off-site construction which, in combination with on-site construction, exceeds the BAAQMD standards. The No Project (Buildout Pursuant to General Plan) Alternative would likely not require off-site utility connections and, thus, Mitigation Measure 4.1-1 provided in the EIR would not be required.

Under the No Project (Buildout Pursuant to General Plan) Alternative, operations of a park could result in fewer trips than under the proposed project. In addition, the park would not generate emissions related to refrigeration or natural gas. Therefore, operations of a park under the No Project (Buildout Pursuant to General Plan) Alternative would have fewer impacts related to air quality.

As discussed in Chapter 4.1, Air Quality and GHG Emissions, operation of the proposed commercial shopping and dining area, in conjunction with other development in the area, could result in a cumulatively considerable contribution to GHG emissions in excess of State and BAAQMD standards. Although operations of a park would result in some GHG emissions related to vehicle trips and exterior lighting, the intensity of park operations would be substantially less than that of the proposed project. Thus, impacts related to GHG emissions under the No Project (Buildout Pursuant to General Plan) Alternative would be fewer than the proposed project.

Overall, the No Project (Buildout Pursuant to General Plan) Alternative would result in fewer impacts related to air quality and GHG emissions compared to the proposed project.

Recreation

Under the No Project (Buildout Pursuant to General Plan) Alternative, the project site would maintain the current Park designation. Development of a park pursuant to the General Plan would result in an increase of at least 3.69 acres of park space in the City.

As discussed in Chapter 4.2, Recreation, of this EIR, Policy 8-P-1 of the City’s General Plan requires the City maintain five acres of park space per 1,000 residents. Based on data from the United States Census Bureau, the City would require a total of 362 acres of park space. However, the City has currently designated only 301.9 acres of park space. As such, even without conversion of the 3.69 acres designated Park, the City still would not meet the goal of five acres per 1,000 residents. Nonetheless, considering the Alternative would contribute towards park facilities in the City, impacts to recreation would be fewer under the No Project (Buildout Pursuant to General Plan) Alternative.

Transportation

The No Project (Buildout Pursuant to General Plan) Alternative would not include the development of commercial uses and, thus, would add a reduced number of vehicles to the existing transportation network compared to the proposed project. Residents often walk to nearby parks, and parks tend to generate less vehicle trips as opposed to commercial uses. For instance, per the ITE Trip Generation Manual, a City Park generates 0.04 daily trips per ksf, compared to a shopping center, which generates 42.70 daily trips per ksf.[1]

As noted previously, the intensity of construction would likely be smaller under the No Project (Buildout Pursuant to General Plan) Alternative. However, Mitigation Measure 4.3-2 would likely still be required under the No Project (Buildout Pursuant to General Plan) Alternative. The use of alternative transportation may increase under the No Project (Buildout Pursuant to General Plan) Alternative due to local residents preferentially using pedestrian or bicycle facilities, rather than vehicles, to reach the park. As a result, impacts to transit, bicycle, and pedestrian facilities would remain similar to what was analyzed for the proposed project. In addition, the park built under the No Project (Buildout Pursuant to General Plan) Alternative may include fencing or landscaping features that similarly reduce sight distance when compared to the proposed project. Thus, Mitigation Measure 4.3-4 may still apply to the No Project (Buildout Pursuant to General Plan) Alternative. Under the No Project (Buildout Pursuant to General Plan) Alternative, VMT would remain similar to the existing level, which is greater than the level of VMT that would occur with implementation of the project.

Overall, the No Project (Buildout Pursuant to General Plan) Alternative would result in similar impacts related to transportation and circulation compared to the proposed project.

Other Issue Areas

The No Project (Buildout Pursuant to General Plan) Alternative may include outdoor lighting fixtures that would be considered a new source of light or glare in the area, but impacts would be less substantial under the alternative as outdoor park lighting would be less intensive than the lighting required at a commercial center. Therefore, Mitigation Measure I-1 may not be required, and impacts related to aesthetics under the Alternative would be fewer than the proposed project. The on-site construction and grading that would be required to facilitate the Alternative would result in ground disturbance, and therefore, similar impacts, to biological resources, cultural and tribal cultural resources, geology and soils, and hydrology and water quality. As a result, Mitigation Measures, IV-1 through IV-6, V-1 and V-2, VII-1 through VII-4, and X-1 through X-3 would likely still be required under the Alternative.

Because the Alternative would not include water or sewer service, natural gas, or other utility connections, impacts to utilities and service systems would be fewer under the No Project (Buildout Pursuant to General Plan) Alternative. In addition, due to the nature of parks, impacts to energy, land use and planning, noise, public services would wildfire would like be fewer under the Alternative as compared to the proposed project.

Reduced Intensity Alternative

Under the Reduced Intensity Alternative, the project site would be developed with a small grocery store but without any restaurants. The small grocery store would not be considered a large supermarket, as described for the proposed project, but rather a local convenience store or market. The total square footage of the store would be reduced to 11,928 sf, which would be 66 percent smaller than the proposed project.

Because development of the store would be subject to consistency and review standards established by the General Plan and all applicable regulations within the City's Municipal Code,

[1] Institute of Transportation Engineers. *Trip Generation Manual, 9th Edition*. November 16, 2012.

the Alternative would generally meet Objective #3. The Reduced Intensity Alternative would provide a local shopping opportunity, but would not address dining opportunities. Therefore, the Alternative would only partially achieve Objectives #1 and #2, and would not achieve one of the fundamental underlying purposes of the project, which is to reduce vehicle miles traveled.

Air Quality and GHG Emissions

Development of the Reduced Intensity Alternative would result in construction of a small grocery store/local convenience store. Construction would still require grading and the use of heavy duty, diesel-powered construction equipment, and off-site utility connections, but the intensity of construction would be lower under the Reduced Intensity Alternative. As such, the Alternative would likely not require implementation of Mitigation Measure 4.1-1.

Under the Reduced Intensity Alternative, operations of the small store would result in fewer vehicle trips than under the proposed project. In addition, the store would generate fewer emissions related to refrigeration, natural gas, and electricity compared to the proposed project. Therefore, operations of the Reduced Intensity Alternative would be anticipated to result in fewer emissions of criteria pollutants and TACs, as compared to the emissions estimated for the proposed project and presented in Chapter 4.1, Air Quality and GHG Emissions, of this EIR.

As discussed in Chapter 4.1, operation of the proposed commercial shopping and dining area, in conjunction with other development in the area, could result in a cumulatively considerable contribution of GHG emissions. Although operations of the store would still result in GHG emissions related to vehicle trips and store operations, the intensity of operations would be less than that of the proposed project. Thus, impacts related to GHG emissions under the Reduced Intensity Alternative would be fewer than the proposed project.

Overall, the Reduced Intensity Alternative would result in fewer impacts related to air quality and GHG emissions compared to the proposed project. While impacts would be fewer, the significant and unavoidable impact identified in this EIR would remain.

Recreation

Similar to the proposed project, the Reduced Intensity Alternative would include a General Plan Amendment to change 3.69 acres of the site's land use designation from Park to Community Commercial.

As discussed previously, Policy 8-P-1 of the City's General Plan requires the City maintain five acres of park space per 1,000 residents. Because the Reduced Intensity Alternative would not include development of the site with park uses, the Alternative would not contribute towards recreational facilities within the City and would not help the City achieve the goal set forth in Policy 8-P-1. Overall, impacts to recreation would similar under the Reduced Intensity Alternative.

Transportation

The Reduced Intensity Alternative would include development of one small market, as opposed to the large supermarket and two food establishments included under the proposed project. Thus, the Alternative would add a reduced number of pedestrians, bicyclists, and transit passengers to the existing transportation network compared to the proposed project. A comparison of the anticipated trip generation of the Proposed Project and the Reduced Intensity Alternative in presented in Table 6-1.

Table 6-1
Proposed Project vs. Reduced Intensity Alternative
Trip Generation

Land Use	Proposed Project		Reduced Intensity Alternative		Difference in Trips
	Size	Daily Trip Generation	Size	Daily Trip Generation	
Restaurant Trip Generation	3,500 sf	393	0 sf	0	--
Reduction for Pass-by/Non-Auto Trips (43%)	--	169	--	0	--
Subtotal for the Restaurant	--	*224*	--	*0*	*-224*
Fast Food Trip Generation	1,826 sf	860	0 sf	0	--
Reduction for Pass-by/Non-Auto Trips (50%)	--	430	--	0	--
Subtotal for Fast Food	--	*430*	--	*0*	*-430*
Supermarket Trip Generation	29,822 sf	3,184	11,928 sf	1,274	--
Reduction for Pass-by/Non-Auto Trips (36%)	--	1,146	--	459	--
Subtotal for the Supermarket	--	*2,038*	--	*815*	*-1,223*
Total		**2,692**		**815**	**-1,877**

Source: Abram Associates Traffic Engineering, Inc., 2020.

As shown in the table, the Reduced Intensity Alternative is expected to generate 815 daily trips, which is 1,877 fewer daily trips than the proposed project. Consequently, the Alternative would likely result in decreased delay at nearby intersections and improved service along SR 4 compared to the proposed project. Although the Reduced Intensity Alternative would provide limited nearby shopping options and internal site capture, VMT would be increased from the proposed project as residents would still be required to drive to larger supermarkets and restaurants located off-site and potentially farther away.

The intensity of construction would be lower under the Reduced Intensity Alternative. However, Mitigation Measure 4.3-2, which requires preparation and implementation of the Construction Traffic Plan, would likely still be required under the Reduced Intensity Alternative. Local residents may opt to walk or bicycle to the store built under the Reduced Intensity Alternative and, thus, impacts to bicycle and pedestrian facilities would remain similar to the proposed project,. In addition, the store built under the Alternative may include fencing or landscaping features that similarly reduce sight distance when compared to the proposed project. Thus, Mitigation Measure 4.3-4 may still apply to the Reduced Intensity Alternative.

Overall, the Reduced Intensity Alternative would result in greater impacts related to transportation and circulation than the proposed project.

Other Issue Areas

The Reduced Intensity Alternative would include lighting fixtures similar to those proposed for the original project. Therefore, Mitigation Measure I-1 would likely be required, and impacts related to aesthetics under the Alternative would be similar to the proposed project. Ground disturbance associated with construction of the Alternative would be less than the proposed project. As a result, impacts to hydrology and water quality and geology and soils may be fewer under the Alternative. However, impacts to biological resources and cultural and tribal cultural resources would remain similar to the proposed project, and Mitigation measure IV-1 through IV-6 and V-1 and V-2 would still be required.

Due to the reduced scale of the Reduced Intensity Alternative, impacts to energy, land use and planning, noise, public services, and utilities and service systems would be fewer under this Alternative as compared to the proposed project.

Comparison of Alternatives

Table 6-2, included at the end of this chapter, summarizes the level of significance of the identified impacts for the proposed project and a comparison of impacts under each of the project alternatives.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” All of the significant impacts identified for the proposed project would not occur or would be fewer under the No Project (No Build) Alternative. Thus, the No Project (No Build) Alternative would be considered the environmentally superior alternative. However, given that a ‘no project’ alternative shall not be selected as the environmentally superior alternative, the No Project (No Build) Alternative may not be chosen as the environmentally superior alternative, and the environmentally superior alternative among the other alternatives should be chosen.

Designating a superior alternative depends in large part on what environmental effects one considers most important. This EIR does not presume to make this determination; rather, the determinations of which impacts are more important are left to the reader and the decision makers. Generally, the environmentally superior alternative is the one that would result in the fewest environmental impacts as a result of project implementation. However, it should be noted that the environmental considerations are one portion of the factors that must be considered by the public and the decision makers in deliberations on the proposed project and the alternatives. Other factors of importance include urban design, economics, social factors, and fiscal considerations. In addition, the superior alternative would, ideally, still provide opportunities to achieve the project objectives.

Both the No Project (No Build) Alternative and the No Project (Buildout Pursuant to General Plan) Alternative would not be considered to meet any of the project objectives. The Reduced Intensity Alternative would only partially meet Objectives #1 and #2.

Compared to the proposed project, all of the alternatives would result in fewer impacts related to air quality and GHG emissions. The Reduced Intensity Alternative would result in similar impacts related to recreation, compared to the proposed project. Under all alternatives, VMT would be slightly increased compared to what would occur under the proposed project because the internal trip capture would no longer occur or would occur at a lesser extent. The No Project (No Build) Alternative would result in fewer impacts to transportation and the mitigation measure presented within the EIR would not be required. However, the No Project (Buildout Pursuant to General Plan) and the Reduced Intensity Alternative would result in similar impacts to transportation as compared to the proposed project. A comparison of the impacts that would occur under each of the alternatives, as discussed in detail above, to those anticipated for the proposed project is illustrated in Table 6-2 below.

Pursuant to Section 15126(e)(2) of the CEQA Guidelines, because No Project (Buildout Pursuant to General Plan) cannot be selected as the environmentally superior alternative, the Reduced Intensity Alternative would be considered the environmentally superior alternative to the proposed project.

Table 6-2
Environmental Impacts of the Proposed Project and Project Alternatives

Impact	Proposed Project	No Project (No Build) Alternative	No Project (Buildout Pursuant to General Plan) Alternative	Reduced Intensity Alternative
Air Quality and GHG Emissions	Significant and Unavoidable	Fewer	Fewer	Fewer*
Recreation	Less-Than-Significant with Mitigation	Fewer	Fewer	Similar
Transportation	Less-Than-Significant with Mitigation	Fewer	Similar	Greater
Other Issue Areas	Less-than-Significant with Mitigation	Fewer	Fewer	Fewer
	Total Fewer:	**4**	**3**	**2**
	Total Similar:	**0**	**1**	**1**
	Total Greater	**0**	**0**	**1**

Less than Proposed Project = “Fewer;” Similar to Proposed Project = “Similar;” and Greater than Proposed Project = “Greater.”

* Significant and Unavoidable impact(s) determined for the proposed project would still be expected to occur under the Alternative.

7. EIR Authors and Persons Consulted

7. EIR AUTHORS AND PERSONS CONSULTED

Raney Planning & Management, Inc.

C. Timothy Raney, AICP	President
Cindy Gnos, AICP	Senior Vice President
Nick Pappani	Vice President
Rod Stinson	Division Manager/Air Quality Specialist
Angela DaRosa	Assistant Division Manager/Air Quality Specialist
Jacob Byrne	Senior Associate/Air Quality Technician
Zac Smith	Associate
Clay Gallagher	Associate
Briette Shea	Associate
Jessica Chuidian-Ingersoll	Associate

City of Pittsburg

Hector J. Rojas, AICP	Senior Planner

Abrams Associates Traffic Engineering, Inc.

Stephen Abrams	President

Fehr & Peers

Kathrin Tellez, AICP, PTP	Principal
Mark Howard	Engineer

8. References

8. REFERENCES

Abrams Associates Traffic Engineering, Inc. *Traffic Impact Analysis, San Marco Commercial Center, City of Pittsburg.* June 16, 2020.

Abrams Associates Traffic Engineering, Inc. *Re: Vehicle Miles Traveled Analysis for the San Marco Commercial Center Project.* March 4, 2020.

Association of Bay Area Governments and Metropolitan Transportation Commission. *Plan Bay Area 2040: Final.* Available at: http://2040.planbayarea.org/reports. Accessed May 2020.

Bay Area Air Quality Management District. *Air Quality Plans*. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans.aspx. Accessed April 2020.

Bay Area Air Quality Management District. *Air Quality Standards and Attainment Status.* Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed March 2020.

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

Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. December 2009.

BREEZE Software and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.2.* November 2017.

California Air Resources Board. *Aerometric Data Analysis and Management (iADAM) System.* Available at: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed April 2020.

California Air Resources Board. *2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations.* Available at: http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm. Accessed April 2020.

California Air Resources Board. *AB 32 Scoping Plan.* Available at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed August 2019.

California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective.* April 2005.

California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.* October 24, 2013. Available at: http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm. Accessed April 2020.

California Air Resources Board. *California Ambient Air Quality Standards (CAAQS).* Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed April 2020.

California Air Resources Board. *California's 2017 Climate Change Scoping Plan*. November 2017.

California Air Resources Board. *First Update to the Climate Change Scoping Plan.* May 22 2014.

California Air Resources Board. *Glossary of Air Pollution Terms*. Available at: http://www.arb.ca.gov/html/gloss.htm. Accessed August 2019.

California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm. Accessed May 2020.

California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 2002.

California Natural Resources Agency*. Safeguarding California: Reducing Climate Risk.* July 2014.

California Public Utilities Commission. *California Renewables Portfolio Standard*. March 25, 2015. Available at: http://www.cpuc.ca.gov/PUC/energy/Renewables/. Accessed May 2020.

City of Pittsburg Parks and Recreation Department. *Parks and Rentals*. Available at: http://www.pittsburgparksandrec.com/content/parks_rentals/parks_rentals. Accessed June 2015.

City of Pittsburg. *City of Pittsburg General Plan Draft Environmental Impact Report (SCH#1999072109)*. January 2001.

City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century*. Adopted November 16, 2001.

EN 1990: 2002+A1. *Eurocode – Basis of Structural Design*. Updated April 2010.

Flores, Arienna, Bay Area Air Quality Management District. Personal communication [phone], Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning & Management. September 2019.

Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.

Intergovernmental Panel on Climate Change. *Climate Change 2007: Impacts, Adaptation, and Vulnerability*. 2007.

Institute of Transportation Engineers. *Trip Generation Manual, 9th Edition.* November 2012.

Janjua, Shahana Y., Arker, Prabir K., and Biswas, Wahidul K. *Impact of Service Life on the Environmental Performance of Buildings*. Published January 2, 2019.

Kimley-Horn and Associates, Inc. *Traffic Impact Study, Faria Annexation, Pittsburg, CA.* November 2017.

Sacramento Metropolitan Air District. *Guide to Air Quality Assessment in Sacramento County.* Available at: http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools. Accessed April 2020.

Sacramento Metropolitan Air Quality Management District. *Roadway Construction Emissions Model*. May 2016.

Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. *Air Quality Information for the Sacramento Region*. Available at: http://www.sparetheair.com/health.cfm?page=healthoverall. Accessed April 2020.

South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan.* December 2012.

Spack, Mike, PE, PTOE, Max Moreland, EIT, Lindsay de Leeuw, Nate Hood. *Drive-Through Queue Generation*. https://www.countingcars.com/, Minneapolis, MN, February 2012.

U.S. Census Bureau. *Pittsburg, California*. Available at: https://www.census.gov/quickfacts/pittsburgcitycalifornia. Accessed August 2019.

U.S. Environmental Protection Agency*. Climate Change Indicators: Atmospheric Concentrations of Greenhouse Gases.* Available at: https://www.epa.gov/climate-indicators/climate-change-indicators-atmospheric-concentrations-greenhouse-gases. Accessed April 2020.

U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013*. April 2017.

U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions. Accessed May 2020.

U.S. Green Building Council. *Building Area Per Employee by Business Type.* May 2008.

Appendix A

City of Pittsburg
Development Services - Planning Department
Civic Center - 65 Civic Avenue, Pittsburg, California 94565

Telephone: (925) 252-4920 • FAX: (925) 252-4814

NOTICE OF PREPARATION

To: State Clearinghouse
1400 Tenth Street
Sacramento, California 95814

From: City of Pittsburg, Planning Department
65 Civic Avenue
Pittsburg, California 94565

To: Interested Parties; Responsible & Trustee Agencies

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Proposed San Marco Commercial Center Project

The City of Pittsburg is the lead agency for the preparation of an Environmental Impact Report (EIR) for the project identified below. The scope of the EIR has been proposed based upon a determination by the City. The City has directed the preparation of this EIR in compliance with the California Environmental Quality Act (CEQA).

Once a decision is made to prepare an EIR, the lead agency must prepare a Notice of Preparation (NOP) to inform all responsible and trustee agencies that an EIR will be prepared (CEQA Guidelines Section 15082). The purpose of the NOP is to provide agencies with sufficient information describing both the proposed project and the potential environmental effects to enable the agencies to make a meaningful response as to the scope and content of the information to be included in the EIR. The City is also soliciting comments on the scope of the EIR from interested persons.

Project Title: San Marco Commercial Center Project

Project Applicant: Discovery Builders, Inc.

Date 6/26/19

Signature
Title Senior Planner
Telephone (925) 252-4043

Reference: California Code of Regulations, Title 14, (California Environmental Quality Act Guidelines) Sections 15082(a), 15103, 15375.

PUBLIC SCOPING MEETING AND COMMENT SUBMITTAL

A scoping meeting open to the public will be held to receive public comments and suggestions on the project. At this meeting, staff will give a brief presentation of the EIR process and will take public comment on the proposed EIR. The scoping meeting will be open to the public and held at the following location:

Date:	Wednesday, July 17, 2019
Time:	5:30 PM
Location:	Pittsburg City Hall Council Chambers, 3rd floor, 65 Civic Avenue, Pittsburg, California 94565

The purpose of the EIR is to provide information about potential significant physical environmental impacts of the San Marco Commercial Center Project (proposed project), to identify possible ways to minimize those significant impacts, and to describe and analyze possible alternatives to the proposed project if potential significant impacts are identified. Preparation of an NOP or EIR does not indicate a decision by the City to approve or disapprove the project. However, prior to making any such decision, the City Council must review and consider the information contained in the EIR.

Written comments on the scope of the EIR are encouraged. **Please submit comments by 5:00 PM on July 26, 2019**. Written comments should be sent to Hector Rojas, Senior Planner, at 65 Civic Avenue, Pittsburg, California 94565, or via email at hrojas@ci.pittsburg.ca.us, or via fax at (925) 252-4814.

Questions concerning the environmental review of the proposed project should be directed to Hector Rojas at (925) 252-4043; however, please note that comments on the scope of the Draft EIR cannot be accepted over the phone. To be considered during preparation of the EIR, comments must be received in writing by the deadline identified above.

PROJECT LOCATION AND SETTING:

The project site consists of approximately 3.69 acres located southeast of the intersection of West Leland Road and San Marco Boulevard in the City of Pittsburg, California (see Figure 1 and Figure 2). The site is identified by Assessor's Parcel Number (APN) 091-050-065. While the entire parcel consists of 8.3 acres owned by the City, only the northwest area along West Leland Road would be developed. The site is located approximately 0.5-mile south of the State Route (SR) 4. The project site is designated Park by the General Plan land use map and zoned as a Planned Development (PD) District. PD Districts are intended to encourage variety in large developments, provide flexibility from land use regulations, and ensure orderly and thorough planning and review procedures.

Immediately east of the project site is the Ray Giacomelli Community Park, beyond which is a vacant parcel designated as medium density residential. To the west, across San Marco Boulevard, is vacant land designated as low density residential. To the north, across West Leland Road, are single-family residences. On the northwest corner of West Leland Road and San Marco Boulevard is a gas station and convenience store. Further northwest along West Leland Road, are the San Marco Villas Apartments. Immediately south of the project site is vacant land separated from the project site by a chain link fence. Across the vacant land to the south are single-family residences, located approximately 700 feet away. Delta View Elementary School is located approximately 2,000 feet southwest of the project site. Predominant land uses in the project vicinity are single-family residences and a multi-family subdivision (San Marco Villas).

Figure 1
Regional Location Map

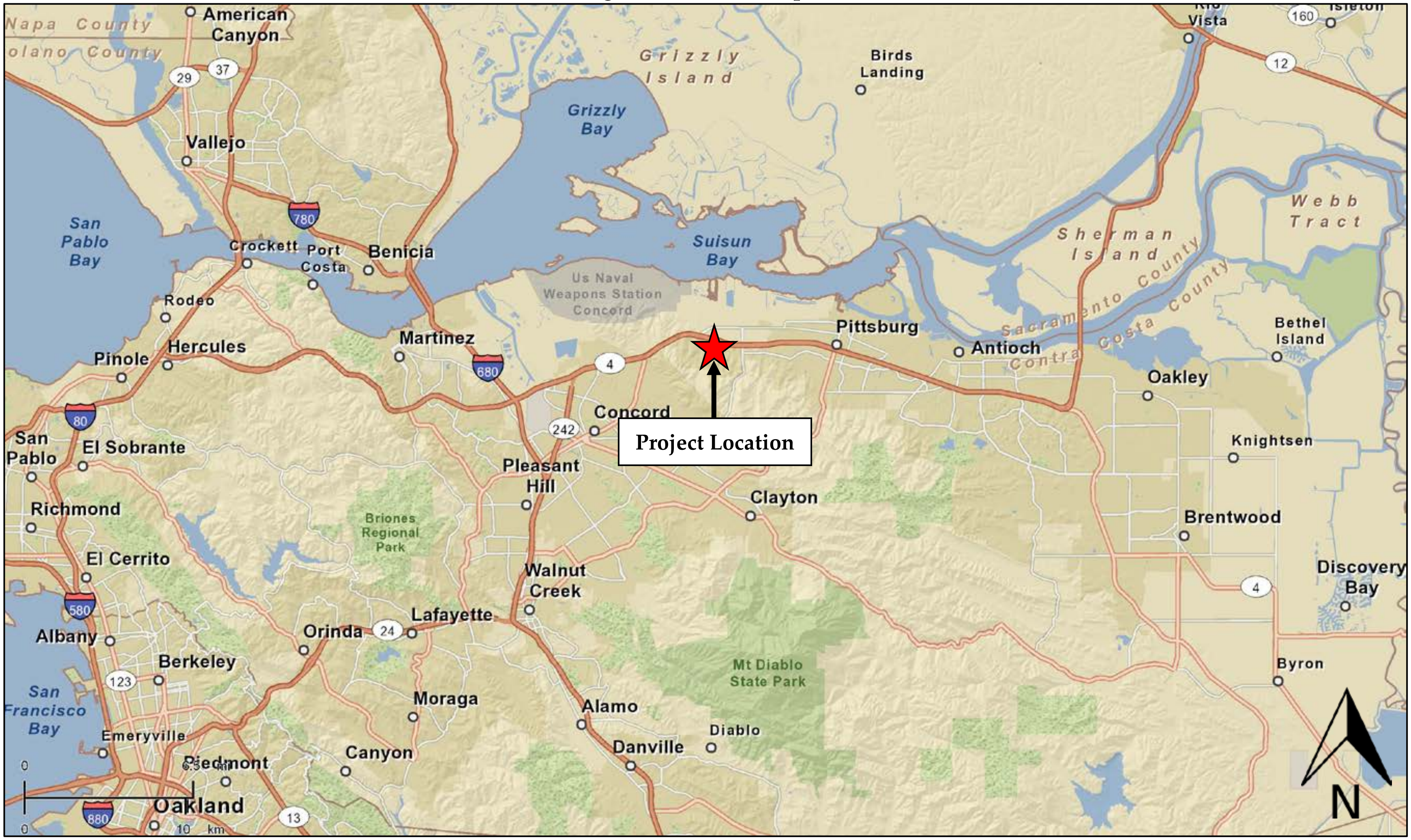


Figure 2
Project Location and Adjacent Uses

PROJECT COMPONENTS

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot (see Figure 3). The center would total 35,148 square feet (sf) of building area. A 29,822-sf building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock in the rear. A 3,500-sf building intended for restaurant use would be constructed in the northwest corner of the site and would provide 132 interior and 34 exterior seats. Finally, a 1,826-sf building intended for restaurant use would be developed in the northeast corner of the site and would include drive-through and dine-in service. A total of 179 parking stalls would be provided throughout the project site, seven of which would be handicap accessible.

Access and Circulation

Access would be provided by one 24-foot-wide driveway located off of San Marco Boulevard at the western edge of the site and one 28-foot-wide driveway at the eastern edge of the site by way of the private road separating the project site from the Community Park to the east. The project would include internal circulation with drive aisle widths meeting the minimum required to accommodate emergency vehicles. Additionally, crosswalks would be provided throughout the development and pedestrian access would be provided by way of connection to the existing sidewalk on West Leland Road.

Utilities

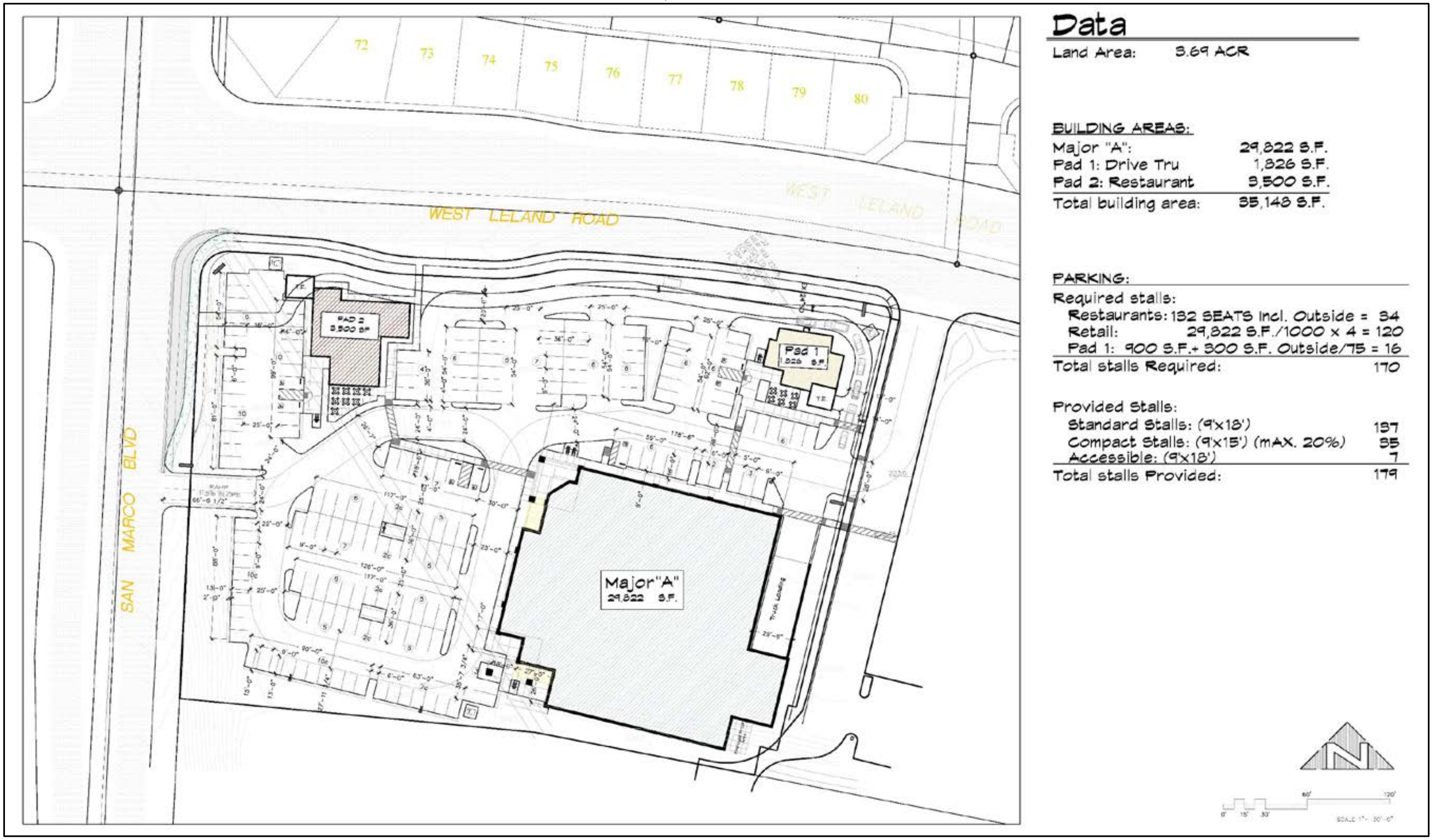
Water services to the project would be provided by the City through infrastructure developed by the applicant and dedicated to the City. The infrastructure would be maintained by the City of Pittsburg. The proposed project would include a new connection to an existing public water main located within West Leland Road.

Stormwater runoff would be collected and treated on the project site by a series of Christy V64 catch basins, which would then discharge runoff to a series of new storm drains ranging in size from 12 to 15 inches. The new storm drains would connect to an existing 18-inch public storm drain within West Leland Road.

The proposed project would include construction of a new eight-inch sewer main which would extend along the eastern side of the project site approximately 200 feet across West Leland Road for connection to an existing eight-inch sanitary sewer line in Portofino Drive. The City would provide wastewater collection services through the City of Pittsburg wastewater transmission system, to the Delta Diablo District wastewater treatment plant.

Solid waste pickup and disposal for the City is provided by the Pittsburg Disposal Services. The proposed project would include trash enclosures along the side of each building.

Figure 3
Project Site Plan



Discretionary Actions

The proposed project would require the following discretionary actions from the City of Pittsburg City Council:

- Certification of the EIR and adoption of a Mitigation Monitoring and Reporting Program;
- General Plan Amendment of 3.69 acres from Park to Community Commercial;
- Rezone from PD District to CC District;
- Use Permit to allow a grocery store and a drive-through restaurant within the CC zoning district;
- Variance to reduce the number of required parking stalls from 200 to 179; and
- Approval of Design Review.

In addition, the proposed project would require the following additional City of Pittsburg approvals:

- Approval of Improvement Plans;
- Approval of Grading Permit; and
- Approval of Building Permits.

DISCUSSION OF POTENTIAL IMPACTS

The environmental analysis for the proposed project will focus on the following areas: Air Quality and Greenhouse Gas Emissions; Recreation; and Transportation. In addition, statutorily required sections and discussion of project alternatives will be included. Some refinement to the aforementioned issues may be required based on comments received during the NOP scoping process. The following section describes each of the technical Chapters of the EIR in further detail.

Information will be drawn from the City of Pittsburg General Plan and General Plan EIR, technical studies prepared, and any other information pertinent to the project area. Consistent with CEQA and the requirements of the City of Pittsburg, each environmental chapter will include an introduction, existing environmental setting, regulatory context, and impacts and mitigation measures.

Air Quality and Greenhouse Gas Emissions

The Air Quality and Greenhouse Gas (GHG) Emissions chapter of the EIR will summarize the regional air quality setting, including climate and topography, existing ambient air quality, regulatory setting, and presence of any sensitive receptors near the project site. The air quality impact analysis will include a quantitative assessment of short-term (i.e., construction) and long-term (i.e., operational) increases of criteria air pollutant emissions of primary concern (i.e., ROG, NO_X, $PM_{2.5}$, and PM_{10}) and be based upon modeling performed using the California Emission Estimator Model (CalEEMod) version 2016.3.2 and technical analyses prepared for the project. The project's cumulative contribution to regional air quality would be discussed, based in part on the modeling conducted at the project level. For analysis of carbon monoxide, the Traffic Impact Analysis will be relied upon and it is assumed that the project would not trigger the need for CALINE 4 modeling.

The GHG Emissions analysis will include a discussion of the existing regulatory setting and context related to GHG Emissions, including Assembly Bill (AB) 32 and Senate Bill (SB) 32, and an impacts and mitigation section with quantitative data showing the project's contribution to the generation of GHG during the operational phase of the project. The significance of air quality and GHG impacts will be determined in comparison to the recommended Bay Area Air Quality Management District significance thresholds. Mitigation measures will be incorporated to reduce any significant air quality impacts, and anticipated reductions in emissions associated with proposed mitigations measures will be quantified.

Recreation

The Recreation chapter will address whether the proposed project would result in any impacts due to the loss of acreage previously identified in the General Plan for a park. The General Plan Amendment from the site's existing designation of Park to Community Commercial could potentially cause inconsistencies with General Plan Policy 8-P-1, which sets forth a requirement of five acres of parkland per 1,000 residents. The recreation chapter will calculate the population increase resulting from buildout of the General Plan and analyze current and future parkland acreage within the City to ensure compliance with General Plan Policy 8-P-1 and other General Plan policies targeted at maximizing the City's park acreage for resident use.

Transportation

The Transportation chapter of the EIR will evaluate potential impacts to the surrounding roadway network as well as site access. The section will be based on a peer reviewed Traffic Impact Study that will consider the impacts of the project on intersections and roadway system elements within the project vicinity. The section will include analysis of the existing conditions, existing plus project traffic conditions, cumulative conditions without the project, and cumulative conditions plus project traffic scenarios. The Traffic Impact Study will be conducted in accordance with the requirements and methodologies set forth by the City of Pittsburg, the Contra Costa Transportation Authority, Caltrans, and the applicable provisions of CEQA.

The Traffic Impact Study will analyze existing traffic conditions utilizing current AM and PM peak hour traffic counts and freeway and ramp volumes to establish baseline conditions. Project trip generation, distribution, and assignment will be developed utilizing trip generation rates contained in the 10th Edition of the ITE Trip Generation manual, and analysis of traffic operations will be conducted using the 2010 Highway Capacity Manual Level of Service methodology with Synchro Software. The existing plus project traffic volumes will be evaluated to determine levels of service at study intersections, freeway segments, and ramp merge/diverge areas. In addition, cumulative plus project conditions will also be analyzed to determine the increase in traffic volumes within the study area due to the proposed project. The following study intersections, freeway segments, and ramp merge/diverge areas will be included in the analysis:

1. State Route 4 Westbound Off-Ramp/Evora Road and Willow Pass Road
2. State Route 4 Eastbound Off-Ramp and San Marco Boulevard/Willow Pass Road
3. San Marco Boulevard and West Leland Road
4. San Marco Boulevard and the Project Entrance
5. West Leland Road and the Project Entrance/Valente Drive
6. West Leland Road and Toscana Drive
7. West Leland Road and Alves Ranch Road
8. West Leland Road and Southwood Drive
9. West Leland Road and Bailey Road
10. State Route 4 Eastbound On-Ramp/BART Entrance and Bailey Road
11. State Route 4 Westbound On-Ramp/Canal Road and Bailey Road

Statutorily Required Sections

The Statutorily Required Sections chapter of the EIR will summarize potentially significant, unavoidable, significant irreversible, growth-inducing, and cumulative impacts. The chapter will summarize the cumulative impacts that will be contained in each technical section and will be qualitative in nature.

Alternatives to the Proposed Project

In accordance with Section 15126.6(a) of the CEQA Guidelines, the EIR will include an Alternatives analysis. The alternatives chapter will evaluate, at a minimum, three alternatives, including the No Project Alternative. Alternatives will be selected when more information related to project impacts is available so the alternatives can be designed to reduce significant project impacts. Any additional alternatives will be developed during preparation of the EIR to respond to identified significant impacts. The Alternatives chapter will describe the alternatives and identify the environmentally superior alternative. The alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow a meaningful comparison of the impacts. The Alternatives chapter will also include a section of alternatives considered but dismissed. A matrix comparing the impacts of the proposed project to the three alternatives will also be included.

Appendix B

CONTRA COSTA
MOSQUITO
&VECTOR
CONTROL
DISTRICT

155 Mason Circle
Concord, CA 94520
phone (925) 685-9301
fax (925) 685-0266
www.contracostamosquito.com

July 10, 2019

Hector Rojas
City of Pittsburg
Community Development Dept. – Planning Division
65 Civic Avenue
Pittsburg, CA 94565

Re: Notice of Preparation for Proposed San Marco Commercial Center Project EIR

Dear Mr. Rojas,

Thank you for the opportunity to express the position of the Contra Costa Mosquito & Vector Control District (the District) regarding the scope of the Environmental Impact Report for the proposed San Marco Commercial Center Project located at the intersection of West Leland Road and San Marco Boulevard (APN 091-050-065) in Pittsburg.

As a bit of background, the District is tasked with reducing the risk of diseases spread through vectors in Contra Costa County by controlling them in a responsible, environmentally-conscious manner. A "vector" means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates. Under the California Health and Safety Code, property owners retain the responsibility to ensure that the structure(s), device(s), other project elements, and all additional facets of their property do not produce or harbor vectors, or otherwise create a nuisance. Owners are required to take measures to abate any nuisance caused by activities undertaken and/or by the structure(s), device(s), or other feature(s) on their property. Failure by the property owner to adequately address a nuisance may lead to abatement by the Contra Costa Mosquito & Vector Control District and civil penalties up to $1,000 per day pursuant to California Health & Safety Code §2060-2067.

Potential impacts to human health by disease vectors is not properly addressed under CEQA—an oversight that has created problems for mosquito abatement and vector control agencies throughout the state. The analysis for a project should consider evidence of potential environmental impacts, even if such impacts are not specifically listed on the Appendix G checklist. [State CEQA Guidelines, § 15063(f)]. To determine whether Public Health & Safety may be significantly impacted, lead agencies should refer to the California Health & Safety Code § 2000-2093 for definitions and liabilities associated with the creation of habitat conducive to vector production and to guidance provided by local mosquito and vector control districts/agencies in their determination of environmental impacts. Would the project:

a) Increase the potential exposure of the public to disease vectors (e.g., mosquitoes, flies, ticks, and rats)?
b) Increase potential mosquito/vector breeding habitat (i.e., areas of prolonged standing/ponded water like wetlands or stormwater treatment control BMPs and LID features)?

Protecting Public Health Since 1927

Addressing these concerns in the environmental review and project planning phases can not only better protect public health and reduce the need for pesticide applications for vector control efforts, but avoid costly retrofits and fines for property owners in the future. Please don't hesitate to contact the District should you have any questions or need anything further.

Sincerely,

Jeremy Shannon
Vector Control Planner
925-771-6119
jshannon@contracostamosquito.com

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

July 26, 2019

SCH #2019069103
GTS #04-CC-2018-00355
GTS ID: 13308
Co-Rt-PM- CC-4-18.844

Hector Rojas, Senior Planner
City of Pittsburg
65 Civic Ave
Pittsburg, CA 94565

Project – San Marco Commercial Center Project Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR)

Dear Hector:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the San Marco Commercial Center Project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), Caltrans' mission signals our agency's approach to evaluate and mitigate impacts to the State Transportation Network (STN). Caltrans' *Strategic Management Plan 2015-2020* aims to reduce Vehicle Miles Traveled (VMT) consistent with the State's goals and targets. Our comments are based on the June 26, 2019 NOP.

Project Understanding
The proposed project would include the development of a 35,148 square foot (sf) commercial center comprised of three buildings and an associated parking lot, a 29,822-sf building intended as a grocery store, A 3,500-sf building intended for restaurant, and a 1,826-sf building also intended for a restaurant. A total of 179 parking stalls would be provided throughout the project site.

Travel Demand Analysis
With respect to the local and regional roadway system, provide project related trip generation, distribution, and assignment estimates. To ensure that queue formation does not create traffic conflicts, the project-generated trips should be added to the existing and future scenario traffic volumes for the intersections and freeway ramps listed in the June 26, 2019 NOP (pg. 8.) Potential queuing

issues should be evaluated including on-ramp storage capacity and analysis of freeway segments near the project; turning movements should also be evaluated. In conducting these evaluations, it is necessary to use demand volumes rather than output volumes or constrained flow volume.

Multimodal Planning
The project's primary and secondary effects on pedestrians, bicyclists, travelers with disabilities, and transit users should be evaluated. Access for pedestrians and bicyclists to transit facilities must be maintained.

The Caltrans District 4 Bike Plan identifies the interchange of SR 4 and San Marco Blvd./Willow Pass Rd. as a high Level of Traffic Stress crossing. The Countywide Bicycle and Pedestrian Plan identifies San Marco Blvd. as a future low stress bicycle route. The DEIR should identify how active transportation access to the project site to and from local low stress bicycle facilities such as the Delta de Anza Regional Trail, and transit hubs such as the Pittsburgh Bay Point BART station will be accommodated.

Lead Agency
As the Lead Agency, the City of Pittsburgh is responsible for all project mitigation, including any needed improvements to the STN. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures.

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Mark Leong at 510-622-1644 or mark.leong@dot.ca.gov.

Sincerely,

Wahida Rashid

WAHIDA RASHID
Acting District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Appendix C

City of Pittsburg
Planning Department

San Marco Commercial Center Project

Initial Study

July 2020

RANEY | 20 years
PLANNING & MANAGEMENT, INC.
1501 Sports Drive, Suite A, • Sacramento • CA • 95834
Office 916.372.6100 • Fax 916.419.610

TABLE OF CONTENTS

INITIAL STUDY

July 2020

A. BACKGROUND

1. Project Title: San Marco Commercial Center Project

2. Lead Agency Name and Address: City of Pittsburg
Planning Department
65 Civic Avenue
Pittsburg, CA 94565

3. Contact Person and Phone Number: Hector Rojas
Senior Planner
(925) 252-4814

4. Project Location: West Leland Road and San Marco Boulevard
APNs: 091-050-065 and -066

5. Project Sponsor's Name and Address: Discovery Builders, Inc.
4061 Port Chicago Highway, Suite H
Concord, CA 94520
(925) 682-6458

6. Existing General Plan Designation: Park

7. Existing Zoning Designation: Planned Development (PD) District

8. Proposed General Plan Designation: Community Commercial

9. Proposed Zoning Designation: Community Commercial (CC) District

10. Required Approvals from Other Public Agencies: None

11. Surrounding Land Uses and Setting:

    The project area is located southeast of the intersection of West Leland Road and San Marco Boulevard, approximately one-half mile south of State Route (SR) 4, the California Delta Highway, in the City of Pittsburg, California. The project area includes two existing, city-owned parcels, totaling 9.37 acres, identified by Assessor's Parcel Numbers (APNs) 091-050-065 and -066. It should be noted that the proposed project only includes development in the northwest area, along West Leland Road, and, therefore, the project includes a request for a parcel map from the City, which would adjust the property lines between the park to the east and the proposed development, resulting in a 3.57-acre property. The proposed project also includes off-site frontage improvements within the City right-of-way, which results in a total project area of 3.69 acres. Therefore, this Initial

Study provides analysis of the entire 3.69-acre area and is referred to herein as the "project site".

Currently, the project site consists primarily of ruderal vegetation and is absent of structures or other indications of previous development. The site appears to have been cleared in the past and the site is regularly disked for weed suppression. The grasses appear to be regularly maintained. A small portion of the northeast corner of the site contains a gravel driveway and small dirt area. The site does not currently contain any trees or shrubs and consists of relatively flat terrain. The two-acre parcel immediately east of the project site is the Ray Giacomelli Community Park. The park features picnic tables, barbeque grills, children's playground equipment, and a large grass area. Across San Marco Boulevard to the west is vacant land designated as low density residential. To the north, across West Leland Road are single-family residences. The nearest home to the north of the site is approximately 120 feet from the site boundary. On the northwest corner of West Leland Road and San Marco Boulevard is a gas station and convenience store. Beyond the vacant land to the south of the site are single-family residences, located approximately 700 feet away. The project site is designated Park by the General Plan land use map and zoned as a PD District.

12. Project Description Summary:

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot. A 29,822-square foot (sf) building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock. A 3,500-sf building in the northwest corner of the site would be intended for restaurant use. Finally, a 1,826-sf building, also intended for restaurant use, would be developed in the northeast corner of the site and would include a drive-through and dine-in service. Together, the restaurants would provide seating for up to 166 people. A total of 176 parking stalls would be provided throughout the project site, seven of which would be handicap accessible. The project would require approval of the following: a General Plan Amendment to change 3.69 acres from Park to Community Commercial (CC); an amendment to the Southwest Development Agreement (Ordinance No. 90-990, as amended); a Rezone from PD District to CC District; a Use Permit to allow the proposed uses within the CC zoning district; Variance from off-street parking standards; Design Review; a Parcel Map to adjust the property lines between the park to the east and the proposed development.

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), project notification letters were distributed to the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, the North Valley Yokuts Tribe, the Ohlone Indian Tribe, and the Wilton Rancheria. The letters were distributed on July 24, 2019 and 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:

1. Abrams Associates. *Traffic Impact Analysis, San Marco Commercial Center, City of Pittsburg*. June 16, 2020.
2. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. May 2017.
3. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. November 2017.
4. California Building Standards Commission. *California Green Building Standards Code*. 2019.
5. California Department of Conservation. *Contra Costa County Important Farmland 2016.* Available at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/ContraCosta.aspx. Accessed July 2019.
6. California Department of Conservation. *DOC Maps*. Available at: https://maps.conservation.ca.gov/#dataviewer. Accessed July 18, 2019.
7. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.
8. California Department of Resources Recycling and Recovery. *Facility/Site Summary Details: Potrero Hills Landfill (48-AA-0075).* Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0075/Detail/. Accessed February 4, 2018.
9. California Department of Toxic Substances Control. *DTSC's Hazardous Waste and Substances Site List*. Available at: https://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Accessed July 26, 2019.
10. 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 July 2019.
11. Caltrans. *Transportation Related Earthborne Vibrations.* Available at: http://www.dot.ca.gov/hq/env/noise/pub/TRANSPORTATION_RELATED_EARTHBORNE_VIBRATIONS.pdf. February 20, 2002.
12. City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century.* November 16, 2001.
13. City of Pittsburg. *City of Pittsburg 2015 Urban Water Management Plan Final Draft*. Available at: http://www.ci.pittsburg.ca.us/Modules/ShowDocument.aspx?documentid=8283. June 2016.
14. City of Pittsburg. *City of Pittsburg General Plan 2002: Draft Environmental Impact Report*. January 2001.
15. City of Pittsburg. *Existing Conditions Report, City of Pittsburg General Plan Update* [Figure 4.4-2]. November 2019.
16. City of Pittsburg, Habitat Conservation Plan/Natural Community Conservation Plan Implementation Ordinance.
17. City of Pittsburg. *Pittsburg Municipal Code.* January 22, 2019.
18. Delta Diablo Sanitation District. *Sewer System Management Plan*. October 10, 2018.
19. Delta Diablo Sanitation District. *Transforming Wastewater to Resources*. Available at: https://www.deltadiablo.org/about-us/about-us. Accessed July 26, 2019.

20. East Contra Costa County Conservancy. *High Resolution Development Fee Zone Map*. Accessible at: http://www.co.contra-costa.ca.us/depart/cd/water/HCP/project-permitting.html. Accessed July 2019.
21. EN 1990: 2002+A1. *Eurocode – Basis of Structural Design*. Updated April 2010.

22. Contra Costa Transportation Authority. *2017 Update of the Contra Costa Congestion Management Program.* December 2017.
23. Contra Costa Water District. *2015 Urban Water Management Plan for the Contra Costa Water District*. Available at: https://www.ccwater.com/DocumentCenter/View/2216/2015-CCWD-Urban-Water-Management-Plan-PDF. June 2016.
24. Delta Diablo Sanitation District. *Sewer System Management Plan*. October 10, 2018.
25. Delta Diablo Sanitation District. *Transforming Wastewater to Resources*. Available at: https://www.deltadiablo.org/about-us/about-us. Accessed February 4, 2019.
26. East Contra Costa County Conservancy. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan, Chapter 3 Physical and Biological Resources.* Updated December 19, 2006.
27. East Contra Costa County Conservancy. *High Resolution Development Fee Zone Map*. Available at: http://www.co.contra-costa.ca.us/depart/cd/water/HCP/project-permitting.html. Accessed June 2016.
28. Federal Transit Administration*. Transit Noise and Vibration Impact Assessment Guidelines.* Available at: [https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123. May 2006](https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123).
29. Janjua, Shahana Y., Arker, Prabir K., and Biswas, Wahidul K. *Impact of Service Life on the Environmental Performance of Buildings*. Published January 2, 2019.
30. Northwest Information Center. *Records Search Results for the Proposed San Marco Commercial Center Project.* July 31, 2019.
31. United States Department of Agriculture, Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2019.

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" or 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 initial study:

☐ 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
Hector Rojas, Senior Planner	City of Pittsburg
Printed Name	For

E. BACKGROUND AND INTRODUCTION

This Initial Study (IS) identifies and analyzes the potential environmental impacts of the San Marco Commercial Center 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.

In January of 2001, the City of Pittsburg adopted a comprehensive update to the City's General Plan and certified an associated Environmental Impact Report (EIR).[1] Per Section 15168 of the CEQA Guidelines, a project that is consistent with the General Plan and zoning designations of the City may tier from the analysis contained in the General Plan EIR, incorporating by reference the general discussions from the broader EIR. The proposed project would not be consistent with General Plan designation and requires a General Plan Amendment and a Rezone. As a result, the environmental analysis contained in this IS cannot be tiered from the General Plan EIR in accordance with CEQA Guidelines Section 15152, but rather, the analysis herein is primarily based upon project-specific technical studies and information. However, where applicable, supplemental information in this IS has been drawn from the Pittsburg General Plan and the Pittsburg General Plan EIR, and both documents are incorporated by reference in this IS.

The mitigation measures prescribed for environmental effects described in this IS would be implemented in conjunction with the project, as required by CEQA, and the mitigation measures would be incorporated into the project. In addition, findings and a project Mitigation Monitoring and Reporting Program (MMRP) would be adopted in conjunction with approval of the project.

F. PROJECT DESCRIPTION

The following section provides a comprehensive description of the proposed project in accordance with CEQA Guidelines.

Project Location and Setting

The project area is located southeast of the intersection of West Leland Road and San Marco Boulevard, approximately one-half mile south of State Route (SR) 4, the California Delta Highway, in the City of Pittsburg, California. (see Figure 1 and Figure 2). The site is identified by Assessor's Parcel Numbers (APNs) 091-050-065 and -066. While the both parcels consist of 9.37 acres owned by the City, only the northwest area along West Leland Road would be developed. The project area includes two existing, city-owned parcels, totaling 9.37 acres, identified by Assessor's Parcel Numbers (APNs) 091-050-065 and -066. It should be noted that the proposed project only includes development in the northwest area, along West Leland Road, and, therefore, the project includes a request for a parcel map from the City, which would adjust the property lines between the park to the east and the proposed development, resulting in a 3.57-acre property. The proposed project also includes off-site frontage improvements within the City right-of-way, which results in a total project area of 3.69 acres. Therefore, this Initial Study provides analysis of the entire 3.69-acre area and is referred to herein as the "project site". The topography of the site is relatively flat with a gentle slope to the east. The project site is bound by San Marco Boulevard to the west and West Leland Road to the north. The site is located approximately 0.5-mile south of SR 4 and the San Marco Boulevard/Willow Pass Road exit. Tri Delta Transit system operates an eastbound bus stop on the project site frontage along West Leland Road.

---

1 City of Pittsburg. City of Pittsburg General Plan 2002. Draft Environmental Impact Report. January 2001.

Figure 1
Regional Project Map

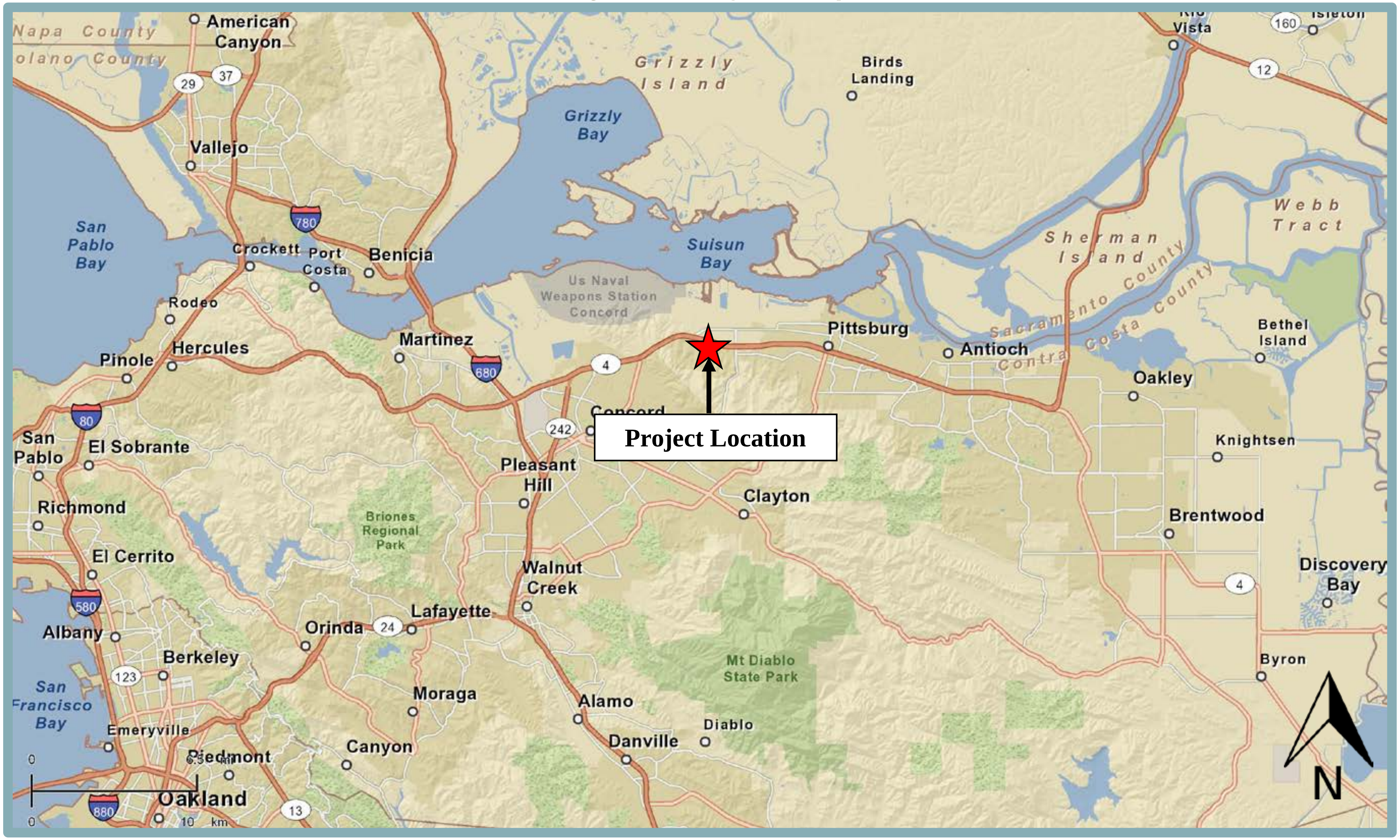


Figure 2
Project Location and Adjacent Uses

Currently, the project site consists primarily of ruderal grasses and is absent of structures or other indications of prior development. The grasses appear to be regularly maintained. The site appears to have been cleared in the past and the site is regularly disked for weed suppression. The grasses appear to be regularly maintained. A small portion of the northeast corner of the site contains a gravel driveway and small dirt area. The site does not currently contain any trees or shrubs.

Existing trees border the western side of the site along San Marco Boulevard, outside of the project site boundaries, and are maintained by the City. The topography of the site is relatively flat, with elevations ranging from a low of approximately 220 feet along the eastern portions of the site to a high of approximately 240 feet along the western portion of the site adjacent to San Marco Boulevard. Thus, the site slopes gently to the east, but does not contain any hills or undulations.

The two-acre parcel immediately east of the project site is the Ray Giacomelli Community Park. The park provides picnic tables, barbeque grills, children's playground equipment, and a large grass area. A small paved road with entrance from West Leland Road separates the project site from the Community Park. Beyond the park to the east is a vacant parcel designated medium density residential. Across San Marco Boulevard to the west is vacant land designated as low density residential. To the north, across West Leland Road are single-family residences. The nearest home to the north of the site is approximately 120 feet from the site boundary. On the northwest corner of West Leland Road and San Marco Boulevard is a gas station and convenience store. Further northwest along West Leland Road, are the San Marco Villas Apartments, a gated multi-family subdivision. Immediately south of the project site is vacant land covered in grasses and shrubs with hilly terrain. In addition to the grassland and urban uses in the area, a drainage basin exists directly south of the site. The project site boundary is separated from the vacant parcel by a chain link fence. Across the vacant land to the south are single-family residences, located approximately 700 feet away. Delta View Elementary School is located approximately 2,000 feet southwest of the project site. Predominant land uses in the project vicinity are single-family residences and an apartment complex (San Marco Villas).

The project site is designated Park by the General Plan land use map (see Figure 3) and zoned as a PD District.

Project Components

The proposed project would include development of a commercial center comprised of three buildings and an associated parking lot (see Figure 4). The center would total 35,148 square feet (sf) of building area. A 29,822-sf building intended as a grocery store would be located in the southeast corner of the site and would include a truck loading dock in the rear. A 3,500-sf building intended for restaurant use would be constructed in the northwest corner of the site. Finally, a 1,826 sf building also intended for restaurant use would be developed in the northeast corner of the site and would include a drive-through and dine-in service. Together, the restaurants would provide seating for up to 166 people. A total of 176 parking stalls would be provided throughout the project site, seven of which would be handicap accessible.

Additionally, the project would require approval of the following: a General Plan Amendment to change 3.69 acres from Park to Community Commercial (CC); an amendment to the Southwest Development Agreement (Ordinance No. 90-990, as amended); a Rezone from PD District to CC District; a Use Permit to allow the proposed uses within the CC zoning district; Variance from off-street parking standards; Design Review; a Parcel Map to adjust the property lines between the park to the east and the proposed development.

Figure 3
Existing General Plan Land Use Designation

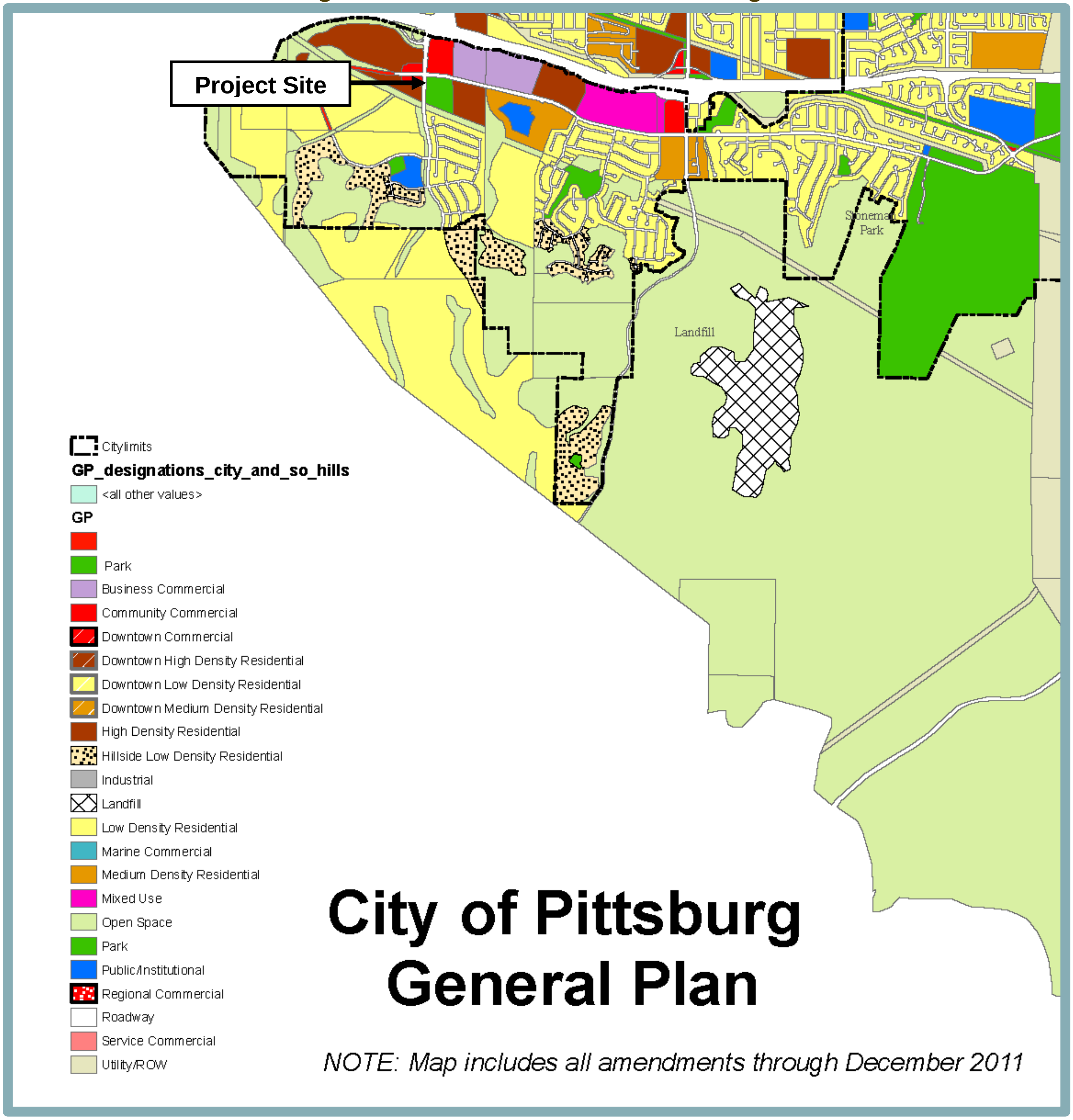
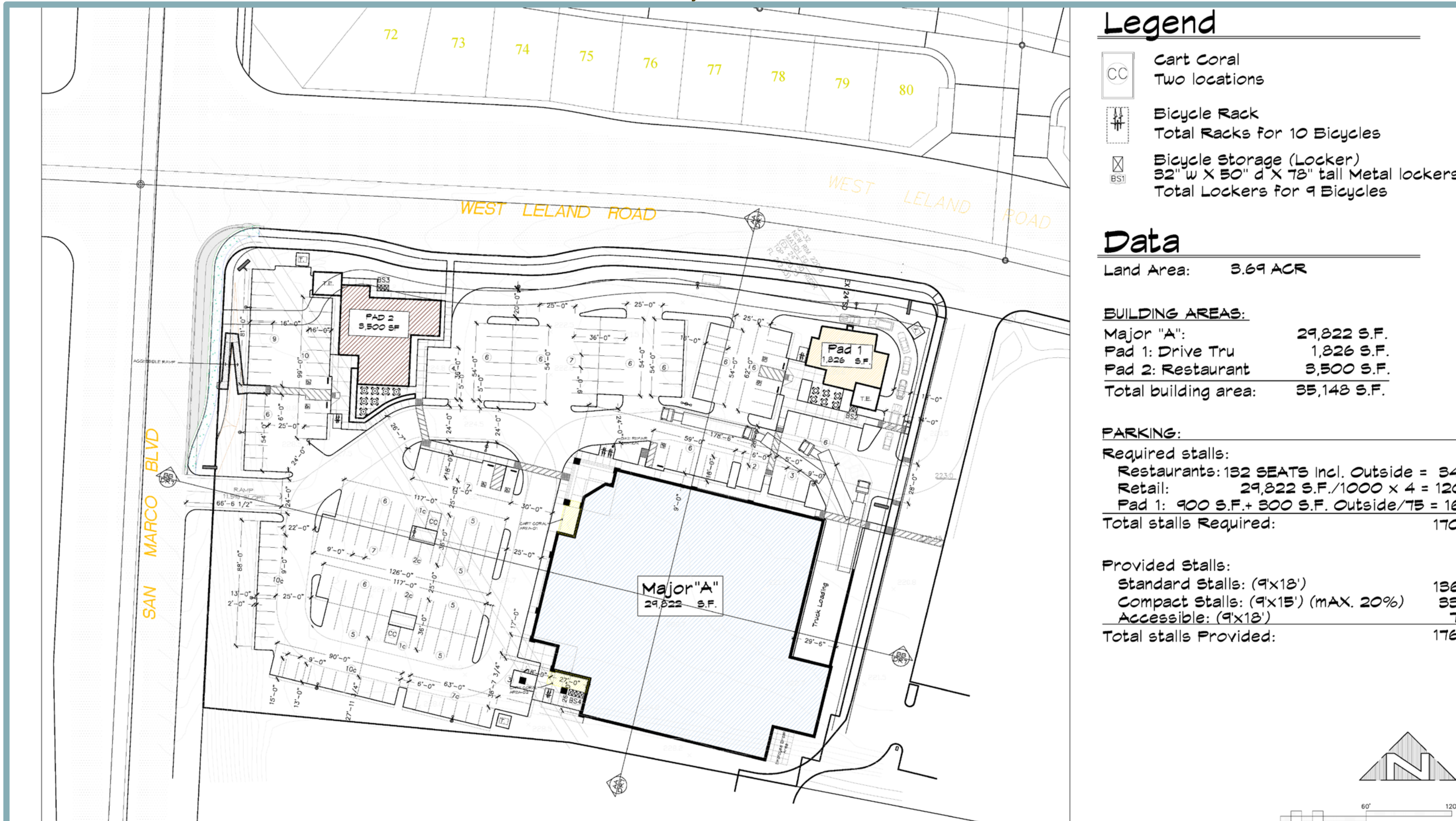


Figure 4
Project Site Plan



Access and Circulation

Access would be provided by one driveway located off of San Marco Boulevard at the western edge of the site and one driveway at the eastern edge of the site by way of the private road separating the project site from the Community Park to the east. The western entrance would be 24-feet wide while the eastern entrance would be 28-feet wide, and each would be stop controlled. Internal drive aisles would circulate the entire site and would range from 22 to 27-feet wide. All lanes and drive aisles would meet the minimum width that can accommodate an emergency vehicle. Additionally, crosswalks would be provided throughout the development and pedestrian access would be provided by way of connection to the existing sidewalk on West Leland Road.

The 1,826-sf restaurant would provide a queuing lane along the eastern side of the building for entrance into the drive-through lane, which would wrap around the building to the west with an exit into the parking area.

Utilities

Figure 5 and Figure 6 below display the full preliminary utilities plan for the proposed project. Water services would be provided by the City through infrastructure developed by the applicant and dedicated to the City. The infrastructure would be maintained by the City of Pittsburg. The City obtains water from the Contra Costa Water District (CCWD), through the Central Valley Project. Additionally, the City operates a water treatment plant and associated infrastructure facilities, which primarily serve customers within the City limits. Treated water is distributed throughout the City by way of a 122-mile system of pipelines. The proposed project would include construction of a new six-inch water lateral between all of the proposed buildings with connection to an existing 20-inch public water main located within West Leland Road.

Stormwater on the project site would be collected through a series of new storm drains, varying in size from 10, 12, 15, and 18-inches. The storm drains would convey water to several Christy V64 catch basins for stormwater treatment according to City standards. The new storm drains would then connect to an existing 18-inch public storm drain within West Leland Road.

The proposed project would include construction of a new eight-inch sewer main as well as three sanitary sewer cleanouts on-site. The sewer main would extend along the eastern side of the project site, approximately 200 feet across West Leland Road for connection to an existing eight-inch sanitary sewer line in Portofino Drive. The City would provide wastewater collection services to the project site by conveyance of wastewater through the City of Pittsburg transmission system, to the Delta Diablo District wastewater treatment plant. The City's collection system consists of approximately 95 miles of sewer lines ranging in diameter from six to 36 inches, and one sewage lift station.

Solid waste pickup and disposal for the City is provided by the Mt. Diablo Resource Recovery. Residential and commercial solid waste is disposed of at Potrero Hills Landfill, located east of Suisun City, while non-recyclable industrial waste is transported to Keller Canyon Landfill, located southeast of the city limits. The proposed project would include trash enclosures along the side of each building.

Construction

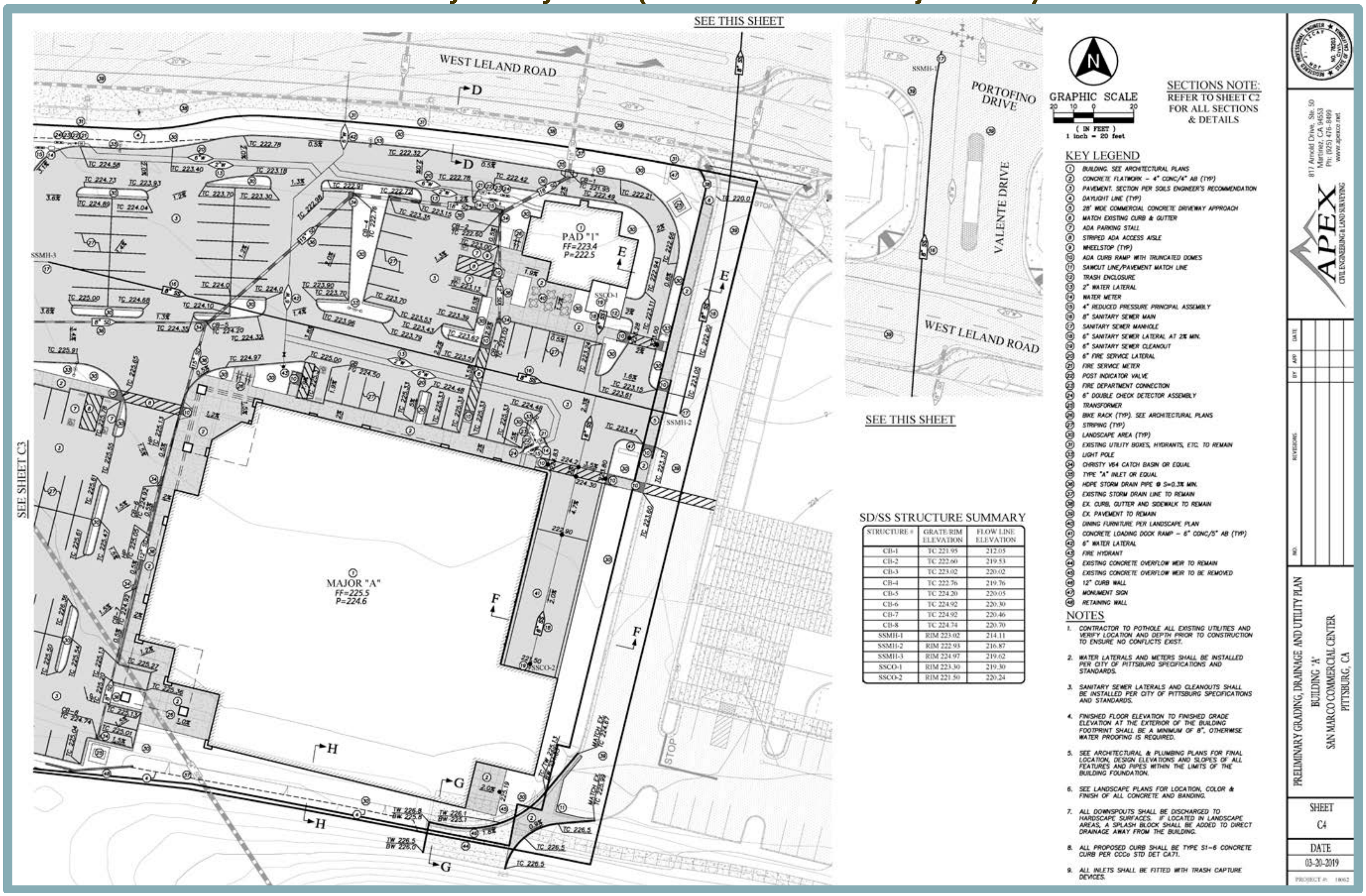
Construction of the proposed project would require grading of the site for the proposed parking area and building pads, trenching for water, sewer, and storm drainage improvements, and the construction of three commercial buildings. Construction would also be required along San Marco Boulevard to include a new driveway with access to the western side of the site.

Figure 5
Preliminary Utilities Plan (Western Side of Project Site)

SD/SS STRUCTURE SUMMARY

STRUCTURE #	TC/RIM ELEVATION	FLOW LINE ELEVATION
CB-5	TC 224.20	220.05
CB-6	TC 224.92	220.30
CB-7	TC 224.92	220.46
CB-8	TC 224.74	220.70
CB-9	TC 226.27	223.27
SSMH-3	RIM 224.97	219.62
SSCO-3	RIM 226.30	222.30

Figure 6
Preliminary Utility Plan (Eastern Side of Project Site)



General Plan Amendment and Rezone

As noted previously, the project site is currently designated Park by the City's General Plan. The project would include a General Plan Amendment to change 3.69 acres of the site's land use designation to Community Commercial. The Community Commercial designation is intended to provide sites for retail shopping areas containing a wide variety of business, including retail stores, eating and drinking establishments, commercial recreation, and services.

Additionally, the proposed project would include a Rezone of the project site from a PD District to Community Commercial (CC) District. The CC District is meant to provide commercial centers and individual structures on sites that are located within reasonable distance of high densities of residences or that are served by local and regional transportation and transit systems.

Development Agreement Amendment

On April 3, 1990, the City Council adopted Ordinance No. 90-990, adopting a Negative Declaration authorizing execution of the Southwest Development Agreement. The Southwest Development Agreement allowed for the construction of 2,938 residential units on 639 acres of land within the Southwest Hills Boundary Reorganization Area, within which the project site is located. An amendment to the Southwest Development Agreement would take the project site out of the Agreement and allow development of the site for other uses.

Use Permit

Per Section 18.52.010 of the Pittsburg Municipal Code, grocery stores, outdoor dining, and restaurants with drive-through service require approval of a Use Permit within the CC zoning district. As discussed above, the proposed project would include all three of the abovementioned uses and thus, would require a Use Permit within the CC zoning district.

Variance

Per Section 18.78.040 of the Municipal Code, grocery stores are required to provide one parking space per 200 sf of building area. Currently, the Site Plan provides one parking space per every 250 sf of building area. However, per Section 18.78.040 of the City's Municipal Code, grocery stores are required to include one parking space per 200 sf. Full-service restaurants are required to include one parking space for every four seats or one parking space per 50 sf for both indoor and outdoor areas. Drive-through restaurants are required to include one parking space per 75 sf of seating area, plus vehicle queue space for at least five separate cars from parking or access driveways. Thus, the project would be required to include 149 parking spaces for the grocery store, 33 parking spaces for the drive-through restaurant, and 17 parking spaces for the other restaurant, for a total of 199 parking spaces. In total, the project would supply 176 parking spaces, which would be 23 fewer spaces than required by the City. Thus, the proposed project would require a Variance to permit fewer parking spaces than the City's minimum requirement.

Design Review

Per Chapter 18.36 of the City's Municipal Code, the proposed project would be subject to Design Review by the City. Section 18.36.210 of the City's Municipal Code specifies that the Planning Commission will review the design of the building proposed in the application for a land use permit or building permit in each land use district other than single-family residential. Such review is intended to ensure that new development within the City generally contributes to the character and image of the City, conforms with the nature of the neighborhood, and is in harmony with existing developments in the general area.

Discretionary Actions

The proposed project would require the following discretionary actions by the City of Pittsburg:

- Certification of the EIR;
- General Plan Amendment to change 3.69 acres from Park to Community Commercial;
- Rezone of the project site from PD District to CC District;
- An amendment to the Southwest Development Agreement (Ordinance No. 90-990, as amended);
- Use Permit to allow the proposed uses within the CC zoning district;
- Variance from off-street parking standards; and
- Design Review.

In addition, the proposed project would require the following ministerial approvals:

- Approval of a Parcel Map to adjust the property lines between the park to the east and the proposed development;
- Approval of Improvement Plans;
- Approval of Grading Permit; and
- Approval of Building Permits.

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. 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 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 states the most identifying features lending the City a sense of character are the rolling, grassy hills to the south of the City and Suisun Bay/Sacramento River Delta to the north. Partial views of the Delta are available from San Marco Boulevard; however, the project would not obstruct or change the existing views of the delta from the area surrounding the site. In addition, the project site is located at the start of grassy hills. Given that the proposed project would only be approximately 35-feet high, the project would not affect views outside of the immediate project vicinity. Furthermore, the existing development on the adjacent hills degrade the visual quality of the existing views across the site. Therefore, the proposed project would not further impair existing views of the Delta in the project area.

According to the California Scenic Highway Mapping System, the proposed project site is located within the vicinity of an officially designated State Scenic Highway.[2] The project site is located approximately 0.25 mile from SR 4, which has been designated as Eligible for State Scenic Highway listing; however, the project site is located in an area where existing development occurs and would not be visible from SR 4. Thus, the proposed project would not alter the scenic nature of SR 4.

Based on the above, development of the proposed commercial 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.

2 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 July 2019.

c. The project site is located within an urbanized area of the City. Residential development exists to the north, while a gas station and convenience store is located on the northwest corner of West Leland Road and San Marco Boulevard. The project site is also located west of Ray Giacomelli Community Park. The project site is vacant and undeveloped.

Views of the project site currently consists of open land and ruderal vegetation. The proposed project would include the development of three commercial buildings. The project would require a General Plan Amendment and Rezone. While views of the site could be impacted by the proposed project, the site is currently located adjacent to the Community Park, surrounding residential housing, and a gas station which depletes the aesthetic value of the site. Furthermore, the maximum height of the buildings located on the site would be approximately 35 feet which would comply with General Plan Policy 4-P-3 and Municipal Code Section 15.52.115 limiting building height to 60 feet CC zoning districts.

The proposed project would also be required to adhere to the City's Design Review guidelines. The design of the buildings would include visually pleasing architectural features and landscaping designs which are consistent with the scenic nature of the project area. The buildings would be designed to include natural colors and glazing that would comply with Title 24 of the California Building Standards Code (CBSC). Given that the project would be consistent with the urbanized nature of the area and comply with the City's Design Review guidelines, the project would not substantially degrade existing views of the site and the surroundings and a ***less-than-significant*** impact would occur.

d. Due to the largely undeveloped nature of the project site, sources of light and glare do not exist within the site. However, street lights exist along the project frontage of West Leland Boulevard and along the western side of the site along San Marco Boulevard. In addition, the surrounding developments within the project vicinity feature outdoor and indoor lighting fixtures.

Development of the project site with commercial buildings and parking areas would involve potential sources of light and glare associated with interior light spilling through windows, exterior lighting on the proposed structures, outdoor lighting in the parking areas, and light reflected off windows. Lighting associated with the parking areas would be the most substantial introduction of light and would be required to adhere to Section 18.78.030 of the City's Municipal Code, which prohibits the use of any light source that would cause any direct illumination on an adjacent street or lot with residential development.[3]

Two buildings, known as Pad 1 and Pad 2, would be located on the northern portion of the site. The third building, known as Major A, would be located on the southeast corner of the site. Across West Leland Road is an existing residential development, located approximately 120-feet away from the project site. The residential development has an existing wall surrounding the development which aids in blocking light from the proposed development. Per Section 18.82.030 of the City's Municipal Code, outdoor lighting must be shielded or directed away from any residential uses in proximity of the project site. Compliance with section 18.82.030 would be confirmed during Design Review for the proposed project.

Throughout construction of the proposed project, sources of light and glare would be increased as well. Construction activities at nighttime could include the use of lighting

[3] City of Pittsburg. *Pittsburg Municipal Code.* January 22, 2019.

fixtures and vehicles producing light on the property. As a result, light and glare may intrude on surrounding properties and roadways during project construction.

While the project would be required to conform to the City's lighting standards, the potential exists for the project to result in increased lighting and glare on surrounding residential developments during construction and operation of the proposed project. Implementation of the project would result in a ***potentially 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.

Mitigation Measure(s)

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

I-1. *Prior to the approval of Improvement Plans and issuance of Building Permits for any development on the project site, the project applicant shall submit a lighting plan for the project to the City of Pittsburg Planning Division for review and approval. The lighting plan shall include, but not necessarily be limited to, the following provisions:*

- *Shield or screen lighting fixtures to direct the light downward and prevent light spill on adjacent properties;*
- *Place and shield or screen flood and area lighting needed for construction activities and/or security so as not to disturb adjacent residential areas and passing motorists;*
- *For public lighting, prohibit the use of light fixtures that are of unusually high intensity or brightness (e.g., harsh mercury vapor, low-pressure sodium, or fluorescent bulbs) or that blink or flash;*
- *Use appropriate building materials (such as low-glare glass, low-glare building glaze or finish, neutral, earth-toned colored paint and roofing materials), shielded or screened lighting, and appropriate signage to prevent light and glare from adversely affecting motorists on nearby roadways; and*
- *The proposed location, mounting height, and aiming point of all outdoor lighting used during project operations and/or construction.*

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 and Monitoring 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 result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	✖

Discussion

a,e. The project site and off-site improvement areas are currently designated as “Urban and Built-Up Land” per the California Department of Conservation Farmland Mapping and Monitoring Program,[4] and are not zoned or designated in the General Plan for agriculture uses. Given the Urban and Built-Up Land designation of the site and off-site improvement area, 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, ***no impact*** would occur.

b. Currently, the project site is designated Park per the City’s General Plan and zoned as a PD District. The project includes a request to redesignate the site to Community Commercial and Rezone the site CC. The site is not under a Williamson Act contract and is not zoned for agricultural uses. Moreover, off-site improvement areas have been developed for roadways and are not in agricultural production areas. 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]). 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.

4 California Department of Conservation. *Contra Costa County Important Farmland 2016.* Available at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/ContraCosta.aspx. Accessed*:* July 2019.

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 Pittsburg 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 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, adopted on April 19, 2017. The 2017 Clean Air Plan 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 Clean Air Plan. 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 1. Thus, by exceeding the BAAQMD's mass emission thresholds for operational emissions of ROG, NO_X, PM_{10}, or $PM_{2.5}$ a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 1
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.

During construction of the proposed project, heavy-duty equipment would operate on the project site. Exhaust emissions would be generated by construction equipment, as well as equipment used for clearing vegetation and associated earth moving activities. Additional criteria pollutants would be generated from workers and employees traveling to and from the project site. In addition, operational emissions associated with the proposed development would primarily consist of an increase in vehicle trips, including supply deliveries to the commercial development. Increased vehicle trips associated with the project would generate increased amounts of NO_X, ROG, and PM_{10}. Therefore, the aforementioned activities could result in increased emissions in the project vicinity above the thresholds established by the BAAQMD.

Construction and operational emissions associated with the proposed project, in combination with other past, present, and reasonably foreseeable projects within the project region could either delay attainment of the standards or require adoption of additional controls on existing and future air pollution sources to offset emission increases. The increase in emissions associated with construction and operations of the proposed project would require further study to determine the significance of related impacts. Thus, the project could cumulatively contribute to regional air quality health effects through emissions of criteria and mobile source of air pollutants. Based on the above, the proposed project could result in a ***potentially significant*** impact with regard to air quality.

Further analysis of the above impact will be included in the Air Quality and Greenhouse Gas Emissions chapter of the San Marco Commercial Center Project EIR.

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 single-family residences located north and south of the project site.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions. The proposed project would involve operation of heavy-duty construction equipment on the project site throughout the duration of the construction activities. If the project site is located where naturally occurring asbestos may exist, ground disturbing activities could release asbestos into the air. Furthermore, project operations may include sources of TACs or contribute to localized CO emissions. Given that construction and operation of the proposed project could result in localized CO and TAC emissions and ground disturbing activity during construction could release existing asbestos into the air, further analysis of such emission sources is required.

Because the proposed project could involve pollutant emissions associated with construction and operations of the proposed project, the project could expose existing sensitive receptors to substantial pollutant concentrations. Accordingly, impacts related to exposure of sensitive receptors to substantial pollutant concentrations could be ***potentially significant***.

Further analysis of the above impact will be included in the Air Quality and Greenhouse Gas Emissions chapter of the San Marco Commercial Center Project EIR.

d. Emissions such as those leading to odor have the potential to adversely affect people. Emissions of principal concern include emissions leading to odors, emission that have the potential to cause dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in sections “a” through “c” above. Therefore, the following discussion focuses on emissions of odors and dust.

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 methodologies to determine the presence of a significant odor impact do not exist. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and 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.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[5] 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.

---

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

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, as discussed above, construction activities would be temporary, and hours of operation for construction equipment would be restricted to the hours of 8:00 AM to 5:00 PM, in accordance with Section 18.82.040 of 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 emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

While the proposed project's uses are not typically associated with the creation of substantial objectionable odors, the project would produce food waste, decomposition of which could create objectionable odors if not properly contained and handled. The project site would provide adequate waste receptacles throughout the facility and would utilize outdoor trash dumpsters that would be picked up on a regular basis. In addition, commercial uses such as fast food restaurants that utilize charbroiling grills may create odorous emissions from cooking food, particularly oily foods. Operations of such sources could result in exposure of on-site receptors (i.e., customers for a short period of time and employees for an extended period of time) to objectionable odors. The potential exists for odors to carry off-site as well. However, fast food restaurants with charbroiling systems typically have an exhaust hood that captures emissions from the cooking surface, as well as scrubbers for washing the cooking vapors and trapping some of the larger particles. The proposed project would also be subject to the requirements of Regulation 7, Odorous Substances.

It should be noted that BAAQMD regulates objectionable odors through Regulation 7, 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.

With respect to dust, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's Basic Construction Mitigation Measures, which include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. 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.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.

5. 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.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 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.
7. 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.
8. 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.

Following project construction, vehicles operating within the project site would be limited to paved areas of the site, and non-paved areas would be landscaped. Thus, project operations would not include sources of dust that could adversely affect a substantial number of people.

For the aforementioned reasons, construction and operation of the proposed project would not result in emissions (such as those leading to odors or dust) 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. Special-status species are plants and animals that are legally protected under the State and/or Federal Endangered Species Act (FESA) or other regulations. The FESA of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Special-status species include the following:

- 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 species;
- 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.

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.

The CDFW Natural Diversity Database (CNDDB) was used to determine what special-status species are known to have occurred within a five-mile radius of the project site. The CNDDB query returned 57 total species that would have the potential to occur in the project area, seven of which are plants and 50 of which are animals. The habitat requirements of all the identified species were subsequently compared to the habitat on the project site to determine the likelihood of each special-status species occurring at the project site. It should be noted that the project site is within the boundaries of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCC HCP/NCCP). Therefore, in addition to the use of CNDDB to determine the what special-status species could occur within the site, the ECCC HCP/NCCP was consulted to determine whether species covered by the ECCC HCP/NCCP would occur within the project site.

According to Figure 3-3: *Landcover in the Inventory Area* of the ECCC HCP/NCCP, the project site is characterized by ruderal grassland. The Physical and Biological Resources Chapter of the ECCC HCP/NCCP defines ruderal sites as disturbed areas characterized by sparse nonnative, typically weedy vegetation.[6] The project site appears to be previously graded, and regularly disked, which has led to the dominance of ruderal vegetation within the site. Areas surrounding the project site consist primarily of ruderal grasslands and developed urban uses. In addition to the grassland and urban uses, a stormwater basin exists directly to the south of the site.

Special-Status Plants

Of the seven special-status plants which are known to have occurred within a five-mile radius of the project site, habitat requirements for special-status plants included the presence of wetlands, oak woodlands, serpentine soils, interior dunes, slopes, chaparral, vernal pools, and coastal salt marsh. The project site does not contain any of the aforementioned key habitat requirements, and therefore the project site is not considered to be habitat for the species requiring such habitat. The project site meets some of the habitat requirements for the three remaining species, which include the large-flowered fiddleneck, Contra Costa goldfields, and Keck's checkerbloom. Both the large-flowered fiddleneck and Contra Costa goldfields are listed as no-take species under the ECCC HCP/NCCP. The large-flowered fiddleneck is typically found in ruderal grassland while the Contra Costa goldfields are typically found in vernal pool areas. Considering that all three of the above listed plant species occurrences were listed at least five miles from the site, the potential for the species to occur at the project site is unlikely. Furthermore, the project site has been previously graded and is regularly disked for weed suppression. Considering the history of intensive site disturbance, the three aforementioned special-status plant species are not anticipated to occur within the project site. Because special-status plants

6 East Contra Costa County Conservancy. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan, Chapter 3 Physical and Biological Resources [p. 3-25].* Updated December 19, 2006.

are not anticipated to occur within the project site, implementation of the proposed project would not result in adverse effects to special-status plants.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, special-status plants do not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to special-status plants.

Special-Status Wildlife

The species covered under the ECCC HCP/NCCP with the possibility to occur at the project site consist of the Swainson's hawk, golden eagle, burrowing owl, and San Joaquin kit fox. The ECCCHCP Planning Survey Report Form categorically considers certain species to have the potential to occur within specific land use types regardless of existing conditions within the particular site. For instance, any grassland, oak savannah, agricultural land, or ruderal area is assumed to provide habitat to burrowing owl. Similarly, any land cover type with potential Swainson's Hawk nest areas within 1,000 feet or potential golden eagle nest sites within 0.5-mile is considered suitable habitat.

The land cover of the site also presents the possibility for the burrowing owl and San Joaquin kit fox to occur. The burrowing owl is a subterranean nester which is dependent upon other burrowing mammals. Additionally, the San Joaquin kit fox habitats often consist of loose-texture soils for burrowing. The development fees of Zone 2 would require the applicant to pay a per acre fee and apply avoidance measures to ensure the species are not disturbed. All other covered species under the ECCC HCP/NCCP were dismissed due to the specific habitat type of the species.

According to the ECCC HCP/NCCP and the CNDDB query results, the project site meets the habitat requirements for three additional animal species. The project site's disturbed grassland/ruderal vegetation could provide marginal foraging habitat for the Swainson's hawk (*Buteo swainsoni*), possible foraging or nesting habitat for the western burrowing owl (*Athene cunicularia*), and the golden eagle (*Aquila chrysaetos*). Other avian species protected by the MBTA could nest on the ground within the project site or use trees in the vicinity of the project site as nesting habitats. In addition to the ECCC HCP/NCCP covered species, the CNDDB query results also lists the ferruginous hawk and mountain plover as having the potential to occur in the vicinity of the project site. The ferruginous hawk and mountain plover are protected under the MBTA and discussed in the nesting raptors and migratory birds' section below.

Swainson's Hawk

Swainson's hawk is a State Threatened species and is a federal Bird of Conservation Concern. The species nests in western North America from March to July and migrates to South America for the winter. The species generally nests in riparian areas or in large isolated trees adjacent to, or within easy flying distance to, agricultural areas providing suitable foraging habitat. Swainson's hawk is unlikely to nest or forage within the project site due to the marginal quality of foraging habitat present and the lack of on-site or nearby trees available for nesting. Although unlikely to occur on-site, the project site primarily consists of ruderal grassland which could be suitable habitat for Swainson's hawk. In the event that an active nest of the species is present within 1,000 feet of the project site, construction activities could result in the noise-related abandonment of an active nest, which would constitute a potentially significant impact.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, Swainson's hawk habitat does not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to Swainson's hawk.

Western Burrowing Owl

The project site is located within the ECCC HCP/NCCP modeled suitable habitat of the western burrowing owl, a California species of special concern. The nearest recorded occurrence of western burrowing owls on the CNDDB is located 0.5 miles east of the project site; however, the siting was recorded in 2005 and increased development has occurred in the area since that time. The ruderal grasslands within and adjacent to the project site may provide marginal foraging habitat for the species. Furthermore, the site is mapped as suitable habitat for burrowing owl as modeled in the ECCC HCP/NCCP, and the species is assumed to be present. Although the project site is regularly disturbed and largely surrounded by urban development, if western burrowing owls were to utilize the ruderal lot for foraging and/or breeding, construction of the proposed project could cause a substantial adverse effect on the species.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, western burrowing owl habitat does not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to western burrowing owl.

Golden Eagle

Golden eagle is a fully protected species which typically forages in rolling foothill or coast-range terrain, with open grassland and scattered trees. The species generally nests in large trees, on cliffs, and occasionally on power line poles. The site is mapped as suitable habitat for golden eagle as modeled in the ECCC HCP/NCCP. According to the CNDDB search, the nearest recorded occurrence of the species is at least 10 miles from the project site. Nonetheless, preconstruction surveys for golden eagle are required by the ECCC HCP/NCCP and are included in this IS.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, golden eagle habitat does not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to golden eagle.

San Joaquin Kit Fox

The San Joaquin kit fox dens in subterranean burrows and forages primarily for small mammals and insects in annual grasslands, pasturelands, cultivated fields, and along the edges of orchards. The ECCC HCP/NCCP identifies the project site and vicinity as being suitable habitat for the San Joaquin kit fox. The nearest siting of the species was recorded at least seven miles east of the project site. Nevertheless, the potential of San Joaquin kit fox to occasionally wander outside of the species' expected range and to occur on the project site cannot be completely ruled out. Preconstruction surveys for San Joaquin kit fox are required by the ECCC HCP/NCCP and are included below.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, San Joaquin kit fox habitat does not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to San Joaquin kit fox.

Nesting Raptors and Migratory Birds

Shrubs and ruderal grasslands on the project site and along the project frontages may be used by other raptors and migratory birds protected by the MBTA. Construction activities that adversely affect the nesting success of raptors and migratory birds (i.e., lead to the abandonment of active nests) or result in mortality of individual birds constitute a violation of State and federal laws. Thus, project-related activities that would occur during the breeding season could result in an adverse effect to species protected under the MBTA, should such species be present.

It should be noted that the off-site improvement areas are within existing roadway rights-of-way, and are paved. Thus, nesting raptors and migratory birds habitat does not exist in any of the off-site improvement areas, and off-site improvements would not result in any adverse effects to nesting raptors and migratory birds.

Conclusion

If the necessary preconstruction surveys are not carried out, and any needed avoidance measures implemented, the project could result in a ***potentially significant*** adverse effect, either directly or indirectly, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the USFWS, or the CDFW.

Mitigation Measure(s)

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

ECCC HCP/NCCP Covered Plants and Wildlife

IV-1. *Prior to the issuance of grading or construction permits for each phase of development of the project, the applicant shall pay the applicable ECCC HCP/NCCP per-acre Development Fee in effect for Zone II in compliance with Section 15.108.070*[7] *of the Pittsburg Municipal Code. The Development Fee will cover the development of habitat that primarily includes ruderal grassland. Payment of the Development Fee would address the loss of potential habitat of special-status plant and wildlife species associated with on-site ruderal grasslands. The fees would be used in part to protect these affected special-status plant and wildlife species by bringing existing populations of the species under protection.*

Alternately, the project applicant may, in accordance with the terms of Pittsburg Municipal Code Chapter 15.108, offer to dedicate land or create and restore wetlands in lieu of some or all of the mitigation fees. All applicable mitigation fees shall be paid, or an "in-lieu-of fee" agreement executed, prior to the issuance of a grading permit for the project.

[7] City of Pittsburg, Habitat Conservation Plan/Natural Community Conservation Plan Implementation Ordinance.

The Pittsburg Community Development Department and the Contra Costa County Conservancy shall approve the final method of compliance with the ECCC HCP/NCCP provisions.

Swainson's Hawk

IV-2. Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15 – September 15), a qualified biologist shall conduct a preconstruction survey no more than one month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy shall be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below). A written summary of the survey results shall be submitted to the City of Pittsburg Community Development Department.

During the nesting season (March 15 – September 15), covered activities within 1,000 feet of occupied nests or nests under construction shall be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

If young fledge prior to September 15, covered activities shall proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant may apply to the City of Pittsburg Community Development Department for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

Western Burrowing Owl

IV-3. The project applicant shall retain a qualified biologist to conduct a pre-construction survey for western burrowing owls within the disturbance footprint and within 500 feet from the perimeter of the footprint where possible. Surveys shall take place no more than 30 days prior to construction and shall be conducted near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls shall be identified and mapped. During the breeding season (February 1 to August 31), surveys shall document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1 to January 31), surveys shall document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results shall be valid only for the season (breeding or nonbreeding) during which the survey is conducted. Surveys shall be submitted to the City Community Development Department for review. If the survey does not identify any nesting burrowing owls on the project site, further mitigation is not required.

If burrowing owls are found during the breeding season (February 1 to August 31), the project proponent shall avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance shall include establishment of a non-disturbance buffer zone of at least 250 feet around each occupied burrow (nest site) in which no construction activities shall occur. The buffer shall be delineated by highly visible, temporary construction fencing.

If burrowing owls are found during the nonbreeding season (September 1 to January 31), the project proponent shall avoid the owls and the burrows they are using, if possible. Avoidance shall include the establishment of a buffer zone of 160 feet around each burrow. The buffer shall be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation shall be implemented. Owls shall be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. The doors shall be in place for 48 hours prior to excavation. The project area shall be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows shall be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure shall be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Golden Eagle

IV-4(a). *Prior to any ground disturbance related to activities covered under the ECCCHCP/NCCP, a qualified biologist shall conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, Planning Surveys). A written summary of the survey results shall be submitted to the City of Pittsburg Planning Department.*

IV-4(b). *If nests are occupied, minimization requirements and construction monitoring shall be required.*

Covered activities shall be prohibited within 0.5-mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the project applicant shall coordinate with CDFW/USFWS to determine the appropriate buffer size.

Construction monitoring shall focus on ensuring that covered activities do not occur within the buffer zone established around an active nest. Although known golden eagle nest sites do not occur within or near the Urban Limit Line (ULL), covered activities inside and outside of the

Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring shall ensure that direct effects to golden eagles are minimized.

San Joaquin Kit Fox

IV-5(a). *Prior to any ground disturbance related to activities covered under the ECCCHCP/NCCP, a USFWS/CDFW-approved biologist shall conduct a preconstruction survey of the two-acre project site. The surveys shall establish the presence or absence of San Joaquin kit foxes and/or suitable dens, and evaluate use by kit foxes in accordance with USFWS survey guidelines.*[8] *Preconstruction surveys shall be conducted within 30 days of ground disturbance. On the parcel where the activity is proposed, the biologist shall survey the proposed disturbance footprint and a 250-foot radius from the perimeter of the proposed footprint in order to identify kit foxes and/or suitable dens.*

Adjacent parcels under different land ownership shall not be surveyed. The status of all dens shall be determined and mapped. Written results of the preconstruction survey shall be submitted to the City of Pittsburg Planning Department within five working days after survey completion and before the start of ground disturbance. Concurrence is not required prior to initiation of activities covered under the ECCCHCP/NCCP. If San Joaquin kit foxes and/or suitable dens are identified in the survey area, Mitigation Measure IV-2(b) shall be implemented. If kit foxes and/or suitable dens are not discovered, then further mitigation is not necessary.

IV-5(b). *If a San Joaquin kit fox den is discovered in the proposed disturbance footprint during the surveys required under Mitigation Measure IV-5(a), the following measures shall be implemented by a USFWS/CDFW-approved biologist:*

- *The den shall be monitored for three days by a USFWS/CDFW-approved biologist, using a tracking medium or an infrared beam camera to determine if the den is currently being used.*
- *Unoccupied dens shall be destroyed immediately to prevent subsequent use.*
- *If a natal or pupping den is found, USFWS and CDFW shall be notified immediately. The den shall not be destroyed until the pups and adults have vacated, and then only after further consultation with USFWS and CDFW.*
- *If kit fox activity is observed at the den during the initial monitoring period, the den shall be monitored for an additional five consecutive days from the time of the first observation to allow any resident animals to move to another den while den use is actively discouraged. For dens other than natal or pupping dens, use of the den could be discouraged by partially plugging the entrance with soil such that any resident animal could easily escape. Once the den is determined to be unoccupied it may be excavated under the*

8 Sacramento Fish and Wildlife Office. *U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol for the Northern Range.* June 1999.

direction of the biologist. Alternatively, if the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of the biologist, the den is temporarily vacant (i.e., during the animal's normal foraging activities).

If a San Joaquin kit fox den is discovered outside of the proposed disturbance footprint during the surveys required by Mitigation Measure IV-5(a), exclusion zones around each den entrance or cluster of entrances shall be demarcated. The configuration of exclusion zones shall be circular, with a radius measured outward from the den entrance(s). Covered activities shall not occur within the exclusion zones. Exclusion zone radii for potential dens shall be at least 50 feet and shall be demarcated with four to five flagged stakes. Exclusion zone radii for known dens shall be at least 100 feet and demarcated with staking and flagging that encircles each den or cluster of dens, but does not prevent access to the den by kit fox.

Nesting Migratory Birds

IV-6. *A pre-construction survey 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). If site disturbance commences outside the breeding season, a pre-construction survey for nesting birds is not required. If active nests of migratory birds are not detected within approximately 250 feet of the project site, further mitigation is not required. Results of the pre-construction survey shall be submitted to the City's Planning Department for verification.*

If nesting raptors or other migratory birds are detected on or adjacent to the site during the survey, the City's Planning Department shall be notified, and an appropriate construction-free buffer shall be established around all active nests. Actual size of the 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.

b,c. The project site mainly consists of ruderal vegetation with a gravel driveway in the eastern side of the site. The proposed project does not contain any riparian vegetation or protected wetlands. The ECCC HCP sets requirements to ensure protection of streams and riparian areas. The project would be subject to the requirements; however, the project does not consist of any streams or riparian vegetation and is not subject to compliance with the requirements.

The proposed project would not have an adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, as well as on state or federally protected wetlands. Thus, a ***less-than-significant*** impact could occur.

d. The project site is located in an urbanized area and is bordered by existing roadways to the north and west, residential developments to the north, as well as the Community Park to the east. Thus, the developed portions of the surrounding area do not support any wildlife movement corridors. The area south of the site is currently undeveloped, but the land is isolated by existing roadways and development. The project site does not include any aquatic features that could be used as a movement corridor by aquatic species. Additionally, the proposed project would mitigate for any impacts to special-status species habitats through site-specific pre-construction surveys, avoidance measures, and payment of applicable mitigation fees. As such, the 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. Chapter 18.84 Article XIX of the City's Municipal Code includes tree preservation and protection measures. However, the project site is vacant and consists primarily of ruderal grasses. The proposed project would not include removal of any trees. Thus, the proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation ordinance, and a ***less-than-significant*** impact would occur.

f. The ECCC HCP/NCCP went into effect on June 30, 2000, and the City of Pittsburg approved the implementing ordinance on April 16, 2007. The purpose of the ECCC HCP/NCCP is to preserve high quality habitat for species of concern throughout the plan area. The ECCC HCP/NCCP accomplishes habitat protection through the establishment of preserves and the collection of development fees. Fees are collected based on established fee zones and land cover types, with developments placed in higher quality habitat land cover types incurring higher development fee rates, and developments placed in low quality habitats or urban areas incurring lower development fees or no development fees. Fee zones and land cover types are presented in the *East Contra Costa County HCP/NCCP Development Fee Zones* figure.[9] Figure 9-1 places the project site in Fee Zone 2. Fee Zone 2 requires a payment of $23,838 per acre. Thus, the project applicant would be required to pay $87,962.22 for Zone 2 fees, or otherwise execute an "in-lieu-of fee" agreement with the East Contra Costa Habitat Conservancy, to mitigate the potential effects of the proposed project. Therefore, the proposed project would not be in conflict with the provisions of an adopted HCP/NCCP, or other approved local, regional or state habitat conservation plan, and would result in a ***less-than-significant*** impact.

[9] East Contra Costa County Conservancy. *Figure 9-1: Development Fee Zones*. Accessible at: https://www.contracosta.ca.gov/depart/cd/water/hcp/archive/final-hcp-rev/pdfs/figures/fig9-1_devfeezones.pdf. Accessed October 2019.

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 pursuant to 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-c. 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.

The General Plan EIR lists Pittsburg as containing multiple historic sites relevant to the history of Pittsburg, including historical resources from the coal and steel eras. As one of the earliest industrial centers in Contra Costa County, the City's historical resources encompass a broad range of activities. Resources include buildings associated with industry including Black Diamond Mines, early railroads along Railroad Avenue, military facility Camp Stoneman, and places of entertainment such as the Black Diamond Theater, the Palace Theater, and Vogue Theater.

A records search of the California Historic Resources Information System (CHRIS) was performed by the Northwest Information Center (NWIC) for cultural resource site records and survey reports within the proposed project area.[10] The CHRIS search noted that two previously recorded historic-period archaeological resources were recorded in the project area. The two resources included the Alvernaz Ranch cellar pit and barn foundation. Considering that the project site is currently vacant and undeveloped, the resources are not known to occur on the project site. In addition, a records search by the Native American Heritage Commission (NAHC) of the Sacred Lands File resulted in negative findings of cultural resources on the project site.[11]

However, considering that unknown archaeological resources, including human remains, and/or historic resources have the potential to exist on-site, ground-disturbing activity related to project construction could encounter such resources. Therefore, the proposed project could cause a substantial adverse change in the significance of a historic or archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of formal cemeteries during construction. Thus, impacts could be considered ***potentially significant***.

---

[10] Northwest Information Center. *Records Search Results for the Proposed San Marco Commercial Center Project.* July 31, 2019.

[11] Native American Heritage Commission. *Letter RE: San Marco Commercial Project, City of Pittsburg; Honker Bay USGS Quadrangle, Contra Costa County, California*. July 30, 2019.

Mitigation Measure(s)

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

V-1. *If any prehistoric or historic artifacts, or other indications of cultural deposits are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease, the Community Development Department shall be notified, and the find(s) shall be immediately evaluated by a qualified archaeologist. If the find is determined to be a historical or unique paleontological or 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).*

V-2. *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. 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 City's Community Development Department.*

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 2019 California Building Standards Code (CBSC), 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 is provided below.

The 2019 CBSC, which includes the California Green Building Code (CALGreen Code) (CCR Title 24, Part 11), will become effective on January 1, 2020.[12] 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. Furthermore, the CBSC regulates the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property.

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 resulting in a 30 percent reduction in energy consumption from the 2016 standards for commercial structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

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 site where energy supply cannot be met via a hookup to the existing electricity grid. Project construction is not anticipated to involve the use of natural gas appliances or equipment.

Even during the most intense period of construction, due to the different types of construction activities (e.g., site preparation, grading, building construction), only portions of the project site would be disturbed at a time, with operation of construction equipment occurring at different locations on the project site, rather than a single location. In addition,

12 California Building Standards Commission. *California Green Building Standards Code*. 2019.

all construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation, which 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),[13] 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 regulation 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.

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 restaurant and commercial space uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, appliances, security systems, food preparation 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 customer and employee travel as well as the movement of goods.

The proposed commercial center project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards and CALGreen. Adherence to the most recent CBSC CALGreen, and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as door and window interlocks, direct

[13] California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* November 2017.

digital controls for HVAC systems, and high efficiency outdoor 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.

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? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	✖	☐
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 (1994), 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,aii. According to the City's General Plan EIR, Eastern Contra Costa County, like the San Francisco Bay Area as a whole, is located in seismically active region. Major earthquakes have occurred in the vicinity of Pittsburg in the past and can be expected to occur again in the near future. Historically active faults in the area include the Concord, Hayward, Calaveras, Green Valley, and Clayton-Marsh Creek-Greenville faults. In addition to the foregoing faults, the San Andreas Fault, located approximately 40 miles west of the project site, is the largest active fault in the region. Although known fault systems exist within proximity to the project site, the project site is not underlain by any faults and fault rupture hazard is not a significant geologic hazard at the site.[14] Nonetheless, due to the site's proximity to nearby active faults, the project site could be subject to moderate to severe (design-level) earthquakes and associated seismic ground shaking. However, the proposed buildings would be properly engineered in accordance with the CBSC, which includes engineering standards appropriate for the seismic area in which the project site is located. Projects designed in accordance with the CBSC should be able to: 1) resist minor earthquakes without damage, 2) resist moderate earthquakes without structural damage but with some nonstructural damage, and 3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance with the design standards is enforced through building plan review and approval by the City of

---

14 U.S. Geological Survey. *U.S. Quaternary Faults.* Available at: https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf. Accessed October 2019.

Pittsburg Building Division prior to the issuance of building permits. Proper engineering of the proposed project would ensure that seismic-related effects would not cause substantial impacts.

Therefore, a ***less-than-significant*** impact would occur related to seismic rupture of a known earthquake fault or strong seismic ground shaking.

aiii, aiv,c. The potential effects resulting from implementation of the proposed project related to liquefaction, landslides, lateral spreading, and subsidence/settlement are discussed in detail below.

Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as that which is imposed by earthquake ground shaking. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, and fine-grained sediment. Information from the Department of Conservation indicates that portions of the project site may be underlain by liquefiable soils.[15] Due to the potential presence of liquefiable soils underlying the project site, future buildings may be exposed to unstable soils or settlement during seismic shaking. Such soil instability could pose a risk to the proposed structure and future employees.

Landslide

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 located on relatively flat ground with a light slope; however, the vacant land to the west of the project site contains hills and slopes. According to the Department of Conservation, the land to the west of the project site and a small portion of the western side of the project site is located in a landslide zone.[16] However, much of the surrounding area has been subject to extensive development and altered from its natural state. Much of the risks associated with landslides would be reduced due to urban development in the area. Nevertheless, the potential for ground shaking in the project area may expose the project site to landslides.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. The project site does not contain open faces within a distance considered susceptible to lateral spreading. Nevertheless, because the project site may be subject to liquefaction and landslides, should project construction include trenching or excavation activities, lateral spreading could occur.

Subsidence/Settlement

Loose unsaturated sandy soils can settle during strong seismic shaking. The depth to groundwater at the project site and the level of soil cohesion at the project site are currently unknown. Therefore, soils prone to subsidence or settlement may exist within the project site, and the proposed structure could be impacts by such soils.

---

15 California Department of Conservation. *DOC Maps*. Available at: https://maps.conservation.ca.gov/#dataviewer. Accessed July 18, 2019.

16 Ibid

Conclusion

Based on the above discussion, the on-site soils may be vulnerable to liquefaction, landslides, lateral spreading, subsidence or settlement. Therefore, the project could directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction, landslides, lateral spreading, subsidence, or settlement, and could 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 subsidence, liquefaction, or collapse. Thus, a ***potentially significant*** impact would occur.

Mitigation Measure(s)

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

VII-1. Prior to grading permit issuance, the applicant shall submit a final geotechnical evaluation of the project site that addresses soil stability including soil expansion, lateral spreading, subsidence, landslides, liquefaction, and collapse. The report shall identify any on-site soil and seismic hazards and provide design recommendations for onsite soil and seismic conditions. The geotechnical evaluation shall be reviewed and approved by the Director of Public Works/City Engineer and a qualified Geotechnical Engineer to ensure that all geotechnical recommendations specified in the geotechnical report are properly incorporated and used in the project design.

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 and water quality. 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-2. Prior to issuance of grading permits, the project applicant shall submit, for the review and approval by the City Engineer, an erosion and sediment 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, cribbing, walls, or terracing;*
- *Placement of erosion control measures within drainage ways and ahead of drop inlets;*
- *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.*

d. According to the Natural Resource Conservation Service's Web Soil survey, soils at the project site consist of Diablo clay as well as Capay Clay and Antioch loam. Diablo clay makes up a majority of the project site soils and is known to have high shrink-swell potential.[17] Expansive soils can undergo significant volume change 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 tolerating or resisting any potentially damaging soil movements, and building foundation areas must be properly drained. Design of the proposed structures without incorporation of such features could expose the proposed structures to potential risks due to expansive soils, should such soils exist within the project site.

Considering the above, without implementation of appropriate design measures, a ***potentially significant*** impact could occur related to the location of the project on potentially expansive soil, as defined in Table 18-1B of the Uniform Building Code, creating substantial direct or indirect risks to life or property.

Mitigation Measure(s)

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

VII-3. Implement Mitigation Measure VII-1.

e. Sewer collection for the proposed project would be provided by construction of a new eight-inch sewer main as well as three sanitary sewer cleanouts on-site. The sewer main would connect to an existing eight-inch sewer line along Portofino Drive where the wastewater would be directed to the Delta Diablo wastewater treatment plant. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the 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. While archaeological resources have been discovered the City of Pittsburg, the General Plan does not list the City as being a potential site for paleontological resources. Although the potential for paleontological resources to exist on the project site is unknown, the possibility exists that paleontological resources could be discovered during grading, paving, and construction of the proposed project.

As noted in the City's General Plan, the City is underlain by alluvium, which consists mainly of unconsolidated gravel, sand, silt, and clay deposits. Such soil types are not considered unique geologic features and are common within the geographic area of the City. Furthermore, the City's General Plan does not note the existence of any unique geologic features within the City. Consequently, implementation of the proposed project would not be anticipated to have the potential to result in direct or indirect destruction of unique geologic features.

Although the proposed project would not have the potential to result in the destruction of unique geologic features, paleontological resources could exist within the project site.

---

[17] United States Department of Agriculture, Natural Resources Conservation Service. *Web Soil Survey*. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed July 2019.

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. Consequently, 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-4. *Implement Mitigation Measure V-I.*

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. As such, the proposed project would 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. Therefore, impacts related to GHG emissions and global climate change could be cumulatively considerable and considered ***potentially significant***.

Further analysis of the above impact will be included in the Air Quality and Greenhouse Gas Emissions chapter of the San Marco Commercial Center Project EIR.

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. A significant hazard to the public or the environment could result from the routine transport, use, or disposal of hazardous materials. Operations associated with the proposed project would be typical of other commercial uses in the City. Currently, the site is designated Park by the City's General Plan and zoned as a PD District. Approval of a General Plan Amendment would change the land use designation to Community Commercial. Community Commercial land uses are meant to serve locations of reasonable densities and provide business services such as restaurants, retail, and entertainment. As a Community Commercial land use, the proposed project would not be anticipated to include the routine transport, use, or disposal of hazardous materials.

Should a tenant of the proposed buildings require the use of hazardous materials, such operations would be regulated through Chapter 18.84, Article VI, of the Municipal Code. Operations involving hazardous materials are required to obtain a Use Permit as well as a permit under the Uniform Fire Code adopted by the City. To house hazardous materials, a permit is needed from Contra Costa Fire Protection District. The Contra Costa Fire Protection District would review the hazardous materials release plan for the use of hazardous materials on the project site.

While the proposed project would require a General Plan Amendment, operation of the proposed project would not be expected to require the use of hazardous materials, and any use would be subject to review and approval by the Contra Costa Fire Protection District. Therefore, the proposed project would not create a significant hazard to the public or the environment related to such, a ***less-than-significant*** impact would occur.

b. The project site is currently vacant and does not contain any existing permanent structures. The site appears to have been cleared, graded in the past, and is regularly disked. According to the California Department of Toxic Substances Control EnviroStor Database, hazardous material sites do not exist at the project site or in the project vicinity.

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 proposed project's storm water naturally drains to the nearby basin which presents the possibility for vectors to occur on-site. A "vector" means any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, and rodents, and other vertebrates. Standing water is known to attract insects such as the ones mentioned above; however, the proposed project would include construction of new storm drains which would reduce the amount of standing water on the project site. In addition, rodents would not be displaced with the construction of the proposed project as vacant land and open space would remain undeveloped south of the project site. Therefore, the project has the potential to reduce the risk of vectors as storm water would be directed off-site and rodents would naturally move south to open land.

Because the proposed project would be required to adhere to all relevant guidelines and ordinances regulating the handling, storage, and transportation of hazardous materials, the project would not 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, and a ***less-than-significant*** impact would occur.

c. The proposed project site is not located within a quarter mile of any existing or proposed schools. The nearest school is the Delta View Elementary School, located approximately 0.40 mile southeast of the site. Furthermore, as discussed above, hazardous materials would not be emitted during construction or operation of the proposed project. Therefore, the proposed project would have ***no 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 has not been identified on any government lists of contaminated sites (including lists compiled pursuant to Government Code Section 65962.5) nor does the site contain any historical environmental conditions.[18]

---

[18] California Department of Toxic Substances Control. *DTSC's Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29. Accessed July 26, 2019.

Consequently, the proposed project would have a ***less-than-significant*** impact related to being on located on a site which is included on a list of hazardous materials sites, and as a result, create a significant hazard to the public.

e. The nearest airport to the site is the Buchanan Field airport, which is located approximately five miles southwest 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.

f. The City of Pittsburg adopted the *City of Pittsburg Emergency Operations Plan* in December 2018. The plan provides a basis for future responses to a wide range of hazards and vulnerabilities. The plan outlines the general authority, organization, and response actions for City of Pittsburg staff when disasters occur. Implementation of the proposed project would not result in any substantial modifications to the existing roadway system or alter the land use designations already analyzed in the Emergency Operations Plan. Thus, the proposed project would not physically interfere with the Emergency Plan. Additionally, the project would include lanes and drive aisles that would range from 22 to 27-feet wide, which would accommodate emergency vehicle access to the site. Therefore, the proposed project would not interfere with an emergency evacuation or response plan, and a ***less-than-significant*** impact would occur.

g. The proposed project site is located in an area with residential development to the north and south and a park located to the west. While the project is located west of vacant land, the predominantly urbanized nature of the surrounding area presents a relatively low potential for wildfire. 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 nor are very high severity hazard zones located in close proximity to the project site.[19] It should be noted that according to the City's General Plan Update Existing Conditions Report, the project site is located in a "Very High Threat" area for wildfires.[20] However, the project site would remove the ruderal weeds and grasses from the site and be replaced with structures. Development of the proposed project would include the installation of fire suppression systems (e.g., fire hydrants, fire sprinklers, smoke detectors) and would be designed in accordance with the latest requirements of the California Fire Code. Furthermore, the proposed project would reduce total amount of on-site combustible vegetation, thereby preventing fire risks at the nearby residential developments. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands, and a ***less-than-significant*** impact would occur.

---

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

[20] City of Pittsburg. *Existing Conditions Report, City of Pittsburg General Plan Update* [Figure 4.4-2]. November 2019.

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, ci-ciii. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirement, alter the drainage pattern of the site resulting in erosion or siltation, increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, 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 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 and, with implementation of the required SWPPP and BMPs included therein, the proposed project would not result in a violation of water quality standards and/or degradation of water quality. Furthermore, the proposed project would be required to submit an erosion and sediment control plan with submittal of the grading permit application to ensure water quality is not degraded. The plan would include erosion and sediment control measures that would be implemented during grading and would be approved by the City Engineer.

Operation

Following completion of project buildout, the site would be largely covered with impervious surfaces and topsoil would no longer be exposed. As such, the potential for impacts to water quality due to topsoil erosion and siltation would be reduced. However, impervious surfaces on the project site could contribute incrementally to the degradation of downstream water quality through the release of pollutants during storm events. Typical urban pollutants that would likely be associated with the proposed project include sediment, pesticides, oil and grease, metals, and trash.

The City of Pittsburg has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 sf or more of impervious area to contain and treat all stormwater runoff from the project site. The proposed project would total approximately 160,736 sf with a total building area of 35,148 sf. Thus, the 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. In addition, the proposed project would adhere to Chapter 13.28 of the Municipal Code, which establishes standards for stormwater management and discharge.[21] Prior to issuance of a building permit, the applicant would submit a stormwater control plan that meets the criteria in the most recent version of the Contra Costa Clean Water Program Section C.3 Guidebook. 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.

Stormwater falling onto the site would be conveyed by way of new storm drain pipelines varying in size from 10 to 18-inches. The new storm drain pipelines would connect to several Christ V64 catch basins located throughout the site. The catch basins would be designed to adequately treat the stormwater and would comply with C.3 standards. The stormwater would then be directed from the catch basins to an existing 18-inch public storm drain located within West Leland Road.

Based on the above, the proposed project would be required to comply with the requirements of the SWRCB and RWQCB, and would meet C.3 Standards. Therefore,

---

21 City of Pittsburg. *Pittsburg Municipal Code* [Section 13.28.050]. January 22, 2019.

during operation, the proposed project would comply with all relevant water quality standards and waste discharge requirement, and would not degrade water quality.

Development of the proposed project would result in an increase in impervious surfaces on the project site, which would alter the existing drainage pattern of the site. However, as discussed above, the project is required to comply with the City's standards for runoff and stormwater control. Consistent with Chapter 13.28 of the Municipal Code, the project would include appropriate site design measures to control the stormwater runoff from the project site.

Conclusion

Based on the above, the proposed project would be required to comply with all applicable regulations during construction and operation, would 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, without the approval of a SWPPP and through the disturbance of the on-site soils during construction activities could result in a ***potentially significant*** impact with regard to violation of water quality standards and degradation of water quality should adequate BMPs not be incorporated during construction and operations 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 applicant 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 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. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable.*

X-2. *In addition to a SWPPP, prior to issuance of grading permits, the project applicant shall create an interim and final erosion and sediment control plan which shall include a delineation and brief description of the measures to be undertaken to retain sediment on the site, including but not limited to, the design and specifications of berms and sediment detention basins and a schedule for maintenance. The plan shall also contain a delineation and brief description of the surface runoff and erosion control measures, including but not limited to, types and method of applying mulches, and designs and specifications for diverters, dikes, and drains. The plan shall be reviewed and approved by the City Community Development Department.*

X-3. *The project applicant shall submit a complete Stormwater Control Plan and Report compliant with the requirements set forth in the City's most current NPDES permit. The C.3 treatment facilities shall be adequately sized to treat the stormwater runoff from the associated drainage management areas. The grading and/or building plans shall include drawings and specifications necessary to implement all measures in the approved Stormwater Control Plan. Design features shall incorporate low impact development design standards as outlined in the most current edition of the Contra Costa Clean Water Program's C.3 Guidebook. All plans shall be reviewed and approved by the City Community Development Department.*

b,e. Water supplies for the proposed project would be provided by the City of Pittsburg, which purchases raw water from the Contra Costa Water District (CCWD) and extracts groundwater. Raw water supplies from CCWD are treated by the City prior to distribution. Per the District's 2015 Urban Water Management Plan (UWMP),[22] the primary water source for the CCWD is the Sacramento-San Joaquin Delta, which is primarily dependent on surface water supplies, as well as the United States Bureau of Reclamation's CVP The District operates and maintains a complex system of water transmission, treatment, and storage facilities to supply both treated and untreated water to its customers. In addition to the District's UWMP, the City developed an individual Urban Water Management Plan.[23] The City overlies the Pittsburg Plain Groundwater Basin and extracts groundwater using two wells. While much of the City's raw water supply is provided by the CCWD, five to 12 percent (approximately 1,500 to 2,000 acre-feet/year) of the City's water supply consists of groundwater supplies.

Given that the proposed project would be not be consistent with the site's current General Plan land use and zoning designations, the project could result in increased use of water supplies beyond what has been anticipated by the City and accounted for in the City's UWMP. Although an increase in water usage is anticipated, the project's compliance with CALGreen Code would ensure water efficiency by including plumbing fixtures that reduce the flow rate. CALGreen Code also requires water efficient landscape irrigation design that reduces the use of potable water. Although the proposed project would increase water usage, the project would not substantially deplete groundwater supplies as the City does not primarily use groundwater as a supply source.

Landscaping included in the proposed project would be subject to the water efficiency landscape standards within Section 18.84.310 of the City's Municipal Code. Consequently, the proposed landscaping for the project site has been designed to reduce irrigation water demands from project operation. Consistent with Section 18.84.305 of the City's Municipal Code, landscaping plans for projects creating or rehabilitating 2,500 sf or more are subject to review and approval by the City to ensure that proposed landscaping complies with all water efficiency requirements imposed by Chapter 18.84.300 of the City's Municipal Code. Compliance with the code would minimize outdoor water use to the extent feasible.

Therefore, the proposed project would not substantially decrease groundwater supplies through excess water usage nor would the project interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management. In

[22] Contra Costa Water District. *2015 Urban Water Management Plan for the Contra Costa Water District*. June 2016.
[23] City of Pittsburg. *City of Pittsburg 2015 Urban Water Management Plan Final Draft*. June 2016.

addition, the project 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.

civ. The project site is located in the Lawlor Creek watershed. The Lawlor Creek watershed encompasses the western portions of the City and drains into Suisun Bay. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the project site, the project site is located within Zone X which presents a relatively low risk of floods. Thus, because the proposed project is not located in a special flood hazard zone, the project would not result substantial adverse effects as it relates to impeding or redirecting floods. As such, the proposed project would have a ***less-than-significant*** impact regarding alteration of the existing drainage pattern of a site or area which would impede or redirect flood flows.

d. As discussed under question 'civ' above, impacts of the project would not be substantial in regards to redirecting or impeding flood flows as the project site is not located in a special flood hazard zone. 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 not located in proximity to a coastline and would not be potentially affected by 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. Based on the above, the proposed project would not pose a risk related to the release of pollutants from project inundation due to flooding, tsunami, or seiche, and a ***less-than-significant*** impact would occur.

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 plan, policy, or regulation adopted for the purpose of avoiding or mitigating an 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. Currently, the proposed project site is vacant and located near existing residential development and vacant land. Given that the project site is currently vacant, the proposed project site would not result in dividing and established community and is located near other vacant parcels. Although the residential housing to the north represents an established community, the proposed project would not divide the nearby community. Therefore, a ***less-than-significant*** impact would occur.

b. The proposed project site is currently designated Park per the City's General Plan and is zoned as a PD district. The proposed General Plan Amendment would change the designation from Park to Community Commercial while the Rezone would change the site from a PD District to a CC District. CC Districts are usually intended to serve high density residential communities and often include businesses selling apparel, eating and drinking establishments, and are other allowed uses. Because the project is located in an area with residential development, the project could provide services to the area that do not currently exist.

Given that the project would require a General Plan Amendment and Rezone, the project would not be consistent with land use policies, plans, and regulations for the current designation. Although the project would not be consistent with the current land use and zoning designation, the project would be required to comply with all applicable development standards established by Title 18 of the City's Municipal Code. The development standards include maximum lot coverage, maximum building heights, and building setback requirements.

While the project would not be consistent with current land use designations, the project would still comply with General Plan policies. For example, General Plan Policy 7-P-11 establishes the goal of maximizing the capacity of arterial roadways. The project would comply with Policy 7-P-11 by reducing vehicles miles traveled (VMT) in the area as residents would be conveniently located to new restaurants and a grocery store. A reduction in VMT would also result in compliance with Policy 9-P-25 as ozone emissions could reduce. Additionally, the project would comply with the General Plan as it would increase jobs and the need for employees in the area.

Therefore, the proposed project includes a request to Rezone and redesignate the project site; however, the project would comply with the City's building standards, General Plan policies, and provide new services to the community. Thus, the proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect 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. Per the City's General Plan, the City contains one of the two places in the San Francisco Bay Area where coal was mined. The discovery of coal in the 1850s led to construction of Black Diamond Mines. However, due to competition from other energy sources, the mine closed in 1949. Currently, the City does not contain any significant mineral deposits or active mining operations. Thus, the proposed project would not result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site, and ***no impact*** would occur.

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 sections present information regarding sensitive noise receptors in proximity to the project site, the existing noise environment, and the potential for the proposed project to result in impacts during project construction and operation.

Significance Criteria

The following are thresholds that would be considered significant regarding noise increases in the vicinity of a sensitive land use:

- Any increase above 60 dBA L_{dn} where the without project noise level is less than 60 dBA L_{dn};
- An increase of 3 dBA L_{dn}, where without project noise level is between 60 to 65 dBA L_{dn}; or
- An increase of 1.5 dBA L_{dn}, where without project noise level is greater than 64 dBA L_{dn}.

City Standards

Section 18.82.040 of the City's Municipal Code limits the generation of loud noises on construction sites adjacent to existing development to normal business hours between 8:00 AM and 5:00 PM. In addition, the City's General Plan establishes noise thresholds for residential areas which limit exterior noise levels to 65 dB and interior noise levels to 45 dB.

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 single-family residences to the north of the project site.

Existing Noise Environment

According to the City's General Plan, maximum noise levels of 60 dB are considered "normally acceptable" while noise levels from 60 to 70 dB fall within the "conditionally acceptable" range. The General Plan identifies the noise environment in the area ranging from 60 dB to 70 dB due to the area's proximity to SR 4. While SR 4 generally produces noise levels of approximately 70 dB, noise levels along West Leland Road generally range from 60 dB on the southern side to 65 dB on the northern side.

Project Construction Noise

During construction of the proposed project, noise from construction activities would temporarily add to the noise environment in the project vicinity. According to Section 18.82.040 of the City's Municipal Code, no construction activity shall exceed 65 dB outside of the normal business hours stated above. As indicated in Table 2 below, activities involved in construction would generate maximum noise levels ranging from 76 to 85 dBA L_{max} at a distance of 50 feet. 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.

Table 2
Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Backhoe	78
Compactor	83
Compressor (air)	78
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Pneumatic Tools	85

Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.

As distance increases between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources. The noise levels from a source will decrease at a rate of approximately 6 dB per every doubling of distance from the noise source. The nearest sensitive receptors to the project site would be the residential units located north of the project site, approximately 120-feet away from the project site. Because the nearest residence is 120-feet from the project site, noise levels would decrease by approximately 12 dB from the levels shown in Table 2. In addition to the distance of the project site from the nearby residences, the nearby residences have a sound wall surrounding the homes to attenuate noise from West Leland Road and SR 4. The sound wall would also reduce sound levels associated with temporary project construction. Thus, noise levels experienced at the nearest residences would likely be reduced from the levels depicted in Table 2. The sound levels associated with construction of the project would be temporary in nature and would not have an adverse effect on the surrounding environment. Per section 18.82.040 of the City's Municipal Code, construction activities are permitted during the hours of 8:00 AM and 5:00 PM.

Project Operational Noise

Operational noise from the project would primarily consist of intermittent vehicle traffic to and from the project site. Additional noises associated with operation would include truck deliveries and loading, drive-through lane, and heating ventilation/air conditioning equipment (HVAC).

According to the Traffic Impact Analysis (TIA) produced by Abrams Associates Traffic Engineering, Inc., existing traffic volumes total 2,605 trips during the AM peak hour and 1,764 trips in the PM peak hour.[24] The existing plus project traffic volumes total 2,687 trips during the AM peak hour and 1,923 trips during the PM peak hour. Generally, a doubling in traffic volumes is required to increase traffic noise levels by 3.0 dB, which is considered to be the threshold for a significant increase per the Federal Interagency Committee on Noise (FICON) for areas with typical ambient noise levels (i.e., 60 to 65 dB, day-night average). Given that the project would not double traffic volumes on area roadways, vehicle traffic associated with the proposed commercial development would not result in a substantial traffic noise level increase.

The truck delivery and loading area would be located on the eastern side of Building A which would be on the southeast potion of the site. The loading dock would be located approximately 250-feet from the residential development to the north. Building A would be the furthest building from the residential development which would be situated behind the drive-through restaurant. The intervening structure would provide some noise attenuation between the loading dock and residences to the north, and, thus, reduce noise levels from the loading dock. Additionally, the drive-through lane could result in operational noise due to cars idling and speaker usage; however, the position of the speaker is facing south away from the residents which minimizes the noise level at the residences. Noise reaching the residents to the north would be reduced with the 120-foot attenuating distance from the drive-through and the sound wall surrounding the houses. Considering the design of the project, the noise attenuation with distance, and the existing sound wall, the loading dock and drive-through would not result in a substantial 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.

An additional operational noise source of the proposed project would be the HVAC equipment for the commercial buildings. Although the type is unknown, from the plan set roof plan it appears that the HVAC equipment would be roof mounted. The parapets along the roof would reduce noise from the HVACs. Furthermore, the distance of the HVAC equipment from the residential development would result in noise levels below the City's exterior threshold of 65 dB and interior threshold of 45 dB. The building materials of the residences would also reduce noise levels by at least 25 dB.

Conclusion

The combination of noise sources discussed above would result in operational noise levels below the City's exterior threshold of 65 db L_{dn} and interior threshold of 45 dB L_{dn}. As discussed above, features that would reduce noise increases associated with the project

24 Abrams Associates Traffic Engineering, Inc. *Traffic Impact Analysis, San Marco Commercial Center, City of Pittsburg*. April 22, 2019.

include the projects distance from the residential development, the sound wall between the project site and the nearest residential receptors, and the building materials of the houses. Considering the above, the proposed project would not generate 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, and a ***less-than-significant*** impact would occur.

b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, 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 is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration 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 3, which was developed by Caltrans, shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

The proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration. Although noise and vibration associated with construction of the project would add to the noise environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours. Because the proposed project would not cause continuous, long-term vibrations, the project would not be expected to result in extended annoyance to the nearby sensitive receptors.

The primary vibration-generating activities associated with the proposed project would occur during grading, placement of utilities, and construction of foundations. Table 4 shows the typical vibration levels produced by construction equipment at various distances. The most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors. Use of vibratory compactors/rollers could be required during construction of the proposed on-site drive aisles and parking areas.

Table 3 Effects of Vibration on People and Buildings			
PPV			
in / sec	mm / sec	Human Reaction	Effect on Buildings
0.15 to 0.30	0.006 to 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 to 15	0.4 to 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. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.			

Table 4 Vibration Levels for Various Construction Equipment		
Type of Equipment	PPV at 25 feet (in / sec)	PPV at 50 feet (in / sec)
Large Bulldozer	0.089	0.029
Loaded Trucks	0.076	0.025
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.029
Jackhammer	0.035	0.011
Vibratory Hammer	0.070	0.023
Vibratory Compactor/roller	0.210	0.070
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.		

With the exception of vibratory compactors, construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 20 feet. As distance from the construction activities increases, vibration noise levels are diminished. The proposed project includes parking lot construction, which would occur at distances of approximately 40 feet from the nearest structure located on the community park to the east. Due to the structures distance from the project boundaries, construction vibration impacts to the structure would be less than the 0.2 in/sec threshold. Therefore, the proposed project would not result in generation of excessive groundborne vibration or groundborne noise levels and a ***less-than-significant*** impact could occur.

c. The nearest airport to the proposed project site is the Buchanan Field Airport, located approximately five miles southwest of the site. The site is not included in an airport land use plan. Given that the project site is not located within two miles of a public airport or public use airport, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with airports. Thus, ***no impact*** 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 the development of three commercial buildings. Development of the site for commercial purposes would not result in direct population growth by constructing new homes; however, the project would include the development of new businesses which could attract residents to the area for employment opportunities. Although the project may attract residents as a result of the increase in job opportunities, new employees would likely be drawn from current residents in the project area. In addition, the increase in jobs would be relatively small, compared to the City's existing population and would not be anticipated to result in substantial population growth. Therefore, the proposed project would not induce substantial unplanned population growth either directly or indirectly, and a ***less-than-significant*** impact would occur.

b. The proposed project site is currently vacant, 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.

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-c, e. The Contra Costa County Fire Protection District (CCCFPD) provides fire protection services to the City. The CCCFPD operates out of 24 fire stations located throughout the jurisdictional area.[25] The proposed project is located approximately 2.5 mile from the nearest fire station, located at 800 West Leland Road in the City of Pittsburg. Additionally, the proposed project would adhere to Chapter 15.20, the Fire Code, of the Municipal Code, which requires the proposed project install a fire sprinkler system and adhere to all fire protection codes established by the CCCFPD. The above features would reduce the risk of fire at the project site, and, thus, reduce potential for the project to increase demand. Therefore, the proposed project would be adequately served by the CCCFPD and would not require the construction of new or physically altered governmental facilities.

The proposed project would be serviced by the Pittsburg Police Department, located at 65 Civic Avenue. The General Plan includes Emergency Management goals and policies in Chapter 10.4. The General Plan ensures that emergency response equipment and personnel training are adequate to follow the procedures contained within the Emergency Response Plan. The General Plan also strives to maintain a ratio of 1.8 sworn officers per 1,000 residents.[26] Because the proposed project would not directly induce any population growth, the proposed project would not alter the City's existing officer to resident's ratio. Thus, the proposed project would not create the need for new or physically altered governmental facilities.

As discussed above, the proposed commercial project would not result a direct population increase, and, consequently would not increase demands for schools or other public facilities. Given that the proposed project would not result in an increase in demand, the project would not create the need for new or physically altered governmental facilities.

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

---

25 Contra Costa County Fire Protection District. *Station Address.* Available at: https://www.cccfpd.org/station-address. Accessed October 2019.

26 City of Pittsburg. General Plan Pittsburg 2020: A Vision for the 21st Century. [pg. 10-23]. November 16, 2001.

d. The project site is currently designated Park by the General Plan and would require a General Plan Amendment and Rezone in order to develop the proposed project. While the proposed General Plan Amendment would remove the Park designation, only a portion of the overall parcels would require an amendment. The project would not result in a Rezone or General Plan Amendment for the remaining portions of the site; thus, portions of the site not developed for the project could be used for park purposed in the future. However, the project could present inconsistencies with General Plan Policy 8-P-1, which requires 5 acres of parkland per 1,000 residents. As such, buildout of the site, would deplete the amount of designated parkland within the City of Pittsburg and a ***potentially significant*** impact could occur.

Further analysis of the above impact will be included in the Recreation chapter of the San Marco Commercial Center Project EIR.

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 three commercial buildings, requiring a General Plan Amendment to change the site's existing Park Designation to Community Commercial and Rezone the site from a PD District to a CC District. While the proposed project would not result in a direct increase in the use of existing parks and recreation facilities, the project would deplete the amount of area designated as parkland within the City of Pittsburg. Additionally, the loss of acreage previously identified for a park could potentially cause inconsistencies with General Plan Policy 8-P-1. While the proposed project would not result in a direct population increase, the project could result in potential impacts in regard to the amount of area designated parkland in the City. Thus, a ***potentially-significant*** impact could occur.

Further analysis of the above impact will be included in the Recreation chapter of the San Marco Commercial Center Project EIR.

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, 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 feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	✖	☐	☐	☐
d. Result in inadequate emergency access?	✖	☐	☐	☐

Discussion

a. Trip generation rates for the proposed project are anticipated to increase with implementation of the proposed project as compared to development of the site under existing land use and zoning designations. Considering the proposed land use, the project operations could generate more than 100 peak hour vehicle trips and be above the City's standard for requiring a traffic impact report. Therefore, the proposed project could conflict with an applicable plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and a ***potentially-significant*** impact would occur.

Further analysis of the above impact will be included in the Transportation chapter of the San Marco Commercial Center Project EIR.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of 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 VTM is not required Statewide until July 1, 2020.

Analysis of the attributable VMT from the project could show whether the project would result in an increase or decrease in VMT; however, the VMT analysis is still in the process of being produced. Therefore, further study is necessary to ensure that the project would not conflict with Section 15064.3(b) of the CEQA guidelines. Thus, a ***potentially-significant*** impact could occur.

Further analysis of the above impact will be included in the Transportation chapter of the San Marco Commercial Center Project EIR.

c,d. Site access would be provided by one driveway located on San Marco Boulevard and an additional driveway on the eastern side of the site by way of the private road which separates the site from the Community Park. The western entrance would be 24-feet wide and the eastern entrance would be 28-feet wide. Internal streets would range from 22 to

27-feet wide which would circulate the site, allowing access to the commercial buildings. “Pad 1” would also include a drive-through which would have an entrance at the southeast side of the building, wrap around the building to the west, and exit in to the parking lot.

The City of Pittsburg approved an Emergency Operations Plan (EOP) in December 2018 designed to assist the City in responses to disasters, emergency incidents, and pre-planned events. The EOP provides an overview of the City’s organization, policies, and approach to all phases of emergency preparedness. The proposed project would provide drive aisles with widths to accommodate emergency access vehicles. While the proposed access and circulation would be adequate for emergency services, the increase in development intensity could cause an increase in traffic related hazards or affect emergency access in the project area. Without further evaluation, the proposed project could result in a ***potentially significant*** impact related to an increase in hazards from design features or incompatible uses, or inadequate emergency access to the project.

Further analysis of the above impact will be included in the Transportation chapter of the San Marco Commercial Center Project EIR.

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, the project site is currently vacant and undeveloped. The project site does not contain any structures which would be considered a historical resource by the City or State standards. 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.[27] Furthermore, a search of the CHRIS by the NWIC did not identify any known cultural resources or Native American resources within the project site.[28]

In compliance with AB 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to tribes which submitted request for consultation to the City. The letter was distributed on July 24, 2018 and requests to consult have not been received.

Based on the location and lack of identified cultural resources at the site, 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.

---

27 Native American Heritage Commission. *RE: San Marco Commercial Project, City of Pittsburg; Honker Bay USGS Quadrangle, Contra Costa County, California.* July 30, 2019.

28 Northwest Information Center. *Re: Record search results for the proposed San Marco Commercial Center Project.* July 31, 2019.

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. Brief discussions of water, sewer service, stormwater drainage, electrical, natural gas, and telecommunications that would serve the proposed project are included below.

Water

Water supply for the project site would be provided by the CCWD through the CVP. The CCWD obtains water from the Sacramento-San Joaquin Delta and provides treated and raw water to approximately 500,000 people in Contra Costa County. Other water supply sources used within the service area include the San Joaquin River, Mallard Slough, recycled water, a minor amount of groundwater, and water transfers. Additionally, the City supplements CCWD water supplies with two wells, which yield 1,500-acre feet per year (afy). The City also operates its own water treatment plant and associated infrastructure facilities. According to the Pittsburg 2015 Urban Water Management Plan (UWMP), the City's water use for 2015 was 8,772 afy, more than seven percent lower than projected water use from the 2010 UWMP. In addition, the City's 2015 UWMP estimated water usage for commercial land uses to be approximately 478 afy. The City anticipates that the CCWD could meet 100 percent of the City's demands during normal years with its raw water supply and 85 percent of the City's demands during drought conditions.

Per CCWD's UWMP, water supplies will meet demand in excess of 60,000 afy and will be able to accommodate buildout of the City under normal year, single year, and multiple-dry year demand scenarios.[29] The proposed project would result in a water demand of

[29] Contra Costa Water District. *2015 Urban Water Management* [pg. 7-8]. June 2016.

approximately 5.5 million gallons per year (MGY) or 16.88 afy. Due to the anticipated surplus, the CCWD's existing supplies would be adequate to meet increased demand for the proposed project. In addition, the project would comply with the Section 18.84.310 of the City's Municipal Code, which contains the City's water-efficient landscape standards. Compliance with Section 18.84.310 of the City's Municipal Code would ensure that landscaping water demand from project operations would be minimized.

Sewer Service

Within the City of Pittsburg, sewer service is provided by Delta Diablo. The City maintains and owns the local sewage collection system. The City's collection systems have evolved into two distinct sections: the older portion north of SR 4, and the portion serving newer areas south of SR 4. Wastewater from developments south of SR 4 enters the Delta Diablo interceptor system on the Pittsburg-Antioch Highway. The Delta Diablo Wastewater Treatment Plant (WWTP) has the capacity to treat approximately 19.5 million gallons of sewage per day.[30] In 2017, the average dry weather flow influent to the treatment plant was 13.4 million gallons per day (MGD).

Delta Diablo created a Sewer System Management Plan in 2009, and updated the Management Plan in 2018. The Management Plan accounts for the Delta Diablo service population to reach 269,000 by 2040 and provides a five-year Capital Improvement Program (CIP) which would include capacity enhancement projects for sewage systems in the County.[31]

The project would include construction of a new eight-inch sewer main as well as three sanitary sewer cleanouts on-site. The new sewer line would extend along the eastern side of the project site, out of the site and continue approximately 200 feet across West Leland Boulevard to an existing eight-inch sanitary sewer line in Portofino Drive. Wastewater would be directed through the City's existing conveyance infrastructure to the WWTP. Based on the generation rate from the City of Pittsburg General Plan of 1,000 gallons per day (gpd) per acre for commercial developments, the proposed project is anticipated to generate approximately 3,690 gpd (3.69 acres X 1,000 gpd/acre = 3,690 gpd) of wastewater flows.[32] The addition of 3,690 gpd of influent to the WWTP would not exceed the permitted capacity of the WWTP of 19.5 MGD. As such, the proposed project would not require or result in the relocation or construction of new wastewater treatment infrastructure.

Stormwater Systems

As discussed above in Section X, Hydrology and Water Quality, of this IS/MND, the proposed project would also include construction of new storm drains ranging in size from 10 to 18-inches. The project would include an on-site stormwater collection and treatment system by way of several catch basins that connect to an existing 18-inch storm drain within West Leland Boulevard. In addition, stormwater would infiltrate on-site soils and percolate into the groundwater table in areas that are not overlain with impervious surfaces. Implementation of Mitigation Measures X-1 through X-3 would ensure that on-site drainage systems comply with the City's SWPPP and erosion and sediment control plan, as well as the County C.3 standards. Furthermore, although the site was previously

---

30 Delta Diablo Sanitation District. *Transforming Wastewater to Resources*. Available at: https://www.deltadiablo.org/about-us/about-us. Accessed July 26, 2019.

31 Delta Diablo Sanitation District. *Sewer System Management Plan*. October 10, 2018.

32 City of Pittsburg. *General Plan Pittsburg 2020: A Vision for the 21st Century* [pg. 11-9]. November 16, 2001.

anticipated to be developed as a park, the park would still include paved areas for parking pathways, or structures. As such, because the site has been anticipated for development by the City's General Plan, impacts to stormwater systems resulting from development of the site have been generally analyzed in the City's General Plan EIR.

Other Utilities

Electricity, natural gas, and telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. PG&E would provide electricity and natural gas services to the project site. The proposed project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity, natural gas, and telecommunications infrastructure would be less than significant.

Conclusions

Given that the proposed project would include standard utility improvements, the existing utility infrastructure would meet increased demand associated with the proposed project. Therefore, the proposed project would result in a ***less-than-significant*** impact related to 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.

d,e. Solid waste, recyclable materials, and compostable material collection within the City of Pittsburg is provided by Mt. Diablo Resource Recovery. Solid waste from the City is ultimately disposed of at the Potrero Hills Landfill, located east of Suisun City. The landfill is permitted to accept waste through 2048 and currently has a remaining capacity of 13,872,000 cubic yards available out of a maximum permitted capacity of 83,100,000 cubic yards.[33]

Pittsburg currently participates in a voluntary recycling program operated by Mt. Diablo Resource Recovery. Recyclables are picked up once per week along with regular waste, and then processed at a facility owned by Mt. Diablo Resource Recovery. The City has been aggressive in implementing the programs outlined in the City's Source Reduction and Recycling Element to reach the mandated 50 percent diversion goal set by the California Integrated Waste Management Act of 1989.

Construction and operation of the proposed project would increase waste generation from what was previously anticipated for the project site; however, the Potrero Hills Landfill has adequate capacity to handle accommodate the potential increase. In addition, the policies set forth in the General Plan would ensure that impacts related to solid waste capacity would not be significant. Therefore, the proposed project would not 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 and would comply with federal, State, and local management and reduction statutes and regulations related to solid waste and a ***less-than-significant*** impact would occur.

---

[33] California Department of Resources Recycling and Recovery. *Facility/Site Summary Details: Potrero Hills Landfill (48-AA-0075).* Available at: https://www2.calrecycle.ca.gov/SWFacilities/Directory/48-aa-0075/detail. Accessed October 18, 2019.

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. The proposed project site is located in an area with residential development to the north and south and a park located to the west. While the project is located west of vacant land, the predominantly urbanized nature of the surrounding area presents a relatively low potential for wildfire. 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 nor are very high severity hazard zones located in close proximity to the project site.[34] Therefore, the proposed project would not be subject to significant risks related to wildfires, and a ***less-than-significant*** impact would occur.

[34] 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 Initial Study, while the potential exists for Swainson's hawk, burrowing owl, golden eagle, and other migratory birds protected by the MBTA to occur on-site, mitigation measures IV-2 through IV-4 would ensure that impacts to special-status species would be less-than-significant. The project site is disturbed and regularly maintained, has been previously disturbed, and does not contain any known historical resources. Given that unknown cultural resources have the potential to exist on-site, Mitigation Measures V-1 and V-2 would ensure that impacts to cultural resources would be less-than-significant. Thus, with implementation of the aforementioned mitigation measures, implementation of the proposed project would not have the potential to result in impacts related to historical resources.

Considering the above, the proposed project would not result in 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 Pittsburg could incrementally contribute to cumulative impacts in the project area. In particular, the chapters that will discuss project related impacts include Air Quality and Greenhouse Gas Emissions, Public Services, Recreation, and Transportation. Thus, a ***potentially significant*** impact could occur with regard to cumulative impacts in the project area.

Further analysis of the above impacts will be included in the San Marco Commercial Center Project EIR.

c. As described in this Initial Study, the proposed project would comply with all applicable General Plan policies, Municipal Code standards, standard permit conditions, and mitigation measures included herein. However, as discussed in Section III, Air Quality, of this Initial Study, the project could cause substantial effects to human beings, including those related to construction and operation. Therefore, the proposed project's impact would be ***potentially significant***.

Further analysis of the above impacts will be included in the San Marco Commercial Center Project EIR.

Appendix D

CalEEMod Results – Year 2023

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	396.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	3.00	2.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	0.3312	2.4318	2.1111	4.1000e-003	0.2469	0.1214	0.3683	0.0894	0.1143	0.2037	0.0000	357.3347	357.3347	0.0714	0.0000	359.1193
2021	0.6401	4.3589	4.3245	8.5100e-003	0.3568	0.2076	0.5644	0.0911	0.1963	0.2874	0.0000	741.7019	741.7019	0.1361	0.0000	745.1048
2022	0.0583	0.3541	0.3846	7.6000e-004	0.0318	0.0160	0.0477	8.1100e-003	0.0151	0.0232	0.0000	66.5063	66.5063	0.0119	0.0000	66.8049
Maximum	**0.6401**	**4.3589**	**4.3245**	**8.5100e-003**	**0.3568**	**0.2076**	**0.5644**	**0.0911**	**0.1963**	**0.2874**	**0.0000**	**741.7019**	**741.7019**	**0.1361**	**0.0000**	**745.1048**

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	0.3312	2.4318	2.1111	4.1000e-003	0.2469	0.1214	0.3683	0.0894	0.1143	0.2037	0.0000	357.3344	357.3344	0.0714	0.0000	359.1189
2021	0.6401	4.3589	4.3245	8.5100e-003	0.3568	0.2076	0.5644	0.0911	0.1963	0.2874	0.0000	741.7013	741.7013	0.1361	0.0000	745.1042
2022	0.0583	0.3541	0.3846	7.6000e-004	0.0318	0.0160	0.0477	8.1100e-003	0.0151	0.0232	0.0000	66.5062	66.5062	0.0119	0.0000	66.8048
Maximum	**0.6401**	**4.3589**	**4.3245**	**8.5100e-003**	**0.3568**	**0.2076**	**0.5644**	**0.0911**	**0.1963**	**0.2874**	**0.0000**	**741.7013**	**741.7013**	**0.1361**	**0.0000**	**745.1042**

San Marco Commercial Center (Unmitigated) - Bay Area AQMD Air District, Annual

	ROG	NOx	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	**6-1-2020**	**8-31-2020**	0.9233	0.9233
2	**9-1-2020**	**11-30-2020**	1.3588	1.3588
3	**12-1-2020**	**2-28-2021**	1.2717	1.2717
4	**3-1-2021**	**5-31-2021**	1.2582	1.2582
5	**6-1-2021**	**8-31-2021**	1.2570	1.2570
6	**9-1-2021**	**11-30-2021**	1.2456	1.2456
7	**12-1-2021**	**2-28-2022**	0.8475	0.8475
		Highest	1.3588	1.3588

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	0.1619	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-003
Energy	9.5800e-003	0.0871	0.0732	5.2000e-004		6.6200e-003	6.6200e-003		6.6200e-003	6.6200e-003	0.0000	261.1779	261.1779	0.0205	5.6100e-003	263.3636
Mobile	0.4996	2.0245	4.3029	0.0134	1.1092	0.0116	1.1207	0.2977	0.0108	0.3085	0.0000	1,232.4935	1,232.4935	0.0514	0.0000	1,233.7782
Waste						0.0000	0.0000		0.0000	0.0000	46.8726	0.0000	46.8726	2.7701	0.0000	116.1250
Water						0.0000	0.0000		0.0000	0.0000	1.6794	3.4369	5.1163	0.1729	4.1500e-003	10.6760
Total	**0.6710**	**2.1116**	**4.3781**	**0.0139**	**1.1092**	**0.0182**	**1.1274**	**0.2977**	**0.0174**	**0.3151**	**48.5521**	**1,497.1121**	**1,545.6642**	**3.0149**	**9.7600e-003**	**1,623.9468**

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	0.1619	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-003
Energy	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003	0.0000	242.8454	242.8454	0.0197	5.2500e-003	244.9022
Mobile	0.4724	1.8593	3.6655	0.0104	0.8197	9.2300e-003	0.8290	0.2200	8.6000e-003	0.2286	0.0000	957.5279	957.5279	0.0439	0.0000	958.6255
Waste						0.0000	0.0000		0.0000	0.0000	46.8726	0.0000	46.8726	2.7701	0.0000	116.1250
Water						0.0000	0.0000		0.0000	0.0000	1.6794	3.4369	5.1163	0.1729	4.1500e-003	10.6760
Total	**0.6426**	**1.9344**	**3.7306**	**0.0109**	**0.8197**	**0.0150**	**0.8347**	**0.2200**	**0.0143**	**0.2343**	**48.5521**	**1,203.8140**	**1,252.3661**	**3.0066**	**9.4000e-003**	**1,330.3327**

	ROG	NOx	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	**4.24**	**8.39**	**14.79**	**22.05**	**26.10**	**17.77**	**25.96**	**26.10**	**17.70**	**25.63**	**0.00**	**19.59**	**18.98**	**0.28**	**3.69**	**18.08**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6500e-003	0.0199	0.0113	2.0000e-005		7.8000e-004	7.8000e-004		7.1000e-004	7.1000e-004	0.0000	2.1527	2.1527	7.0000e-004	0.0000	2.1701
Total	**1.6500e-003**	**0.0199**	**0.0113**	**2.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.1527**	**2.1527**	**7.0000e-004**	**0.0000**	**2.1701**

3.2 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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0554	0.0554	0.0000	0.0000	0.0554
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0554**	**0.0554**	**0.0000**	**0.0000**	**0.0554**

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
Off-Road	1.6500e-003	0.0199	0.0113	2.0000e-005		7.8000e-004	7.8000e-004		7.1000e-004	7.1000e-004	0.0000	2.1527	2.1527	7.0000e-004	0.0000	2.1701
Total	**1.6500e-003**	**0.0199**	**0.0113**	**2.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.1527**	**2.1527**	**7.0000e-004**	**0.0000**	**2.1701**

3.2 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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0554	0.0554	0.0000	0.0000	0.0554
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0554**	**0.0554**	**0.0000**	**0.0000**	**0.0554**

3.3 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					0.0923	0.0000	0.0923	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	**0.0288**	**0.3201**	**0.1490**	**3.1000e-004**	**0.0923**	**0.0149**	**0.1071**	**0.0499**	**0.0137**	**0.0635**	**0.0000**	**27.1666**	**27.1666**	**8.7900e-003**	**0.0000**	**27.3863**

3.3 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	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

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					0.0923	0.0000	0.0923	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	**0.0288**	**0.3201**	**0.1490**	**3.1000e-004**	**0.0923**	**0.0149**	**0.1071**	**0.0499**	**0.0137**	**0.0635**	**0.0000**	**27.1666**	**27.1666**	**8.7900e-003**	**0.0000**	**27.3863**

3.3 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	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

3.4 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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8800e-003**	**0.0579**	**0.0590**	**9.0000e-005**		**3.2800e-003**	**3.2800e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**7.7529**	**7.7529**	**2.4600e-003**	**0.0000**	**7.8143**

3.4 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	2.5000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5192	0.5192	1.0000e-005	0.0000	0.5195
Total	**2.5000e-004**	**1.8000e-004**	**1.8400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5192**	**0.5192**	**1.0000e-005**	**0.0000**	**0.5195**

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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8800e-003**	**0.0579**	**0.0590**	**9.0000e-005**		**3.2800e-003**	**3.2800e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**7.7529**	**7.7529**	**2.4600e-003**	**0.0000**	**7.8143**

3.4 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	2.5000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5192	0.5192	1.0000e-005	0.0000	0.5195
Total	**2.5000e-004**	**1.8000e-004**	**1.8400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5192**	**0.5192**	**1.0000e-005**	**0.0000**	**0.5195**

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	0.2016	1.7136	1.5912	2.5300e-003		0.0955	0.0955		0.0899	0.0899	0.0000	214.5730	214.5730	0.0548	0.0000	215.9436
Total	**0.2016**	**1.7136**	**1.5912**	**2.5300e-003**		**0.0955**	**0.0955**		**0.0899**	**0.0899**	**0.0000**	**214.5730**	**214.5730**	**0.0548**	**0.0000**	**215.9436**

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	7.3700e-003	0.2197	0.0552	5.2000e-004	0.0301	1.0700e-003	0.0311	7.9200e-003	1.0200e-003	8.9500e-003	0.0000	49.8504	49.8504	2.5700e-003	0.0000	49.9147
Worker	0.0184	0.0132	0.1362	4.2000e-004	0.1195	2.9000e-004	0.1198	0.0302	2.7000e-004	0.0305	0.0000	38.3800	38.3800	9.3000e-004	0.0000	38.4033
Total	**0.0257**	**0.2328**	**0.1914**	**9.4000e-004**	**0.1496**	**1.3600e-003**	**0.1509**	**0.0382**	**1.2900e-003**	**0.0395**	**0.0000**	**88.2305**	**88.2305**	**3.5000e-003**	**0.0000**	**88.3180**

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	0.2016	1.7136	1.5912	2.5300e-003		0.0955	0.0955		0.0899	0.0899	0.0000	214.5727	214.5727	0.0548	0.0000	215.9434
Total	**0.2016**	**1.7136**	**1.5912**	**2.5300e-003**		**0.0955**	**0.0955**		**0.0899**	**0.0899**	**0.0000**	**214.5727**	**214.5727**	**0.0548**	**0.0000**	**215.9434**

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	7.3700e-003	0.2197	0.0552	5.2000e-004	0.0301	1.0700e-003	0.0311	7.9200e-003	1.0200e-003	8.9500e-003	0.0000	49.8504	49.8504	2.5700e-003	0.0000	49.9147
Worker	0.0184	0.0132	0.1362	4.2000e-004	0.1195	2.9000e-004	0.1198	0.0302	2.7000e-004	0.0305	0.0000	38.3800	38.3800	9.3000e-004	0.0000	38.4033
Total	**0.0257**	**0.2328**	**0.1914**	**9.4000e-004**	**0.1496**	**1.3600e-003**	**0.1509**	**0.0382**	**1.2900e-003**	**0.0395**	**0.0000**	**88.2305**	**88.2305**	**3.5000e-003**	**0.0000**	**88.3180**

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	0.4240	3.6667	3.6584	5.9000e-003		0.1936	0.1936		0.1824	0.1824	0.0000	500.0363	500.0363	0.1261	0.0000	503.1883
Total	**0.4240**	**3.6667**	**3.6584**	**5.9000e-003**		**0.1936**	**0.1936**		**0.1824**	**0.1824**	**0.0000**	**500.0363**	**500.0363**	**0.1261**	**0.0000**	**503.1883**

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	0.0141	0.4635	0.1157	1.2000e-003	0.0700	1.0100e-003	0.0711	0.0185	9.6000e-004	0.0194	0.0000	115.0709	115.0709	5.6600e-003	0.0000	115.2123
Worker	0.0397	0.0274	0.2898	9.5000e-004	0.2785	6.7000e-004	0.2791	0.0705	6.2000e-004	0.0711	0.0000	86.3010	86.3010	1.9400e-003	0.0000	86.3494
Total	**0.0537**	**0.4908**	**0.4055**	**2.1500e-003**	**0.3485**	**1.6800e-003**	**0.3502**	**0.0889**	**1.5800e-003**	**0.0905**	**0.0000**	**201.3719**	**201.3719**	**7.6000e-003**	**0.0000**	**201.5617**

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	0.4240	3.6667	3.6584	5.9000e-003		0.1936	0.1936		0.1824	0.1824	0.0000	500.0357	500.0357	0.1261	0.0000	503.1877
Total	**0.4240**	**3.6667**	**3.6584**	**5.9000e-003**		**0.1936**	**0.1936**		**0.1824**	**0.1824**	**0.0000**	**500.0357**	**500.0357**	**0.1261**	**0.0000**	**503.1877**

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	0.0141	0.4635	0.1157	1.2000e-003	0.0700	1.0100e-003	0.0711	0.0185	9.6000e-004	0.0194	0.0000	115.0709	115.0709	5.6600e-003	0.0000	115.2123
Worker	0.0397	0.0274	0.2898	9.5000e-004	0.2785	6.7000e-004	0.2791	0.0705	6.2000e-004	0.0711	0.0000	86.3010	86.3010	1.9400e-003	0.0000	86.3494
Total	**0.0537**	**0.4908**	**0.4055**	**2.1500e-003**	**0.3485**	**1.6800e-003**	**0.3502**	**0.0889**	**1.5800e-003**	**0.0905**	**0.0000**	**201.3719**	**201.3719**	**7.6000e-003**	**0.0000**	**201.5617**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0336	0.2897	0.3189	5.2000e-004		0.0145	0.0145		0.0136	0.0136	0.0000	44.0768	44.0768	0.0110	0.0000	44.3524
Total	**0.0336**	**0.2897**	**0.3189**	**5.2000e-004**		**0.0145**	**0.0145**		**0.0136**	**0.0136**	**0.0000**	**44.0768**	**44.0768**	**0.0110**	**0.0000**	**44.3524**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1600e-003	0.0387	9.5800e-003	1.0000e-004	6.1700e-003	8.0000e-005	6.2500e-003	1.6300e-003	7.0000e-005	1.7000e-003	0.0000	10.0409	10.0409	4.8000e-004	0.0000	10.0528
Worker	3.2600e-003	2.1600e-003	0.0235	8.0000e-005	0.0245	6.0000e-005	0.0246	6.2100e-003	5.0000e-005	6.2600e-003	0.0000	7.3263	7.3263	1.5000e-004	0.0000	7.3301
Total	**4.4200e-003**	**0.0408**	**0.0331**	**1.8000e-004**	**0.0307**	**1.4000e-004**	**0.0309**	**7.8400e-003**	**1.2000e-004**	**7.9600e-003**	**0.0000**	**17.3672**	**17.3672**	**6.3000e-004**	**0.0000**	**17.3829**

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	0.0336	0.2897	0.3189	5.2000e-004		0.0145	0.0145		0.0136	0.0136	0.0000	44.0767	44.0767	0.0110	0.0000	44.3523
Total	**0.0336**	**0.2897**	**0.3189**	**5.2000e-004**		**0.0145**	**0.0145**		**0.0136**	**0.0136**	**0.0000**	**44.0767**	**44.0767**	**0.0110**	**0.0000**	**44.3523**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1600e-003	0.0387	9.5800e-003	1.0000e-004	6.1700e-003	8.0000e-005	6.2500e-003	1.6300e-003	7.0000e-005	1.7000e-003	0.0000	10.0409	10.0409	4.8000e-004	0.0000	10.0528
Worker	3.2600e-003	2.1600e-003	0.0235	8.0000e-005	0.0245	6.0000e-005	0.0246	6.2100e-003	5.0000e-005	6.2600e-003	0.0000	7.3263	7.3263	1.5000e-004	0.0000	7.3301
Total	**4.4200e-003**	**0.0408**	**0.0331**	**1.8000e-004**	**0.0307**	**1.4000e-004**	**0.0309**	**7.8400e-003**	**1.2000e-004**	**7.9600e-003**	**0.0000**	**17.3672**	**17.3672**	**6.3000e-004**	**0.0000**	**17.3829**

3.6 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	0.0511					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0859	0.0934	1.5000e-004		5.6600e-003	5.6600e-003		5.6600e-003	5.6600e-003	0.0000	13.0216	13.0216	1.0100e-003	0.0000	13.0468
Total	**0.0634**	**0.0859**	**0.0934**	**1.5000e-004**		**5.6600e-003**	**5.6600e-003**		**5.6600e-003**	**5.6600e-003**	**0.0000**	**13.0216**	**13.0216**	**1.0100e-003**	**0.0000**	**13.0468**

3.6 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	1.3500e-003	9.7000e-004	0.0100	3.0000e-005	3.2200e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.8245	2.8245	7.0000e-005	0.0000	2.8262
Total	**1.3500e-003**	**9.7000e-004**	**0.0100**	**3.0000e-005**	**3.2200e-003**	**2.0000e-005**	**3.2500e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.8245**	**2.8245**	**7.0000e-005**	**0.0000**	**2.8262**

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	0.0511					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0859	0.0934	1.5000e-004		5.6600e-003	5.6600e-003		5.6600e-003	5.6600e-003	0.0000	13.0216	13.0216	1.0100e-003	0.0000	13.0468
Total	**0.0634**	**0.0859**	**0.0934**	**1.5000e-004**		**5.6600e-003**	**5.6600e-003**		**5.6600e-003**	**5.6600e-003**	**0.0000**	**13.0216**	**13.0216**	**1.0100e-003**	**0.0000**	**13.0468**

3.6 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	1.3500e-003	9.7000e-004	0.0100	3.0000e-005	3.2200e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.8245	2.8245	7.0000e-005	0.0000	2.8262
Total	**1.3500e-003**	**9.7000e-004**	**0.0100**	**3.0000e-005**	**3.2200e-003**	**2.0000e-005**	**3.2500e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.8245**	**2.8245**	**7.0000e-005**	**0.0000**	**2.8262**

3.6 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	0.1306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.1993	0.2372	3.9000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	33.3200	33.3200	2.2900e-003	0.0000	33.3771
Total	**0.1592**	**0.1993**	**0.2372**	**3.9000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**33.3200**	**33.3200**	**2.2900e-003**	**0.0000**	**33.3771**

3.6 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	3.2000e-003	2.2100e-003	0.0234	8.0000e-005	8.2500e-003	5.0000e-005	8.3000e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.9738	6.9738	1.6000e-004	0.0000	6.9777
Total	**3.2000e-003**	**2.2100e-003**	**0.0234**	**8.0000e-005**	**8.2500e-003**	**5.0000e-005**	**8.3000e-003**	**2.1900e-003**	**5.0000e-005**	**2.2400e-003**	**0.0000**	**6.9738**	**6.9738**	**1.6000e-004**	**0.0000**	**6.9777**

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	0.1306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.1993	0.2372	3.9000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	33.3199	33.3199	2.2900e-003	0.0000	33.3771
Total	**0.1592**	**0.1993**	**0.2372**	**3.9000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**33.3199**	**33.3199**	**2.2900e-003**	**0.0000**	**33.3771**

3.6 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	3.2000e-003	2.2100e-003	0.0234	8.0000e-005	8.2500e-003	5.0000e-005	8.3000e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.9738	6.9738	1.6000e-004	0.0000	6.9777
Total	**3.2000e-003**	**2.2100e-003**	**0.0234**	**8.0000e-005**	**8.2500e-003**	**5.0000e-005**	**8.3000e-003**	**2.1900e-003**	**5.0000e-005**	**2.2400e-003**	**0.0000**	**6.9738**	**6.9738**	**1.6000e-004**	**0.0000**	**6.9777**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0165					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3700e-003	0.0232	0.0299	5.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	4.2129	4.2129	2.7000e-004	0.0000	4.2197
Total	**0.0199**	**0.0232**	**0.0299**	**5.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.7000e-004**	**0.0000**	**4.2197**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.5000e-004	2.7200e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.8494	0.8494	2.0000e-005	0.0000	0.8499
Total	**3.8000e-004**	**2.5000e-004**	**2.7200e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8494**	**0.8494**	**2.0000e-005**	**0.0000**	**0.8499**

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	0.0165					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3700e-003	0.0232	0.0299	5.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	4.2129	4.2129	2.7000e-004	0.0000	4.2197
Total	**0.0199**	**0.0232**	**0.0299**	**5.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.7000e-004**	**0.0000**	**4.2197**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.5000e-004	2.7200e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.8494	0.8494	2.0000e-005	0.0000	0.8499
Total	**3.8000e-004**	**2.5000e-004**	**2.7200e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8494**	**0.8494**	**2.0000e-005**	**0.0000**	**0.8499**

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	0.4724	1.8593	3.6655	0.0104	0.8197	9.2300e-003	0.8290	0.2200	8.6000e-003	0.2286	0.0000	957.5279	957.5279	0.0439	0.0000	958.6255
Unmitigated	0.4996	2.0245	4.3029	0.0134	1.1092	0.0116	1.1207	0.2977	0.0108	0.3085	0.0000	1,232.4935	1,232.4935	0.0514	0.0000	1,233.7782

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
High Turnover (Sit Down Restaurant)	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Parking Lot	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Supermarket	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	161.1067	161.1067	0.0181	3.7500e-003	162.6778
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	166.3201	166.3201	0.0187	3.8700e-003	167.9421
NaturalGas Mitigated	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003	0.0000	81.7387	81.7387	1.5700e-003	1.5000e-003	82.2244
NaturalGas Unmitigated	9.5800e-003	0.0871	0.0732	5.2000e-004		6.6200e-003	6.6200e-003		6.6200e-003	6.6200e-003	0.0000	94.8578	94.8578	1.8200e-003	1.7400e-003	95.4215

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					
Fast Food Restaurant with Drive Thru	379589	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2563	20.2563	3.9000e-004	3.7000e-004	20.3767
High Turnover (Sit Down Restaurant)	727580	3.9200e-003	0.0357	0.0300	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.8264	38.8264	7.4000e-004	7.1000e-004	39.0572
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
Supermarket	670399	3.6100e-003	0.0329	0.0276	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7750	35.7750	6.9000e-004	6.6000e-004	35.9876
Total		**9.5800e-003**	**0.0871**	**0.0732**	**5.2000e-004**		**6.6200e-003**	**6.6200e-003**		**6.6200e-003**	**6.6200e-003**	**0.0000**	**94.8578**	**94.8578**	**1.8200e-003**	**1.7400e-003**	**95.4215**

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					
Fast Food Restaurant with Drive Thru	346496	1.8700e-003	0.0170	0.0143	1.0000e-004		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	18.4904	18.4904	3.5000e-004	3.4000e-004	18.6002
High Turnover (Sit Down Restaurant)	664150	3.5800e-003	0.0326	0.0274	2.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.4416	35.4416	6.8000e-004	6.5000e-004	35.6522
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
Supermarket	521080	2.8100e-003	0.0255	0.0215	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.8068	27.8068	5.3000e-004	5.1000e-004	27.9720
Total		**8.2600e-003**	**0.0751**	**0.0631**	**4.5000e-004**		**5.7000e-003**	**5.7000e-003**		**5.7000e-003**	**5.7000e-003**	**0.0000**	**81.7387**	**81.7387**	**1.5600e-003**	**1.5000e-003**	**82.2244**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	59746.7	6.9836	7.9000e-004	1.6000e-004	7.0517
High Turnover (Sit Down Restaurant)	114520	13.3858	1.5100e-003	3.1000e-004	13.5164
Parking Lot	25060	2.9292	3.3000e-004	7.0000e-005	2.9577
Supermarket	1.2236e+006	143.0216	0.0161	3.3300e-003	144.4163
Total		**166.3201**	**0.0187**	**3.8700e-003**	**167.9421**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	56969.4	6.6589	7.5000e-004	1.6000e-004	6.7239
High Turnover (Sit Down Restaurant)	109197	12.7636	1.4400e-003	3.0000e-004	12.8880
Parking Lot	25060	2.9292	3.3000e-004	7.0000e-005	2.9577
Supermarket	1.18709e+006	138.7550	0.0156	3.2300e-003	140.1081
Total		**161.1067**	**0.0181**	**3.7600e-003**	**162.6778**

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	0.1619	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-003
Unmitigated	0.1619	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-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	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1419					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-003
Total	**0.1619**	**2.0000e-005**	**1.9700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.8300e-003**	**3.8300e-003**	**1.0000e-005**	**0.0000**	**4.0800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1419					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0800e-003
Total	**0.1619**	**2.0000e-005**	**1.9700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.8300e-003**	**3.8300e-003**	**1.0000e-005**	**0.0000**	**4.0800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.1163	0.1729	4.1500e-003	10.6760
Unmitigated	5.1163	0.1729	4.1500e-003	10.6760

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.555467 / 0.0354553	0.5421	0.0181	4.4000e-004	1.1255
High Turnover (Sit Down Restaurant)	1.06237 / 0.0678107	1.0367	0.0347	8.3000e-004	2.1525
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	3.67586 / 0.113686	3.5376	0.1200	2.8800e-003	7.3980
Total		**5.1163**	**0.1729**	**4.1500e-003**	**10.6760**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.555467 / 0.0354553	0.5421	0.0181	4.4000e-004	1.1255
High Turnover (Sit Down Restaurant)	1.06237 / 0.0678107	1.0367	0.0347	8.3000e-004	2.1525
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	3.67586 / 0.113686	3.5376	0.1200	2.8800e-003	7.3980
Total		**5.1163**	**0.1729**	**4.1500e-003**	**10.6760**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	46.8726	2.7701	0.0000	116.1250
Unmitigated	46.8726	2.7701	0.0000	116.1250

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	21.08	4.2791	0.2529	0.0000	10.6012
High Turnover (Sit Down Restaurant)	41.65	8.4546	0.4997	0.0000	20.9459
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Supermarket	168.18	34.1390	2.0176	0.0000	84.5780
Total		**46.8726**	**2.7701**	**0.0000**	**116.1250**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	21.08	4.2791	0.2529	0.0000	10.6012
High Turnover (Sit Down Restaurant)	41.65	8.4546	0.4997	0.0000	20.9459
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Supermarket	168.18	34.1390	2.0176	0.0000	84.5780
Total		**46.8726**	**2.7701**	**0.0000**	**116.1250**

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

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	396.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	3.00	2.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	5.3437	36.3834	34.0411	0.0663	6.2347	1.8402	7.2254	3.3461	1.7402	4.2575	0.0000	6,375.168 4	6,375.168 4	1.1710	0.0000	6,404.443 4
2021	4.9182	33.3387	33.3081	0.0659	2.8509	1.5909	4.4418	0.7269	1.5038	2.2307	0.0000	6,335.025 1	6,335.025 1	1.1494	0.0000	6,363.758 7
2022	4.5444	30.1117	32.7433	0.0655	2.8509	1.3513	4.2022	0.7269	1.2782	2.0052	0.0000	6,295.537 1	6,295.537 1	1.1360	0.0000	6,323.937 5
Maximum	**5.3437**	**36.3834**	**34.0411**	**0.0663**	**6.2347**	**1.8402**	**7.2254**	**3.3461**	**1.7402**	**4.2575**	**0.0000**	**6,375.168 4**	**6,375.168 4**	**1.1710**	**0.0000**	**6,404.443 4**

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	5.3437	36.3834	34.0411	0.0663	6.2347	1.8402	7.2254	3.3461	1.7402	4.2575	0.0000	6,375.168 4	6,375.168 4	1.1710	0.0000	6,404.443 4
2021	4.9182	33.3387	33.3081	0.0659	2.8509	1.5909	4.4418	0.7269	1.5038	2.2307	0.0000	6,335.025 1	6,335.025 1	1.1494	0.0000	6,363.758 7
2022	4.5444	30.1117	32.7433	0.0655	2.8509	1.3513	4.2022	0.7269	1.2782	2.0052	0.0000	6,295.537 1	6,295.537 1	1.1360	0.0000	6,323.937 5
Maximum	**5.3437**	**36.3834**	**34.0411**	**0.0663**	**6.2347**	**1.8402**	**7.2254**	**3.3461**	**1.7402**	**4.2575**	**0.0000**	**6,375.168 4**	**6,375.168 4**	**1.1710**	**0.0000**	**6,404.443 4**

	ROG	NOx	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	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515
Mobile	3.2376	10.9066	23.3533	0.0778	6.3318	0.0633	6.3951	1.6939	0.0590	1.7529		7,885.392 8	7,885.392 8	0.3060		7,893.042 8
Total	**4.1783**	**11.3843**	**23.7762**	**0.0806**	**6.3318**	**0.0997**	**6.4314**	**1.6939**	**0.0954**	**1.7893**		**8,458.386 5**	**8,458.386 5**	**0.3171**	**0.0105**	**8,469.444 3**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
Mobile	3.0853	10.0561	19.4015	0.0603	4.6793	0.0506	4.7299	1.2518	0.0471	1.2990		6,121.534 7	6,121.534 7	0.2587		6,128.000 9
Total	**4.0187**	**10.4678**	**19.7690**	**0.0628**	**4.6793**	**0.0819**	**4.7613**	**1.2518**	**0.0785**	**1.3303**		**6,615.288 4**	**6,615.288 4**	**0.2682**	**9.0500e-003**	**6,624.691 6**

	ROG	NOx	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	3.82	8.05	16.85	22.12	26.10	17.82	25.97	26.10	17.75	25.65	0.00	21.79	21.79	15.41	13.81	21.78

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.906 2	2,372.906 2	0.7675		2,392.092 4
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**		**2,372.906 2**	**2,372.906 2**	**0.7675**		**2,392.092 4**

3.2 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
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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 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
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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

3.3 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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0348	0.0210	0.2683	8.2000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		82.0777	82.0777	1.9800e-003		82.1271
Total	**0.0348**	**0.0210**	**0.2683**	**8.2000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**82.0777**	**82.0777**	**1.9800e-003**		**82.1271**

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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0348	0.0210	0.2683	8.2000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		82.0777	82.0777	1.9800e-003		82.1271
Total	**0.0348**	**0.0210**	**0.2683**	**8.2000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**82.0777**	**82.0777**	**1.9800e-003**		**82.1271**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**		**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**	**0.0000**	**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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**

3.5 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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059		4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**		**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1289	3.8747	0.9243	9.3700e-003	0.5583	0.0190	0.5773	0.1468	0.0182	0.1650		991.8074	991.8074	0.0488		993.0284
Worker	0.3441	0.2083	2.6562	8.1500e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		812.5688	812.5688	0.0196		813.0583
Total	**0.4730**	**4.0831**	**3.5805**	**0.0175**	**2.7852**	**0.0243**	**2.8094**	**0.7095**	**0.0230**	**0.7325**		**1,804.3762**	**1,804.3762**	**0.0684**		**1,806.0867**

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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059	0.0000	4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**	**0.0000**	**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1289	3.8747	0.9243	9.3700e-003	0.5583	0.0190	0.5773	0.1468	0.0182	0.1650		991.8074	991.8074	0.0488		993.0284
Worker	0.3441	0.2083	2.6562	8.1500e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		812.5688	812.5688	0.0196		813.0583
Total	**0.4730**	**4.0831**	**3.5805**	**0.0175**	**2.7852**	**0.0243**	**2.8094**	**0.7095**	**0.0230**	**0.7325**		**1,804.3762**	**1,804.3762**	**0.0684**		**1,806.0867**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973		4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**		**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1054	3.5136	0.8285	9.2700e-003	0.5583	7.6100e-003	0.5659	0.1468	7.2800e-003	0.1541		982.4590	982.4590	0.0461		983.6118
Worker	0.3183	0.1860	2.4318	7.8600e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		784.0399	784.0399	0.0175		784.4781
Total	**0.4238**	**3.6996**	**3.2603**	**0.0171**	**2.7852**	**0.0127**	**2.7979**	**0.7095**	**0.0120**	**0.7215**		**1,766.4990**	**1,766.4990**	**0.0636**		**1,768.0899**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973	0.0000	4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**	**0.0000**	**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1054	3.5136	0.8285	9.2700e-003	0.5583	7.6100e-003	0.5659	0.1468	7.2800e-003	0.1541		982.4590	982.4590	0.0461		983.6118
Worker	0.3183	0.1860	2.4318	7.8600e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		784.0399	784.0399	0.0175		784.4781
Total	**0.4238**	**3.6996**	**3.2603**	**0.0171**	**2.7852**	**0.0127**	**2.7979**	**0.7095**	**0.0120**	**0.7215**		**1,766.4990**	**1,766.4990**	**0.0636**		**1,768.0899**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852		4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**		**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0983	3.3300	0.7792	9.1800e-003	0.5583	6.6000e-003	0.5649	0.1468	6.3100e-003	0.1531		972.8913	972.8913	0.0441		973.9935
Worker	0.2963	0.1669	2.2407	7.5700e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		755.2664	755.2664	0.0157		755.6599
Total	**0.3946**	**3.4968**	**3.0199**	**0.0168**	**2.7852**	**0.0116**	**2.7968**	**0.7095**	**0.0109**	**0.7204**		**1,728.1577**	**1,728.1577**	**0.0598**		**1,729.6534**

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	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852	0.0000	4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**	**0.0000**	**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0983	3.3300	0.7792	9.1800e-003	0.5583	6.6000e-003	0.5649	0.1468	6.3100e-003	0.1531		972.8913	972.8913	0.0441		973.9935
Worker	0.2963	0.1669	2.2407	7.5700e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		755.2664	755.2664	0.0157		755.6599
Total	**0.3946**	**3.4968**	**3.0199**	**0.0168**	**2.7852**	**0.0116**	**2.7968**	**0.7095**	**0.0109**	**0.7204**		**1,728.1577**	**1,728.1577**	**0.0598**		**1,729.6534**

3.6 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	1.0011					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	**1.2432**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.6 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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

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	1.0011					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	**1.2432**	**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**

3.6 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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

3.6 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	1.0011					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	**1.2200**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 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	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0257**	**0.0150**	**0.1965**	**6.4000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**63.3568**	**63.3568**	**1.4200e-003**		**63.3922**

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	1.0011					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	**1.2200**	**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**

3.6 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	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0257**	**0.0150**	**0.1965**	**6.4000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**63.3568**	**63.3568**	**1.4200e-003**		**63.3922**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0239	0.0135	0.1811	6.1000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		61.0316	61.0316	1.2700e-003		61.0634
Total	**0.0239**	**0.0135**	**0.1811**	**6.1000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**61.0316**	**61.0316**	**1.2700e-003**		**61.0634**

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	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0239	0.0135	0.1811	6.1000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		61.0316	61.0316	1.2700e-003		61.0634
Total	**0.0239**	**0.0135**	**0.1811**	**6.1000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**61.0316**	**61.0316**	**1.2700e-003**		**61.0634**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

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	3.0853	10.0561	19.4015	0.0603	4.6793	0.0506	4.7299	1.2518	0.0471	1.2990		6,121.5347	6,121.5347	0.2587		6,128.0009
Unmitigated	3.2376	10.9066	23.3533	0.0778	6.3318	0.0633	6.3951	1.6939	0.0590	1.7529		7,885.3928	7,885.3928	0.3060		7,893.0428

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
High Turnover (Sit Down Restaurant)	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Parking Lot	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Supermarket	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
NaturalGas Unmitigated	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515

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					
Fast Food Restaurant with Drive Thru	1039.97	0.0112	0.1020	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3494	122.3494	2.3500e-003	2.2400e-003	123.0764
High Turnover (Sit Down Restaurant)	1993.37	0.0215	0.1954	0.1642	1.1700e-003		0.0149	0.0149		0.0149	0.0149		234.5141	234.5141	4.4900e-003	4.3000e-003	235.9077
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
Supermarket	1836.71	0.0198	0.1801	0.1513	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.0833	216.0833	4.1400e-003	3.9600e-003	217.3674
Total		**0.0525**	**0.4775**	**0.4011**	**2.8600e-003**		**0.0363**	**0.0363**		**0.0363**	**0.0363**		**572.9468**	**572.9468**	**0.0110**	**0.0105**	**576.3515**

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					
Fast Food Restaurant with Drive Thru	0.949305	0.0102	0.0931	0.0782	5.6000e-004		7.0700e-003	7.0700e-003		7.0700e-003	7.0700e-003		111.6829	111.6829	2.1400e-003	2.0500e-003	112.3466
High Turnover (Sit Down Restaurant)	1.81959	0.0196	0.1784	0.1499	1.0700e-003		0.0136	0.0136		0.0136	0.0136		214.0691	214.0691	4.1000e-003	3.9200e-003	215.3412
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
Supermarket	1.42762	0.0154	0.1400	0.1176	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.9548	167.9548	3.2200e-003	3.0800e-003	168.9529
Total		**0.0453**	**0.4114**	**0.3456**	**2.4700e-003**		**0.0313**	**0.0313**		**0.0313**	**0.0313**		**493.7069**	**493.7069**	**9.4600e-003**	**9.0500e-003**	**496.6407**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Unmitigated	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499

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	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8882**	**2.0000e-004**	**0.0219**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8882**	**2.0000e-004**	**0.0219**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

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

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

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

Climate Zone 4 **Operational Year** 2023

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 257.69 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	396.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	3.00	2.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	5.3719	36.4798	33.9996	0.0654	6.2347	1.8405	7.2254	3.3461	1.7405	4.2575	0.0000	6,280.8327	6,280.8327	1.1736	0.0000	6,310.1730
2021	4.9449	33.4162	33.2626	0.0650	2.8509	1.5912	4.4421	0.7269	1.5041	2.2310	0.0000	6,243.3058	6,243.3058	1.1518	0.0000	6,272.1019
2022	4.5701	30.1792	32.6940	0.0647	2.8509	1.3516	4.2025	0.7269	1.2785	2.0054	0.0000	6,206.3875	6,206.3875	1.1384	0.0000	6,234.8471
Maximum	**5.3719**	**36.4798**	**33.9996**	**0.0654**	**6.2347**	**1.8405**	**7.2254**	**3.3461**	**1.7405**	**4.2575**	**0.0000**	**6,280.8327**	**6,280.8327**	**1.1736**	**0.0000**	**6,310.1730**

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	5.3719	36.4798	33.9996	0.0654	6.2347	1.8405	7.2254	3.3461	1.7405	4.2575	0.0000	6,280.8327	6,280.8327	1.1736	0.0000	6,310.1730
2021	4.9449	33.4162	33.2626	0.0650	2.8509	1.5912	4.4421	0.7269	1.5041	2.2310	0.0000	6,243.3058	6,243.3058	1.1518	0.0000	6,272.1019
2022	4.5701	30.1792	32.6940	0.0647	2.8509	1.3516	4.2025	0.7269	1.2785	2.0054	0.0000	6,206.3875	6,206.3875	1.1384	0.0000	6,234.8471
Maximum	**5.3719**	**36.4798**	**33.9996**	**0.0654**	**6.2347**	**1.8405**	**7.2254**	**3.3461**	**1.7405**	**4.2575**	**0.0000**	**6,280.8327**	**6,280.8327**	**1.1736**	**0.0000**	**6,310.1730**

San Marco Commercial Center (Unmitigated) - Bay Area AQMD Air District, Winter

	ROG	NOx	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	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515
Mobile	2.7064	11.2444	25.3529	0.0727	6.3318	0.0639	6.3956	1.6939	0.0596	1.7535		7,370.2875	7,370.2875	0.3238		7,378.3815
Total	**3.6471**	**11.7221**	**25.7758**	**0.0756**	**6.3318**	**0.1002**	**6.4320**	**1.6939**	**0.0959**	**1.7898**		**7,943.2812**	**7,943.2812**	**0.3349**	**0.0105**	**7,954.7830**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
Mobile	2.5562	10.2970	21.8368	0.0564	4.6793	0.0511	4.7305	1.2518	0.0477	1.2995		5,714.8124	5,714.8124	0.2785		5,721.7738
Total	**3.4896**	**10.7087**	**22.2042**	**0.0588**	**4.6793**	**0.0825**	**4.7618**	**1.2518**	**0.0790**	**1.3308**		**6,208.5662**	**6,208.5662**	**0.2880**	**9.0500e-003**	**6,218.4645**

	ROG	NOx	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	4.32	8.65	13.86	22.17	26.10	17.72	25.97	26.10	17.65	25.64	0.00	21.84	21.84	13.98	13.81	21.83

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.906 2	2,372.906 2	0.7675		2,392.092 4
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**		**2,372.906 2**	**2,372.906 2**	**0.7675**		**2,392.092 4**

3.2 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
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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 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
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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

3.3 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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0368	0.0260	0.2520	7.6000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		75.6065	75.6065	1.8500e-003		75.6528
Total	**0.0368**	**0.0260**	**0.2520**	**7.6000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**75.6065**	**75.6065**	**1.8500e-003**		**75.6528**

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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0368	0.0260	0.2520	7.6000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		75.6065	75.6065	1.8500e-003		75.6528
Total	**0.0368**	**0.0260**	**0.2520**	**7.6000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**75.6065**	**75.6065**	**1.8500e-003**		**75.6528**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**		**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**	**0.0000**	**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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**

3.5 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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059		4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**		**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1356	3.9181	1.0574	9.1300e-003	0.5583	0.0193	0.5776	0.1468	0.0185	0.1653		966.7126	966.7126	0.0528		968.0334
Worker	0.3640	0.2574	2.4947	7.5100e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		748.5048	748.5048	0.0183		748.9625
Total	**0.4996**	**4.1755**	**3.5521**	**0.0166**	**2.7852**	**0.0246**	**2.8097**	**0.7095**	**0.0233**	**0.7328**		**1,715.2174**	**1,715.2174**	**0.0711**		**1,716.9958**

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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059	0.0000	4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**	**0.0000**	**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1356	3.9181	1.0574	9.1300e-003	0.5583	0.0193	0.5776	0.1468	0.0185	0.1653		966.7126	966.7126	0.0528		968.0334
Worker	0.3640	0.2574	2.4947	7.5100e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		748.5048	748.5048	0.0183		748.9625
Total	**0.4996**	**4.1755**	**3.5521**	**0.0166**	**2.7852**	**0.0246**	**2.8097**	**0.7095**	**0.0233**	**0.7328**		**1,715.2174**	**1,715.2174**	**0.0711**		**1,716.9958**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973		4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**		**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1117	3.5438	0.9523	9.0400e-003	0.5583	7.8800e-003	0.5662	0.1468	7.5300e-003	0.1543		957.5323	957.5323	0.0499		958.7795
Worker	0.3372	0.2298	2.2751	7.2500e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		722.2413	722.2413	0.0163		722.6498
Total	**0.4489**	**3.7736**	**3.2275**	**0.0163**	**2.7852**	**0.0130**	**2.7982**	**0.7095**	**0.0122**	**0.7217**		**1,679.7736**	**1,679.7736**	**0.0662**		**1,681.4293**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973	0.0000	4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**	**0.0000**	**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1117	3.5438	0.9523	9.0400e-003	0.5583	7.8800e-003	0.5662	0.1468	7.5300e-003	0.1543		957.5323	957.5323	0.0499		958.7795
Worker	0.3372	0.2298	2.2751	7.2500e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		722.2413	722.2413	0.0163		722.6498
Total	**0.4489**	**3.7736**	**3.2275**	**0.0163**	**2.7852**	**0.0130**	**2.7982**	**0.7095**	**0.0122**	**0.7217**		**1,679.7736**	**1,679.7736**	**0.0662**		**1,681.4293**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852		4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**		**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1042	3.3551	0.8952	8.9400e-003	0.5583	6.8400e-003	0.5651	0.1468	6.5400e-003	0.1533		948.0523	948.0523	0.0477		949.2436
Worker	0.3147	0.2060	2.0878	6.9800e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		695.7641	695.7641	0.0146		696.1299
Total	**0.4189**	**3.5611**	**2.9830**	**0.0159**	**2.7852**	**0.0118**	**2.7970**	**0.7095**	**0.0111**	**0.7206**		**1,643.8164**	**1,643.8164**	**0.0623**		**1,645.3735**

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	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852	0.0000	4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**	**0.0000**	**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1042	3.3551	0.8952	8.9400e-003	0.5583	6.8400e-003	0.5651	0.1468	6.5400e-003	0.1533		948.0523	948.0523	0.0477		949.2436
Worker	0.3147	0.2060	2.0878	6.9800e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		695.7641	695.7641	0.0146		696.1299
Total	**0.4189**	**3.5611**	**2.9830**	**0.0159**	**2.7852**	**0.0118**	**2.7970**	**0.7095**	**0.0111**	**0.7206**		**1,643.8164**	**1,643.8164**	**0.0623**		**1,645.3735**

3.6 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	1.0011					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	**1.2432**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.6 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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

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	1.0011					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	**1.2432**	**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**

3.6 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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

3.6 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	1.0011					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	**1.2200**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 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	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0273**	**0.0186**	**0.1839**	**5.9000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**58.3629**	**58.3629**	**1.3200e-003**		**58.3960**

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	1.0011					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	**1.2200**	**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**

3.6 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	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0273**	**0.0186**	**0.1839**	**5.9000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**58.3629**	**58.3629**	**1.3200e-003**		**58.3960**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0254	0.0167	0.1687	5.6000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		56.2234	56.2234	1.1800e-003		56.2529
Total	**0.0254**	**0.0167**	**0.1687**	**5.6000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**56.2234**	**56.2234**	**1.1800e-003**		**56.2529**

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	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0254	0.0167	0.1687	5.6000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		56.2234	56.2234	1.1800e-003		56.2529
Total	**0.0254**	**0.0167**	**0.1687**	**5.6000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**56.2234**	**56.2234**	**1.1800e-003**		**56.2529**

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	2.5562	10.2970	21.8368	0.0564	4.6793	0.0511	4.7305	1.2518	0.0477	1.2995		5,714.8124	5,714.8124	0.2785		5,721.7738
Unmitigated	2.7064	11.2444	25.3529	0.0727	6.3318	0.0639	6.3956	1.6939	0.0596	1.7535		7,370.2875	7,370.2875	0.3238		7,378.3815

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
High Turnover (Sit Down Restaurant)	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Parking Lot	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749
Supermarket	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
NaturalGas Unmitigated	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515

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					
Fast Food Restaurant with Drive Thru	1039.97	0.0112	0.1020	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3494	122.3494	2.3500e-003	2.2400e-003	123.0764
High Turnover (Sit Down Restaurant)	1993.37	0.0215	0.1954	0.1642	1.1700e-003		0.0149	0.0149		0.0149	0.0149		234.5141	234.5141	4.4900e-003	4.3000e-003	235.9077
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
Supermarket	1836.71	0.0198	0.1801	0.1513	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.0833	216.0833	4.1400e-003	3.9600e-003	217.3674
Total		**0.0525**	**0.4775**	**0.4011**	**2.8600e-003**		**0.0363**	**0.0363**		**0.0363**	**0.0363**		**572.9468**	**572.9468**	**0.0110**	**0.0105**	**576.3515**

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					
Fast Food Restaurant with Drive Thru	0.949305	0.0102	0.0931	0.0782	5.6000e-004		7.0700e-003	7.0700e-003		7.0700e-003	7.0700e-003		111.6829	111.6829	2.1400e-003	2.0500e-003	112.3466
High Turnover (Sit Down Restaurant)	1.81959	0.0196	0.1784	0.1499	1.0700e-003		0.0136	0.0136		0.0136	0.0136		214.0691	214.0691	4.1000e-003	3.9200e-003	215.3412
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
Supermarket	1.42762	0.0154	0.1400	0.1176	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.9548	167.9548	3.2200e-003	3.0800e-003	168.9529
Total		**0.0453**	**0.4114**	**0.3456**	**2.4700e-003**		**0.0313**	**0.0313**		**0.0313**	**0.0313**		**493.7069**	**493.7069**	**9.4600e-003**	**9.0500e-003**	**496.6407**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Unmitigated	0.8882	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499

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	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8882**	**2.0000e-004**	**0.0219**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0200e-003	2.0000e-004	0.0219	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8882**	**2.0000e-004**	**0.0219**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

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

San Marco Commercial Center (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
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
Cement and Mortar Mixers	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	2	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	2	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	4	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	1	No Change	0.00
Scrapers	Diesel	No Change	0	1	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	7	No Change	0.00
Welders	Diesel	No Change	0	3	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	4.42900E-002	3.08370E-001	3.60520E-001	5.90000E-004	1.92900E-002	1.92900E-002	0.00000E+000	5.05544E+001	5.05544E+001	3.57000E-003	0.00000E+000	5.06437E+001
Cement and Mortar Mixers	1.19300E-002	7.47400E-002	6.26000E-002	1.40000E-004	2.91000E-003	2.91000E-003	0.00000E+000	9.30301E+000	9.30301E+000	9.70000E-004	0.00000E+000	9.32715E+000
Cranes	8.35600E-002	9.82880E-001	3.98980E-001	1.14000E-003	4.01400E-002	3.69300E-002	0.00000E+000	1.00366E+002	1.00366E+002	3.24600E-002	0.00000E+000	1.01177E+002
Forklifts	4.59300E-002	4.17670E-001	4.05590E-001	5.30000E-004	2.99900E-002	2.75900E-002	0.00000E+000	4.65319E+001	4.65319E+001	1.50500E-002	0.00000E+000	4.69082E+001
Generator Sets	7.27800E-002	6.41660E-001	7.30640E-001	1.30000E-003	3.45700E-002	3.45700E-002	0.00000E+000	1.11911E+002	1.11911E+002	5.85000E-003	0.00000E+000	1.12057E+002
Graders	7.61000E-003	1.01210E-001	2.90300E-002	1.10000E-004	3.24000E-003	2.98000E-003	0.00000E+000	9.32903E+000	9.32903E+000	3.02000E-003	0.00000E+000	9.40446E+000
Pavers	5.05400E-002	5.34220E-001	5.89040E-001	9.50000E-004	2.58500E-002	2.37800E-002	0.00000E+000	8.38171E+001	8.38171E+001	2.71100E-002	0.00000E+000	8.44948E+001
Paving Equipment	3.97700E-002	4.03810E-001	5.15530E-001	8.30000E-004	2.00100E-002	1.84100E-002	0.00000E+000	7.26465E+001	7.26465E+001	2.35000E-002	0.00000E+000	7.32339E+001
Rollers	7.86800E-002	7.95820E-001	7.64570E-001	1.06000E-003	4.91800E-002	4.52400E-002	0.00000E+000	9.35831E+001	9.35831E+001	3.02700E-002	0.00000E+000	9.43398E+001
Rubber Tired Dozers	1.61900E-002	1.69980E-001	6.19700E-002	1.30000E-004	8.32000E-003	7.66000E-003	0.00000E+000	1.12583E+001	1.12583E+001	3.64000E-003	0.00000E+000	1.13493E+001
Scrapers	9.90000E-004	1.17500E-002	7.46000E-003	2.00000E-005	4.60000E-004	4.20000E-004	0.00000E+000	1.33085E+000	1.33085E+000	4.30000E-004	0.00000E+000	1.34161E+000
Tractors/Loaders/ Backhoes	1.01890E-001	1.02903E+000	1.19414E+000	1.64000E-003	6.19700E-002	5.70100E-002	0.00000E+000	1.43879E+002	1.43879E+002	4.65300E-002	0.00000E+000	1.45042E+002
Welders	1.85510E-001	9.05190E-001	1.02828E+000	1.52000E-003	4.58200E-002	4.58200E-002	0.00000E+000	1.11803E+002	1.11803E+002	1.50500E-002	0.00000E+000	1.12179E+002

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	4.42900E-002	3.08370E-001	3.60520E-001	5.90000E-004	1.92900E-002	1.92900E-002	0.00000E+000	5.05544E+001	5.05544E+001	3.57000E-003	0.00000E+000	5.06436E+001
Cement and Mortar Mixers	1.19300E-002	7.47400E-002	6.26000E-002	1.40000E-004	2.91000E-003	2.91000E-003	0.00000E+000	9.30300E+000	9.30300E+000	9.70000E-004	0.00000E+000	9.32714E+000
Cranes	8.35600E-002	9.82880E-001	3.98980E-001	1.14000E-003	4.01400E-002	3.69300E-002	0.00000E+000	1.00366E+002	1.00366E+002	3.24600E-002	0.00000E+000	1.01177E+002
Forklifts	4.59300E-002	4.17670E-001	4.05590E-001	5.30000E-004	2.99900E-002	2.75900E-002	0.00000E+000	4.65319E+001	4.65319E+001	1.50500E-002	0.00000E+000	4.69081E+001
Generator Sets	7.27800E-002	6.41660E-001	7.30640E-001	1.30000E-003	3.45700E-002	3.45700E-002	0.00000E+000	1.11911E+002	1.11911E+002	5.85000E-003	0.00000E+000	1.12057E+002
Graders	7.61000E-003	1.01210E-001	2.90300E-002	1.10000E-004	3.24000E-003	2.98000E-003	0.00000E+000	9.32902E+000	9.32902E+000	3.02000E-003	0.00000E+000	9.40445E+000
Pavers	5.05400E-002	5.34220E-001	5.89040E-001	9.50000E-004	2.58500E-002	2.37800E-002	0.00000E+000	8.38170E+001	8.38170E+001	2.71100E-002	0.00000E+000	8.44947E+001
Paving Equipment	3.97700E-002	4.03810E-001	5.15530E-001	8.30000E-004	2.00100E-002	1.84100E-002	0.00000E+000	7.26464E+001	7.26464E+001	2.35000E-002	0.00000E+000	7.32338E+001
Rollers	7.86800E-002	7.95820E-001	7.64570E-001	1.06000E-003	4.91800E-002	4.52400E-002	0.00000E+000	9.35830E+001	9.35830E+001	3.02700E-002	0.00000E+000	9.43396E+001
Rubber Tired Dozers	1.61900E-002	1.69980E-001	6.19700E-002	1.30000E-004	8.32000E-003	7.66000E-003	0.00000E+000	1.12583E+001	1.12583E+001	3.64000E-003	0.00000E+000	1.13493E+001
Scrapers	9.90000E-004	1.17500E-002	7.46000E-003	2.00000E-005	4.60000E-004	4.20000E-004	0.00000E+000	1.33085E+000	1.33085E+000	4.30000E-004	0.00000E+000	1.34161E+000
Tractors/Loaders/Backhoes	1.01890E-001	1.02903E+000	1.19413E+000	1.64000E-003	6.19700E-002	5.70100E-002	0.00000E+000	1.43878E+002	1.43878E+002	4.65300E-002	0.00000E+000	1.45042E+002
Welders	1.85510E-001	9.05190E-001	1.02828E+000	1.52000E-003	4.58200E-002	4.58200E-002	0.00000E+000	1.11803E+002	1.11803E+002	1.50500E-002	0.00000E+000	1.12179E+002

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	1.18684E-006	1.18684E-006	0.00000E+000	0.00000E+000	1.18475E-006
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07492E-006	1.07492E-006	0.00000E+000	0.00000E+000	1.07214E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19563E-006	1.19563E-006	0.00000E+000	0.00000E+000	1.18604E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.28944E-006	1.28944E-006	0.00000E+000	0.00000E+000	1.06591E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25099E-006	1.25099E-006	0.00000E+000	0.00000E+000	1.16012E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07192E-006	1.07192E-006	0.00000E+000	0.00000E+000	1.06333E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19307E-006	1.19307E-006	0.00000E+000	0.00000E+000	1.18351E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23888E-006	1.23888E-006	0.00000E+000	0.00000E+000	1.22894E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17543E-006	1.17543E-006	0.00000E+000	0.00000E+000	1.16600E-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	1.77647E-006	1.77647E-006	0.00000E+000	0.00000E+000	1.76222E-006
Scrapers	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
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	8.37423E-006	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18155E-006	1.18155E-006	0.00000E+000	0.00000E+000	1.17207E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16276E-006	1.16276E-006	0.00000E+000	0.00000E+000	1.24800E-006

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	0.01	0.00	0.01	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.53	0.13	0.53	0.13	0.00	0.00
Grading	Fugitive Dust	0.09	0.05	0.09	0.05	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	0.00	0.00	0.00	0.00	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	3.13	3.13	3.15	2.84	3.13
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	5.43	8.16	14.81	22.39	20.09	20.15	0.00	22.31	22.31	14.57	0.00	22.30
Natural Gas	13.78	13.83	13.81	13.46	13.90	13.90	0.00	13.83	13.83	14.29	13.79	13.83
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:

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	0.14	0.39		
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	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.25			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00			
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	0.26			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.26			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	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	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
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	

CalEEMod Results – Year 2030

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

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

Climate Zone 4
Operational Year 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 175
CH4 Intensity (lb/MWhr) 0.029
N2O Intensity (lb/MWhr) 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	10.00	396.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	175
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	0.3312	2.4318	2.1111	4.1000e-003	0.2469	0.1214	0.3683	0.0894	0.1143	0.2037	0.0000	357.3347	357.3347	0.0714	0.0000	359.1193
2021	0.6401	4.3589	4.3245	8.5100e-003	0.3568	0.2076	0.5644	0.0911	0.1963	0.2874	0.0000	741.7019	741.7019	0.1361	0.0000	745.1048
2022	0.0583	0.3541	0.3846	7.6000e-004	0.0318	0.0160	0.0477	8.1100e-003	0.0151	0.0232	0.0000	66.5063	66.5063	0.0119	0.0000	66.8049
Maximum	**0.6401**	**4.3589**	**4.3245**	**8.5100e-003**	**0.3568**	**0.2076**	**0.5644**	**0.0911**	**0.1963**	**0.2874**	**0.0000**	**741.7019**	**741.7019**	**0.1361**	**0.0000**	**745.1048**

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	0.3312	2.4318	2.1111	4.1000e-003	0.2469	0.1214	0.3683	0.0894	0.1143	0.2037	0.0000	357.3344	357.3344	0.0714	0.0000	359.1189
2021	0.6401	4.3589	4.3245	8.5100e-003	0.3568	0.2076	0.5644	0.0911	0.1963	0.2874	0.0000	741.7013	741.7013	0.1361	0.0000	745.1042
2022	0.0583	0.3541	0.3846	7.6000e-004	0.0318	0.0160	0.0477	8.1100e-003	0.0151	0.0232	0.0000	66.5062	66.5062	0.0119	0.0000	66.8048
Maximum	**0.6401**	**4.3589**	**4.3245**	**8.5100e-003**	**0.3568**	**0.2076**	**0.5644**	**0.0911**	**0.1963**	**0.2874**	**0.0000**	**741.7013**	**741.7013**	**0.1361**	**0.0000**	**745.1042**

San Marco Commercial Center (Unmitigated) - Bay Area AQMD Air District, Annual

	ROG	NOx	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	6-1-2020	8-31-2020	0.9233	0.9233
2	9-1-2020	11-30-2020	1.3588	1.3588
3	12-1-2020	2-28-2021	1.2717	1.2717
4	3-1-2021	5-31-2021	1.2582	1.2582
5	6-1-2021	8-31-2021	1.2570	1.2570
6	9-1-2021	11-30-2021	1.2456	1.2456
7	12-1-2021	2-28-2022	0.8475	0.8475
		Highest	1.3588	1.3588

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	0.1619	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003
Energy	9.5800e-003	0.0871	0.0732	5.2000e-004		6.6200e-003	6.6200e-003		6.6200e-003	6.6200e-003	0.0000	207.8075	207.8075	0.0205	5.6100e-003	209.9932
Mobile	0.3449	1.7697	2.9132	0.0113	1.1085	7.9800e-003	1.1164	0.2973	7.4200e-003	0.3048	0.0000	1,043.0573	1,043.0573	0.0391	0.0000	1,044.0343
Waste						0.0000	0.0000		0.0000	0.0000	46.8726	0.0000	46.8726	2.7701	0.0000	116.1250
Water						0.0000	0.0000		0.0000	0.0000	1.6794	2.3340	4.0135	0.1729	4.1500e-003	9.5731
Total	**0.5163**	**1.8569**	**2.9884**	**0.0118**	**1.1085**	**0.0146**	**1.1231**	**0.2973**	**0.0141**	**0.3114**	**48.5521**	**1,253.2027**	**1,301.7547**	**3.0026**	**9.7600e-003**	**1,379.7296**

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	0.1619	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003
Energy	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003	0.0000	191.1479	191.1479	0.0197	5.2500e-003	193.2048
Mobile	0.3243	1.6588	2.4628	8.7900e-003	0.8192	6.4500e-003	0.8256	0.2197	5.9900e-003	0.2257	0.0000	813.9371	813.9371	0.0333	0.0000	814.7690
Waste						0.0000	0.0000		0.0000	0.0000	46.8726	0.0000	46.8726	2.7701	0.0000	116.1250
Water						0.0000	0.0000		0.0000	0.0000	1.6794	2.3340	4.0135	0.1729	4.1500e-003	9.5731
Total	**0.4944**	**1.7339**	**2.5278**	**9.2400e-003**	**0.8192**	**0.0122**	**0.8313**	**0.2197**	**0.0117**	**0.2315**	**48.5521**	**1,007.4229**	**1,055.9749**	**2.9960**	**9.4000e-003**	**1,133.6759**

	ROG	**NOx**	**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	**4.25**	**6.62**	**15.41**	**21.69**	**26.10**	**16.70**	**25.98**	**26.10**	**16.65**	**25.67**	**0.00**	**19.61**	**18.88**	**0.22**	**3.69**	**17.83**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

San Marco Commercial Center (Unmitigated) - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6500e-003	0.0199	0.0113	2.0000e-005		7.8000e-004	7.8000e-004		7.1000e-004	7.1000e-004	0.0000	2.1527	2.1527	7.0000e-004	0.0000	2.1701
Total	**1.6500e-003**	**0.0199**	**0.0113**	**2.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.1527**	**2.1527**	**7.0000e-004**	**0.0000**	**2.1701**

3.2 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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0554	0.0554	0.0000	0.0000	0.0554
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0554**	**0.0554**	**0.0000**	**0.0000**	**0.0554**

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
Off-Road	1.6500e-003	0.0199	0.0113	2.0000e-005		7.8000e-004	7.8000e-004		7.1000e-004	7.1000e-004	0.0000	2.1527	2.1527	7.0000e-004	0.0000	2.1701
Total	**1.6500e-003**	**0.0199**	**0.0113**	**2.0000e-005**	**0.0000**	**7.8000e-004**	**7.8000e-004**	**0.0000**	**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.1527**	**2.1527**	**7.0000e-004**	**0.0000**	**2.1701**

3.2 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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0554	0.0554	0.0000	0.0000	0.0554
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0554**	**0.0554**	**0.0000**	**0.0000**	**0.0554**

3.3 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					0.0923	0.0000	0.0923	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	**0.0288**	**0.3201**	**0.1490**	**3.1000e-004**	**0.0923**	**0.0149**	**0.1071**	**0.0499**	**0.0137**	**0.0635**	**0.0000**	**27.1666**	**27.1666**	**8.7900e-003**	**0.0000**	**27.3863**

3.3 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	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

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					0.0923	0.0000	0.0923	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.3201	0.1490	3.1000e-004		0.0149	0.0149		0.0137	0.0137	0.0000	27.1666	27.1666	8.7900e-003	0.0000	27.3863
Total	**0.0288**	**0.3201**	**0.1490**	**3.1000e-004**	**0.0923**	**0.0149**	**0.1071**	**0.0499**	**0.0137**	**0.0635**	**0.0000**	**27.1666**	**27.1666**	**8.7900e-003**	**0.0000**	**27.3863**

3.3 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	5.0000e-004	3.6000e-004	3.6800e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0384	1.0384	3.0000e-005	0.0000	1.0391
Total	**5.0000e-004**	**3.6000e-004**	**3.6800e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0384**	**1.0384**	**3.0000e-005**	**0.0000**	**1.0391**

3.4 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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8800e-003**	**0.0579**	**0.0590**	**9.0000e-005**		**3.2800e-003**	**3.2800e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**7.7529**	**7.7529**	**2.4600e-003**	**0.0000**	**7.8143**

3.4 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	2.5000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5192	0.5192	1.0000e-005	0.0000	0.5195
Total	**2.5000e-004**	**1.8000e-004**	**1.8400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5192**	**0.5192**	**1.0000e-005**	**0.0000**	**0.5195**

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	5.7700e-003	0.0579	0.0590	9.0000e-005		3.2800e-003	3.2800e-003		3.0300e-003	3.0300e-003	0.0000	7.7529	7.7529	2.4600e-003	0.0000	7.8143
Paving	2.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8800e-003**	**0.0579**	**0.0590**	**9.0000e-005**		**3.2800e-003**	**3.2800e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**7.7529**	**7.7529**	**2.4600e-003**	**0.0000**	**7.8143**

3.4 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	2.5000e-004	1.8000e-004	1.8400e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5192	0.5192	1.0000e-005	0.0000	0.5195
Total	**2.5000e-004**	**1.8000e-004**	**1.8400e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5192**	**0.5192**	**1.0000e-005**	**0.0000**	**0.5195**

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	0.2016	1.7136	1.5912	2.5300e-003		0.0955	0.0955		0.0899	0.0899	0.0000	214.5730	214.5730	0.0548	0.0000	215.9436
Total	**0.2016**	**1.7136**	**1.5912**	**2.5300e-003**		**0.0955**	**0.0955**		**0.0899**	**0.0899**	**0.0000**	**214.5730**	**214.5730**	**0.0548**	**0.0000**	**215.9436**

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	7.3700e-003	0.2197	0.0552	5.2000e-004	0.0301	1.0700e-003	0.0311	7.9200e-003	1.0200e-003	8.9500e-003	0.0000	49.8504	49.8504	2.5700e-003	0.0000	49.9147
Worker	0.0184	0.0132	0.1362	4.2000e-004	0.1195	2.9000e-004	0.1198	0.0302	2.7000e-004	0.0305	0.0000	38.3800	38.3800	9.3000e-004	0.0000	38.4033
Total	**0.0257**	**0.2328**	**0.1914**	**9.4000e-004**	**0.1496**	**1.3600e-003**	**0.1509**	**0.0382**	**1.2900e-003**	**0.0395**	**0.0000**	**88.2305**	**88.2305**	**3.5000e-003**	**0.0000**	**88.3180**

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	0.2016	1.7136	1.5912	2.5300e-003		0.0955	0.0955		0.0899	0.0899	0.0000	214.5727	214.5727	0.0548	0.0000	215.9434
Total	**0.2016**	**1.7136**	**1.5912**	**2.5300e-003**		**0.0955**	**0.0955**		**0.0899**	**0.0899**	**0.0000**	**214.5727**	**214.5727**	**0.0548**	**0.0000**	**215.9434**

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	7.3700e-003	0.2197	0.0552	5.2000e-004	0.0301	1.0700e-003	0.0311	7.9200e-003	1.0200e-003	8.9500e-003	0.0000	49.8504	49.8504	2.5700e-003	0.0000	49.9147
Worker	0.0184	0.0132	0.1362	4.2000e-004	0.1195	2.9000e-004	0.1198	0.0302	2.7000e-004	0.0305	0.0000	38.3800	38.3800	9.3000e-004	0.0000	38.4033
Total	**0.0257**	**0.2328**	**0.1914**	**9.4000e-004**	**0.1496**	**1.3600e-003**	**0.1509**	**0.0382**	**1.2900e-003**	**0.0395**	**0.0000**	**88.2305**	**88.2305**	**3.5000e-003**	**0.0000**	**88.3180**

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	0.4240	3.6667	3.6584	5.9000e-003		0.1936	0.1936		0.1824	0.1824	0.0000	500.0363	500.0363	0.1261	0.0000	503.1883
Total	**0.4240**	**3.6667**	**3.6584**	**5.9000e-003**		**0.1936**	**0.1936**		**0.1824**	**0.1824**	**0.0000**	**500.0363**	**500.0363**	**0.1261**	**0.0000**	**503.1883**

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	0.0141	0.4635	0.1157	1.2000e-003	0.0700	1.0100e-003	0.0711	0.0185	9.6000e-004	0.0194	0.0000	115.0709	115.0709	5.6600e-003	0.0000	115.2123
Worker	0.0397	0.0274	0.2898	9.5000e-004	0.2785	6.7000e-004	0.2791	0.0705	6.2000e-004	0.0711	0.0000	86.3010	86.3010	1.9400e-003	0.0000	86.3494
Total	**0.0537**	**0.4908**	**0.4055**	**2.1500e-003**	**0.3485**	**1.6800e-003**	**0.3502**	**0.0889**	**1.5800e-003**	**0.0905**	**0.0000**	**201.3719**	**201.3719**	**7.6000e-003**	**0.0000**	**201.5617**

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	0.4240	3.6667	3.6584	5.9000e-003		0.1936	0.1936		0.1824	0.1824	0.0000	500.0357	500.0357	0.1261	0.0000	503.1877
Total	**0.4240**	**3.6667**	**3.6584**	**5.9000e-003**		**0.1936**	**0.1936**		**0.1824**	**0.1824**	**0.0000**	**500.0357**	**500.0357**	**0.1261**	**0.0000**	**503.1877**

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	0.0141	0.4635	0.1157	1.2000e-003	0.0700	1.0100e-003	0.0711	0.0185	9.6000e-004	0.0194	0.0000	115.0709	115.0709	5.6600e-003	0.0000	115.2123
Worker	0.0397	0.0274	0.2898	9.5000e-004	0.2785	6.7000e-004	0.2791	0.0705	6.2000e-004	0.0711	0.0000	86.3010	86.3010	1.9400e-003	0.0000	86.3494
Total	**0.0537**	**0.4908**	**0.4055**	**2.1500e-003**	**0.3485**	**1.6800e-003**	**0.3502**	**0.0889**	**1.5800e-003**	**0.0905**	**0.0000**	**201.3719**	**201.3719**	**7.6000e-003**	**0.0000**	**201.5617**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0336	0.2897	0.3189	5.2000e-004		0.0145	0.0145		0.0136	0.0136	0.0000	44.0768	44.0768	0.0110	0.0000	44.3524
Total	**0.0336**	**0.2897**	**0.3189**	**5.2000e-004**		**0.0145**	**0.0145**		**0.0136**	**0.0136**	**0.0000**	**44.0768**	**44.0768**	**0.0110**	**0.0000**	**44.3524**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1600e-003	0.0387	9.5800e-003	1.0000e-004	6.1700e-003	8.0000e-005	6.2500e-003	1.6300e-003	7.0000e-005	1.7000e-003	0.0000	10.0409	10.0409	4.8000e-004	0.0000	10.0528
Worker	3.2600e-003	2.1600e-003	0.0235	8.0000e-005	0.0245	6.0000e-005	0.0246	6.2100e-003	5.0000e-005	6.2600e-003	0.0000	7.3263	7.3263	1.5000e-004	0.0000	7.3301
Total	**4.4200e-003**	**0.0408**	**0.0331**	**1.8000e-004**	**0.0307**	**1.4000e-004**	**0.0309**	**7.8400e-003**	**1.2000e-004**	**7.9600e-003**	**0.0000**	**17.3672**	**17.3672**	**6.3000e-004**	**0.0000**	**17.3829**

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	0.0336	0.2897	0.3189	5.2000e-004		0.0145	0.0145		0.0136	0.0136	0.0000	44.0767	44.0767	0.0110	0.0000	44.3523
Total	**0.0336**	**0.2897**	**0.3189**	**5.2000e-004**		**0.0145**	**0.0145**		**0.0136**	**0.0136**	**0.0000**	**44.0767**	**44.0767**	**0.0110**	**0.0000**	**44.3523**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1600e-003	0.0387	9.5800e-003	1.0000e-004	6.1700e-003	8.0000e-005	6.2500e-003	1.6300e-003	7.0000e-005	1.7000e-003	0.0000	10.0409	10.0409	4.8000e-004	0.0000	10.0528
Worker	3.2600e-003	2.1600e-003	0.0235	8.0000e-005	0.0245	6.0000e-005	0.0246	6.2100e-003	5.0000e-005	6.2600e-003	0.0000	7.3263	7.3263	1.5000e-004	0.0000	7.3301
Total	**4.4200e-003**	**0.0408**	**0.0331**	**1.8000e-004**	**0.0307**	**1.4000e-004**	**0.0309**	**7.8400e-003**	**1.2000e-004**	**7.9600e-003**	**0.0000**	**17.3672**	**17.3672**	**6.3000e-004**	**0.0000**	**17.3829**

3.6 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	0.0511					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0859	0.0934	1.5000e-004		5.6600e-003	5.6600e-003		5.6600e-003	5.6600e-003	0.0000	13.0216	13.0216	1.0100e-003	0.0000	13.0468
Total	**0.0634**	**0.0859**	**0.0934**	**1.5000e-004**		**5.6600e-003**	**5.6600e-003**		**5.6600e-003**	**5.6600e-003**	**0.0000**	**13.0216**	**13.0216**	**1.0100e-003**	**0.0000**	**13.0468**

3.6 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	1.3500e-003	9.7000e-004	0.0100	3.0000e-005	3.2200e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.8245	2.8245	7.0000e-005	0.0000	2.8262
Total	**1.3500e-003**	**9.7000e-004**	**0.0100**	**3.0000e-005**	**3.2200e-003**	**2.0000e-005**	**3.2500e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.8245**	**2.8245**	**7.0000e-005**	**0.0000**	**2.8262**

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	0.0511					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0859	0.0934	1.5000e-004		5.6600e-003	5.6600e-003		5.6600e-003	5.6600e-003	0.0000	13.0216	13.0216	1.0100e-003	0.0000	13.0468
Total	**0.0634**	**0.0859**	**0.0934**	**1.5000e-004**		**5.6600e-003**	**5.6600e-003**		**5.6600e-003**	**5.6600e-003**	**0.0000**	**13.0216**	**13.0216**	**1.0100e-003**	**0.0000**	**13.0468**

3.6 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	1.3500e-003	9.7000e-004	0.0100	3.0000e-005	3.2200e-003	2.0000e-005	3.2500e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.8245	2.8245	7.0000e-005	0.0000	2.8262
Total	**1.3500e-003**	**9.7000e-004**	**0.0100**	**3.0000e-005**	**3.2200e-003**	**2.0000e-005**	**3.2500e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.8245**	**2.8245**	**7.0000e-005**	**0.0000**	**2.8262**

3.6 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	0.1306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.1993	0.2372	3.9000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	33.3200	33.3200	2.2900e-003	0.0000	33.3771
Total	**0.1592**	**0.1993**	**0.2372**	**3.9000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**33.3200**	**33.3200**	**2.2900e-003**	**0.0000**	**33.3771**

3.6 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	3.2000e-003	2.2100e-003	0.0234	8.0000e-005	8.2500e-003	5.0000e-005	8.3000e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.9738	6.9738	1.6000e-004	0.0000	6.9777
Total	**3.2000e-003**	**2.2100e-003**	**0.0234**	**8.0000e-005**	**8.2500e-003**	**5.0000e-005**	**8.3000e-003**	**2.1900e-003**	**5.0000e-005**	**2.2400e-003**	**0.0000**	**6.9738**	**6.9738**	**1.6000e-004**	**0.0000**	**6.9777**

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	0.1306					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0286	0.1993	0.2372	3.9000e-004		0.0123	0.0123		0.0123	0.0123	0.0000	33.3199	33.3199	2.2900e-003	0.0000	33.3771
Total	**0.1592**	**0.1993**	**0.2372**	**3.9000e-004**		**0.0123**	**0.0123**		**0.0123**	**0.0123**	**0.0000**	**33.3199**	**33.3199**	**2.2900e-003**	**0.0000**	**33.3771**

3.6 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	3.2000e-003	2.2100e-003	0.0234	8.0000e-005	8.2500e-003	5.0000e-005	8.3000e-003	2.1900e-003	5.0000e-005	2.2400e-003	0.0000	6.9738	6.9738	1.6000e-004	0.0000	6.9777
Total	**3.2000e-003**	**2.2100e-003**	**0.0234**	**8.0000e-005**	**8.2500e-003**	**5.0000e-005**	**8.3000e-003**	**2.1900e-003**	**5.0000e-005**	**2.2400e-003**	**0.0000**	**6.9738**	**6.9738**	**1.6000e-004**	**0.0000**	**6.9777**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0165					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3700e-003	0.0232	0.0299	5.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	4.2129	4.2129	2.7000e-004	0.0000	4.2197
Total	**0.0199**	**0.0232**	**0.0299**	**5.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.7000e-004**	**0.0000**	**4.2197**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.5000e-004	2.7200e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.8494	0.8494	2.0000e-005	0.0000	0.8499
Total	**3.8000e-004**	**2.5000e-004**	**2.7200e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8494**	**0.8494**	**2.0000e-005**	**0.0000**	**0.8499**

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	0.0165					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3700e-003	0.0232	0.0299	5.0000e-005		1.3500e-003	1.3500e-003		1.3500e-003	1.3500e-003	0.0000	4.2129	4.2129	2.7000e-004	0.0000	4.2197
Total	**0.0199**	**0.0232**	**0.0299**	**5.0000e-005**		**1.3500e-003**	**1.3500e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.7000e-004**	**0.0000**	**4.2197**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.5000e-004	2.7200e-003	1.0000e-005	1.0400e-003	1.0000e-005	1.0500e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.8494	0.8494	2.0000e-005	0.0000	0.8499
Total	**3.8000e-004**	**2.5000e-004**	**2.7200e-003**	**1.0000e-005**	**1.0400e-003**	**1.0000e-005**	**1.0500e-003**	**2.8000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8494**	**0.8494**	**2.0000e-005**	**0.0000**	**0.8499**

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	0.3243	1.6588	2.4628	8.7900e-003	0.8192	6.4500e-003	0.8256	0.2197	5.9900e-003	0.2257	0.0000	813.9371	813.9371	0.0333	0.0000	814.7690
Unmitigated	0.3449	1.7697	2.9132	0.0113	1.1085	7.9800e-003	1.1164	0.2973	7.4200e-003	0.3048	0.0000	1,043.0573	1,043.0573	0.0391	0.0000	1,044.0343

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
High Turnover (Sit Down Restaurant)	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Parking Lot	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Supermarket	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	109.4092	109.4092	0.0181	3.7500e-003	110.9804
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	112.9498	112.9498	0.0187	3.8700e-003	114.5717
NaturalGas Mitigated	8.2600e-003	0.0751	0.0631	4.5000e-004		5.7100e-003	5.7100e-003		5.7100e-003	5.7100e-003	0.0000	81.7387	81.7387	1.5700e-003	1.5000e-003	82.2244
NaturalGas Unmitigated	9.5800e-003	0.0871	0.0732	5.2000e-004		6.6200e-003	6.6200e-003		6.6200e-003	6.6200e-003	0.0000	94.8578	94.8578	1.8200e-003	1.7400e-003	95.4215

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					
Fast Food Restaurant with Drive Thru	379589	2.0500e-003	0.0186	0.0156	1.1000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	20.2563	20.2563	3.9000e-004	3.7000e-004	20.3767
High Turnover (Sit Down Restaurant)	727580	3.9200e-003	0.0357	0.0300	2.1000e-004		2.7100e-003	2.7100e-003		2.7100e-003	2.7100e-003	0.0000	38.8264	38.8264	7.4000e-004	7.1000e-004	39.0572
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
Supermarket	670399	3.6100e-003	0.0329	0.0276	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7750	35.7750	6.9000e-004	6.6000e-004	35.9876
Total		**9.5800e-003**	**0.0871**	**0.0732**	**5.2000e-004**		**6.6200e-003**	**6.6200e-003**		**6.6200e-003**	**6.6200e-003**	**0.0000**	**94.8578**	**94.8578**	**1.8200e-003**	**1.7400e-003**	**95.4215**

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					
Fast Food Restaurant with Drive Thru	346496	1.8700e-003	0.0170	0.0143	1.0000e-004		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	18.4904	18.4904	3.5000e-004	3.4000e-004	18.6002
High Turnover (Sit Down Restaurant)	664150	3.5800e-003	0.0326	0.0274	2.0000e-004		2.4700e-003	2.4700e-003		2.4700e-003	2.4700e-003	0.0000	35.4416	35.4416	6.8000e-004	6.5000e-004	35.6522
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
Supermarket	521080	2.8100e-003	0.0255	0.0215	1.5000e-004		1.9400e-003	1.9400e-003		1.9400e-003	1.9400e-003	0.0000	27.8068	27.8068	5.3000e-004	5.1000e-004	27.9720
Total		**8.2600e-003**	**0.0751**	**0.0631**	**4.5000e-004**		**5.7000e-003**	**5.7000e-003**		**5.7000e-003**	**5.7000e-003**	**0.0000**	**81.7387**	**81.7387**	**1.5600e-003**	**1.5000e-003**	**82.2244**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	59746.7	4.7426	7.9000e-004	1.6000e-004	4.8107
High Turnover (Sit Down Restaurant)	114520	9.0904	1.5100e-003	3.1000e-004	9.2210
Parking Lot	25060	1.9892	3.3000e-004	7.0000e-005	2.0178
Supermarket	1.2236e+006	97.1275	0.0161	3.3300e-003	98.5222
Total		**112.9498**	**0.0187**	**3.8700e-003**	**114.5717**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	56969.4	4.5222	7.5000e-004	1.6000e-004	4.5871
High Turnover (Sit Down Restaurant)	109197	8.6679	1.4400e-003	3.0000e-004	8.7923
Parking Lot	25060	1.9892	3.3000e-004	7.0000e-005	2.0178
Supermarket	1.18709e+006	94.2300	0.0156	3.2300e-003	95.5831
Total		**109.4092**	**0.0181**	**3.7600e-003**	**110.9803**

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	0.1619	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003
Unmitigated	0.1619	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003

6.2 Area by SubCategory

<u>Unmitigated</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1419					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003
Total	**0.1619**	**2.0000e-005**	**1.9600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.8300e-003**	**3.8300e-003**	**1.0000e-005**	**0.0000**	**4.0700e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0198					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1419					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.8000e-004	2.0000e-005	1.9600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.8300e-003	3.8300e-003	1.0000e-005	0.0000	4.0700e-003
Total	**0.1619**	**2.0000e-005**	**1.9600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.8300e-003**	**3.8300e-003**	**1.0000e-005**	**0.0000**	**4.0700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.0135	0.1729	4.1500e-003	9.5731
Unmitigated	4.0135	0.1729	4.1500e-003	9.5731

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.555467 / 0.0354553	0.4247	0.0181	4.4000e-004	1.0081
High Turnover (Sit Down Restaurant)	1.06237 / 0.0678107	0.8122	0.0347	8.3000e-004	1.9280
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	3.67586 / 0.113686	2.7766	0.1200	2.8800e-003	6.6370
Total		**4.0135**	**0.1729**	**4.1500e-003**	**9.5731**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.555467 / 0.0354553	0.4247	0.0181	4.4000e-004	1.0081
High Turnover (Sit Down Restaurant)	1.06237 / 0.0678107	0.8122	0.0347	8.3000e-004	1.9280
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Supermarket	3.67586 / 0.113686	2.7766	0.1200	2.8800e-003	6.6370
Total		**4.0135**	**0.1729**	**4.1500e-003**	**9.5731**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	46.8726	2.7701	0.0000	116.1250
Unmitigated	46.8726	2.7701	0.0000	116.1250

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	21.08	4.2791	0.2529	0.0000	10.6012
High Turnover (Sit Down Restaurant)	41.65	8.4546	0.4997	0.0000	20.9459
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Supermarket	168.18	34.1390	2.0176	0.0000	84.5780
Total		**46.8726**	**2.7701**	**0.0000**	**116.1250**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	21.08	4.2791	0.2529	0.0000	10.6012
High Turnover (Sit Down Restaurant)	41.65	8.4546	0.4997	0.0000	20.9459
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Supermarket	168.18	34.1390	2.0176	0.0000	84.5780
Total		**46.8726**	**2.7701**	**0.0000**	**116.1250**

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

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

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

Climate Zone 4 **Operational Year** 2030

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 175 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	10.00	396.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	175
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	5.3437	36.3834	34.0411	0.0663	6.2347	1.8402	7.2254	3.3461	1.7402	4.2575	0.0000	6,375.168 4	6,375.168 4	1.1710	0.0000	6,404.443 4
2021	4.9182	33.3387	33.3081	0.0659	2.8509	1.5909	4.4418	0.7269	1.5038	2.2307	0.0000	6,335.025 1	6,335.025 1	1.1494	0.0000	6,363.758 7
2022	4.5444	30.1117	32.7433	0.0655	2.8509	1.3513	4.2022	0.7269	1.2782	2.0052	0.0000	6,295.537 1	6,295.537 1	1.1360	0.0000	6,323.937 5
Maximum	**5.3437**	**36.3834**	**34.0411**	**0.0663**	**6.2347**	**1.8402**	**7.2254**	**3.3461**	**1.7402**	**4.2575**	**0.0000**	**6,375.168 4**	**6,375.168 4**	**1.1710**	**0.0000**	**6,404.443 4**

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	5.3437	36.3834	34.0411	0.0663	6.2347	1.8402	7.2254	3.3461	1.7402	4.2575	0.0000	6,375.168 4	6,375.168 4	1.1710	0.0000	6,404.443 4
2021	4.9182	33.3387	33.3081	0.0659	2.8509	1.5909	4.4418	0.7269	1.5038	2.2307	0.0000	6,335.025 1	6,335.025 1	1.1494	0.0000	6,363.758 7
2022	4.5444	30.1117	32.7433	0.0655	2.8509	1.3513	4.2022	0.7269	1.2782	2.0052	0.0000	6,295.537 1	6,295.537 1	1.1360	0.0000	6,323.937 5
Maximum	**5.3437**	**36.3834**	**34.0411**	**0.0663**	**6.2347**	**1.8402**	**7.2254**	**3.3461**	**1.7402**	**4.2575**	**0.0000**	**6,375.168 4**	**6,375.168 4**	**1.1710**	**0.0000**	**6,404.443 4**

San Marco Commercial Center (Unmitigated) - Bay Area AQMD Air District, Summer

	ROG	NOx	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	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515
Mobile	2.2589	9.6187	15.9371	0.0653	6.3277	0.0438	6.3715	1.6920	0.0407	1.7327		6,656.192 6	6,656.192 6	0.2322		6,661.998 0
Total	**3.1996**	**10.0964**	**16.3599**	**0.0682**	**6.3277**	**0.0802**	**6.4078**	**1.6920**	**0.0771**	**1.7691**		**7,229.186 2**	**7,229.186 2**	**0.2433**	**0.0105**	**7,238.399 4**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
Mobile	2.1445	9.0460	13.1655	0.0509	4.6763	0.0354	4.7117	1.2504	0.0329	1.2833		5,191.274 0	5,191.274 0	0.1961		5,196.176 2
Total	**3.0779**	**9.4576**	**13.5329**	**0.0533**	**4.6763**	**0.0667**	**4.7430**	**1.2504**	**0.0642**	**1.3146**		**5,685.027 7**	**5,685.027 7**	**0.2057**	**9.0500e-003**	**5,692.866 8**

	ROG	NOx	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	3.80	6.33	17.28	21.75	26.10	16.77	25.98	26.10	16.70	25.69	0.00	21.36	21.36	15.47	13.81	21.35

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**		**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 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
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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 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
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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

3.3 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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0348	0.0210	0.2683	8.2000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		82.0777	82.0777	1.9800e-003		82.1271
Total	**0.0348**	**0.0210**	**0.2683**	**8.2000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**82.0777**	**82.0777**	**1.9800e-003**		**82.1271**

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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0348	0.0210	0.2683	8.2000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		82.0777	82.0777	1.9800e-003		82.1271
Total	**0.0348**	**0.0210**	**0.2683**	**8.2000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**82.0777**	**82.0777**	**1.9800e-003**		**82.1271**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**		**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**	**0.0000**	**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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**

3.5 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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059		4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**		**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1289	3.8747	0.9243	9.3700e-003	0.5583	0.0190	0.5773	0.1468	0.0182	0.1650		991.8074	991.8074	0.0488		993.0284
Worker	0.3441	0.2083	2.6562	8.1500e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		812.5688	812.5688	0.0196		813.0583
Total	**0.4730**	**4.0831**	**3.5805**	**0.0175**	**2.7852**	**0.0243**	**2.8094**	**0.7095**	**0.0230**	**0.7325**		**1,804.3762**	**1,804.3762**	**0.0684**		**1,806.0867**

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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059	0.0000	4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**	**0.0000**	**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1289	3.8747	0.9243	9.3700e-003	0.5583	0.0190	0.5773	0.1468	0.0182	0.1650		991.8074	991.8074	0.0488		993.0284
Worker	0.3441	0.2083	2.6562	8.1500e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		812.5688	812.5688	0.0196		813.0583
Total	**0.4730**	**4.0831**	**3.5805**	**0.0175**	**2.7852**	**0.0243**	**2.8094**	**0.7095**	**0.0230**	**0.7325**		**1,804.3762**	**1,804.3762**	**0.0684**		**1,806.0867**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973		4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**		**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1054	3.5136	0.8285	9.2700e-003	0.5583	7.6100e-003	0.5659	0.1468	7.2800e-003	0.1541		982.4590	982.4590	0.0461		983.6118
Worker	0.3183	0.1860	2.4318	7.8600e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		784.0399	784.0399	0.0175		784.4781
Total	**0.4238**	**3.6996**	**3.2603**	**0.0171**	**2.7852**	**0.0127**	**2.7979**	**0.7095**	**0.0120**	**0.7215**		**1,766.4990**	**1,766.4990**	**0.0636**		**1,768.0899**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973	0.0000	4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**	**0.0000**	**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1054	3.5136	0.8285	9.2700e-003	0.5583	7.6100e-003	0.5659	0.1468	7.2800e-003	0.1541		982.4590	982.4590	0.0461		983.6118
Worker	0.3183	0.1860	2.4318	7.8600e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		784.0399	784.0399	0.0175		784.4781
Total	**0.4238**	**3.6996**	**3.2603**	**0.0171**	**2.7852**	**0.0127**	**2.7979**	**0.7095**	**0.0120**	**0.7215**		**1,766.4990**	**1,766.4990**	**0.0636**		**1,768.0899**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852		4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**		**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0983	3.3300	0.7792	9.1800e-003	0.5583	6.6000e-003	0.5649	0.1468	6.3100e-003	0.1531		972.8913	972.8913	0.0441		973.9935
Worker	0.2963	0.1669	2.2407	7.5700e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		755.2664	755.2664	0.0157		755.6599
Total	**0.3946**	**3.4968**	**3.0199**	**0.0168**	**2.7852**	**0.0116**	**2.7968**	**0.7095**	**0.0109**	**0.7204**		**1,728.1577**	**1,728.1577**	**0.0598**		**1,729.6534**

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	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852	0.0000	4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**	**0.0000**	**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0983	3.3300	0.7792	9.1800e-003	0.5583	6.6000e-003	0.5649	0.1468	6.3100e-003	0.1531		972.8913	972.8913	0.0441		973.9935
Worker	0.2963	0.1669	2.2407	7.5700e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		755.2664	755.2664	0.0157		755.6599
Total	**0.3946**	**3.4968**	**3.0199**	**0.0168**	**2.7852**	**0.0116**	**2.7968**	**0.7095**	**0.0109**	**0.7204**		**1,728.1577**	**1,728.1577**	**0.0598**		**1,729.6534**

3.6 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	1.0011					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	**1.2432**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.6 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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

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	1.0011					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	**1.2432**	**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**

3.6 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	0.0278	0.0168	0.2146	6.6000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		65.6621	65.6621	1.5800e-003		65.7017
Total	**0.0278**	**0.0168**	**0.2146**	**6.6000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**65.6621**	**65.6621**	**1.5800e-003**		**65.7017**

3.6 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	1.0011					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	**1.2200**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 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	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0257**	**0.0150**	**0.1965**	**6.4000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**63.3568**	**63.3568**	**1.4200e-003**		**63.3922**

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	1.0011					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	**1.2200**	**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**

3.6 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	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0257**	**0.0150**	**0.1965**	**6.4000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**63.3568**	**63.3568**	**1.4200e-003**		**63.3922**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0239	0.0135	0.1811	6.1000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		61.0316	61.0316	1.2700e-003		61.0634
Total	**0.0239**	**0.0135**	**0.1811**	**6.1000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**61.0316**	**61.0316**	**1.2700e-003**		**61.0634**

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	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0239	0.0135	0.1811	6.1000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		61.0316	61.0316	1.2700e-003		61.0634
Total	**0.0239**	**0.0135**	**0.1811**	**6.1000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**61.0316**	**61.0316**	**1.2700e-003**		**61.0634**

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	2.1445	9.0460	13.1655	0.0509	4.6763	0.0354	4.7117	1.2504	0.0329	1.2833		5,191.274 0	5,191.274 0	0.1961		5,196.176 2
Unmitigated	2.2589	9.6187	15.9371	0.0653	6.3277	0.0438	6.3715	1.6920	0.0407	1.7327		6,656.192 6	6,656.192 6	0.2322		6,661.998 0

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
High Turnover (Sit Down Restaurant)	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Parking Lot	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Supermarket	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
NaturalGas Unmitigated	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515

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					
Fast Food Restaurant with Drive Thru	1039.97	0.0112	0.1020	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3494	122.3494	2.3500e-003	2.2400e-003	123.0764
High Turnover (Sit Down Restaurant)	1993.37	0.0215	0.1954	0.1642	1.1700e-003		0.0149	0.0149		0.0149	0.0149		234.5141	234.5141	4.4900e-003	4.3000e-003	235.9077
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
Supermarket	1836.71	0.0198	0.1801	0.1513	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.0833	216.0833	4.1400e-003	3.9600e-003	217.3674
Total		**0.0525**	**0.4775**	**0.4011**	**2.8600e-003**		**0.0363**	**0.0363**		**0.0363**	**0.0363**		**572.9468**	**572.9468**	**0.0110**	**0.0105**	**576.3515**

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					
Fast Food Restaurant with Drive Thru	0.949305	0.0102	0.0931	0.0782	5.6000e-004		7.0700e-003	7.0700e-003		7.0700e-003	7.0700e-003		111.6829	111.6829	2.1400e-003	2.0500e-003	112.3466
High Turnover (Sit Down Restaurant)	1.81959	0.0196	0.1784	0.1499	1.0700e-003		0.0136	0.0136		0.0136	0.0136		214.0691	214.0691	4.1000e-003	3.9200e-003	215.3412
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
Supermarket	1.42762	0.0154	0.1400	0.1176	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.9548	167.9548	3.2200e-003	3.0800e-003	168.9529
Total		**0.0453**	**0.4114**	**0.3456**	**2.4700e-003**		**0.0313**	**0.0313**		**0.0313**	**0.0313**		**493.7069**	**493.7069**	**9.4600e-003**	**9.0500e-003**	**496.6407**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Unmitigated	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499

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	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9900e-003	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8881**	**2.0000e-004**	**0.0218**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9900e-003	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8881**	**2.0000e-004**	**0.0218**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

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

San Marco Commercial Center (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
Parking Lot	179.00	Space	1.61	71,600.00	0
Fast Food Restaurant with Drive Thru	1.83	1000sqft	0.04	1,826.00	0
High Turnover (Sit Down Restaurant)	3.50	1000sqft	0.08	3,500.00	0
Supermarket	29.82	1000sqft	0.68	29,822.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	175	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Updated CO2 intensity factor according to PG&E RPS calculator

Land Use - Updated square footage

Construction Phase - Edited construction dates

Grading - Updating Total Acres Graded

Vehicle Trips - Updated trip rates - can be found on the Assumptions page

Mobile Land Use Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	3.00	2.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	220.00	396.00
tblConstructionPhase	NumDays	10.00	396.00
tblGrading	AcresOfGrading	15.00	3.69
tblGrading	AcresOfGrading	3.00	0.00
tblLandUse	LandUseSquareFeet	1,830.00	1,826.00
tblLandUse	LandUseSquareFeet	29,820.00	29,822.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	175
tblTripsAndVMT	VendorTripNumber	17.00	0.00
tblTripsAndVMT	WorkerTripNumber	42.00	15.00
tblVehicleTrips	ST_TR	722.03	235.49
tblVehicleTrips	ST_TR	158.37	64.00
tblVehicleTrips	ST_TR	177.59	68.34
tblVehicleTrips	SU_TR	542.72	235.49
tblVehicleTrips	SU_TR	131.84	64.00
tblVehicleTrips	SU_TR	166.44	68.34
tblVehicleTrips	WD_TR	496.12	235.49
tblVehicleTrips	WD_TR	127.15	64.00
tblVehicleTrips	WD_TR	102.24	68.34

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	5.3719	36.4798	33.9996	0.0654	6.2347	1.8405	7.2254	3.3461	1.7405	4.2575	0.0000	6,280.832 7	6,280.832 7	1.1736	0.0000	6,310.173 0
2021	4.9449	33.4162	33.2626	0.0650	2.8509	1.5912	4.4421	0.7269	1.5041	2.2310	0.0000	6,243.305 8	6,243.305 8	1.1518	0.0000	6,272.101 9
2022	4.5701	30.1792	32.6940	0.0647	2.8509	1.3516	4.2025	0.7269	1.2785	2.0054	0.0000	6,206.387 5	6,206.387 5	1.1384	0.0000	6,234.847 1
Maximum	**5.3719**	**36.4798**	**33.9996**	**0.0654**	**6.2347**	**1.8405**	**7.2254**	**3.3461**	**1.7405**	**4.2575**	**0.0000**	**6,280.832 7**	**6,280.832 7**	**1.1736**	**0.0000**	**6,310.173 0**

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	5.3719	36.4798	33.9996	0.0654	6.2347	1.8405	7.2254	3.3461	1.7405	4.2575	0.0000	6,280.832 7	6,280.832 7	1.1736	0.0000	6,310.173 0
2021	4.9449	33.4162	33.2626	0.0650	2.8509	1.5912	4.4421	0.7269	1.5041	2.2310	0.0000	6,243.305 8	6,243.305 8	1.1518	0.0000	6,272.101 9
2022	4.5701	30.1792	32.6940	0.0647	2.8509	1.3516	4.2025	0.7269	1.2785	2.0054	0.0000	6,206.387 5	6,206.387 5	1.1384	0.0000	6,234.847 1
Maximum	**5.3719**	**36.4798**	**33.9996**	**0.0654**	**6.2347**	**1.8405**	**7.2254**	**3.3461**	**1.7405**	**4.2575**	**0.0000**	**6,280.832 7**	**6,280.832 7**	**1.1736**	**0.0000**	**6,310.173 0**

	ROG	NOx	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	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515
Mobile	1.8561	9.7652	17.0797	0.0612	6.3277	0.0441	6.3717	1.6920	0.0410	1.7329		6,231.6931	6,231.6931	0.2459		6,237.8402
Total	**2.7968**	**10.2429**	**17.5025**	**0.0640**	**6.3277**	**0.0804**	**6.4081**	**1.6920**	**0.0773**	**1.7693**		**6,804.6868**	**6,804.6868**	**0.2570**	**0.0105**	**6,814.2416**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Energy	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
Mobile	1.7417	9.1309	14.5902	0.0476	4.6763	0.0356	4.7120	1.2504	0.0331	1.2835		4,851.6660	4,851.6660	0.2106		4,856.9309
Total	**2.6751**	**9.5426**	**14.9575**	**0.0500**	**4.6763**	**0.0670**	**4.7433**	**1.2504**	**0.0645**	**1.3149**		**5,345.4198**	**5,345.4198**	**0.2202**	**9.0500e-003**	**5,353.6215**

	ROG	NOx	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	4.35	6.84	14.54	21.82	26.10	16.72	25.98	26.10	16.65	25.68	0.00	21.45	21.45	14.32	13.81	21.43

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2020	6/2/2020	5	2	
2	Grading	Grading	6/3/2020	7/14/2020	5	30	
3	Paving	Paving	7/15/2020	7/28/2020	5	10	
4	Building Construction	Building Construction	7/29/2020	2/2/2022	5	396	
5	Architectural Coating	Architectural Coating	8/12/2020	2/16/2022	5	396	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.69

Acres of Paving: 1.61

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 52,722; Non-Residential Outdoor: 17,574; Striped Parking Area: 4,296 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Pavers	1	8.00	130	0.42
Building Construction	Paving Equipment	1	8.00	132	0.36
Building Construction	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	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
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	42.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	15	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.906 2	2,372.906 2	0.7675		2,392.092 4
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**		**2,372.906 2**	**2,372.906 2**	**0.7675**		**2,392.092 4**

3.2 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
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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

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
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0000**	**0.7771**	**0.7771**	**0.0000**	**0.7149**	**0.7149**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 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
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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

3.3 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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0368	0.0260	0.2520	7.6000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		75.6065	75.6065	1.8500e-003		75.6528
Total	**0.0368**	**0.0260**	**0.2520**	**7.6000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**75.6065**	**75.6065**	**1.8500e-003**		**75.6528**

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					6.1525	0.0000	6.1525	3.3243	0.0000	3.3243			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1525**	**0.9902**	**7.1427**	**3.3243**	**0.9110**	**4.2353**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 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
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	0.0368	0.0260	0.2520	7.6000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		75.6065	75.6065	1.8500e-003		75.6528
Total	**0.0368**	**0.0260**	**0.2520**	**7.6000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**75.6065**	**75.6065**	**1.8500e-003**		**75.6528**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**		**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.4218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5765**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**	**0.0000**	**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

3.4 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**

3.5 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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059		4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**		**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1356	3.9181	1.0574	9.1300e-003	0.5583	0.0193	0.5776	0.1468	0.0185	0.1653		966.7126	966.7126	0.0528		968.0334
Worker	0.3640	0.2574	2.4947	7.5100e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		748.5048	748.5048	0.0183		748.9625
Total	**0.4996**	**4.1755**	**3.5521**	**0.0166**	**2.7852**	**0.0246**	**2.8097**	**0.7095**	**0.0233**	**0.7328**		**1,715.2174**	**1,715.2174**	**0.0711**		**1,716.9958**

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	3.5997	30.5997	28.4145	0.0452		1.7045	1.7045		1.6059	1.6059	0.0000	4,223.6821	4,223.6821	1.0792		4,250.6622
Total	**3.5997**	**30.5997**	**28.4145**	**0.0452**		**1.7045**	**1.7045**		**1.6059**	**1.6059**	**0.0000**	**4,223.6821**	**4,223.6821**	**1.0792**		**4,250.6622**

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	0.1356	3.9181	1.0574	9.1300e-003	0.5583	0.0193	0.5776	0.1468	0.0185	0.1653		966.7126	966.7126	0.0528		968.0334
Worker	0.3640	0.2574	2.4947	7.5100e-003	2.2269	5.2700e-003	2.2321	0.5627	4.8500e-003	0.5675		748.5048	748.5048	0.0183		748.9625
Total	**0.4996**	**4.1755**	**3.5521**	**0.0166**	**2.7852**	**0.0246**	**2.8097**	**0.7095**	**0.0233**	**0.7328**		**1,715.2174**	**1,715.2174**	**0.0711**		**1,716.9958**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973		4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**		**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1117	3.5438	0.9523	9.0400e-003	0.5583	7.8800e-003	0.5662	0.1468	7.5300e-003	0.1543		957.5323	957.5323	0.0499		958.7795
Worker	0.3372	0.2298	2.2751	7.2500e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		722.2413	722.2413	0.0163		722.6498
Total	**0.4489**	**3.7736**	**3.2275**	**0.0163**	**2.7852**	**0.0130**	**2.7982**	**0.7095**	**0.0122**	**0.7217**		**1,679.7736**	**1,679.7736**	**0.0662**		**1,681.4293**

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	3.2488	28.0972	28.0338	0.0452		1.4837	1.4837		1.3973	1.3973	0.0000	4,223.7213	4,223.7213	1.0650		4,250.3457
Total	**3.2488**	**28.0972**	**28.0338**	**0.0452**		**1.4837**	**1.4837**		**1.3973**	**1.3973**	**0.0000**	**4,223.7213**	**4,223.7213**	**1.0650**		**4,250.3457**

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	0.1117	3.5438	0.9523	9.0400e-003	0.5583	7.8800e-003	0.5662	0.1468	7.5300e-003	0.1543		957.5323	957.5323	0.0499		958.7795
Worker	0.3372	0.2298	2.2751	7.2500e-003	2.2269	5.1200e-003	2.2320	0.5627	4.7100e-003	0.5674		722.2413	722.2413	0.0163		722.6498
Total	**0.4489**	**3.7736**	**3.2275**	**0.0163**	**2.7852**	**0.0130**	**2.7982**	**0.7095**	**0.0122**	**0.7217**		**1,679.7736**	**1,679.7736**	**0.0662**		**1,681.4293**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852		4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**		**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1042	3.3551	0.8952	8.9400e-003	0.5583	6.8400e-003	0.5651	0.1468	6.5400e-003	0.1533		948.0523	948.0523	0.0477		949.2436
Worker	0.3147	0.2060	2.0878	6.9800e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		695.7641	695.7641	0.0146		696.1299
Total	**0.4189**	**3.5611**	**2.9830**	**0.0159**	**2.7852**	**0.0118**	**2.7970**	**0.7095**	**0.0111**	**0.7206**		**1,643.8164**	**1,643.8164**	**0.0623**		**1,645.3735**

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	2.9202	25.1929	27.7287	0.0452		1.2576	1.2576		1.1852	1.1852	0.0000	4,224.8997	4,224.8997	1.0566		4,251.3145
Total	**2.9202**	**25.1929**	**27.7287**	**0.0452**		**1.2576**	**1.2576**		**1.1852**	**1.1852**	**0.0000**	**4,224.8997**	**4,224.8997**	**1.0566**		**4,251.3145**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1042	3.3551	0.8952	8.9400e-003	0.5583	6.8400e-003	0.5651	0.1468	6.5400e-003	0.1533		948.0523	948.0523	0.0477		949.2436
Worker	0.3147	0.2060	2.0878	6.9800e-003	2.2269	5.0000e-003	2.2319	0.5627	4.6000e-003	0.5673		695.7641	695.7641	0.0146		696.1299
Total	**0.4189**	**3.5611**	**2.9830**	**0.0159**	**2.7852**	**0.0118**	**2.7970**	**0.7095**	**0.0111**	**0.7206**		**1,643.8164**	**1,643.8164**	**0.0623**		**1,645.3735**

3.6 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	1.0011					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	**1.2432**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.6 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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

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	1.0011					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	**1.2432**	**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**

3.6 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	0.0294	0.0208	0.2016	6.1000e-004	0.0657	4.3000e-004	0.0661	0.0174	3.9000e-004	0.0178		60.4852	60.4852	1.4800e-003		60.5222
Total	**0.0294**	**0.0208**	**0.2016**	**6.1000e-004**	**0.0657**	**4.3000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**		**60.4852**	**60.4852**	**1.4800e-003**		**60.5222**

3.6 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	1.0011					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	**1.2200**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 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	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0273**	**0.0186**	**0.1839**	**5.9000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**58.3629**	**58.3629**	**1.3200e-003**		**58.3960**

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	1.0011					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	**1.2200**	**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**

3.6 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	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0273**	**0.0186**	**0.1839**	**5.9000e-004**	**0.0657**	**4.1000e-004**	**0.0661**	**0.0174**	**3.8000e-004**	**0.0178**		**58.3629**	**58.3629**	**1.3200e-003**		**58.3960**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0254	0.0167	0.1687	5.6000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		56.2234	56.2234	1.1800e-003		56.2529
Total	**0.0254**	**0.0167**	**0.1687**	**5.6000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**56.2234**	**56.2234**	**1.1800e-003**		**56.2529**

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	1.0011					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**1.2056**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0254	0.0167	0.1687	5.6000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178		56.2234	56.2234	1.1800e-003		56.2529
Total	**0.0254**	**0.0167**	**0.1687**	**5.6000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**		**56.2234**	**56.2234**	**1.1800e-003**		**56.2529**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

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	1.7417	9.1309	14.5902	0.0476	4.6763	0.0356	4.7120	1.2504	0.0331	1.2835		4,851.666 0	4,851.666 0	0.2106		4,856.930 9
Unmitigated	1.8561	9.7652	17.0797	0.0612	6.3277	0.0441	6.3717	1.6920	0.0410	1.7329		6,231.693 1	6,231.693 1	0.2459		6,237.840 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	430.95	430.95	430.95	402,644	297,565
High Turnover (Sit Down Restaurant)	224.00	224.00	224.00	259,899	192,073
Parking Lot	0.00	0.00	0.00		
Supermarket	2,037.90	2,037.90	2037.90	2,317,995	1,713,063
Total	2,692.85	2,692.85	2,692.85	2,980,538	2,202,702

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
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Supermarket	9.50	7.30	7.30	6.50	74.50	19.00	34	30	36

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
High Turnover (Sit Down Restaurant)	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Parking Lot	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676
Supermarket	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0453	0.4114	0.3456	2.4700e-003		0.0313	0.0313		0.0313	0.0313		493.7069	493.7069	9.4600e-003	9.0500e-003	496.6407
NaturalGas Unmitigated	0.0525	0.4775	0.4011	2.8600e-003		0.0363	0.0363		0.0363	0.0363		572.9468	572.9468	0.0110	0.0105	576.3515

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					
Fast Food Restaurant with Drive Thru	1039.97	0.0112	0.1020	0.0856	6.1000e-004		7.7500e-003	7.7500e-003		7.7500e-003	7.7500e-003		122.3494	122.3494	2.3500e-003	2.2400e-003	123.0764
High Turnover (Sit Down Restaurant)	1993.37	0.0215	0.1954	0.1642	1.1700e-003		0.0149	0.0149		0.0149	0.0149		234.5141	234.5141	4.4900e-003	4.3000e-003	235.9077
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
Supermarket	1836.71	0.0198	0.1801	0.1513	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.0833	216.0833	4.1400e-003	3.9600e-003	217.3674
Total		**0.0525**	**0.4775**	**0.4011**	**2.8600e-003**		**0.0363**	**0.0363**		**0.0363**	**0.0363**		**572.9468**	**572.9468**	**0.0110**	**0.0105**	**576.3515**

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					
Fast Food Restaurant with Drive Thru	0.949305	0.0102	0.0931	0.0782	5.6000e-004		7.0700e-003	7.0700e-003		7.0700e-003	7.0700e-003		111.6829	111.6829	2.1400e-003	2.0500e-003	112.3466
High Turnover (Sit Down Restaurant)	1.81959	0.0196	0.1784	0.1499	1.0700e-003		0.0136	0.0136		0.0136	0.0136		214.0691	214.0691	4.1000e-003	3.9200e-003	215.3412
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
Supermarket	1.42762	0.0154	0.1400	0.1176	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.9548	167.9548	3.2200e-003	3.0800e-003	168.9529
Total		**0.0453**	**0.4114**	**0.3456**	**2.4700e-003**		**0.0313**	**0.0313**		**0.0313**	**0.0313**		**493.7069**	**493.7069**	**9.4600e-003**	**9.0500e-003**	**496.6407**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Unmitigated	0.8881	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499

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	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9900e-003	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8881**	**2.0000e-004**	**0.0218**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1086					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7775					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9900e-003	2.0000e-004	0.0218	0.0000		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005		0.0469	0.0469	1.2000e-004		0.0499
Total	**0.8881**	**2.0000e-004**	**0.0218**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**		**0.0469**	**0.0469**	**1.2000e-004**		**0.0499**

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

San Marco Commercial Center (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
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
Cement and Mortar Mixers	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	2	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	2	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	4	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	1	No Change	0.00
Scrapers	Diesel	No Change	0	1	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	7	No Change	0.00
Welders	Diesel	No Change	0	3	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	4.42900E-002	3.08370E-001	3.60520E-001	5.90000E-004	1.92900E-002	1.92900E-002	0.00000E+000	5.05544E+001	5.05544E+001	3.57000E-003	0.00000E+000	5.06437E+001
Cement and Mortar Mixers	1.19300E-002	7.47400E-002	6.26000E-002	1.40000E-004	2.91000E-003	2.91000E-003	0.00000E+000	9.30301E+000	9.30301E+000	9.70000E-004	0.00000E+000	9.32715E+000
Cranes	8.35600E-002	9.82880E-001	3.98980E-001	1.14000E-003	4.01400E-002	3.69300E-002	0.00000E+000	1.00366E+002	1.00366E+002	3.24600E-002	0.00000E+000	1.01177E+002
Forklifts	4.59300E-002	4.17670E-001	4.05590E-001	5.30000E-004	2.99900E-002	2.75900E-002	0.00000E+000	4.65319E+001	4.65319E+001	1.50500E-002	0.00000E+000	4.69082E+001
Generator Sets	7.27800E-002	6.41660E-001	7.30640E-001	1.30000E-003	3.45700E-002	3.45700E-002	0.00000E+000	1.11911E+002	1.11911E+002	5.85000E-003	0.00000E+000	1.12057E+002
Graders	7.61000E-003	1.01210E-001	2.90300E-002	1.10000E-004	3.24000E-003	2.98000E-003	0.00000E+000	9.32903E+000	9.32903E+000	3.02000E-003	0.00000E+000	9.40446E+000
Pavers	5.05400E-002	5.34220E-001	5.89040E-001	9.50000E-004	2.58500E-002	2.37800E-002	0.00000E+000	8.38171E+001	8.38171E+001	2.71100E-002	0.00000E+000	8.44948E+001
Paving Equipment	3.97700E-002	4.03810E-001	5.15530E-001	8.30000E-004	2.00100E-002	1.84100E-002	0.00000E+000	7.26465E+001	7.26465E+001	2.35000E-002	0.00000E+000	7.32339E+001
Rollers	7.86800E-002	7.95820E-001	7.64570E-001	1.06000E-003	4.91800E-002	4.52400E-002	0.00000E+000	9.35831E+001	9.35831E+001	3.02700E-002	0.00000E+000	9.43398E+001
Rubber Tired Dozers	1.61900E-002	1.69980E-001	6.19700E-002	1.30000E-004	8.32000E-003	7.66000E-003	0.00000E+000	1.12583E+001	1.12583E+001	3.64000E-003	0.00000E+000	1.13493E+001
Scrapers	9.90000E-004	1.17500E-002	7.46000E-003	2.00000E-005	4.60000E-004	4.20000E-004	0.00000E+000	1.33085E+000	1.33085E+000	4.30000E-004	0.00000E+000	1.34161E+000
Tractors/Loaders/ Backhoes	1.01890E-001	1.02903E+000	1.19414E+000	1.64000E-003	6.19700E-002	5.70100E-002	0.00000E+000	1.43879E+002	1.43879E+002	4.65300E-002	0.00000E+000	1.45042E+002
Welders	1.85510E-001	9.05190E-001	1.02828E+000	1.52000E-003	4.58200E-002	4.58200E-002	0.00000E+000	1.11803E+002	1.11803E+002	1.50500E-002	0.00000E+000	1.12179E+002

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	4.42900E-002	3.08370E-001	3.60520E-001	5.90000E-004	1.92900E-002	1.92900E-002	0.00000E+000	5.05544E+001	5.05544E+001	3.57000E-003	0.00000E+000	5.06436E+001
Cement and Mortar Mixers	1.19300E-002	7.47400E-002	6.26000E-002	1.40000E-004	2.91000E-003	2.91000E-003	0.00000E+000	9.30300E+000	9.30300E+000	9.70000E-004	0.00000E+000	9.32714E+000
Cranes	8.35600E-002	9.82880E-001	3.98980E-001	1.14000E-003	4.01400E-002	3.69300E-002	0.00000E+000	1.00366E+002	1.00366E+002	3.24600E-002	0.00000E+000	1.01177E+002
Forklifts	4.59300E-002	4.17670E-001	4.05590E-001	5.30000E-004	2.99900E-002	2.75900E-002	0.00000E+000	4.65319E+001	4.65319E+001	1.50500E-002	0.00000E+000	4.69081E+001
Generator Sets	7.27800E-002	6.41660E-001	7.30640E-001	1.30000E-003	3.45700E-002	3.45700E-002	0.00000E+000	1.11911E+002	1.11911E+002	5.85000E-003	0.00000E+000	1.12057E+002
Graders	7.61000E-003	1.01210E-001	2.90300E-002	1.10000E-004	3.24000E-003	2.98000E-003	0.00000E+000	9.32902E+000	9.32902E+000	3.02000E-003	0.00000E+000	9.40445E+000
Pavers	5.05400E-002	5.34220E-001	5.89040E-001	9.50000E-004	2.58500E-002	2.37800E-002	0.00000E+000	8.38170E+001	8.38170E+001	2.71100E-002	0.00000E+000	8.44947E+001
Paving Equipment	3.97700E-002	4.03810E-001	5.15530E-001	8.30000E-004	2.00100E-002	1.84100E-002	0.00000E+000	7.26464E+001	7.26464E+001	2.35000E-002	0.00000E+000	7.32338E+001
Rollers	7.86800E-002	7.95820E-001	7.64570E-001	1.06000E-003	4.91800E-002	4.52400E-002	0.00000E+000	9.35830E+001	9.35830E+001	3.02700E-002	0.00000E+000	9.43396E+001
Rubber Tired Dozers	1.61900E-002	1.69980E-001	6.19700E-002	1.30000E-004	8.32000E-003	7.66000E-003	0.00000E+000	1.12583E+001	1.12583E+001	3.64000E-003	0.00000E+000	1.13493E+001
Scrapers	9.90000E-004	1.17500E-002	7.46000E-003	2.00000E-005	4.60000E-004	4.20000E-004	0.00000E+000	1.33085E+000	1.33085E+000	4.30000E-004	0.00000E+000	1.34161E+000
Tractors/Loaders/Backhoes	1.01890E-001	1.02903E+000	1.19413E+000	1.64000E-003	6.19700E-002	5.70100E-002	0.00000E+000	1.43878E+002	1.43878E+002	4.65300E-002	0.00000E+000	1.45042E+002
Welders	1.85510E-001	9.05190E-001	1.02828E+000	1.52000E-003	4.58200E-002	4.58200E-002	0.00000E+000	1.11803E+002	1.11803E+002	1.50500E-002	0.00000E+000	1.12179E+002

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	1.18684E-006	1.18684E-006	0.00000E+000	0.00000E+000	1.18475E-006
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07492E-006	1.07492E-006	0.00000E+000	0.00000E+000	1.07214E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19563E-006	1.19563E-006	0.00000E+000	0.00000E+000	1.18604E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.28944E-006	1.28944E-006	0.00000E+000	0.00000E+000	1.06591E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25099E-006	1.25099E-006	0.00000E+000	0.00000E+000	1.16012E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.07192E-006	1.07192E-006	0.00000E+000	0.00000E+000	1.06333E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19307E-006	1.19307E-006	0.00000E+000	0.00000E+000	1.18351E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23888E-006	1.23888E-006	0.00000E+000	0.00000E+000	1.22894E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17543E-006	1.17543E-006	0.00000E+000	0.00000E+000	1.16600E-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	1.77647E-006	1.77647E-006	0.00000E+000	0.00000E+000	1.76222E-006
Scrapers	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
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	8.37423E-006	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18155E-006	1.18155E-006	0.00000E+000	0.00000E+000	1.17207E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16276E-006	1.16276E-006	0.00000E+000	0.00000E+000	1.24800E-006

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	0.01	0.00	0.01	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.53	0.13	0.53	0.13	0.00	0.00
Grading	Fugitive Dust	0.09	0.05	0.09	0.05	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	0.00	0.00	0.00	0.00	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	3.13	3.13	3.15	2.84	3.13
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	5.98	6.27	15.46	22.07	19.17	19.27	0.00	21.97	21.97	14.84	0.00	21.96
Natural Gas	13.78	13.83	13.81	13.46	13.90	13.90	0.00	13.83	13.83	14.29	13.79	13.83
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:

Mitigation Selected	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.14	0.39		
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	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.25			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00			
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	0.26			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.26			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	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	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	30.00	
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	

RoadMod Results – Unmitigated

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> San Marco Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	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
Grading/Excavation	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
Drainage/Utilities/Sub-Grade	3.03	27.75	21.07	1.61	1.47	0.14	1.31	1.29	0.03	0.05	4,856.41	0.61	0.09	4,899.59
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	0.00	0.00
Maximum (pounds/day)	3.03	27.75	21.07	1.61	1.47	0.14	1.31	1.29	0.03	0.05	4,856.41	0.61	0.09	4,899.59
Total (tons/construction project)	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.72

Notes: Project Start Year -> 2020
Project Length (months) -> 0
Total Project Area (acres) -> 0
Maximum Area Disturbed/Day (acres) -> 0
Water Truck Used? -> No

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	0	0
Drainage/Utilities/Sub-Grade	4	0	15	0	2,200	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> San Marco Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	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
Grading/Excavation	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
Drainage/Utilities/Sub-Grade	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37
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	0.00	0.00
Maximum (tons/phase)	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37
Total (tons/construction project)	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

RoadMod Results – Mitigated

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> San Marco

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	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
Grading/Excavation	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
Drainage/Utilities/Sub-Grade	3.03	27.75	17.02	1.05	0.91	0.14	0.78	0.75	0.03	0.05	4,856.41	0.61	0.09	4,899.59
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	0.00	0.00
Maximum (pounds/day)	3.03	27.75	17.02	1.05	0.91	0.14	0.78	0.75	0.03	0.05	4,856.41	0.61	0.09	4,899.59
Total (tons/construction project)	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.72

Notes: Project Start Year -> 2020
Project Length (months) -> 0
Total Project Area (acres) -> 0
Maximum Area Disturbed/Day (acres) -> 0
Water Truck Used? -> No

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	0	0	0	0	0	0
Drainage/Utilities/Sub-Grade	4	0	15	0	2,200	0
Paving	0	0	0	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> San Marco

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	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
Grading/Excavation	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
Drainage/Utilities/Sub-Grade	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37
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	0.00	0.00
Maximum (tons/phase)	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37
Total (tons/construction project)	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	3.37

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix E

Transportation Impact Analysis

San Marco Commercial Center

City of Pittsburg

Prepared for:
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565
Attn: Paul Reinders

Prepared by:
Abrams Associates
1875 Olympic Boulevard, Suite 210
Walnut Creek CA 94596

Abrams Associates
TRAFFIC ENGINEERING, INC.

June 16, 2020

San Marco Commercial Center Project
City of Pittsburg

TRANSPORTATION IMPACT ANALYSIS

---

1) Executive Summary

This transportation impact analysis describes the existing and future conditions for transportation with and without the proposed project, which consists of a shopping center with a 3,500 square foot sit-down restaurant, an 1,826 square foot fast food restaurant with a drive through, and a 29,822 square foot commercial building which is anticipated to be either a supermarket or a drug store/pharmacy. This study presents information on the regional and local roadway networks that serve the project site, the pedestrian and transit conditions in the area, and provides an analysis of the effects on transportation facilities associated with the project.

This study also describes the regulatory setting; the criterion used for determining if the project would have adverse environmental effects; and summarizes potential environmental effects and appropriate countermeasures. This study has been conducted in accordance with the requirements and methodologies set forth by the City of Pittsburg, the Contra Costa Transportation Authority (CCTA) and Caltrans.

Summary of Adverse Effects and Countermeasures - The following is a summary of the adverse effects from the project and the proposed countermeasures to address the transportation effects of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following countermeasures would adequately address the adverse effects identified.

Adverse Effect #1 **The project would contribute to LOS operations exceeding the established standards at the following four intersections:**

West Leland Road at San Marco Boulevard (Intersection #3)
West Leland Road at Valente Drive/Project Driveway (Intersection #5)
West Leland Road at Toscana Drive (Intersection #6)
West Leland Road at Bailey Road (Intersection #9)

The addition of traffic from the proposed project would contribute to these four intersections exceeding the established LOS standards in the plus project scenarios. With implementation of the recommended mitigations, the development of the proposed project would still result in potentially adverse effects to the LOS at the above mentioned intersections. Please note that the various proposed mitigations are all uncertain and/or within Caltrans right-of-way. For example, the City of Pittsburg does not have control over the on-ramps so there are no assurances that improvements to the ramp metering could be implemented. Therefore, it is assumed that the proposed countermeasures may not be sufficient to guarantee full elimination of the project's adverse effects.

Countermeasure #1

The improvements listed below are currently included in the City's 5-year capital improvement program but funding has not yet been identified. Prior to construction of the identified improvements the project would mitigate the above-identified adverse effects by paying a proportionate share of the construction costs. The intersection mitigations required for the project to meet the established LOS standards include the following:

CM 1(a) *<u>West Leland Road at San Marco Boulevard</u> – Widening of northbound San Marco Boulevard north of West Leland Road to allow for a full free-right turn from westbound West Leland Road onto San Marco Boulevard. This would also require additional capacity and/or adjustments to the SR-4 westbound on-ramp to ensure that queues do not affect intersections on West Leland Road.*

CM 1(b) *<u>West Leland Road at Toscana Drive</u> – A traffic signal is planned and funded for this intersection but will not be constructed until the planned adjacent apartments are completed and occupied. Until the planned signal is installed this intersection will continue to exceed the City's LOS standards.*

CM 1(c) *<u>West Leland Road at Bailey Road</u> – Potential changes that could improve the operations at this intersection include the future construction of a second eastbound left-turn lane. This improvement is included in the City's Local Transportation Mitigation Fee project list.*

Adverse Effect #2 The project would contribute to traffic operations exceeding the established standards on the State Route 4 Freeway

The development of the proposed project would increase the total traffic during both AM and PM peak hours. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5. As shown in Table 9 in Section 5.12 the proposed project would not significantly increase the delay index under existing or cumulative conditions. However, the proposed project would add traffic to State Route 4 in the westbound direction during the AM peak hour, which is forecast to exceed the County's established delay index standard of 2.5. Therefore, the proposed project would have an adverse effect on freeway operations.

Countermeasure #2

Prior to construction the project would mitigate the above-identified adverse effects by paying the required traffic impact fees, subject to City approval.

CM 2 <u>Payment of the Regional Transportation Development Impact Mitigation Fee</u> – The project will pay the Regional Transportation Development Impact Mitigation Fee (the "RTDIM") to fund regional freeway system improvements including State Route 4 improvements. Because the project applicant and the City of Pittsburg do not control the funding, prioritization and/or construction of improvement projects, it is assumed that payment of the RTDIM fees may not be sufficient to guarantee full elimination of the project's adverse effects to State Route 4. Please note the CCTA's planned SR4 Operational Improvements Project (OIP) and the SR4 Integrated Corridor Management (ICM) project are expected to improve SR4 delay index.

2) PROJECT DESCRIPTION

As noted above, the proposed project would consist of a shopping center with a 3,500 square foot sit-down restaurant, an 1,826 square foot fast food restaurant with a drive through, and a 29,822 square foot commercial building which is anticipated to be either a supermarket or a drug store/pharmacy. The project would be located in the southeast quadrant of the intersection of San Marco Boulevard and West Leland Road in the City of Pittsburg. All access to the project site will be from two new driveways to the site. **Figure 1** shows the location of the project and the surrounding roadway network. **Figure 2** shows the site plan for the project.

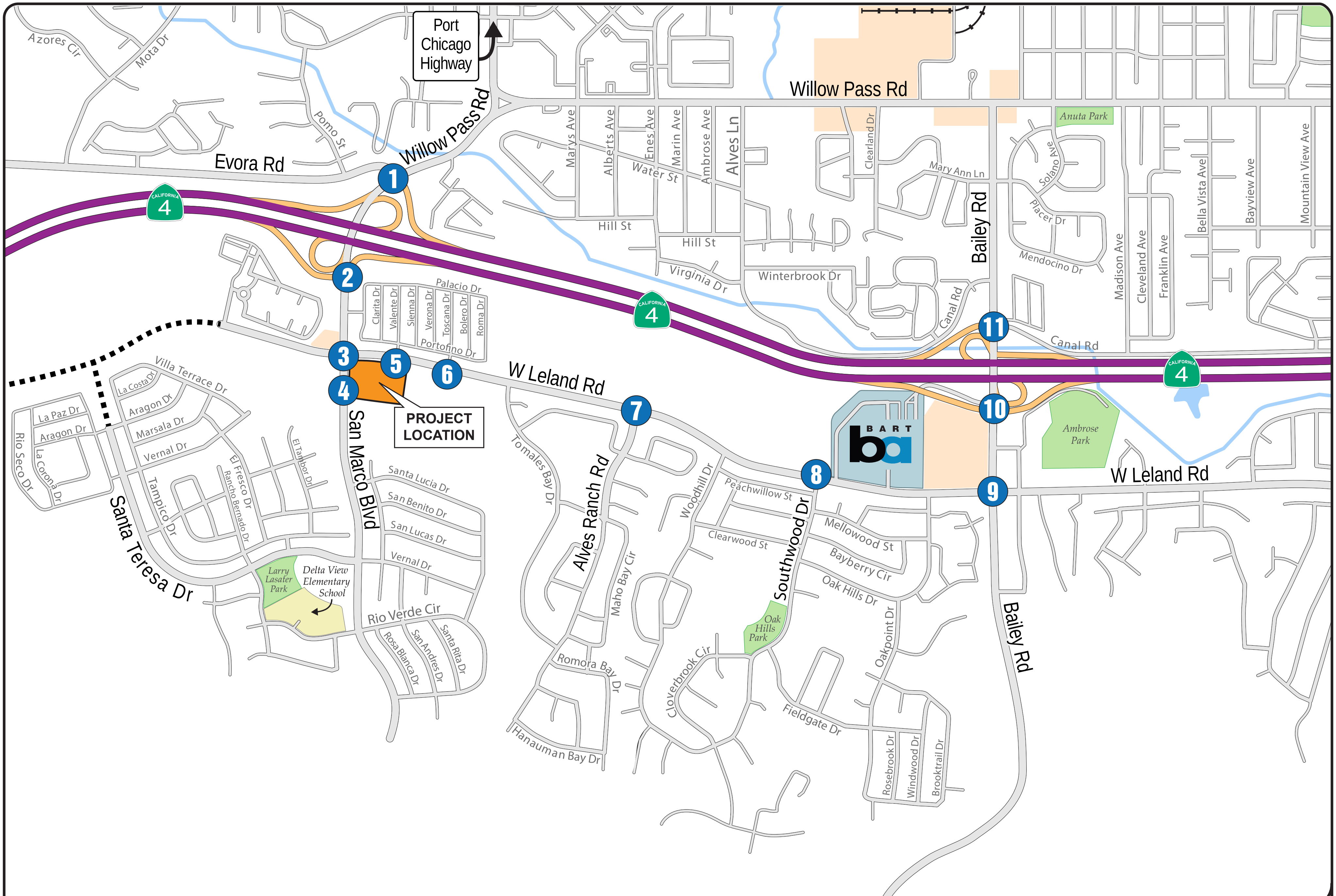


FIGURE 1 | PROJECT LOCATION & STUDY INTERSECTIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Center

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

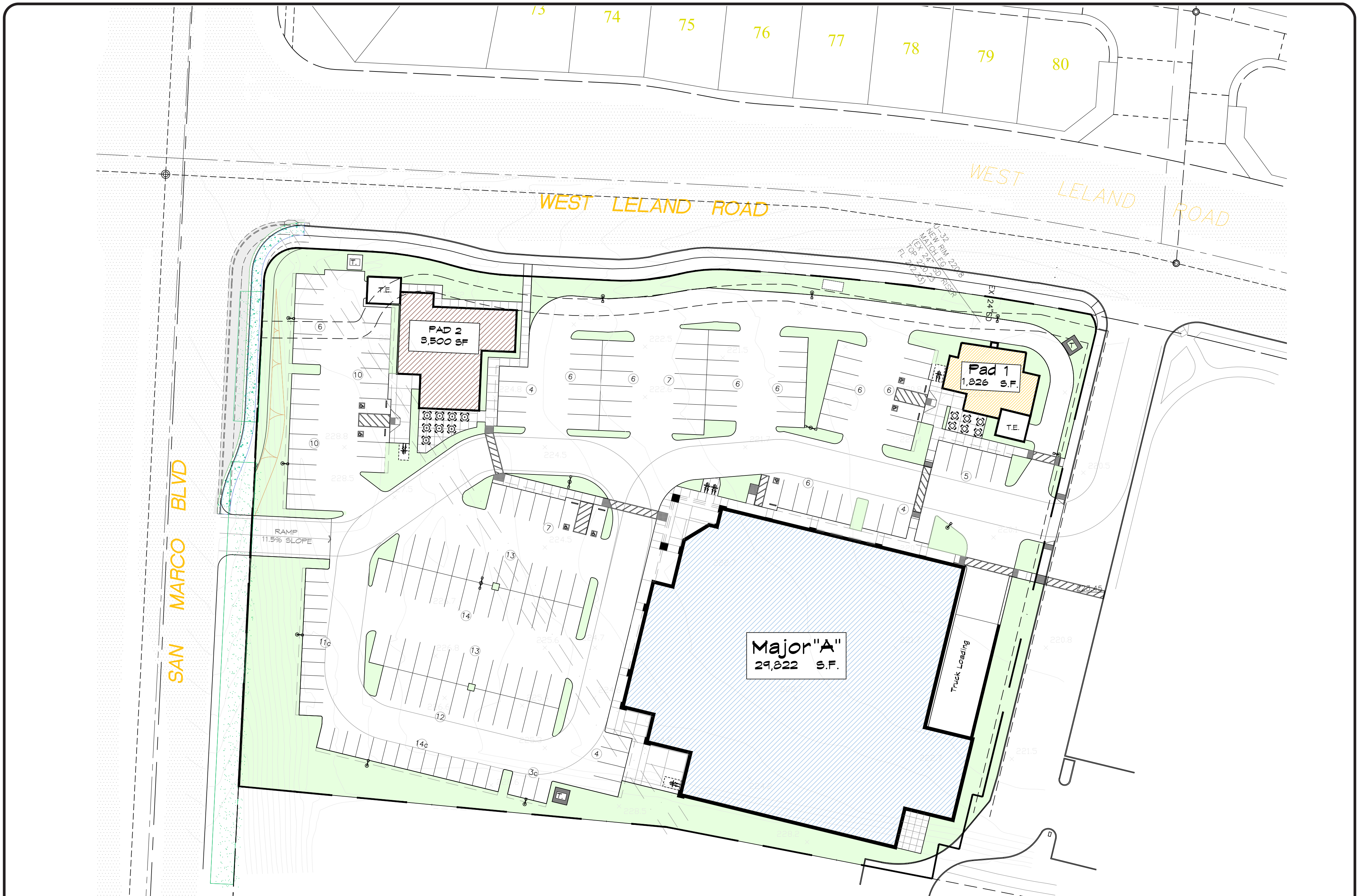


FIGURE 2 | SITE PLAN

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Center

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

3) ENVIRONMENTAL SETTING

This section of the report describes the roadways, traffic conditions and other existing transportation characteristics in the vicinity of the project. The primary basis of the analysis is the peak hour level of service for the key intersections. Throughout this report, these peak hours will be identified as the AM and PM peak hours, respectively.

3.1 Project Study Intersections

Based on the project's trip generation and the potential for adverse effects a list of project study intersections was prepared including all signalized intersections where more than 50 peak hour trips would be added as per the Contra Costa Transportation Authority's Technical Procedures.[1] **Figure 1** shows the location of the project study intersections. As mentioned above, all access to the site will be via driveways onto San Marco Boulevard and West Leland Road. There are eleven (11) study intersections included in the analysis.

Project Study Intersections

1. *State Route 4 Westbound Off-Ramp/Evora Road and Willow Pass Road*
2. *State Route 4 Eastbound Off-Ramp and San Marco Boulevard/Willow Pass Road*
3. *San Marco Boulevard and West Leland Road*
4. *San Marco Boulevard and the Project Entrance*
5. *West Leland Road and the Project Entrance/Valente Drive*
6. *West Leland Road and Toscana Drive*
7. *West Leland Road and Alves Ranch Road*
8. *West Leland Road and Southwood Drive*
9. *West Leland Road and Bailey Road*
10. *State Route 4 Eastbound On-Ramp / BART Entrance and Bailey Road*
11. *State Route 4 Westbound On-Ramp / Canal Road and Bailey Road*

3.2 Traffic Analysis Scenarios

The study intersections were evaluated for the following five scenarios:

- Scenario 1: *Existing Conditions* – Level of Service (LOS) based on existing peak hour volumes and existing intersection configurations.
- Scenario 2: *Existing Plus Project* – Existing traffic volumes plus trips from the proposed project.

[1] *Final Technical Procedures*, Contra Costa Transportation Authority, Walnut Creek, CA, January 16, 2013.

- Scenario 3: *Baseline (No Project) Conditions* – The Baseline scenario is based on the existing volumes plus growth in background traffic plus the traffic from all reasonably foreseeable developments that could substantially affect the volumes at the project study intersections.

- Scenario 4: *Baseline Plus Project Conditions* – This scenario is based on the Baseline traffic volumes plus the trips from the proposed project.

- Scenario 5: *Cumulative Conditions* – This scenario includes year 2040 cumulative volumes based on planned and approved projects the Countywide Travel Demand Model.

- Scenario 6: *Cumulative Plus Project Conditions* – This scenario includes year 2040 cumulative volumes based on the Countywide Travel Demand Model plus the trips from the proposed project.

3.3 Existing Roadway Network

Routes of Regional Significance - Routes of Regional Significance (RRS) are major roadway and freeway corridors that serve regional traffic. These are identified in Action Plans adopted by the Contra Costa Transportation Authority under the countywide Measure J program. State Route 4, West Leland Road, Willow Pass Road and Bailey Road are all identified as RRS in the East County Action Plan.

As discussed previously, the project location and the surrounding roadway network are illustrated in **Figure 1**. The following is a more detailed description of the arterials that could be affected by the project:

- **State Route 4 (SR 4)/SR 4 Bypass –** SR 4 is the primary east-west corridor in Contra Costa County. It connects Interstate 80 in the city of Hercules to the west with SR 160 and the cities of Oakley and Brentwood to the east. SR 4 is currently a two-lane roadway through Oakley and Brentwood and is a divided freeway from Interstate 680 east through Concord, Pittsburg, and Antioch. Interchanges along SR 4 within the study area include San Marco Boulevard and Bailey Road.

- **San Marco Boulevard –** San Marco Blvd is a four-lane arterial which starts at the Highway 4 freeway interchange. It currently is the main access for a series of single family neighborhoods and Delta View Elementary School. San Marco Blvd is planned be extended south until it intersects with Bailey Road, providing another point of access into the area. In the Pittsburg 2020 General Plan, San Marco Blvd is expected to be a Route of Regional Significance once it is extended to Bailey Road.

- **West Leland Road –** West Leland Road is a four-lane arterial which starts just west of San Marco Boulevard and extends to the east to end at Century Boulevard where it continues as Delta Fair Boulevard. West Leland Road provides two lanes in each direction with a landscaped center median and bike lanes in the project vicinity.

- **Willow Pass Road** – Willow Pass Road is a discontinuous four lane roadway with a center two-way left turn lane. The speed limit on Willow Pass Road is 35 mph in the project study area. Please note that there are two sections of Willow Pass Road in the area. One is the western segment that begins south of SR 4 and extends into downtown Concord and the other is the eastern segment in Bay Point which eventually becomes West 10th Street before it extends into downtown Pittsburg.

- **Bailey Road -** Bailey Road is a major north south arterial extending from Willow Pass Road to the north to the City of Concord on the south. Bailey Road varies in width, providing one to three lanes in each direction through the project study area.

3.4 Intersection Analysis Methodology

Existing operational conditions at the eleven (11) study intersections have been evaluated according to the requirements set forth by the Contra Costa County Transportation Authority (CCTA) using the methodology set forth in the Final Technical Procedures Update (dated January 16, 2013). Analysis of traffic operations was conducted using the 2010 *Highway Capacity Manual* (*HCM*) Level of Service (LOS) methodology with Synchro software.[2] Level of service is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through it at any given time. The level of service scale describes traffic flow with six ratings ranging from A to F, with "A" indicating relatively free flow of traffic and "F" indicating stop-and-go traffic characterized by traffic jams.

As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near-capacity situation is labeled level of service (LOS) E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it. For signalized intersections, The *HCM* methodology determines the capacity of each lane group approaching the intersection. The LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection. A summary of the HCM results and copies of the detailed HCM LOS calculations are included in the appendix to this report. **Table 1** summarizes the relationship between LOS, average control delay, and the volume to capacity ratio at signalized intersections. **Table 2**

[2] *2010 Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2011

TABLE 1
SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description of Operations	Average Delay (sec/veh)	Volume to Capacity Ratio
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	$\leq$ 10	< 0.60
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20	> 0.61 to 0.70
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35	> 0.71 to 0.80
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55	> 0.81 to 0.90
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80	> 0.91 to 1.00
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80	> 1.00

SOURCES: 2010 *Highway Capacity Manual*, Transportation Research Board, 2011. *Technical Procedures Update,* Contra Costa Transportation Authority, January 16, 2013.

TABLE 2
UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description of Operations	Average Delay (seconds/vehicle)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

SOURCE: 2010 *Highway Capacity Manual*, Transportation Research Board, 2011.

summarizes the relationship between LOS and average control delay at unsignalized intersections. For unsignalized (all-way stop controlled and two-way stop controlled) intersections, the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach.

3.5 Existing Intersection Capacity Conditions (Scenario 1)

The existing intersection geometry at each of the project study intersections can be seen in **Figure 3** and the existing traffic volumes at each are presented in **Figure 4.** Traffic counts at the study intersections were conducted in May and October of 2018 as part of the EIR for the Alves Ranch Project.[3] Please note that data was supplemented with AM and PM peak hour traffic counts that were conducted in March of 2019 at intersections #5 and #6. It should be noted that during these counts there were no pedestrians observed crossing West Leland Road in the vicinity of the project site and Ray Giacomelli Park during these traffic counts. **Table 3** summarizes the associated LOS computation results for the existing weekday AM and PM peak hour conditions. Please note that the corresponding LOS analysis calculation sheets are presented in the *Traffic Analysis Appendix.*

As shown in **Table 3**, all of the existing project study intersections currently have acceptable during the weekday AM and PM peak hours with the exception of Intersections #3 and #6 (West Leland Road at both San Marco Boulevard and Toscana Drive) which would exceed the established thresholds described below in Section 4.3. Caltrans traffic signal warrants were evaluated at the unsignalized intersection of West Leland Road with Toscana Drive and it was verified that a traffic signal would not be warranted there until the planned apartments (Village M) are constructed on the south side of this intersection. Please note that during the AM peak hour queues regularly extend back from the ramp meters at the westbound State Route 4 on-ramp up San Marco Boulevard. The queues typically extend through the San Marco Boulevard/West Leland Road intersection and onto the segment of West Leland Road along the frontage of the proposed project site.

3.6 Pedestrian and Bicycle Facilities

Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined by Caltrans as being in one of the following three classes:

Class I – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.

Class II – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.

[3] *Alves Ranch Transportation Impact Assessment*, Fehr and Peers, Walnut Creek, CA, March 2019

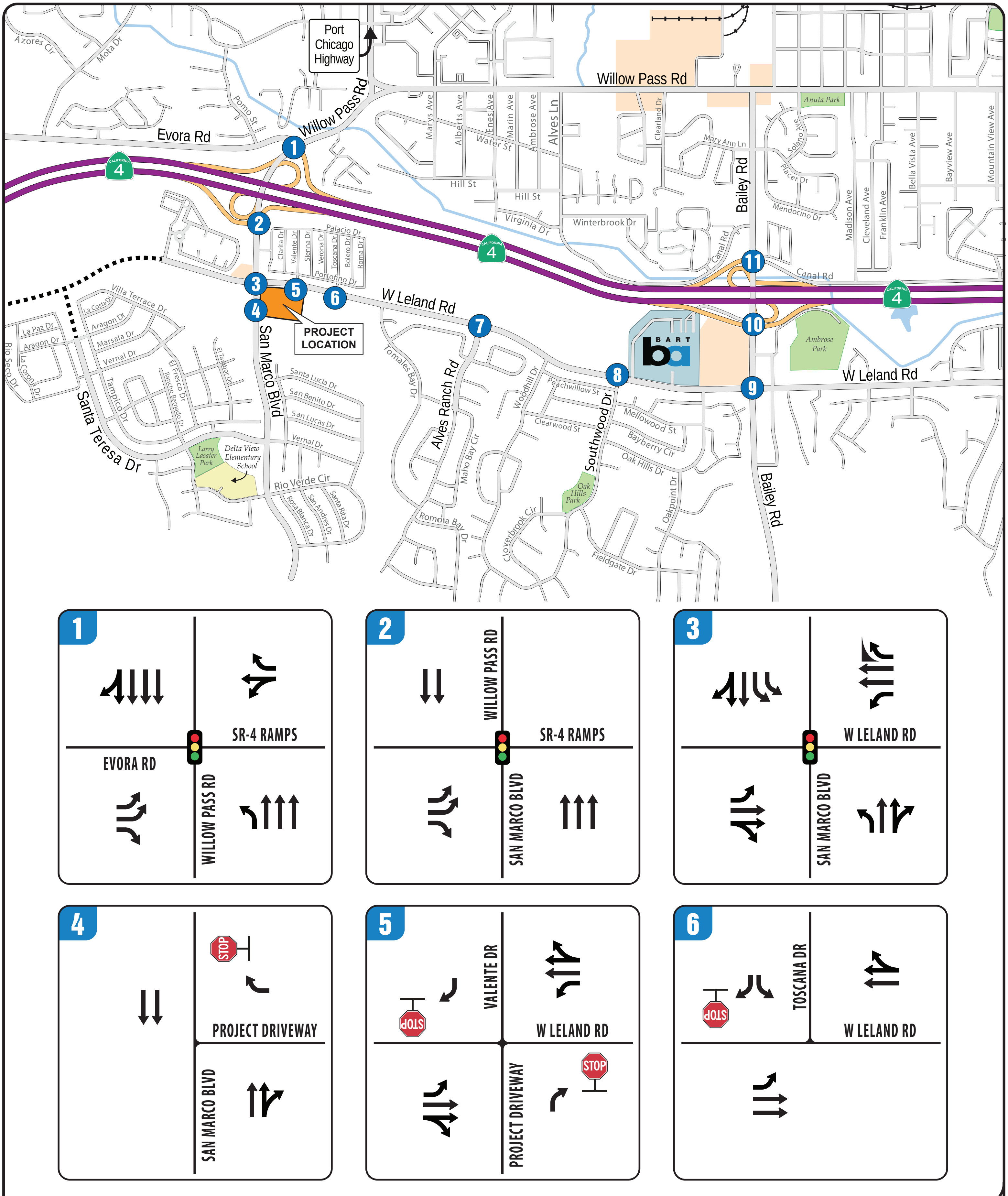


FIGURE 3A | EXISTING LANE CONFIGURATIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

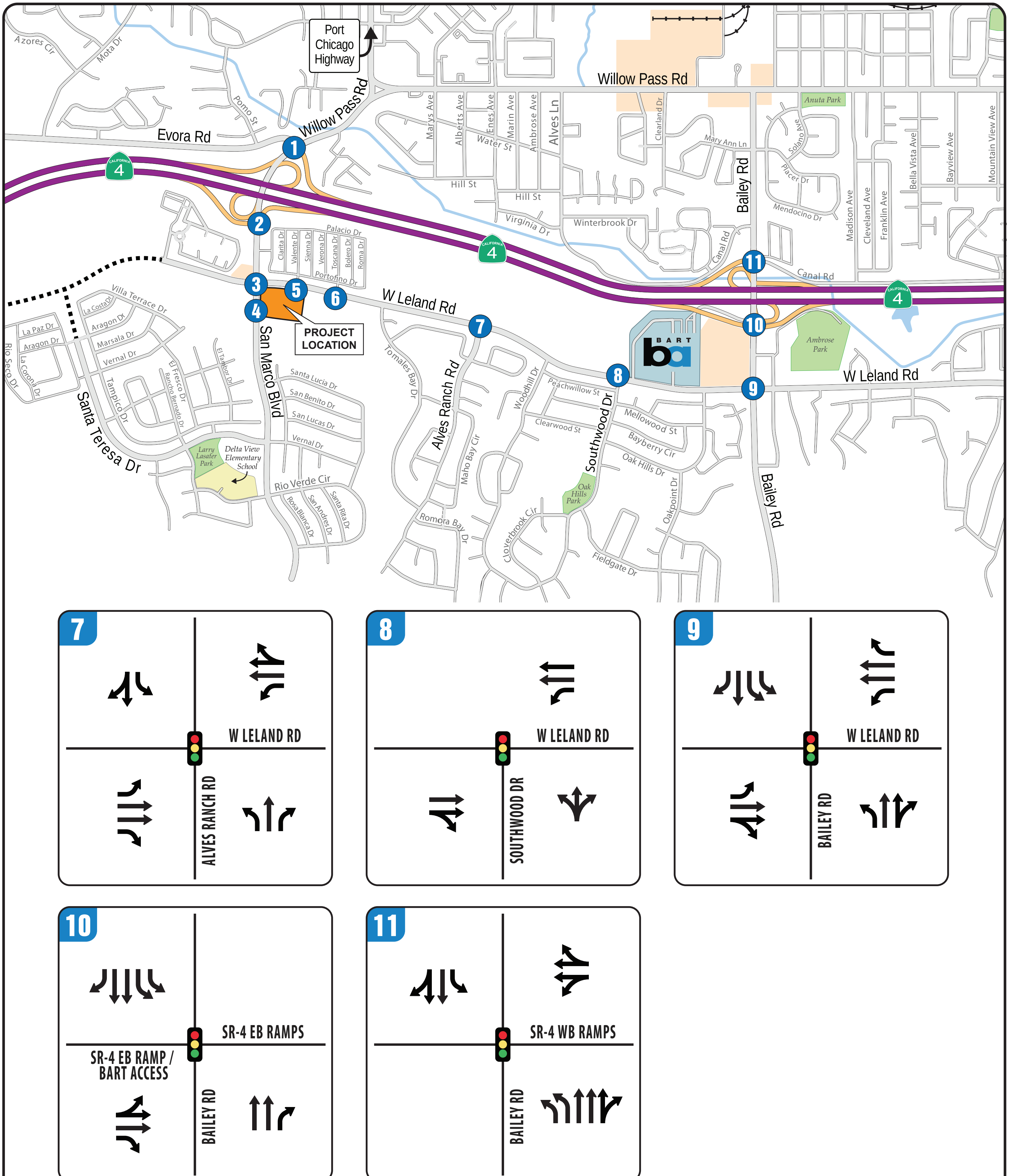


FIGURE 3B | EXISTING LANE CONFIGURATIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

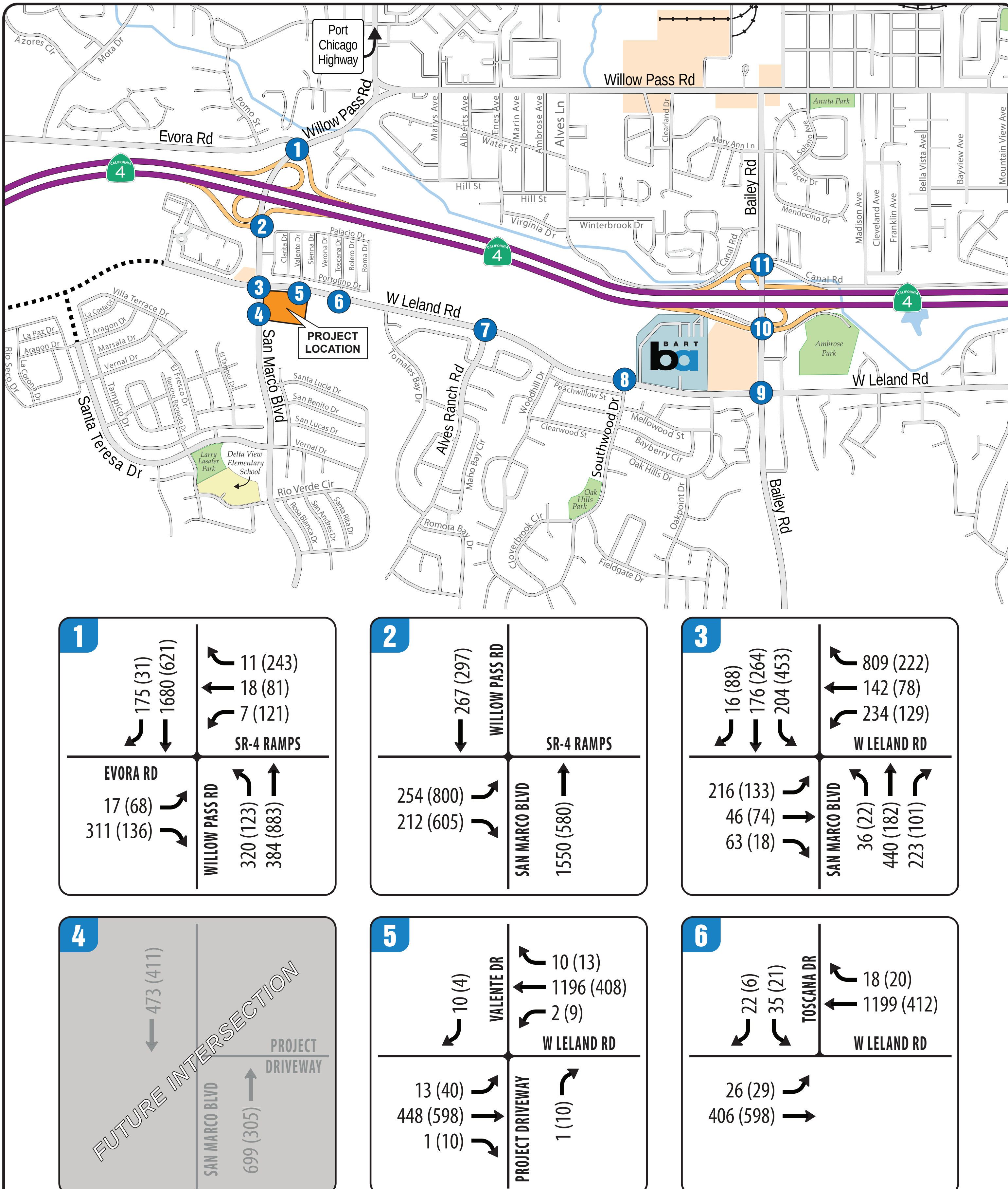


FIGURE 4A | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

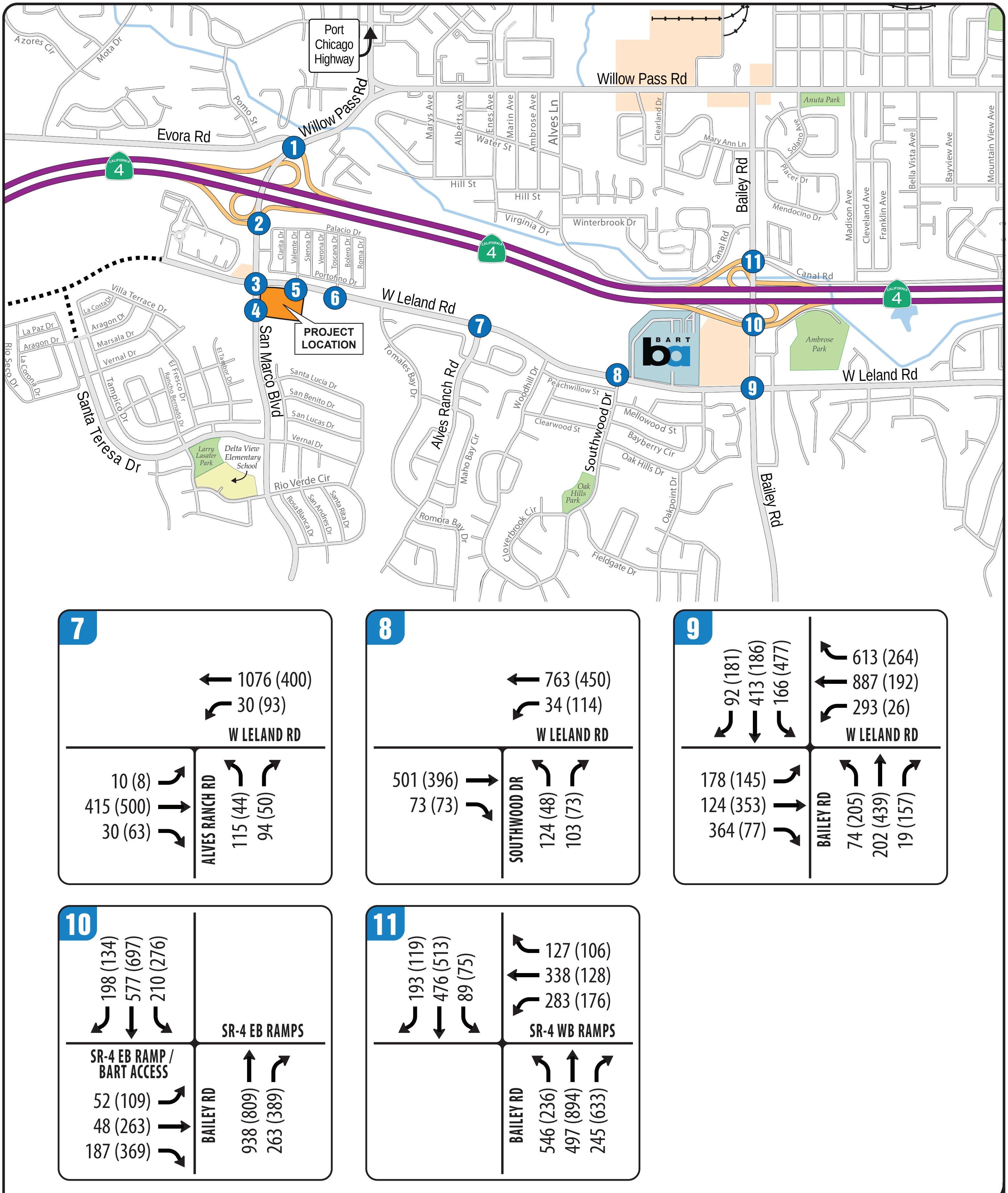


FIGURE 4B | EXISTING AM(PM) PEAK HOUR TRAFFIC VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 3
EXISTING INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING	
				Delay	LOS
1	EVORA ROAD / SR-4 WB OFF-RAMP & WILLOW PASS ROAD	Signalized	AM	44.2	D
			PM	9.9	A
2	SR-4 EB OFF-RAMP & SAN MARCO BOULEVARD / WILLOW PASS ROAD	Signalized	AM	8.6	A
			PM	9.6	A
3	SAN MARCO BOULEVARD & W. LELAND ROAD	Signalized	AM	**>80**	**F**
			PM	21.0	C
4	SAN MARCO BOULEVARD & PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A
			PM	N/A	N/A
5	VALENTE DRIVE / PROJECT DRIVEWAY & W. LELAND ROAD	Side Street Stop	AM	14.8	B
			PM	10.8	B
6	TOSCANA DRIVE & W. LELAND ROAD	Side Street Stop	AM	**>50**	**F**
			PM	17.2	C
7	ALVES RANCH ROAD & W. LELAND ROAD	Signalized	AM	9.0	A
			PM	8.2	A
8	SOUTHWOOD DRIVE & W. LELAND ROAD	Signalized	AM	12.4	B
			PM	12.7	B
9	BAILEY ROAD & W. LELAND ROAD	Signalized	AM	34.6	C
			PM	24.4	C
10	BAILEY ROAD & SR-4 EB RAMPS	Signalized	AM	11.7	B
			PM	20.2	C
11	BAILEY ROAD & CANAL ROAD / SR-4 WB ON-RAMPS	Signalized	AM	22.3	C
			PM	17.8	B

SOURCE: Abrams Associates, 2020

NOTES: HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop controlled intersections the results for the worst side street approach are presented.

Class III – Provides a route designated by signs or permanent markings and shared with pedestrians and motorists.

Class IV – Provides an exclusive facility for bicyclists that is located within or directly adjacent to the roadway and is physically separated from motor vehicle traffic with a vertical element. They are sometimes referred to as a separated bike lane.

In the immediate project vicinity there are sidewalks in most areas and along the project frontages. There are also marked crosswalks, pedestrian push buttons, and pedestrian signals provided at the adjacent signalized intersection of West Leland Road at San Marco Boulevard. West Leland Road has Class II bicycle lanes in the study area. Class II facilities are also provided on Bailey Road between Willow Pass Road and just south of the City limit, and on San Marco Boulevard between West Leland Road and Willow Pass Road. There are also several Class I trails in the area, including the Delta De Anza Regional Trail and a Class I trail along the west side of San Marco Boulevard.

3.7 Transit Service

Two major public transit operators provide service within or adjacent to the study area. These include BART and the Eastern Contra Costa Transit Authority (or Tri Delta Transit). These operators are described below.

Bay Area Rapid Transit (BART) – BART is a rapid mass transit system which provides regional transportation connections to much of the Bay Area. It runs from the North Bay Area in Richmond to the South Bay Area in Fremont. In the east-west direction it runs from Pittsburg to the San Francisco Airport and Milbrae with several connections in Oakland. The Pittsburg/Bay Point BART station, which is closest to the proposed project, serves all of Pittsburg, Bay Point, Antioch, and all other surrounding cities and runs from 4:00 am to 12:00 am daily, with a weekday frequency of 15 minutes. An E-BART extension to Hillcrest Avenue in Antioch connects with BART at the Bay Point BART station. Please note there is also an E-BART Station at Railroad Avenue.

Tri Delta Transit - Tri Delta Transit serves the East County including Brentwood, Oakley, Pittsburg, Antioch, Bay Point and unincorporated areas of East County. Tri Delta Transit operates fourteen local bus routes from Monday to Friday, including three express services, and four local bus routes during weekends and Holidays. The Tri Delta Transit route that runs closest to the proposed project is Route 200 with an eastbound stop adjacent to the project site on West Leland Road and the eastbound stop across the street on San Marco Boulevard. This route operates on weekdays from about 6:30 AM to 6:00 PM with approximately one-hour headways. The route provides a connection to the Pittsburg/Bay Point BART station where ten of the nineteen TriDelta Transit bus routes make connections (Routes 200, 201, 380, 387, 388, 389, 390, 392, 394 and 396).

4) REGULATORY CONTEXT

Existing policies, laws and regulations that apply to the proposed project are summarized below.

4.1 State

The California Department of Transportation (Caltrans) has jurisdiction over State highways. Therefore, Caltrans controls all construction, modification, and maintenance of State highways, such as SR 4. Any improvements to these roadways would require Caltrans' approval. The Guide for the Preparation of Traffic Impact Studies provides consistent guidance for Caltrans staff who review local development and land use change proposals. The Guide also informs local agencies about the information needed for Caltrans to analyze adverse effects on state highway facilities which include freeway segments, on- or off-ramps, and signalized intersections.

4.2 Local

Contra Costa Countywide Comprehensive Transportation Plan Update (2017) - The transportation policies that are currently applicable within Contra Costa County are based on the Contra Costa County Comprehensive Transportation Plan. This document identifies the criteria for analyzing adverse effects on transportation and sets forth plans for future roadway improvements in the county.

City of Pittsburg General Plan - The Transportation and Circulation Element included in the City of Pittsburg General Plan was prepared pursuant to Section 65302(b) of the California Government Code. The Transportation and Circulation Element addresses the location and extent of existing and planned transportation routes, terminals, and other local public utilities and facilities. The General Plan identifies roadway and transit goals and policies that have been adopted to ensure that the transportation system of the City will have adequate capacity to serve planned growth. These goals and policies are intended to provide a plan and implementation measures for an integrated, multi-modal transportation system that will safely and efficiently meet the transportation needs of all economic and social segments of the City.

4.3 Significance Criteria

The project would be considered to have an adverse effect if it would:

- *Conflict with an applicable program, plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian facilities/paths?*

  The goal of the City of Pittsburg (City) is to maintain a Level of Service (LOS) D during the peak hours with LOS E permissible at intersections along Bailey Road, as established in the East County Action Plan.[4] Please note that all project study intersections are located on roadways designated as routes of regional significance except for one – Intersection #4 (San Marco Boulevard at the Proposed Project Entrance). At this location a LOS standard of mid-D (30 seconds of delay or less) would apply to this unsignalized intersection, as per the City of Pittsburg's General Plan. Please note the City does not have plans, ordinances, or policies establishing measures of effectiveness for the performance of other parts of its circulation system.

  This analysis also includes intersections under the jurisdiction of Contra Costa County and Caltrans. For the Caltrans freeway facilities, the operational standards and significance criteria are established by the Contra Costa Transportation Authority (CCTA) acting as the designated Congestion Management Agency (CMA) representing

[4] *East County Action Plan for Routes of Regional Significance*, Fehr & Peers Associates, Walnut Creek, CA, September 2017.

the jurisdictions of Contra Costa County. As the acting CMA, the CCTA establishes the traffic LOS standards for all state highway facilities in Contra Costa County, which supersede the general Caltrans operational standard for all state highways.[5]

The City's and CCTA's measures of effectiveness are summarized below:

Signalized Intersections - Project-related adverse effects on the signalized study intersections in the City of Pittsburg are considered significant if project-related traffic causes the Level of Service (LOS) rating to deteriorate from LOS D to LOS E or F, or from LOS E to LOS F on routes of regional significance. For intersections already operating at an unacceptable LOS without the project it is considered an adverse effect if the project increases the average intersection delay by more than 5 seconds.

Unsignalized Intersections - Project-related adverse effects on unsignalized intersections are considered significant if project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections and roundabouts) to deteriorate from LOS D or better to LOS E or F. For intersections already operating at an unacceptable LOS without the project it is considered an adverse effect if the project increases the average intersection delay by more than 5 seconds.

SR 4 Freeway - For the State Route 4 freeway the East County Action Plan specifies a maximum MTSO delay index of 2.5.[3] The MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to SR 160. For the Caltrans freeway facilities being studied, the operational standards and significance criteria are established by the CCTA acting as the designated Congestion Management Agency (CMA) representing the jurisdictions of CCC. As the acting Congestion Management Agency (CMA), the CCTA establishes the traffic LOS standards for all state highway facilities in CCC, which supersede the general Caltrans operational standard for all state highways. The LOS standard established for the two segments of SR 4 in the vicinity of the project is LOS F.

- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections).
- Result in inadequate emergency vehicle access.

[5] *2017 Contra Costa Congestion Management Plan*, Contra Costa Transportation Authority, Walnut Creek, CA, 94598, March 2018.

5) ADVERSE EFFECTS AND COUNTERMEASURES

5.1 Project Trip Generation

The proposed project would consist of a shopping center with a 3,500 square foot sit-down restaurant, an 1,826 square foot fast food restaurant with a drive through, and a 29,822 square foot commercial building which has been assumed to be a supermarket as a worst case scenario. The resulting trip generation calculations are shown in **Table 4**. They are based on the trip generation rates for a High Turnover Sit-Down Restaurant (Land Use Code 932), and Fast Food Restaurant with a drive through (Land Use Code 5934) and for a Supermarket (Land Use Code 850) from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition.

TABLE 4
PROJECT TRIP GENERATION CALCULATIONS

Land Use	ITE Code	Size	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
ITE Restaurant Trip Rates - Trips per ksf	932		112.18	5.47	5.47	9.94	6.06	3.71	9.77
Restaurant Trip Generation		*3,500 sq. ft.*	*393*	*19*	*16*	*35*	*21*	*12*	*34*
Reduction for Pass-By/Non-Auto Trips (43%)			169	8	7	15	9	5	15
Subtotals for the Restaurant			*224*	*11*	*9*	*20*	*12*	*7*	*19*
ITE Fast Food With Drive Through Trip Rates - Trips per ksf	934		470.95	20.50	19.69	40.19	16.99	15.68	32.67
Fast Food Trip Generation		*1,826 sq. ft.*	*860*	*37*	*36*	*73*	*31*	*29*	*60*
Reduction for Pass-By/Non-Auto Trips (50%)			430	19	18	37	15	15	30
Subtotals for the Fast Food			*430*	*18*	*18*	*36*	*16*	*14*	*30*
ITE Supermarket Trip Rates - Trips per ksf	850		106.78	2.29	1.53	3.82	4.71	4.53	9.24
Supermarket Trip Generation		*29,822 sq. ft.*	*3,184*	*68*	*45*	*114*	*140*	*135*	*275*
Reduction for Pass-By/Non-Auto Trips (36%)			1,146	24	16	41	50	49	99
Subtotals for the Supermarket			*2,038*	*44*	*29*	*73*	*90*	*86*	*176*
Net New Project Trip Generation			**2,692**	**73**	**56**	**129**	**118**	**107**	**225**

SOURCE: Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington D.C., 2019.

The total trip generation reflects all vehicle trips that would be counted at the project driveways, both inbound and outbound. The specific ITE pass-by reductions for each use were also included in the calculations to account for the portion of customers that would come from traffic already passing by the site. For purposes of determining the reasonable worst-case effects of traffic on the surrounding street network from a proposed project, the trips generated by this proposed development are estimated for the peak commute hours which represent the peak of "*adjacent street traffic*". This is the time period when the project traffic would generally contribute to the greatest amount of congestion. As shown in **Table 4**, the project is forecast to generate approximately 129 net new vehicle trips on the surrounding roadway system during the AM peak hour and 225 trips during the PM peak hour.

5.2 Project Trip Distribution

The trip distribution assumptions have been based on the project's proximity to freeway interchanges, the existing directional split at nearby residential neighborhoods and local intersections, and the overall land use patterns in the area as determined from the Countywide Travel Demand Model. **Figure 5** shows the percentage of project traffic assigned to various study roadways. **Figure 6** shows the project traffic that would be added at each of the study intersections. Please note it is expected that some motorists would need to make U-turns on West Leland Road at San Marco Boulevard and at Toscana Drive to access the site from westbound West Leland Road. The effects of these additional U-turns have been evaluated as part of the level of service analysis for these intersections. Please note that Synchro software implementing the 6th Edition of the HCM does not allow U-turns to be shown in the outputs.

5.3 Existing Plus Project Traffic Capacity Conditions (Scenario 2)

This scenario evaluates the existing conditions with the addition of traffic from the proposed project. The traffic volumes for each of the study intersections for the Existing Plus Project scenario are shown in **Figure 7**. The capacity calculations for the Existing Plus Project scenario are shown in **Table 5**. The corresponding LOS analysis calculation sheets are presented in the Traffic Analysis Appendix. As shown in **Table 5**, all of the existing project study intersections currently have acceptable during the weekday AM and PM peak hours with the exception of Intersections #3 and #6 (West Leland Road at both San Marco Boulevard and Toscana Drive) which would continue to exceed the established LOS thresholds. Please note the addition of project traffic would be considered an adverse effect at Intersection # 3 (San Marco Boulevard and West Leland Road) and would increase the intersection delay by more than five seconds as per the criteria described in Section 4.3. Both of the intersections are forecast to continue exceeding the City's LOS standards regardless of whether or not the proposed project is implemented. Please note that an evaluation of traffic signal warrants for Intersection #6 (West Leland Road at Toscana Drive) verified that even with the addition of traffic from the proposed project a traffic signal will not be warranted at this intersection until the planned apartment project on the south side of West Leland Road is constructed. An evaluation of the peak hour

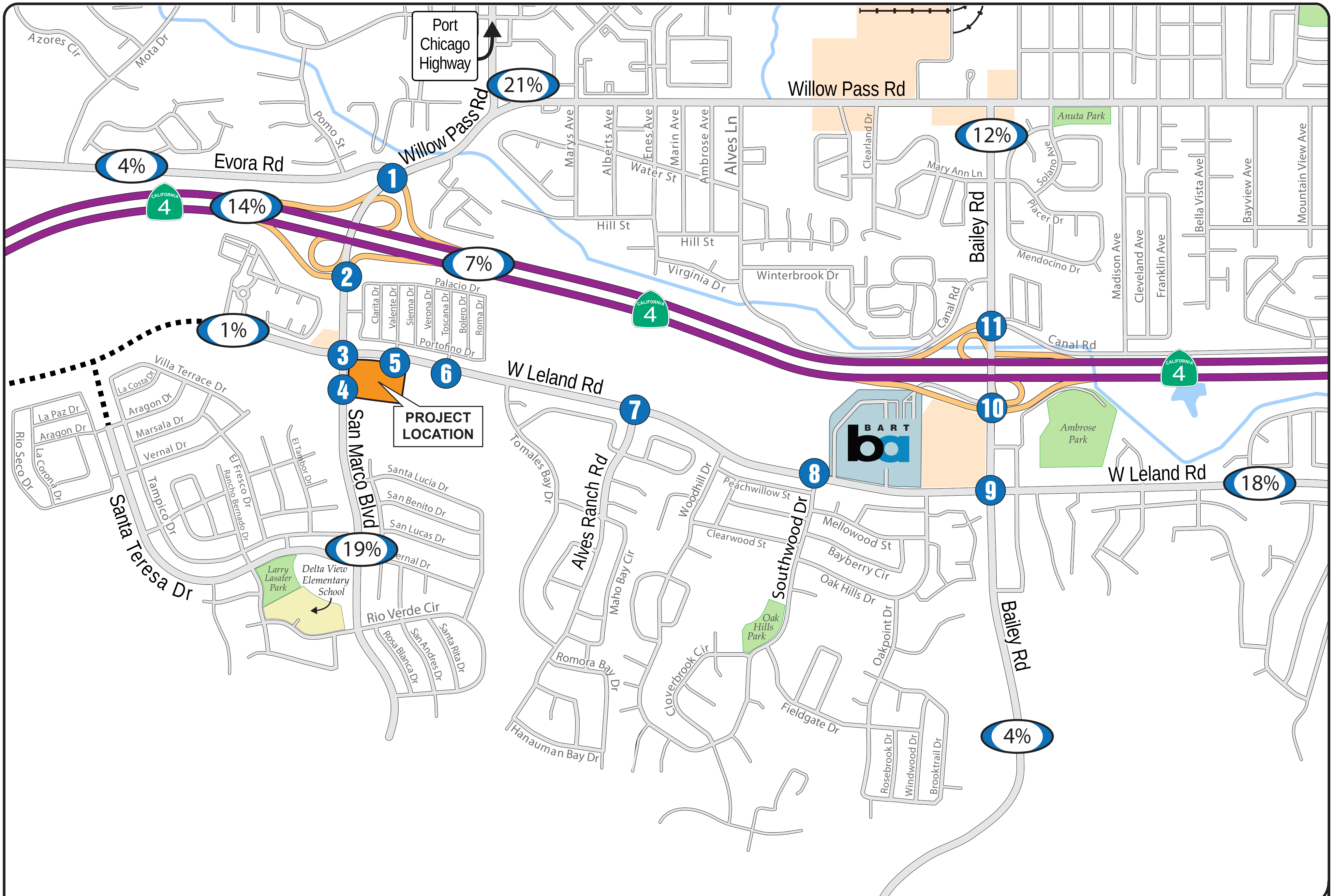


FIGURE 5 | PROJECT TRIP DISTRIBUTION ASSUMPTIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Center

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

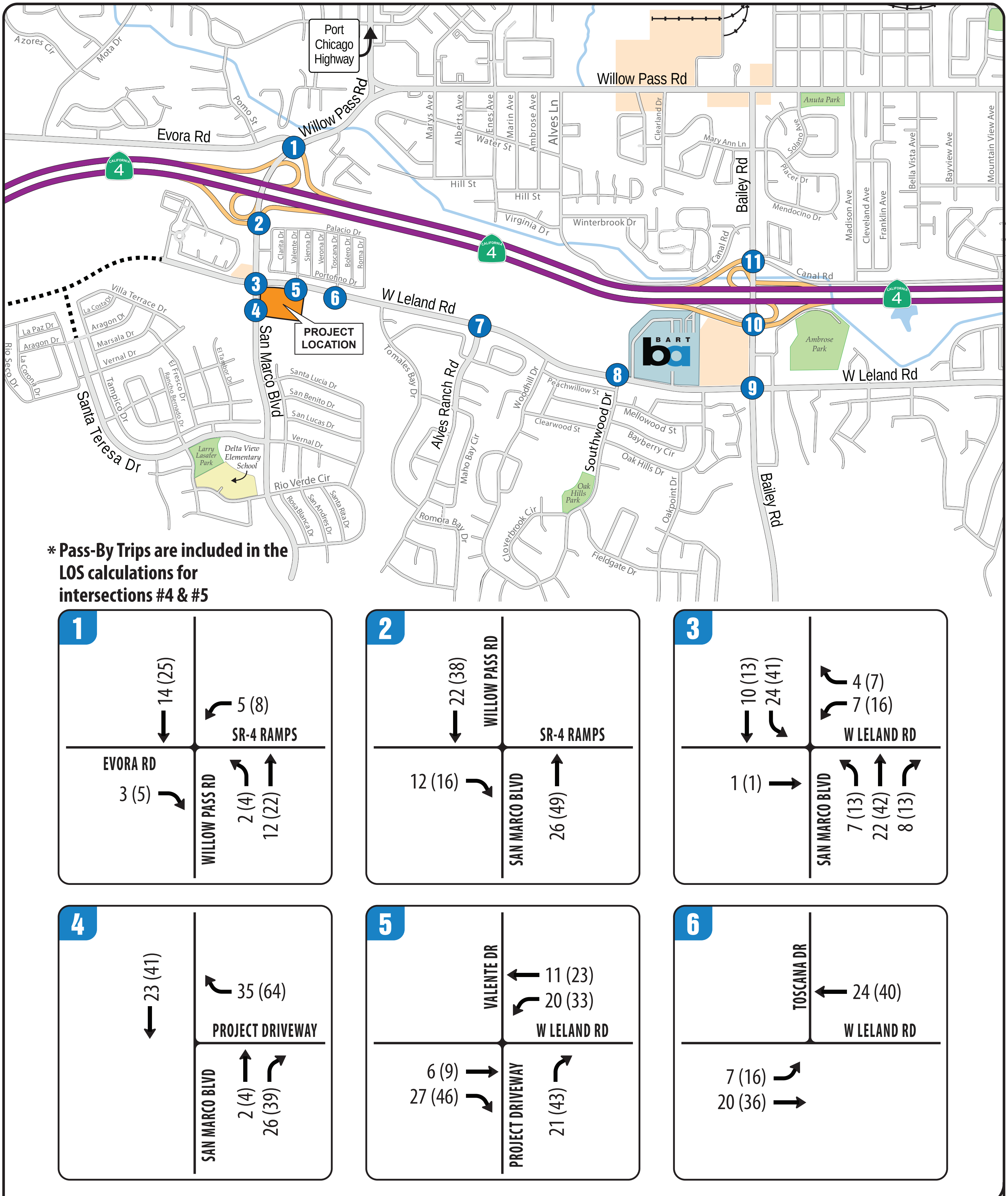


FIGURE 6A | PROJECT AM(PM) PEAK HOUR TRIPS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

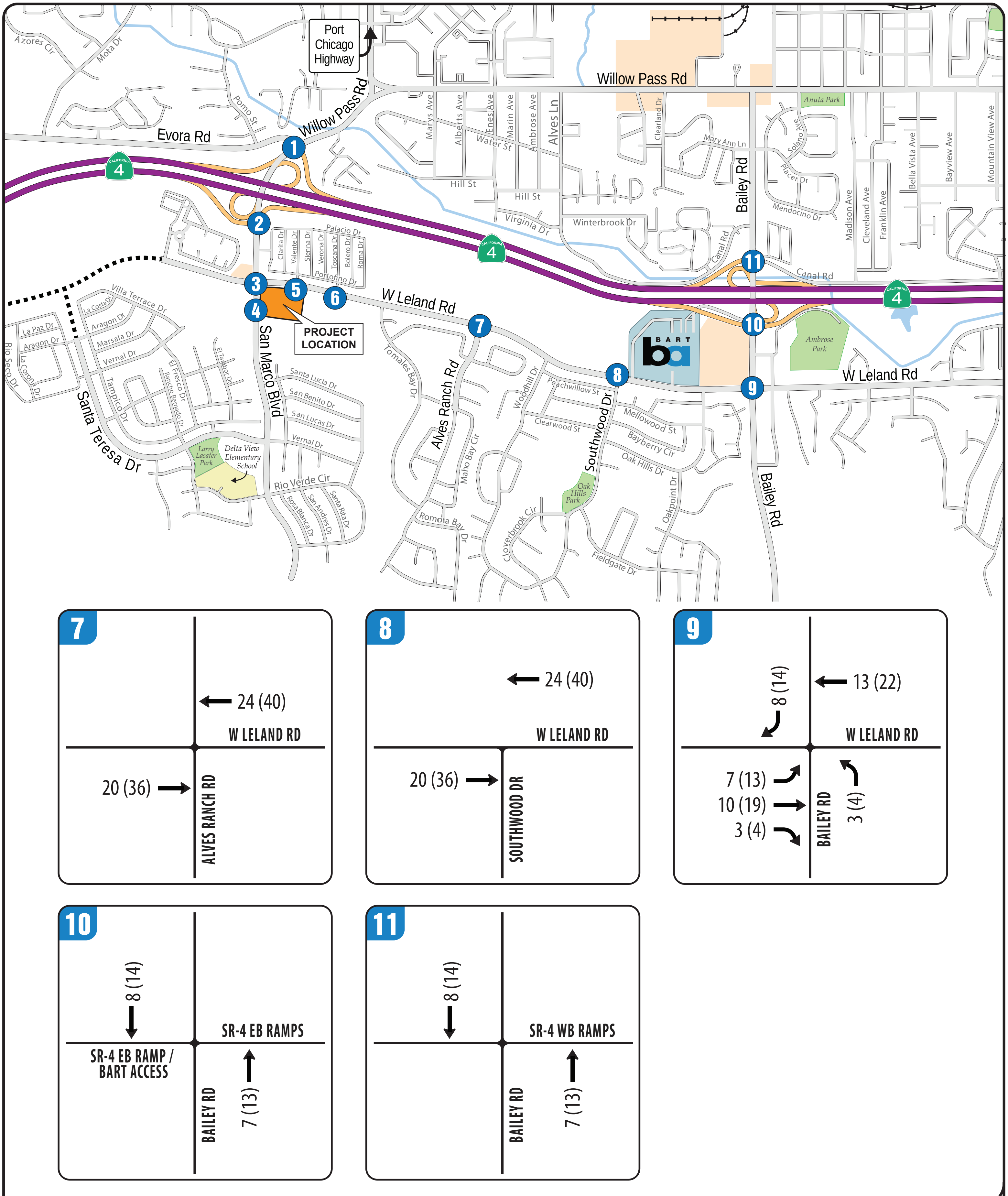


FIGURE 6B | PROJECT AM(PM) PEAK HOUR TRIPS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

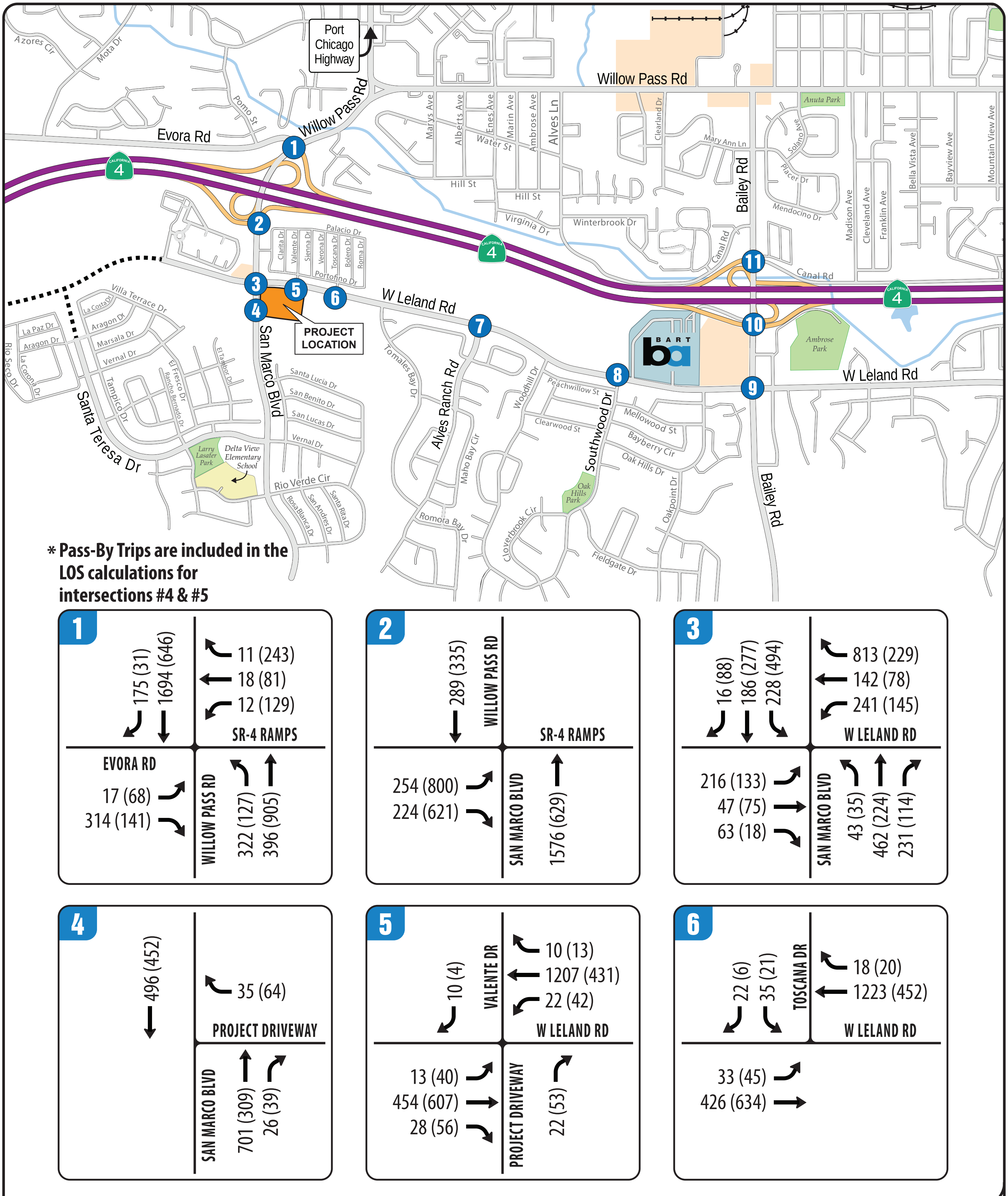


FIGURE 7A | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

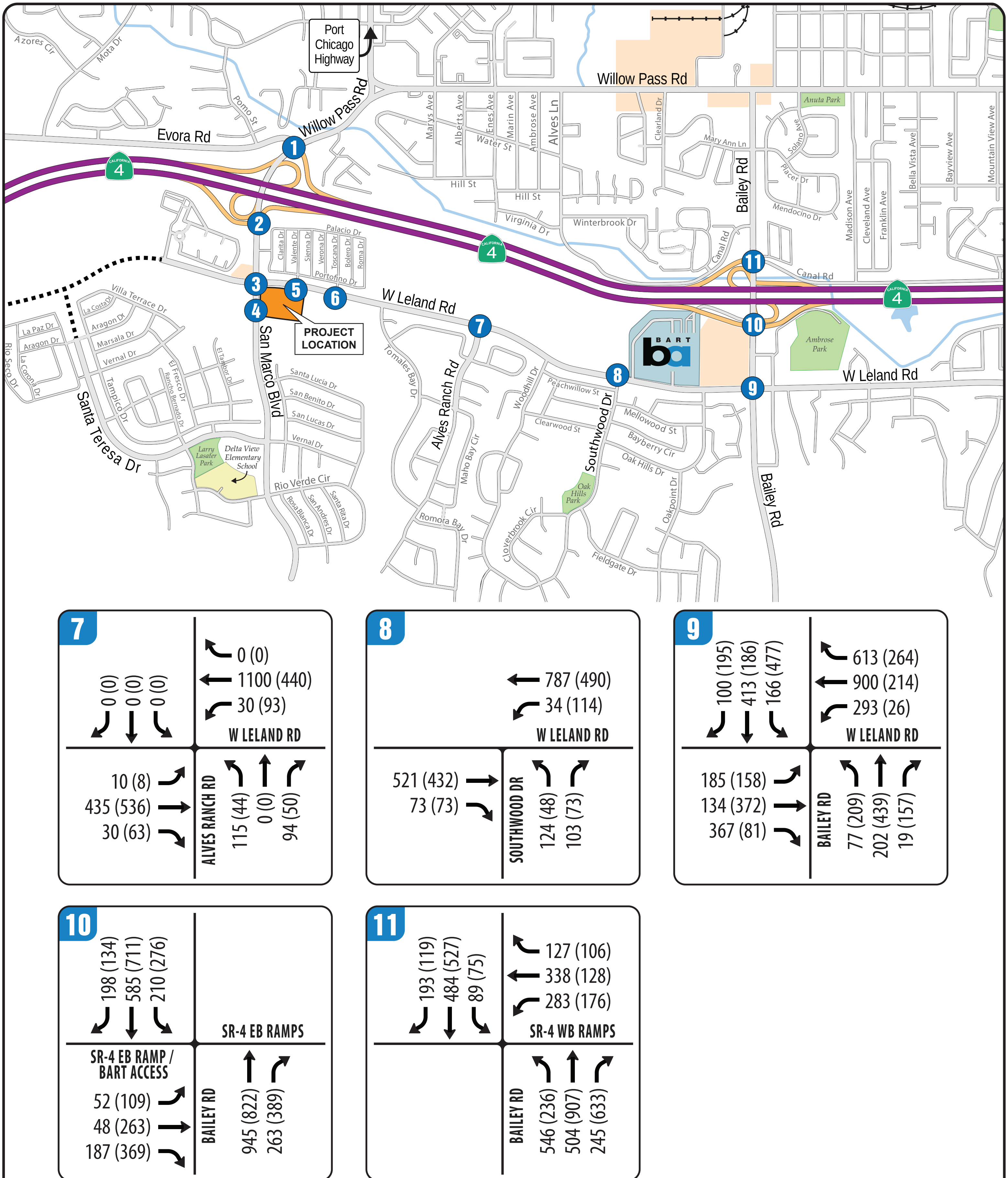


FIGURE 7B | EXISTING PLUS PROJECT AM(PM) PEAK HOUR TRAFFIC VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 5
EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	EXISTING		EXISTING PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	EVORA ROAD / SR-4 WB OFF-RAMP & WILLOW PASS ROAD	Signalized	AM	44.2	D	44.5	D
			PM	9.9	A	10.1	B
2	SR-4 EB OFF-RAMP & SAN MARCO BOULEVARD / WILLOW PASS ROAD	Signalized	AM	8.6	A	8.9	A
			PM	9.6	A	10.3	B
3	SAN MARCO BOULEVARD & W. LELAND ROAD	Signalized	AM	**>80**	**F**	**>80**	**F**
			PM	21.0	C	22.5	C
4	SAN MARCO BOULEVARD & PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	11.9	B
			PM	N/A	N/A	10.2	B
5	VALENTE DRIVE / PROJECT DRIVEWAY & W. LELAND ROAD	Side Street Stop	AM	14.8	B	15.0	C
			PM	10.8	B	12.1	B
6	TOSCANA DRIVE & W. LELAND ROAD	Side Street Stop	AM	**>50**	**F**	**>50**	**F**
			PM	17.2	C	19.4	C
7	ALVES RANCH ROAD & W. LELAND ROAD	Signalized	AM	9.0	A	9.0	A
			PM	8.2	A	8.1	A
8	SOUTHWOOD DRIVE & W. LELAND ROAD	Signalized	AM	12.4	B	12.4	B
			PM	12.7	B	12.7	B
9	BAILEY ROAD & W. LELAND ROAD	Signalized	AM	34.6	C	35.8	D
			PM	24.4	C	24.9	C
10	BAILEY ROAD & SR-4 EB RAMPS	Signalized	AM	11.7	B	11.7	B
			PM	20.2	C	20.3	C
11	BAILEY ROAD & CANAL ROAD / SR-4 WB ON-RAMPS	Signalized	AM	22.3	C	22.4	C
			PM	17.8	B	17.8	B

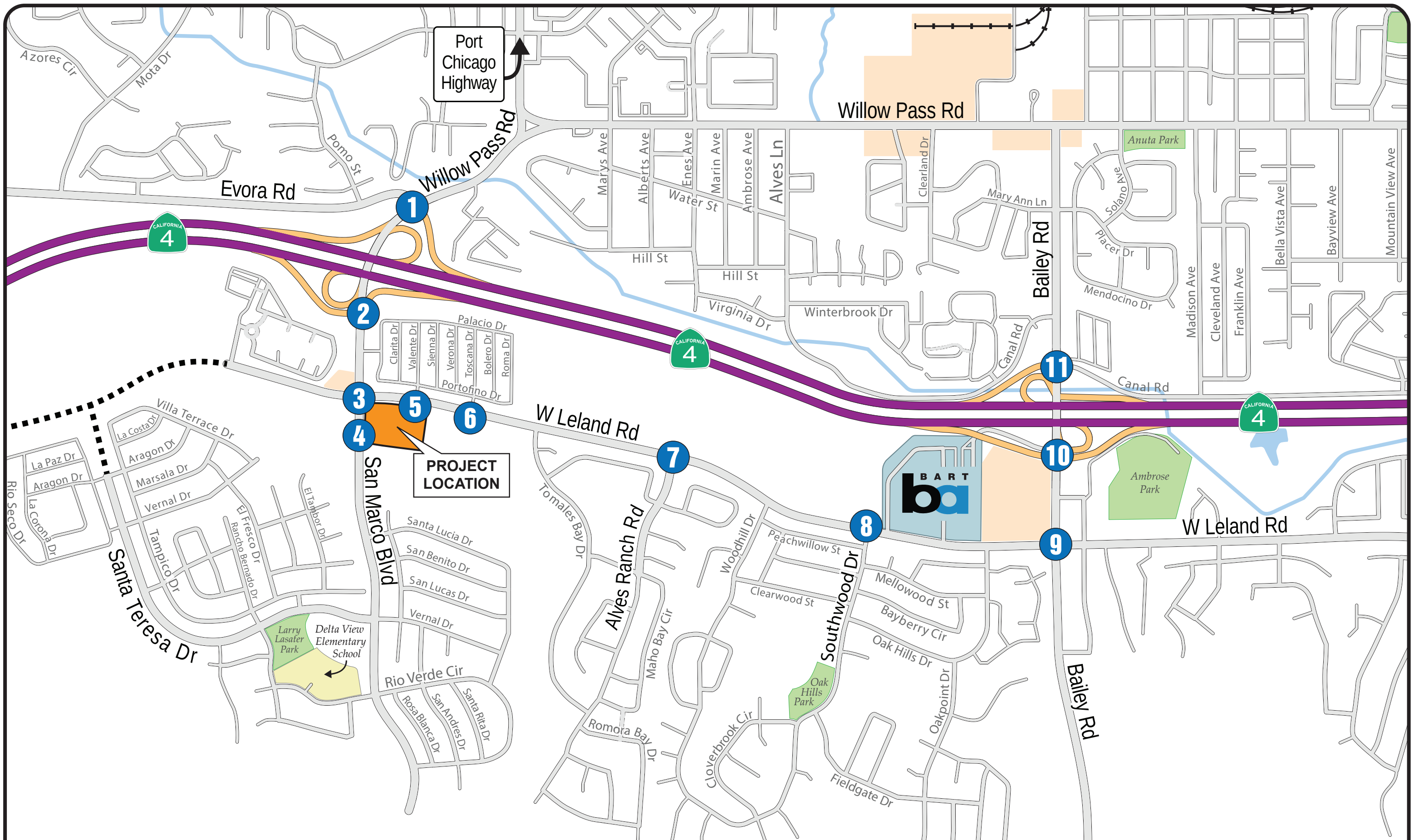
SOURCE: Abrams Associates, 2020

NOTES: HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop controlled intersections the results for the worst side street approach are presented.

traffic signal warrant at this intersection is included in the technical appendix to this report. Mitigations to improve the operations at these intersections are discussed in Section 5.14.

5.4 Baseline Traffic Capacity Conditions (Scenario 3)

The Baseline scenario evaluates the existing conditions with the addition of traffic from reasonably foreseeable projects in the area and general baseline growth in traffic. For this analysis the baseline volumes were developed based on the assumption that the project completion and full occupancy date would be 2022 with an average traffic growth of 1% per year. Traffic volumes for approved projects in the area were also derived from the Alves Ranch TIA.[3] The traffic volumes for each of the study intersections for the Baseline scenario are shown in **Figure 8**. **Table 6** summarizes the associated LOS computation results for the Baseline weekday AM and PM peak hour conditions.



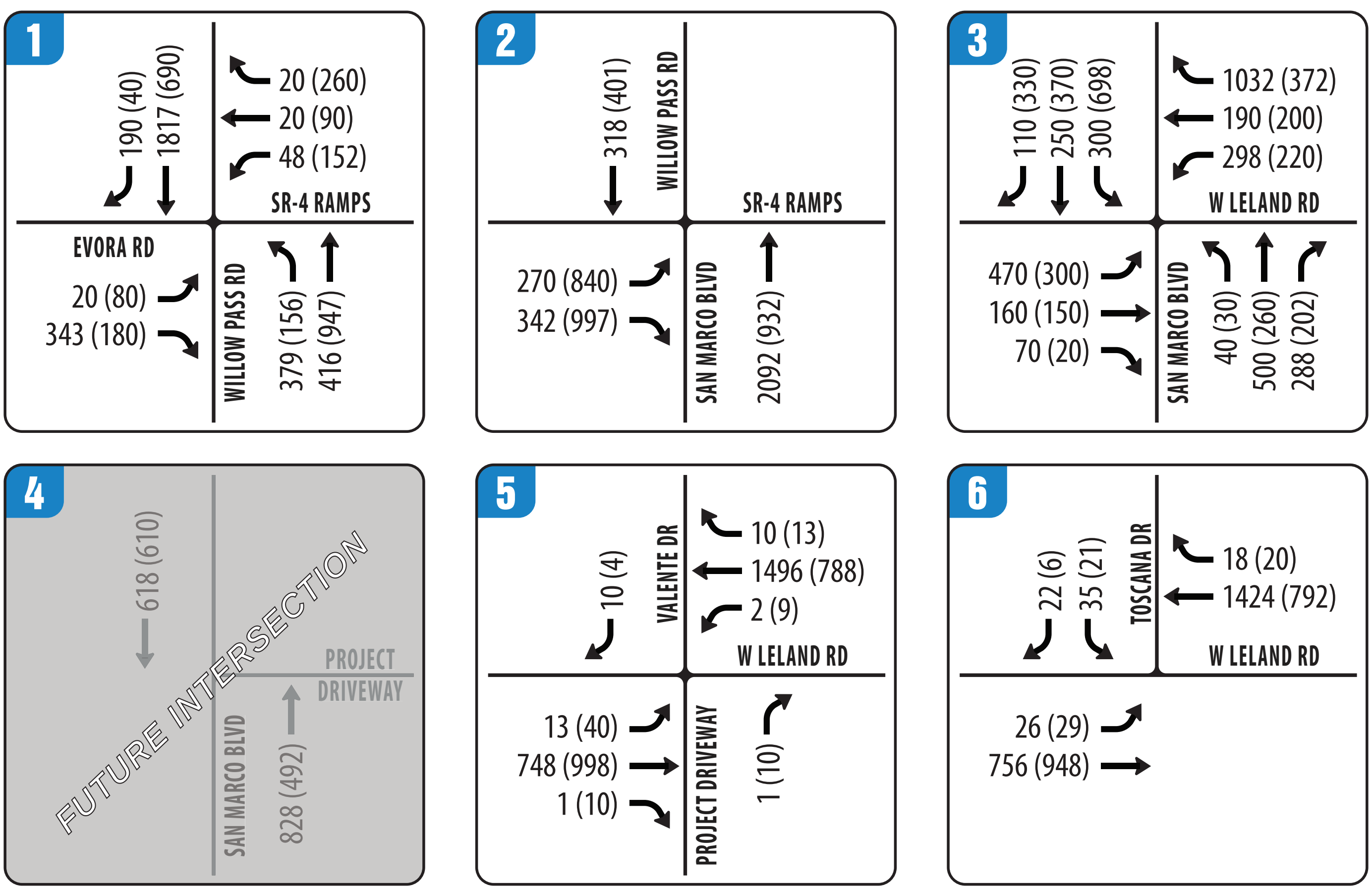


FIGURE 8A | BASELINE PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

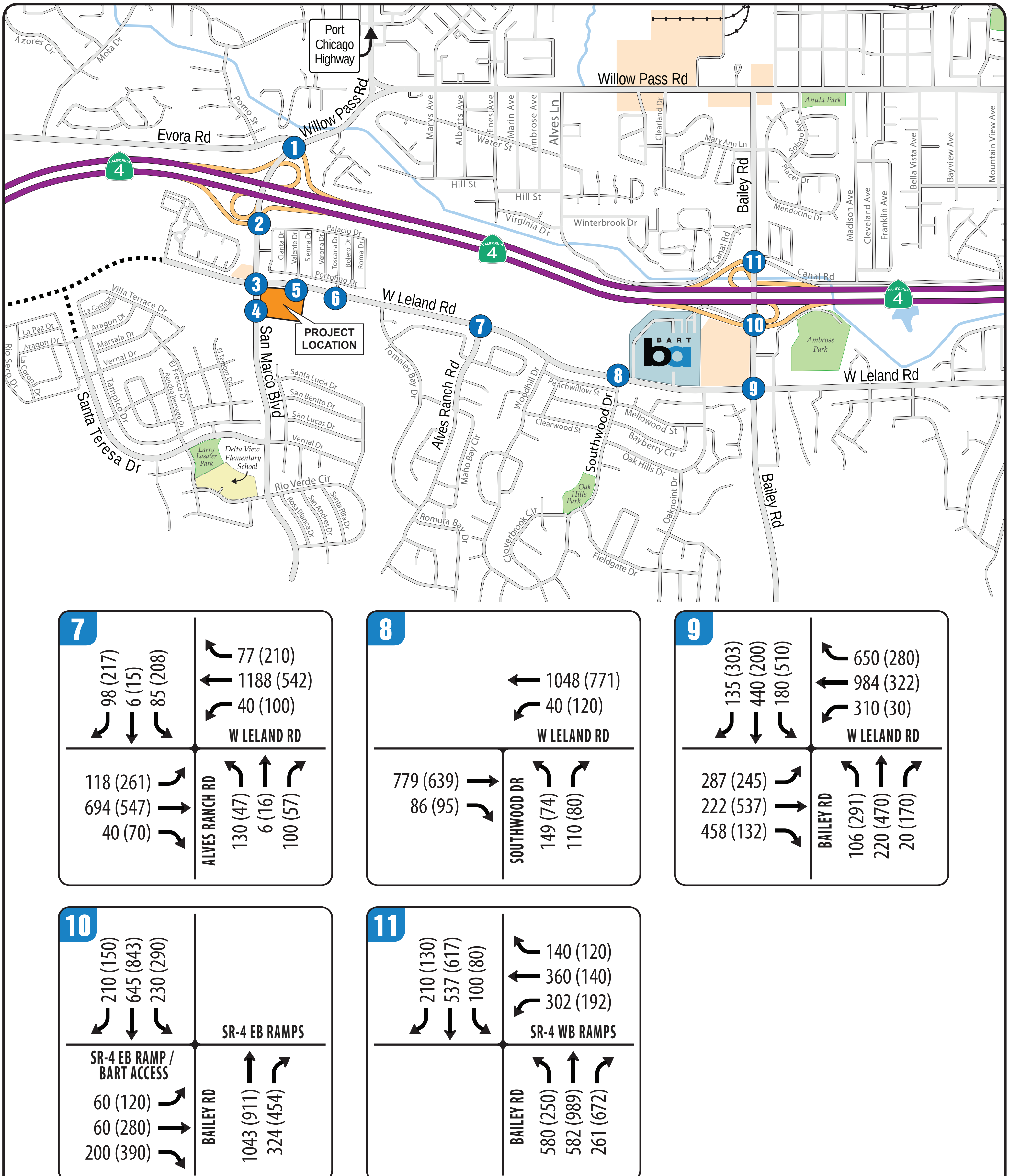


FIGURE 8B | BASELINE PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

5.5 Baseline *Plus Project* Traffic Capacity Conditions (Scenario 4)

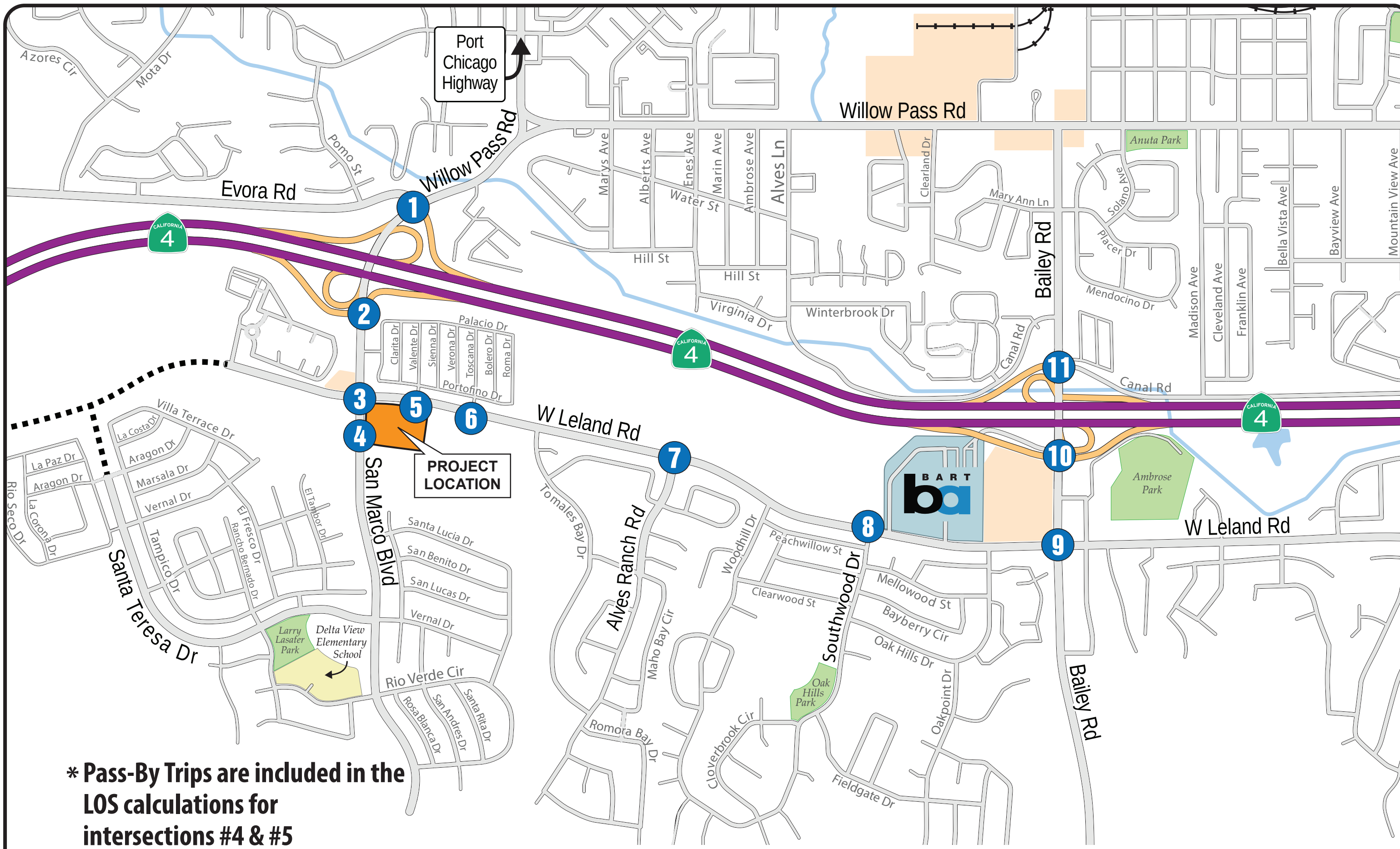
The Baseline plus proposed project traffic forecasts were developed by adding traffic from proposed project to the baseline traffic volumes. The traffic volumes for each of the study intersections for the Baseline Plus Project scenario are shown in **Figure 9**. **Table 6** summarizes the LOS results for the Baseline and Baseline Plus Project weekday AM and PM peak hour conditions. The corresponding LOS analysis calculation sheets and a trip distribution figure for this scenario, accounting for construction of the Alves Ranch Project, are presented in the appendix. As shown in **Table 6**, all of the signalized study intersections would continue to have acceptable conditions (LOS D or better) under the Baseline Plus Project scenario during the weekday AM and PM peak hours with the exception of Intersections #3 and #6 (West Leland Road at both San Marco Boulevard and Toscana Drive) which would continue to exceed the established LOS thresholds.

TABLE 6
BASELINE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

INTERSECTION		CONTROL	PEAK HOUR	BASELINE		BASELINE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	EVORA ROAD / SR-4 WB OFF-RAMP & WILLOW PASS ROAD	Signalized	AM	46.6	D	47.6	D
			PM	11.0	B	11.1	B
2	SR-4 EB OFF-RAMP & SAN MARCO BOULEVARD / WILLOW PASS ROAD	Signalized	AM	16.8	B	17.6	B
			PM	29.1	C	32.4	C
3	SAN MARCO BOULEVARD & W. LELAND ROAD	Signalized	AM	**>80**	**F**	**>80**	**F**
			PM	**55.6**	**E**	**64.1**	**E**
4	SAN MARCO BOULEVARD & PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	12.8	B
			PM	N/A	N/A	11.2	B
5	VALENTE DRIVE / PROJECT DRIVEWAY & W. LELAND ROAD	Side Street Stop	AM	17.7	C	17.9	C
			PM	13.0	B	15.6	C
6	TOSCANA DRIVE & W. LELAND ROAD	Side Street Stop	AM	**>50**	**F**	**>50**	**F**
			PM	**38.5**	**E**	**45.6**	**E**
7	ALVES RANCH ROAD & W. LELAND ROAD	Signalized	AM	25.7	C	26.7	C
			PM	23.2	C	23.6	C
8	SOUTHWOOD DRIVE & W. LELAND ROAD	Signalized	AM	13.2	B	13.2	B
			PM	12.3	B	12.1	B
9	BAILEY ROAD & W. LELAND ROAD	Signalized	AM	**57.1**	**E**	**58.4**	**E**
			PM	31.2	C	32.1	C
10	BAILEY ROAD & SR-4 EB RAMPS	Signalized	AM	12.8	B	12.9	B
			PM	24.0	C	24.0	C
11	BAILEY ROAD & CANAL ROAD / SR-4 WB ON-RAMPS	Signalized	AM	25.3	C	25.4	C
			PM	20.1	C	20.1	C

SOURCE: Abrams Associates, 2020

NOTES: HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop controlled intersections the results for the worst side street approach are presented.



* Pass-By Trips are included in the LOS calculations for intersections #4 & #5

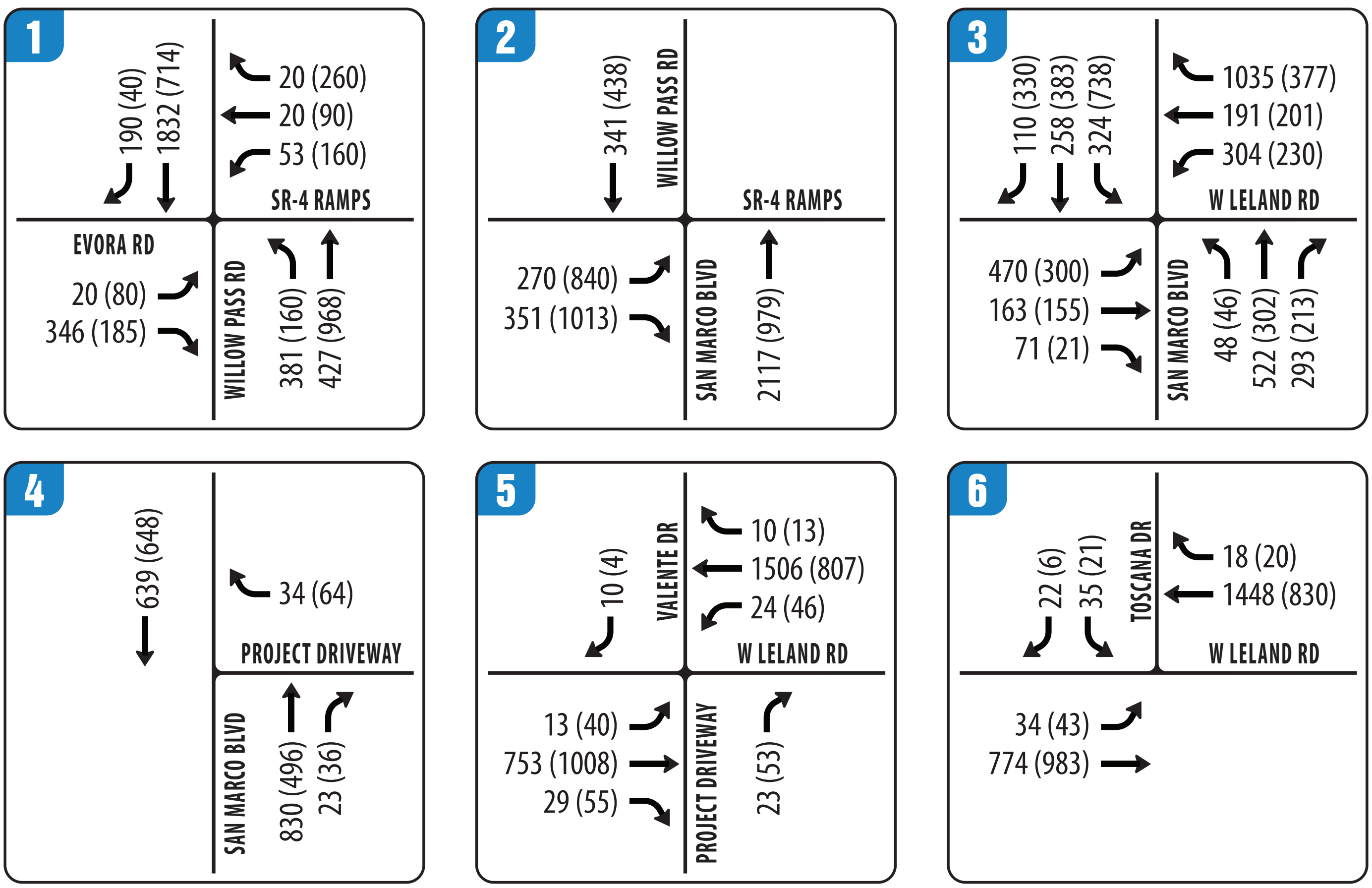


FIGURE 9A | BASELINE PLUS PROJECT AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

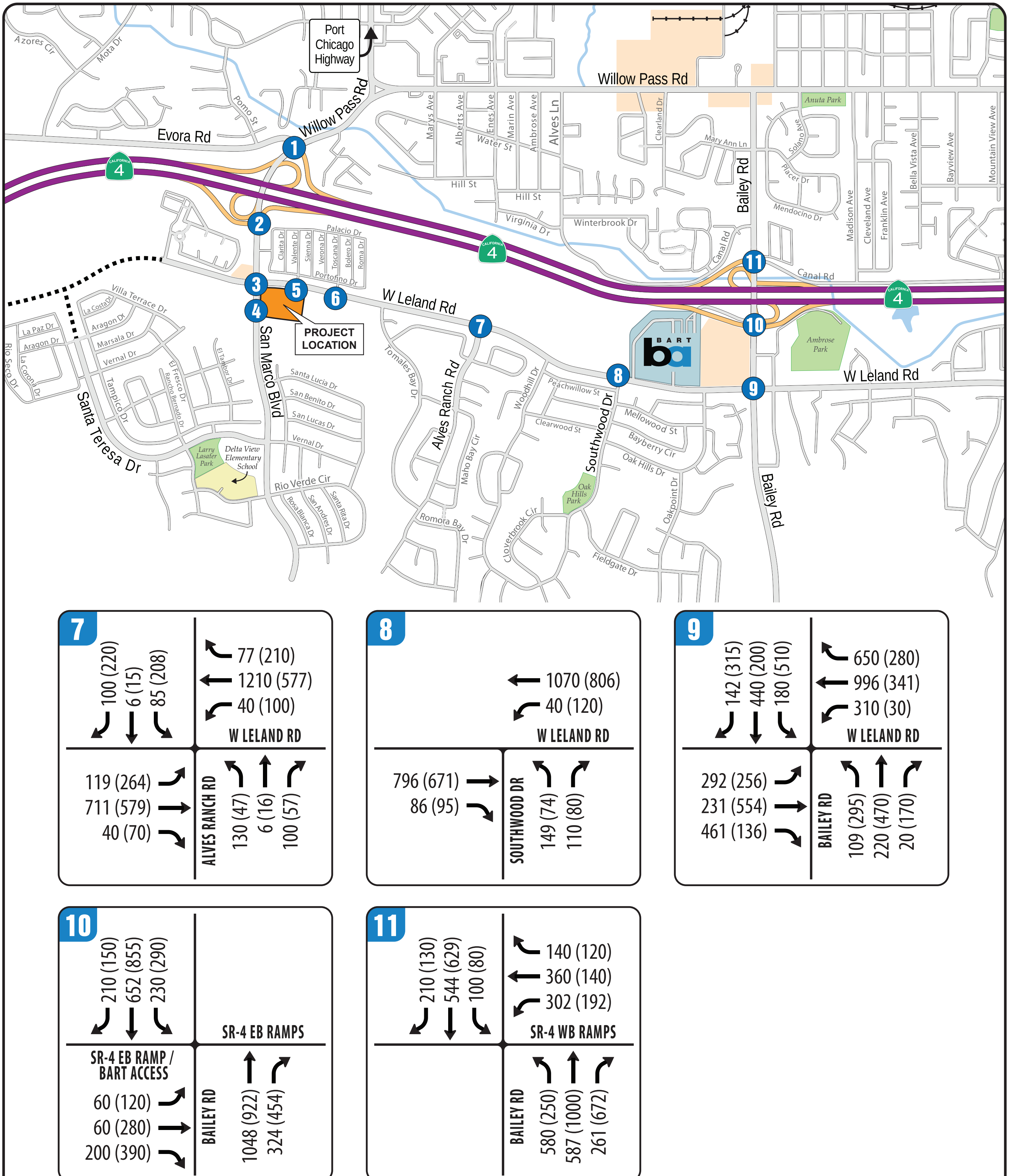


FIGURE 9B | BASELINE PLUS PROJECT AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

Please note the addition of project traffic would be considered to have an adverse effect at Intersection # 3 (San Marco Boulevard and West Leland Road) and would increase the intersection delay by more than five seconds as per the criteria described in Section 4.3. Both of the intersections are forecast to continue exceeding the City's LOS standards regardless of whether or not the proposed project is implemented. Caltrans traffic signal warrants were also evaluated at the unsignalized intersection of West Leland Road with Toscana Drive and it was verified that a traffic signal would not be warranted there until the planned apartments (Village M) are constructed on the south side of this intersection. Mitigations to improve the operations at these intersections are discussed in Section 5.14.

5.6 Internal Circulation and Safety

No internal site circulation or access issues have been identified that would cause a traffic safety problem or any unusual traffic congestion or delay. The proposed stop controlled intersections providing access to the project are forecast to have acceptable operations. Please note a stop sign would also be required at the project exit driveway where it connects to Valente Drive adjacent to the dog park. An analysis of sight distance was conducted at the project driveway on San Marco Boulevard and it was determined the proposed driveway locations would have over 500 feet of sight distance which would meet Caltrans standards even with the grades in the area. However, it should be noted that any fences proposed along the project frontages would need to be located so they do not interfere with sight distance at the project access intersections. If any fences ultimately need to be located within the sight distance areas they would need to be designed so that they would not significantly limit visibility of oncoming traffic. In addition, any landscaping proposed in the areas adjacent to the two proposed access driveways would need to be designed appropriately (i.e. in the areas that are normally identified by the City for sight distance at an intersection). In these areas any proposed landscaping would need to be designed and maintained so that ground cover is no higher than 2 feet and all trees are limbed up to at least 8 feet. In general, the project was not found to cause (or substantially increase) any safety hazards due to any design features or incompatible uses. Although the project would increase vehicle and pedestrian traffic in the project vicinity it is not expected to adversely affect or change the design of any existing facilities or create any new safety problems in the area. Based on the City's significance criteria the project's effects on transportation safety would be less than significant and no mitigation would be required.

5.7 Parking Analysis

Parking Requirements Based on the Pittsburg Municipal Code - Parking analysis is provided for planning and informational purposes only. This section discusses the City of Pittsburg's municipal code requirements for the project, which are outlined in Section 18.78.040. As per the City's Municipal Code, the minimum off-street parking requirement for this project this equates to a requirement of 174 spaces and the project is proposing to provide 179 off-street parking spaces in on-site surface parking lot. **Table 7** presents the Municipal Code parking calculations. As shown in **Table 7**, the project is proposing to provide 24 spaces less than required (179 spaces) based on the City's.

Table 7
Off-Street Parking Calculations Based on the Pittsburg Municipal Code

Land Use	Size		Parking Requirement	Required Spaces
Restaurants	8,100*	sq. ft.	1 space per 150 sq. ft.	54
Grocery Store	29,822	sq. ft.	1 space per 200 sq. ft.	149
Total Unadjusted Peak Parking Requirement				*203*

Note: * The square footage of the restaurants includes the outdoor seating areas.

Municipal Code. Since the project is currently proposing less than the City's parking requirements, subject to final City approval of the proposed parking plan, there could be parking effects on surrounding properties.

Parking Demand Based on ITE Parking Generation Rates - To provide additional justification for the parking demand analysis, Table 8 provides a summary of the parking demand results using the average ITE peak parking demand rates on a Friday for a Supermarket (ITE Land Use Code 850), a High-Turnover Sit-Down Restaurant (ITE Land Use Code 932), and a Fast-Food Restaurant with a Drive Through (ITE Land Use Code 934). The rates were taken from the 5th Edition of the ITE Parking Generation Manual. As shown in Table 8, the parking demand generated would be forecast to be approximately 200 parking spaces based on the ITE data.

Table 8
Off-Street Parking Calculations Using Parking Data from the Institute of Transportation Engineers

Land Use	Size		Parking Ratio	Estimated Demand
Supermarket	29,822	sq. ft.	4.59	137
Restaurant	3,500	sq. ft.	11.33	40
Fast Food	1,826	sq. ft.	12.41	23
Total Unadjusted Peak Parking Demand				*200*

5.8 Pedestrian and Bicycle Conditions

The City does not have level of service standards for pedestrian or bicycle facilities. Nevertheless, use of existing facilities by the users of the project would not be expected to overcrowd those facilities or decrease their performance or safety. The proposed project would not adversely affect or change the design of any existing pedestrian facilities and should not create any new safety problems for pedestrians in the area. The project will add some bicyclists in the area but the volumes added would not be expected to adversely affect any existing bicycle facilities. In relation to the existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not adversely affect or require changes to the design of any existing bicycle or pedestrian facilities. However, consistent with the City and County General Plans, the project would be required to provide adequate pedestrian facilities that connect it to the surrounding pedestrian network.

The potential for a marked crosswalk across West Leland Road in the vicinity of the project was evaluated as part of this study. Please note there is existing barricades and signage on West Leland Road at Valente Road prohibiting pedestrians from crossing West Leland Road at this intersection. Based on a review of the roadway geometry and the existing (and future) pedestrian and traffic volumes it is <u>not</u> recommended that a crosswalk be marked across West Leland Road at any uncontrolled locations along the segment adjacent to the project (i.e. at locations where there is no traffic signal). Please note there were no pedestrians observed crossing West Leland Road in this area during the traffic counts. It is acknowledged that pedestrian crossings most likely do occur in this area during off-peak hours, given there is a park on one side of West Leland Road and a residential neighborhood on the other. In addition, the likelihood pf pedestrian crossings in this area would be expected to increase as a result of construction of the proposed project. It is recommended the City to continue to direct pedestrians to cross West Leland Road at the safest locations, which would be the signalized intersection at San Marco Boulevard and the future signalized intersection at Toscana Drive. The City will require median fencing with pedestrian prohibition signage on West Leland Road, as well as education materials distributed to nearby residential neighborhood warning pedestrians of the dangers crossing West Leland Road, the prohibition of crossing West Leland Road at Valente Road, and directing them to safely cross at the signalized intersection at San Marco Blvd

5.9 Transit

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadway segments currently being utilized by bus transit in the area and, as such, no adverse effects to bus transit are expected. The proposed project would not interfere with BART or any existing bus routes and would not remove or relocate any existing bus stops. The proposed project could potentially help support existing bus services and BART service with additional transit ridership and would not conflict with any transit plans or goals of BART or Tri Delta Transit. As a result, the project would not be expected to result in any adverse effects on bus transit service in the area.

5.10 Cumulative Traffic Capacity Conditions (Scenario 5)

For the cumulative conditions, the intersection traffic volumes were based on the existing turning movements plus incremental growth in background traffic based on the County's traffic model and consistent with the Alves Ranch TIA.[3] Please note that forecasts for intersections not included in the Alves Ranch TIA (Intersections #5 and #6) were developed based on the County's traffic model and adjusted to be consistent with the nearest study intersections included in the Alves Ranch study. Future traffic was also added from the planned apartment project (Village M) on the south side of West Leland Road at Toscana Drive, consistent with the TIA for the Toscana Project.[6] **Figure 10** presents the cumulative build-out traffic volumes for the project study intersections. Future roadway improvements in the study area include the extension of West Leland Road to Avila Road, providing a connection to Willow Pass Road in Concord. **Table 9** summarizes the LOS results for the Cumulative (Year 2040) traffic conditions at each of the project study intersections. As shown on this table, the project study intersections would continue to have acceptable conditions during the weekday AM and PM peak commute hours with the exception of Intersections #3, #6, and #9 (West Leland Road at San Marco Boulevard, Toscana Drive and Bailey Road) which would all exceed the established LOS thresholds. Please note that the addition of project traffic would be considered to have an adverse effect at Intersections # 3 and #9 (San Marco Boulevard at West Leland Road and Bailey Road) as per the criteria described in Section 4.3. Both of these intersections are forecast to exceed City standards regardless of whether or not the project is implemented.

5.11 Cumulative Plus Project Traffic Capacity Conditions (Scenario 6)

Table 9 summarizes the LOS results for the Cumulative Plus Project (Year 2040) traffic conditions at each of the project study intersection. **Figure 11** presents the cumulative build-out traffic volumes including the traffic from the proposed project. A trip distribution figure for this scenario accounting for the West Leland Road extension is presented in the appendix. As shown on this table, all of the signalized study intersections would continue to have acceptable conditions during the weekday AM and PM peak commute hours with the exception of Intersections #3, #5, #6, and #9 (West Leland Road at San Marco Boulevard, Valente Drive, Toscana Drive and Bailey Road) which would all continue to exceed the established LOS thresholds. Please note the addition of project traffic would be considered an adverse effect at Intersections # 3, #5, and #9 (San Marco Boulevard at West Leland Road, at Valente Drive, and at Bailey Road) and would increase the intersection delay by more than five seconds as per the criteria described in Section 4.3. Mitigations to improve the operations at these intersections are discussed in Section 5.14.

5.12 Caltrans Freeway Facilities

Analysis of the Delay Index on the State Route 4 Freeway - The delay index measures travel congestion and is expressed as the ratio of the time required to travel between two points during the peak hour (the congested travel time) and the time required during un-congested off-peak times. A delay index of 2.0 means that congested travel time is twice as long as during an off-peak travel time.

---

[6] *Toscana at San Marco (Village A) Traffic Impact Study*, Abrams Associates Traffic Engineering, Walnut Creek, CA, April 13, 2012.

TABLE 9
CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE CONDITIONS

	INTERSECTION	CONTROL	PEAK HOUR	CUMULATIVE		CUMULATIVE PLUS PROJECT	
				Delay	LOS	Delay	LOS
1	EVORA ROAD / SR-4 WB OFF-RAMP & WILLOW PASS ROAD	Signalized	AM	51.1	D	52.0	D
			PM	11.6	B	11.8	B
2	SR-4 EB OFF-RAMP & SAN MARCO BOULEVARD / WILLOW PASS ROAD	Signalized	AM	17.3	B	18.0	B
			PM	20.1	C	22.5	C
3	SAN MARCO BOULEVARD & W. LELAND ROAD	Signalized	AM	**>80**	**F**	**>80**	**F**
			PM	**68.4**	**E**	**77.4**	**E**
4	SAN MARCO BOULEVARD & PROJECT DRIVEWAY	Side Street Stop	AM	N/A	N/A	13.6	B
			PM	N/A	N/A	11.6	B
5	VALENTE DRIVE / PROJECT DRIVEWAY & W. LELAND ROAD	Side Street Stop	AM	23.9	C	24.1	C
			PM	24.9	C	**43.1**	**E**
6	TOSCANA DRIVE & W. LELAND ROAD	Signalized	AM	22.1	C	23.8	C
			PM	20.7	C	29.2	C
7	ALVES RANCH ROAD & W. LELAND ROAD	Signalized	AM	42.2	D	42.9	D
			PM	50.6	D	53.7	D
8	SOUTHWOOD DRIVE & W. LELAND ROAD	Signalized	AM	33.6	C	36.4	D
			PM	42.0	D	45.3	D
9	BAILEY ROAD & W. LELAND ROAD	Signalized	AM	**>80**	**F**	**>80**	**F**
			PM	**>80**	**F**	**>80**	**F**
10	BAILEY ROAD & SR-4 EB RAMPS	Signalized	AM	18.7	B	18.8	B
			PM	39.1	D	39.6	D
11	BAILEY ROAD & CANAL ROAD / SR-4 WB ON-RAMPS	Signalized	AM	**67.5**	**E**	**67.9**	**E**
			PM	27.0	C	27.0	C

SOURCE: Abrams Associates, 2020

NOTES: HCM LOS results are presented in terms of average intersection delay in seconds per vehicle. For stop controlled intersections the results for the worst side street approach are presented.

The following shows the formula for calculating delay indices:

Delay Index = Measured Peak Hour Travel Time / Free Flow Travel Time

The numerator of the delay index formula, the measured peak hour travel time, was determined from speed runs conducted along State Route 4 during the AM and PM peak hours in the spring of 2017 as part of the Contra Costa Transportation Authority's Congestion Management Program 2017 Monitoring Report. The denominator of the delay index formula, the free flow travel time is defined as "*the time it takes to traverse a roadway segment at the speed limit including the average uncongested delay experienced at traffic signals*." It is important to note that achievement of the MTSO delay index and average speed is measured over the length of SR 4 from Willow Pass Grade to Balfour Road in the City of Brentwood. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5.[7] As shown in **Table 10** the project would not significantly increase the delay index under existing or cumulative conditions. However, the delay index on westbound SR 4 during the AM peak hour is forecast to exceed

[7] *Draft East County Action Plan for Routes of Regional Significance*, Fehr & Peers Associates, Walnut Creek, CA, November 2013.

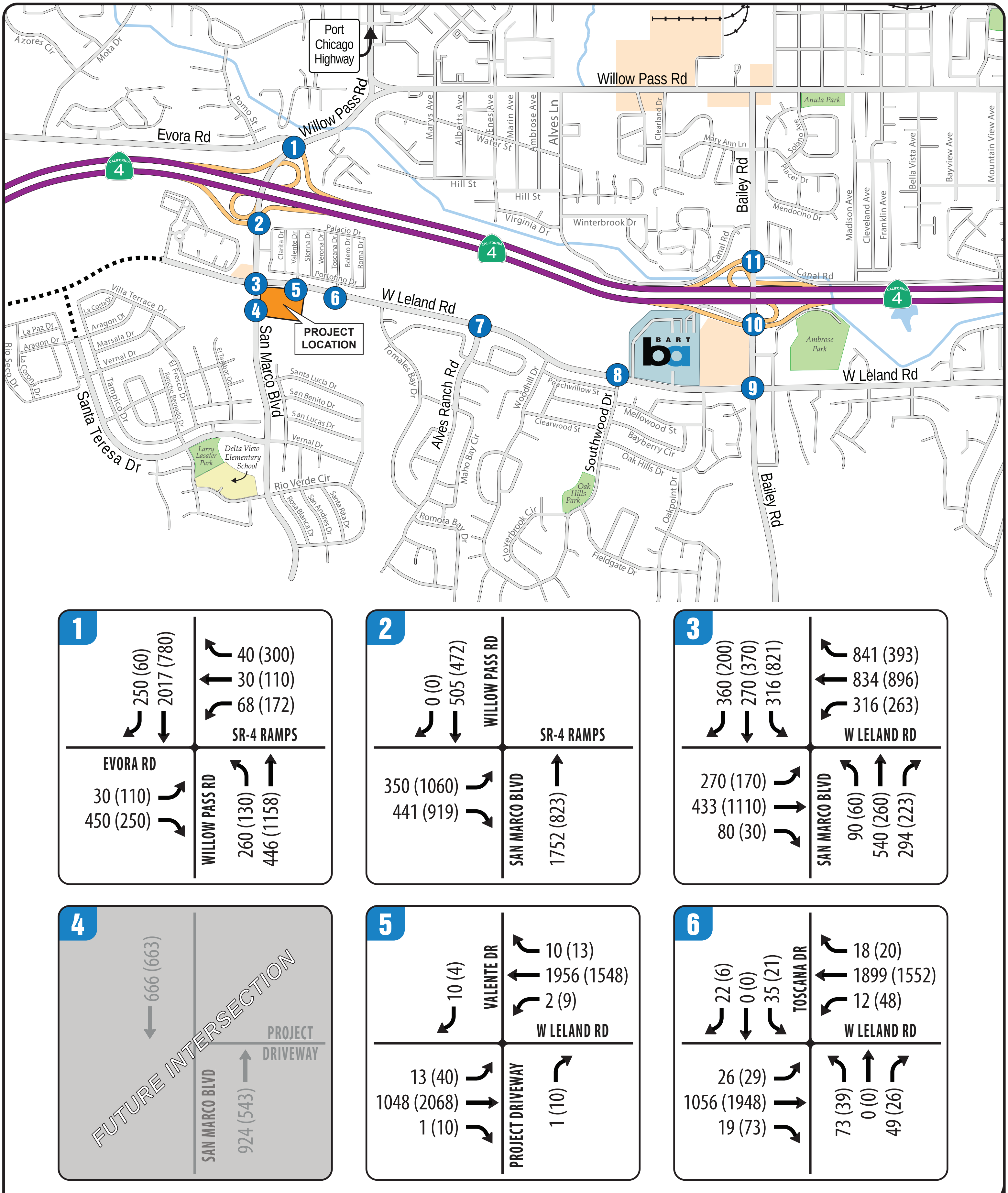


FIGURE 10A | CUMULATIVE AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

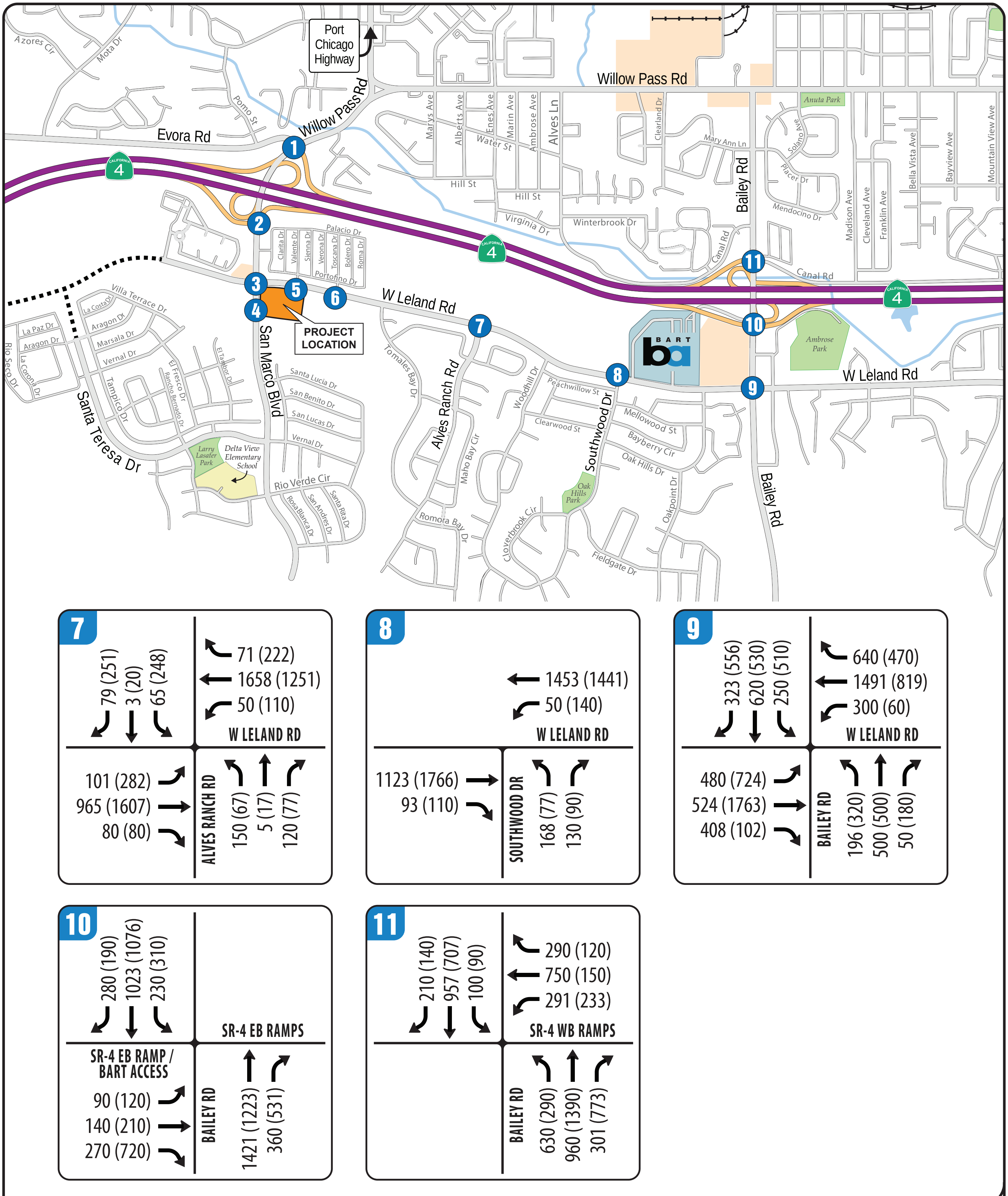


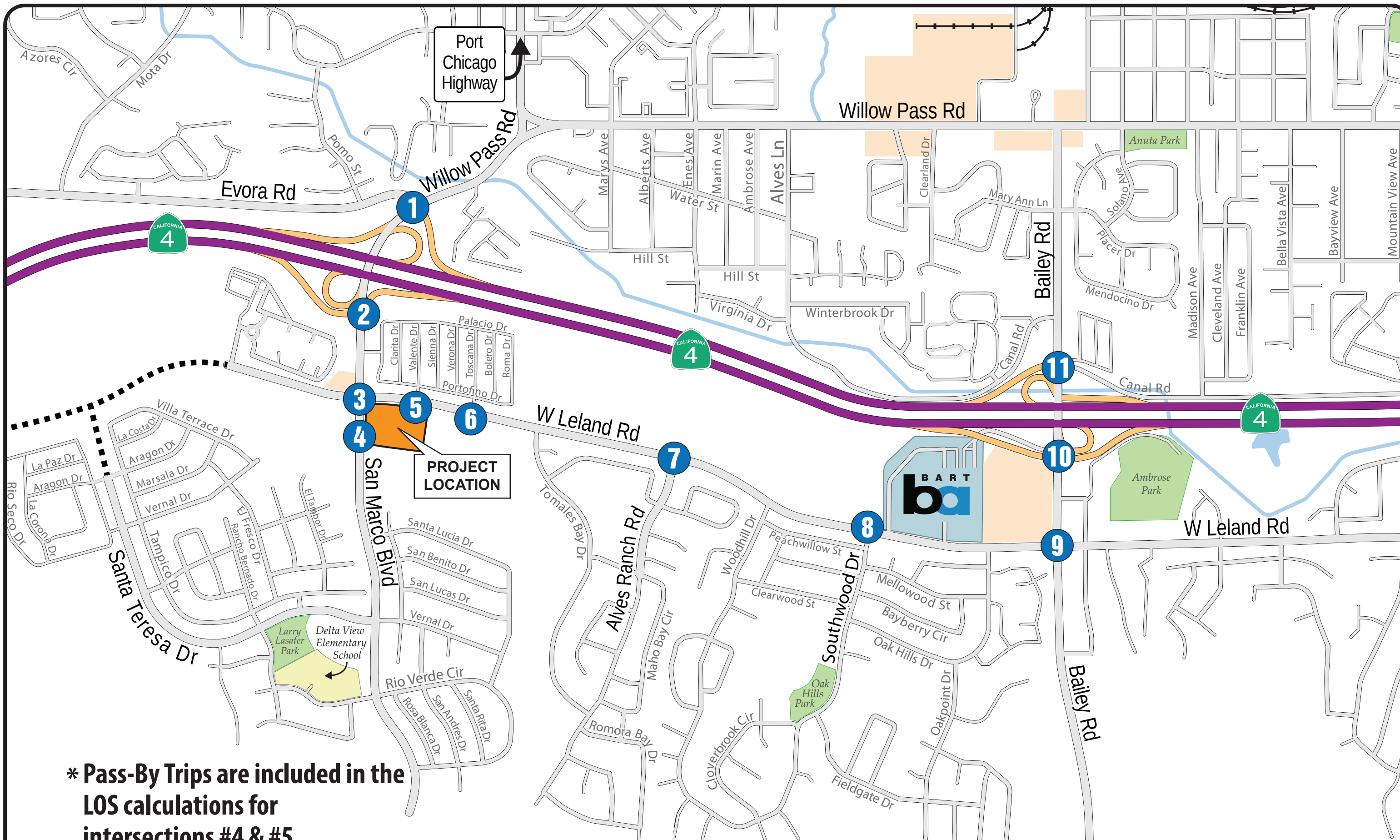
FIGURE 10B | CUMULATIVE AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.



* Pass-By Trips are included in the LOS calculations for intersections #4 & #5

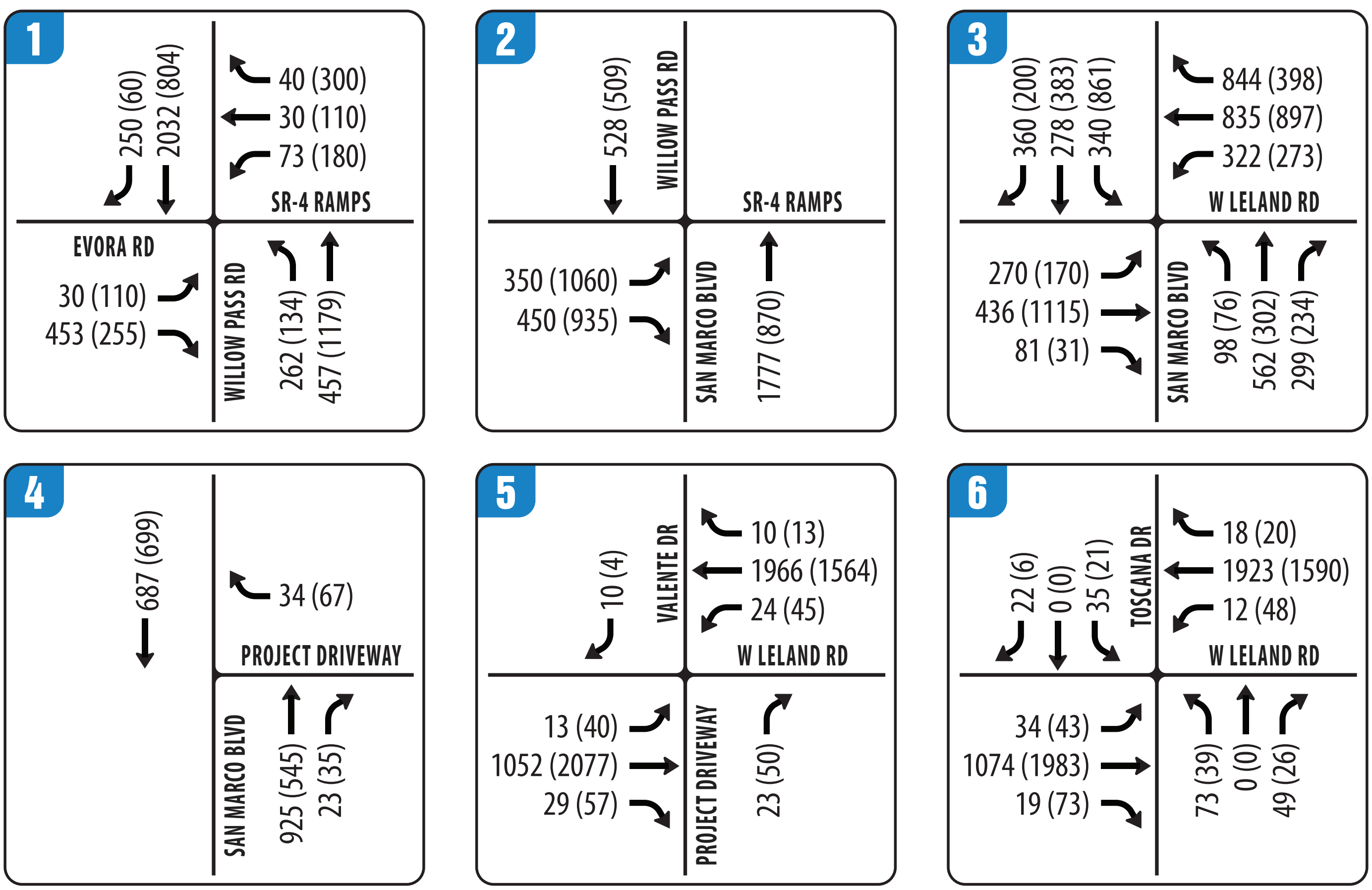


FIGURE 11A | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

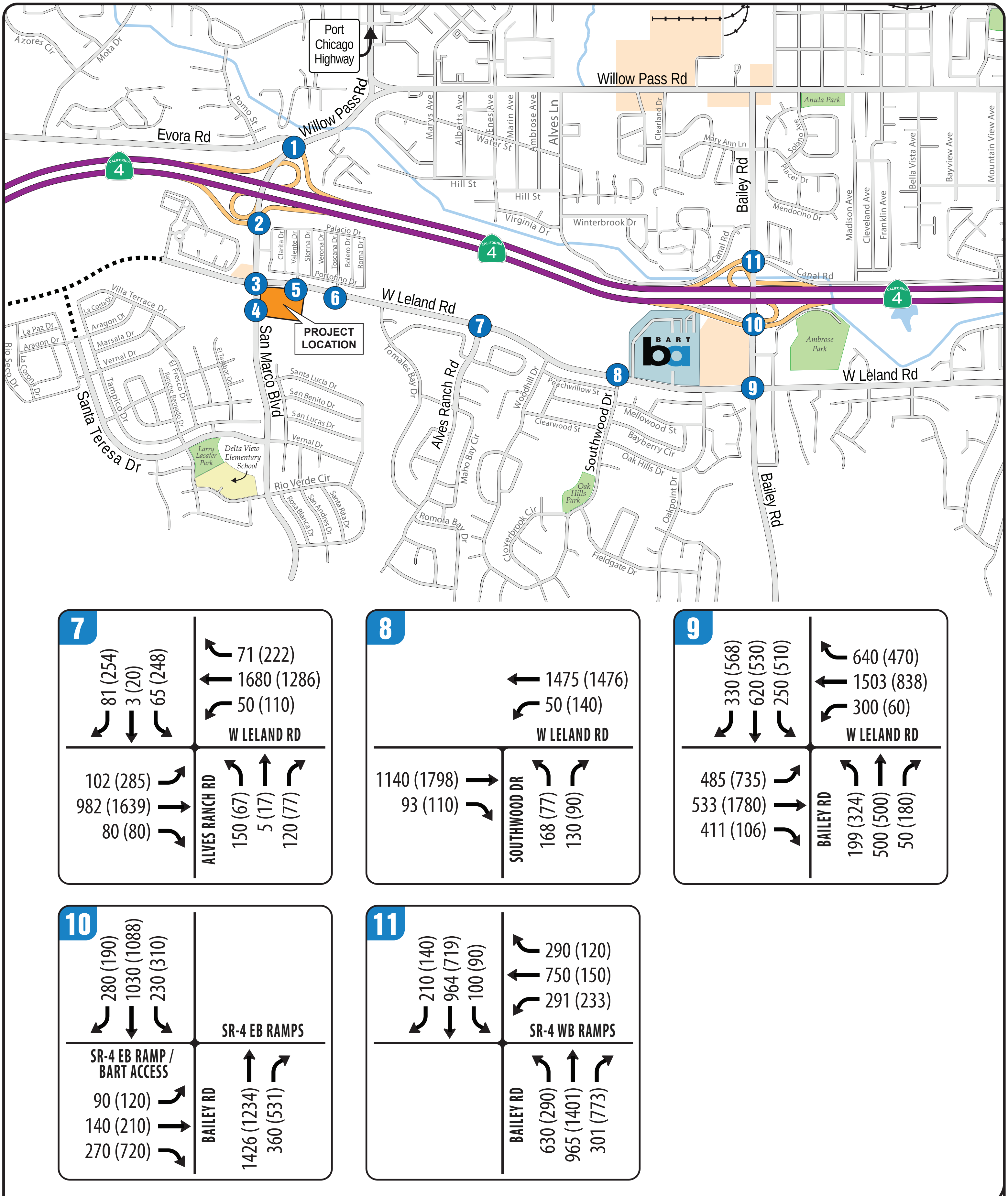


FIGURE 11B | CUMULATIVE PLUS PROJECT AM(PM) PEAK HOUR VOLUMES

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

TABLE 10
STATE ROUTE 4 FREEWAY DELAY INDEX CALCULATION RESULTS
WITH AND WITHOUT THE PROPOSED PROJECT

Scenario	*Direction*	*MTSO*	*No Project*	*With Project*
Existing AM Peak Hour (2018)	Eastbound	2.5	1.1	1.2
	Westbound	2.5	2.5	2.5
Existing PM Peak Hour (2018)	Eastbound	2.5	1.4	1.4
	Westbound	2.5	1.3	1.3
Cumulative AM Peak Hour (2040)	Eastbound	2.5	1.3	1.3
	Westbound	2.5	3.1	3.1
Cumulative PM Peak Hour (2040)	Eastbound	2.5	1.8	1.8
	Westbound	2.5	1.5	1.5

SOURCE: Abrams Associates, 2020

the MTSO of 2.5 under cumulative plus project conditions and therefore the addition of project traffic would be considered an adverse effect.

Analysis of Level of Service on the State Route 4 Freeway – A detailed analysis of existing traffic operations on nearby segments of the SR 4 Freeway was conducted by the Contra Costa Transportation Authority in 2017.[8] The results of the surveys are presented in **Table 11**. As shown in **Table 11**, the LOS standard for the two key segments of SR 4 in the vicinity of the Willow Pass Road interchange are LOS F. Please note there is recurring congestion that occurs on State Route 4 in the vicinity of the San Marco Boulevard interchange during both the AM and PM commute periods.

TABLE 11
STATE ROUTE 4 FREEWAY EXISTING TRAFFIC OPERATIONS

SEGMENT INFORMATION			AM PEAK		PM PEAK		LOS STANDARD
ROUTE	LIMITS	DIRECTION	SPEED	LOS	SPEED	LOS	
SR-4	STATE ROUTE 242 TO BAILEY ROAD	EB	65.1	A	40.9	E	F
SR-4	STATE ROUTE 242 TO BAILEY ROAD	WB	27.4	F	65.2	A	F
SR-4	BAILEY ROAD TO LOVERIDGE ROAD	EB	66.5	A	56.6	C	F
SR-4	BAILEY ROAD TO LOVERIDGE ROAD	WB	21.4	F	66.8	A	F

SOURCE: Abrams Associates, 2020

[8] *Congestion Management Program 2017 Monitoring Report*, Contra Costa Transportation Authority, Walnut Creek, CA, March, 2018.

5.13 Drive Through Queuing Analysis

There are no standard traffic engineering references that provide formal recommendations on queuing for fast food drive through windows. In the past the primary source of data on this was a study conducted by the ITE technical council that was published in the ITE Journal and specified a 95% probability that the maximum queue at a drive- through restaurant would be 10 vehicles or less. There is now a more recent study of drive through queuing that is based on fourteen days of drive-through surveys at six different drive through restaurants.[9] The results of these surveys found that the average maximum queue was 8 vehicles with a maximum design queue of 12 vehicles. Based on a preliminary review of the site plan it would allow for approximately 10 vehicles to be queued within the drive-through lane.

It is important to note that even if there were to be occasions where the queues slightly exceed the drive through lane storage capacity this should not result in any significant problems for circulation on the area (i.e. blocking major roadways like San Marco Boulevard or West Leland Road). The two effects that would be expected if the queue were to extend back to about 12 vehicles is that it could potentially extend back out into the adjacent drive aisle and also potentially out onto the access road for the Ray Giacomelli Park. In summary, the proposed site plan should have adequate space for queuing for a typical drive through and there is no information to indicate that drive through queuing will result in significant circulation problems or cause traffic to back up onto major roadways.

5.14 Summary of Adverse Effects and Countermeasures

The following is a list of adverse effects from the project and the proposed countermeasures to address the transportation effects of the project. Based on a detailed analysis of traffic operations with and without each of the proposed mitigations, implementation of the following countermeasures would adequately address the adverse effects identified.

Adverse Effect #1 **The project would contribute to LOS operations exceeding the established standards at the following four intersections:**

West Leland Road at San Marco Boulevard (Intersection #3)
West Leland Road at Valente Drive/Project Driveway (Intersection #5)
West Leland Road at Toscana Drive (Intersection #6)
West Leland Road at Bailey Road (Intersection #9)

The addition of traffic from the proposed project would contribute to these four intersections exceeding the established LOS standards in the plus project scenarios. With implementation of the recommended mitigations, the development of the proposed project would still result in potentially adverse effects to the LOS at the above mentioned intersections. Please

[9] *Drive-Through Queue Generation*, Mike Spack, PE, PTOE, Max Moreland, EIT, Lindsay de Leeuw, Nate Hood, Countingcars.com, Minneapolis, MN, February 2012.

note that the various proposed mitigations are all uncertain and/or within Caltrans right-of-way. For example, the City of Pittsburg does not have control over the on-ramps so there are no assurances that improvements to the ramp metering could be implemented. Therefore, it is assumed that the proposed countermeasures may not be sufficient to guarantee full elimination of the project's adverse effects.

Countermeasure #1

The improvements listed below are currently included in the City's 5-year capital improvement program but funding has not yet been identified. Prior to construction of the identified improvements the project would mitigate the above-identified adverse effects by paying a proportionate share of the construction costs. The intersection mitigations required for the project to meet the established LOS standards include the following:

CM 1(a) <u>West Leland Road at San Marco Boulevard</u> – Widening of northbound San Marco Boulevard north of West Leland Road to allow for a full free-right turn from westbound West Leland Road onto San Marco Boulevard. This would also require additional capacity and/or adjustments to the SR-4 westbound on-ramp to ensure that queues do not affect intersections on West Leland Road.

CM 1(b) <u>West Leland Road at Toscana Drive</u> – A traffic signal is planned and funded for this intersection but will not be constructed until the planned adjacent apartments are completed and occupied. Until the planned signal is installed this intersection will continue to exceed the City's LOS standards.

CM 1(b) <u>West Leland Road at Bailey Road</u> – Potential changes that could improve the operations at this intersection include the future construction of a second eastbound left-turn lane. This improvement is included in the City's Local Transportation Mitigation Fee project list.

Adverse Effect #2 **The project would contribute to traffic operations exceeding the established standards on the State Route 4 Freeway**

The development of the proposed project would increase the total traffic during both AM and PM peak hours. For SR 4 the East County Action Plan specifies a maximum delay index of 2.5. As shown in Table 9 in Section

5.12 the proposed project would not significantly increase the delay index under existing or cumulative conditions. However, the proposed project would add traffic to State Route 4 in the westbound direction during the AM peak hour, which is forecast to exceed the County's established delay index standard of 2.5. Therefore, the proposed project would have an adverse effect on freeway operations.

Countermeasure #2

Prior to construction the project would mitigate the above-identified adverse effects by paying the required traffic impact fees, subject to City approval.

CM 2 <u>Payment of the Regional Transportation Development Impact Mitigation Fee</u> – The project will pay the Regional Transportation Development Impact Mitigation Fee (the "RTDIM") to fund regional freeway system improvements including State Route 4 improvements. Because the project applicant and the City of Pittsburg do not control the funding, prioritization and/or construction of improvement projects, it is assumed that payment of the RTDIM fees may not be sufficient to guarantee full elimination of the project's adverse effects to State Route 4. Please note the CCTA's planned SR4 Operational Improvements Project (OIP) and the SR4 Integrated Corridor Management (ICM) project are expected to improve SR4 delay index.

Adverse Effect #3 Adverse effects related to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or potential decreases to the performance or safety of such facilities.

The project would not result in degradation of the level of service (or a significant increase in delay) on any roadway segments currently being utilized by bus transit in the area and would not increase ridership beyond existing capacity. As such, no adverse effects to bus transit are expected. In addition, the proposed project would not adversely affect or change the design of any existing pedestrian facilities and should not create any new safety problems for pedestrians in the area. The project will add some bicyclists in the area but the volumes added would not be expected to adversely affect any existing bicycle facilities. In relation to the existing conditions, the proposed project would not cause substantial changes to the pedestrian or bicycle traffic in the area and would not adversely affect or require changes to the design of any existing bicycle or pedestrian facilities.

<u>Countermeasure(s)</u>

None required.

Adverse Effect #4 Adverse effects relating to demolition and construction activities.

The increase in traffic as a result of demolition and construction activities associated with the proposed project has been quantified assuming a worst-case single phase construction period of 24 months.

Heavy Equipment

Approximately five pieces of heavy equipment are estimated to be transported on and off the site each month throughout the demolition and construction of the proposed project. Heavy equipment transport to and from the site could cause adverse effects to traffic conditions in the vicinity of the project site during construction. However, each load would be required to obtain all necessary permits, which would include conditions. Prior to issuance of grading and building permits, the project applicant would be required to submit a Traffic Control Plan.

The requirements within the Traffic Control Plan include, but are not limited to, the following: truck drivers would be notified of and required to use the most direct route between the site and SR 4, as determined by the City Engineering Department; all site ingress and egress would occur only at the main driveways to the project site and construction activities may require installation of temporary (or ultimate) traffic signals as determined by the City Engineer; specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; warning signs indicating frequent truck entry and exit would be posted on San Marco Boulevard and West Leland Road; and any debris and mud on nearby streets caused by trucks would be monitored daily and may require instituting a street cleaning program. In addition, eight loads of heavy equipment being hauled to and from the site each month would be short-term and temporary.

Employees

The weekday work is expected to begin around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:30 AM, and the departure peak would occur between 4:00 PM and 5:00 PM. These peak hours are slightly before the citywide commute peaks. It should be noted that the number of trips generated during construction would not only be temporary, but would also be substantially less than the proposed project at buildout. Based on past construction of similar projects, construction workers could require parking for up to 75 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 10 to 15 trucks and automobiles per day. Therefore, up to 85 vehicle parking spaces may be required during the peak construction period for the construction employees. Furthermore, the Traffic Control Plan requires construction employee parking be provided on the project site to eliminate conflicts with nearby residential areas. Because the construction of the project can be staggered so that employee parking demand is met by using on-site parking, construction-related employee traffic and parking would not be expected to result in adverse effects.

Construction Material Import/Export

The project would also require removal of existing debris as well as the importation of construction material, including raw materials for the building pads, the buildings, the parking area, and landscaping. During the maximum peak construction period, the project could generate approximately 50 truck trips per day. Furthermore, under the provisions of the Traffic Control Plan, if importation and exportation of material becomes a traffic nuisance, then the City Engineer may limit the hours the activities can take place.

Traffic Control Plan

The Traffic Control Plan would indicate how parking for construction workers would be provided during construction and ensure a safe flow of traffic in the project area during construction. This analysis assumed construction of the entire project in one phase to identify the potential worst-case traffic effects. If the project is built in phases over time, the effects of each phase will be the same or less. Each phase will be subject to a Traffic Control Plan and oversight by the City Engineer. The last phase may require added worker parking measures, depending on the circumstances, as there will not be any remaining vacant land for parking. Therefore, the demolition and construction activities associated with the proposed project or its individual phases would not be forecast to lead to noticeable congestion in the vicinity of the site or result in any adverse effects.

<u>Countermeasure(s)</u>
None required.

Adverse Effect #5 Adverse effects related to site access and circulation.

The proposed project would have driveways on San Marco Boulevard and West Leland Road that would be controlled with stop signs on the side street approaches. The proposed stop controlled intersections providing access to the project are forecast to have acceptable operations. Based on a review of the proposed site plan it was determined that the site circulation should function well and would not cause any safety or operational problems. The project site design has been required to conform to City design standards and is not expected to create any adverse effects to pedestrians, bicyclists or traffic operations. Therefore, the project would not be expected to result in any adverse effects on access or circulation in the vicinity of the project.

Countermeasure(s)
None required.

Adverse Effect #6 Adverse effects regarding emergency vehicle access on and surrounding the proposed project site.

Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. The land use plan for the proposed project would include entrances on both San Marco Boulevard and West Leland Road. All lane widths within the project would meet the minimum width that can accommodate an emergency vehicle; therefore, the width of the internal roadways would be adequate. In addition, with the proposed mitigations the addition of traffic from project traffic would not result in any significant changes to emergency vehicle response times in the area. Therefore, subject to approval from the City and the fire department, the development of the proposed project is not expected to have any adverse effects on emergency vehicle access.

Countermeasure(s)
None required.

Transportation Impact Analysis Technical Appendix

San Marco Commercial Center

City of Pittsburg

Prepared for:
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565
Attn: Paul Reinders

Prepared by:
Abrams Associates
1875 Olympic Boulevard, Suite 210
Walnut Creek CA 94596

Abrams Associates
TRAFFIC ENGINEERING, INC.

June 16, 2020

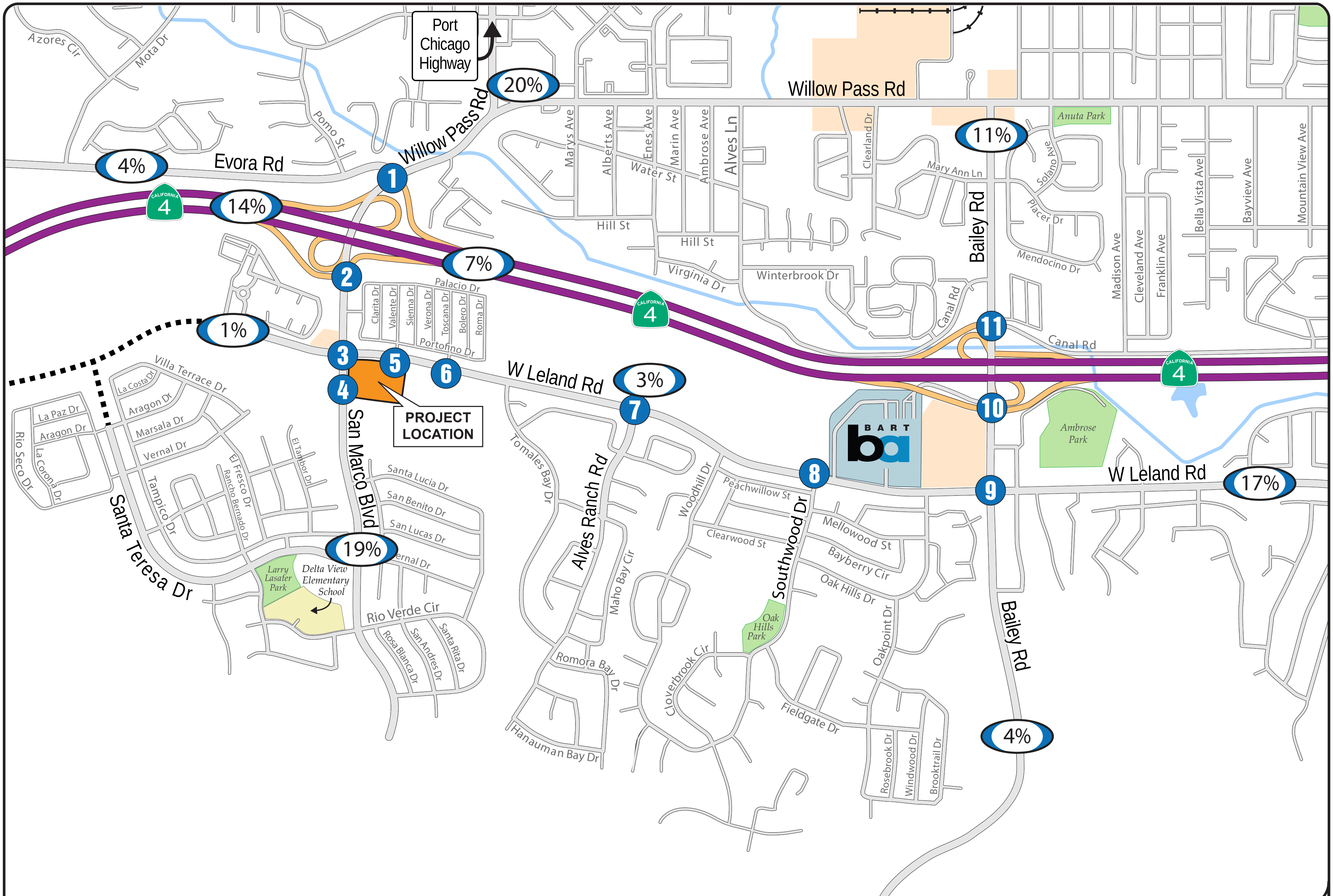


FIGURE A1 | BASELINE PROJECT TRIP DISTRIBUTION ASSUMPTIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Center

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

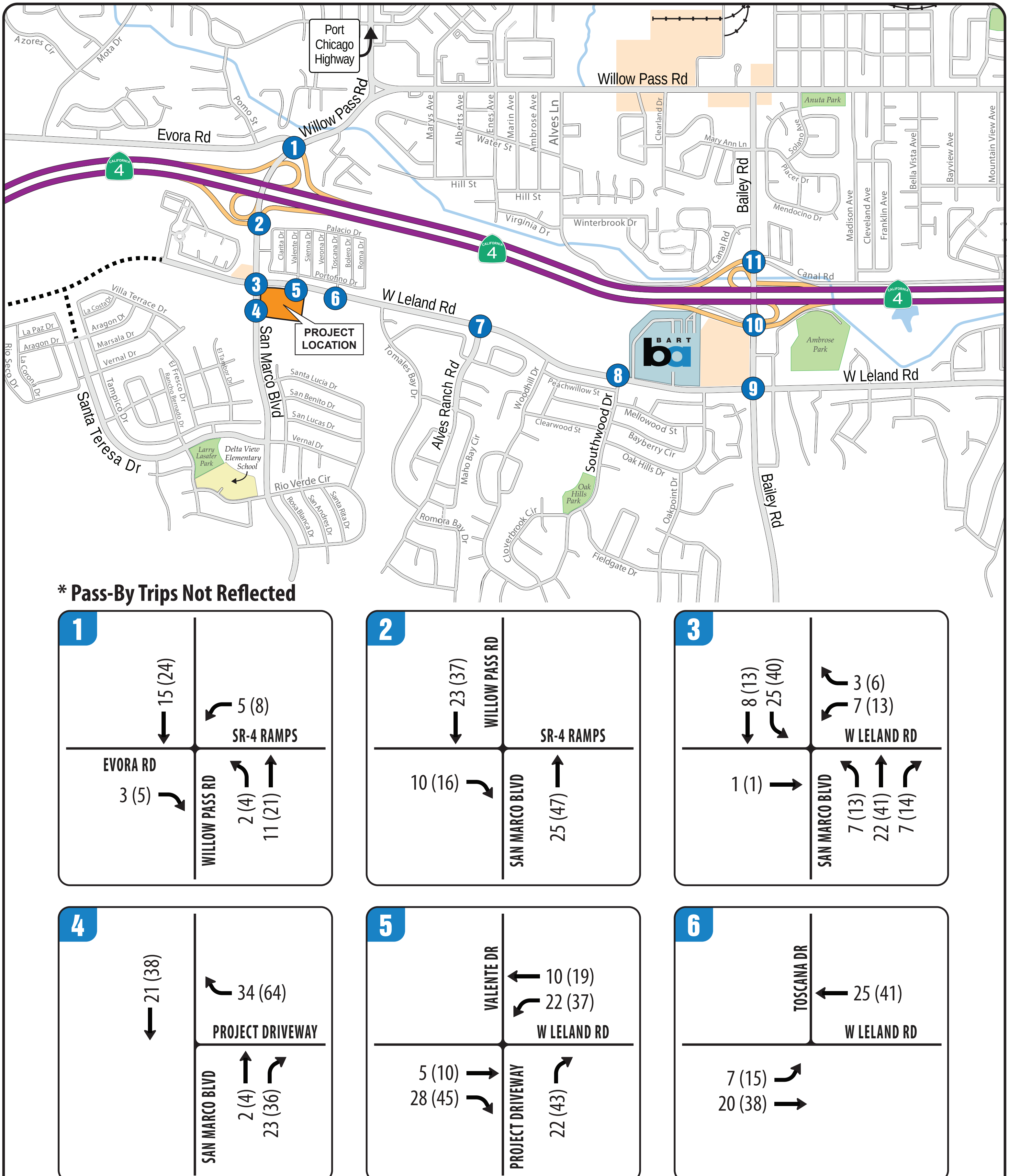


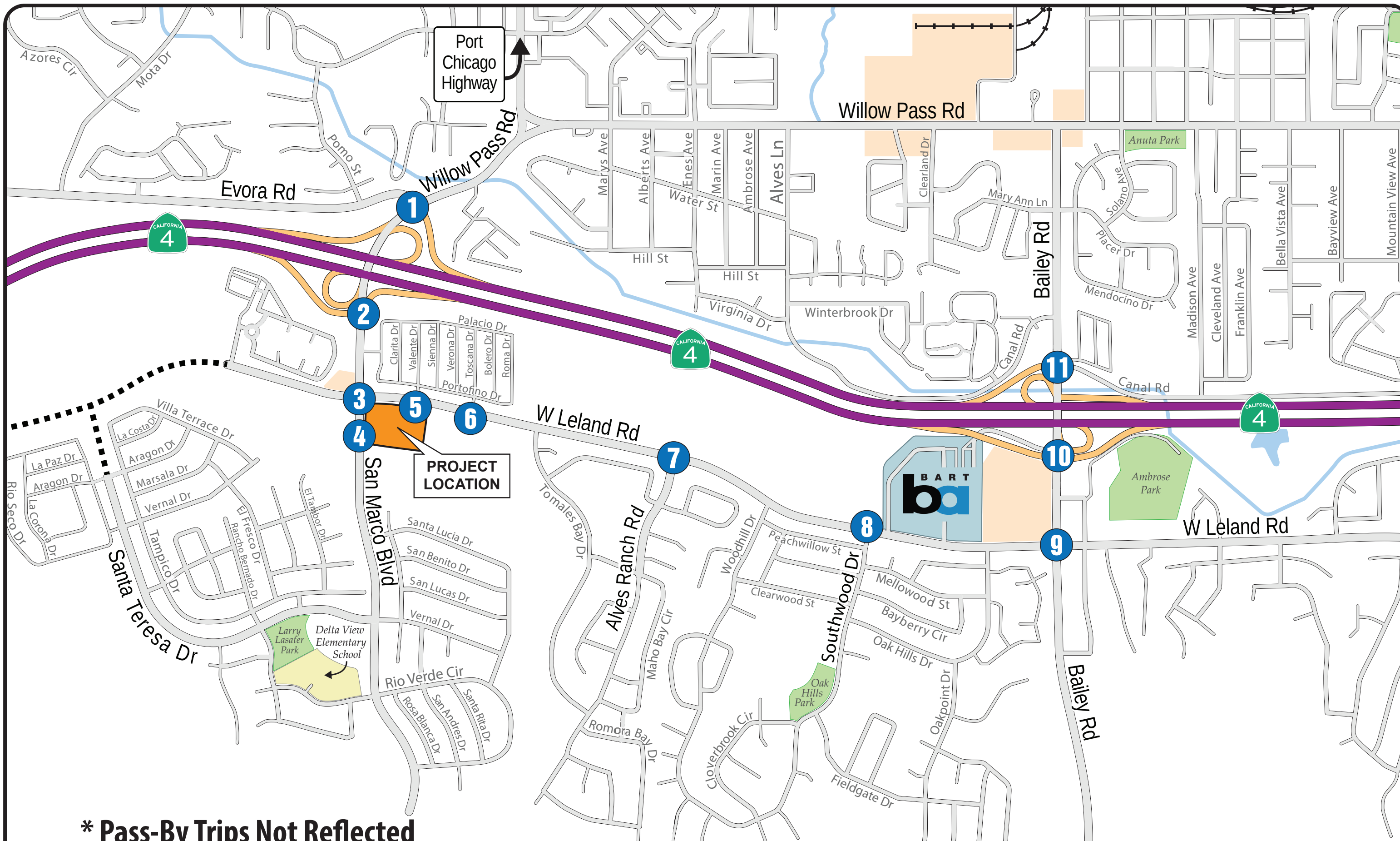
FIGURE A2-P1 | BASELINE AM(PM) PEAK HOUR PROJECT TRIPS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.



*** Pass-By Trips Not Reflected**

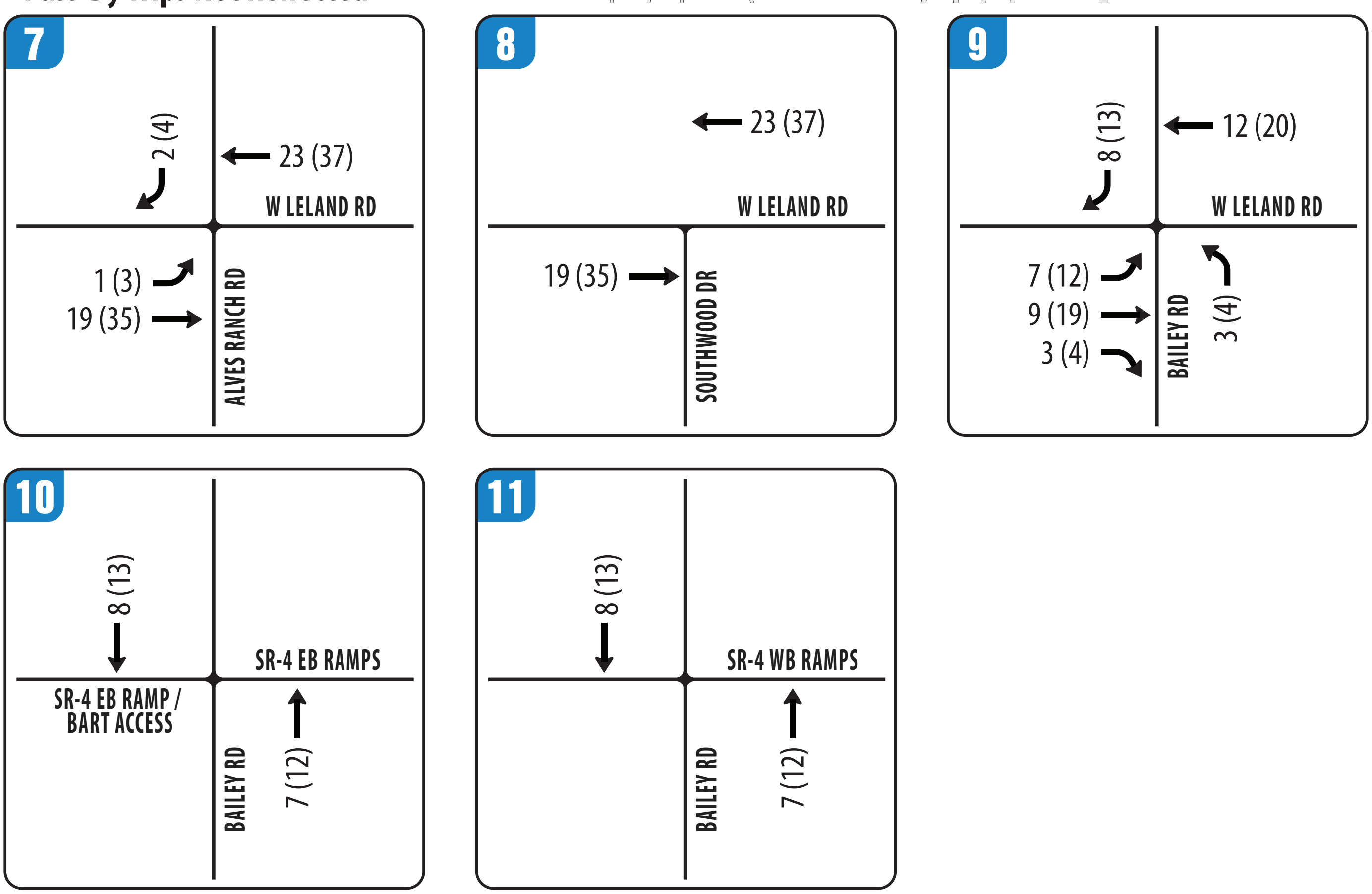


FIGURE A2-P2 | BASELINE AM(PM) PEAK HOUR PROJECT TRIPS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

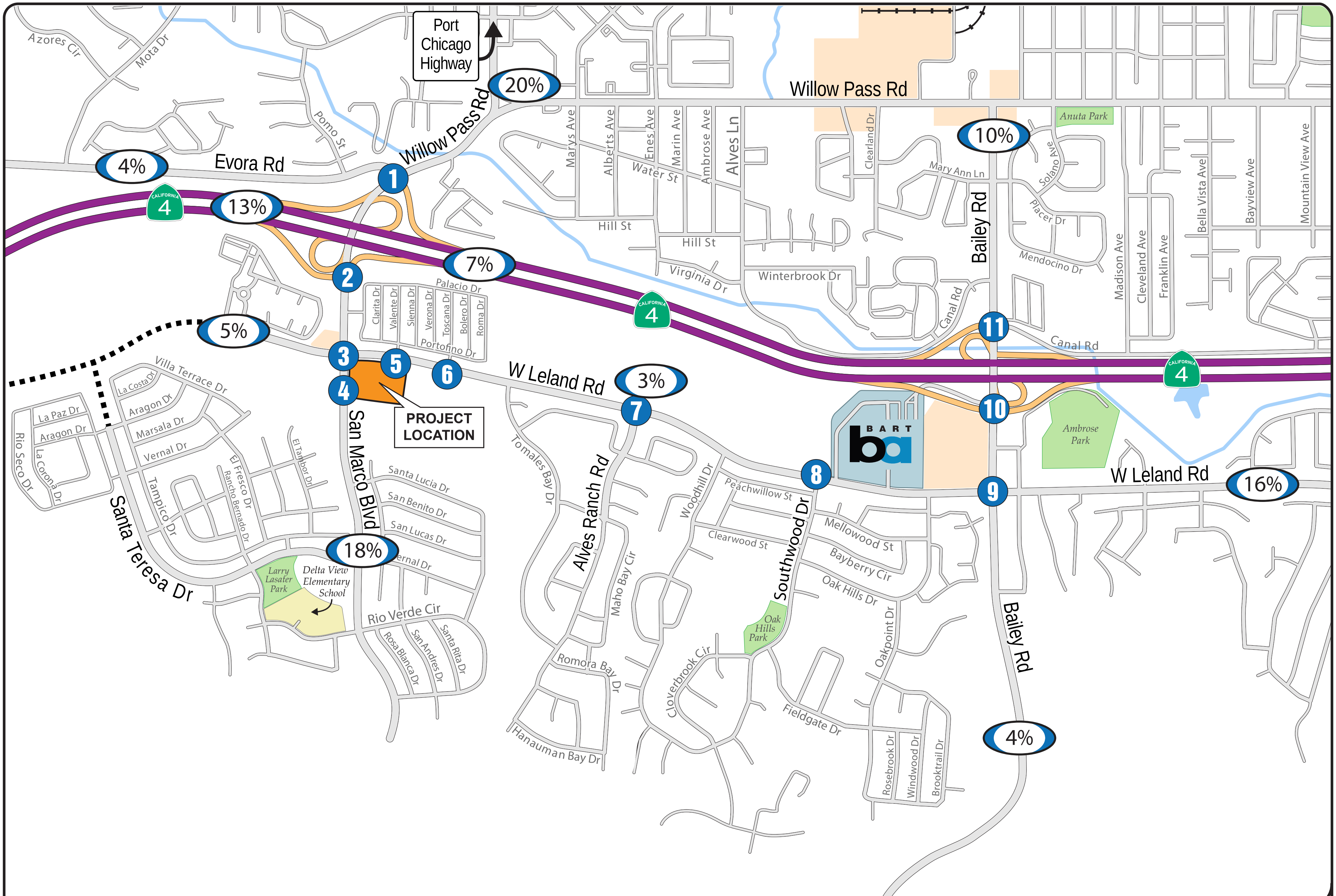


FIGURE A3 | CUMULATIVE PROJECT TRIP DISTRIBUTION ASSUMPTIONS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Center

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

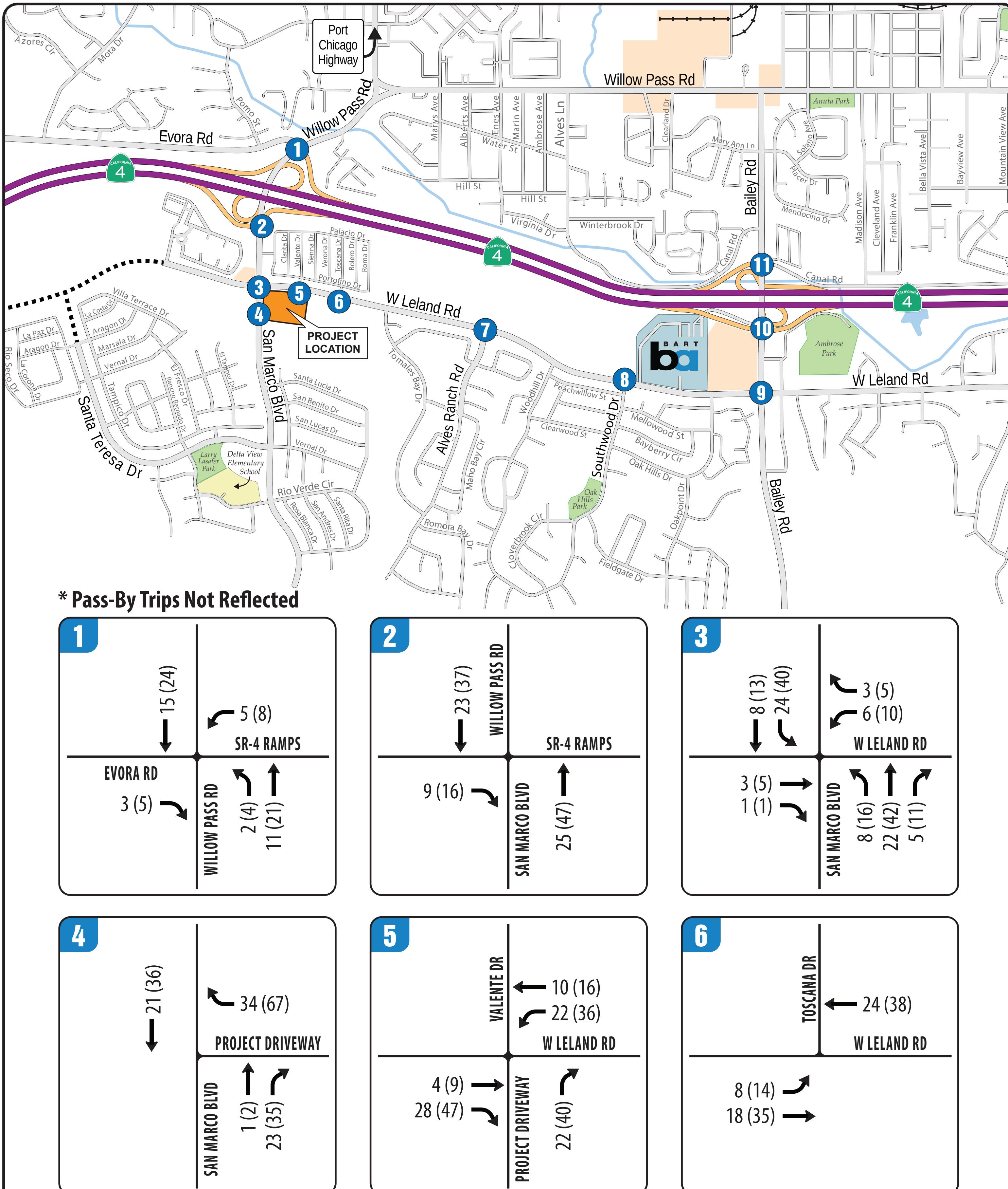


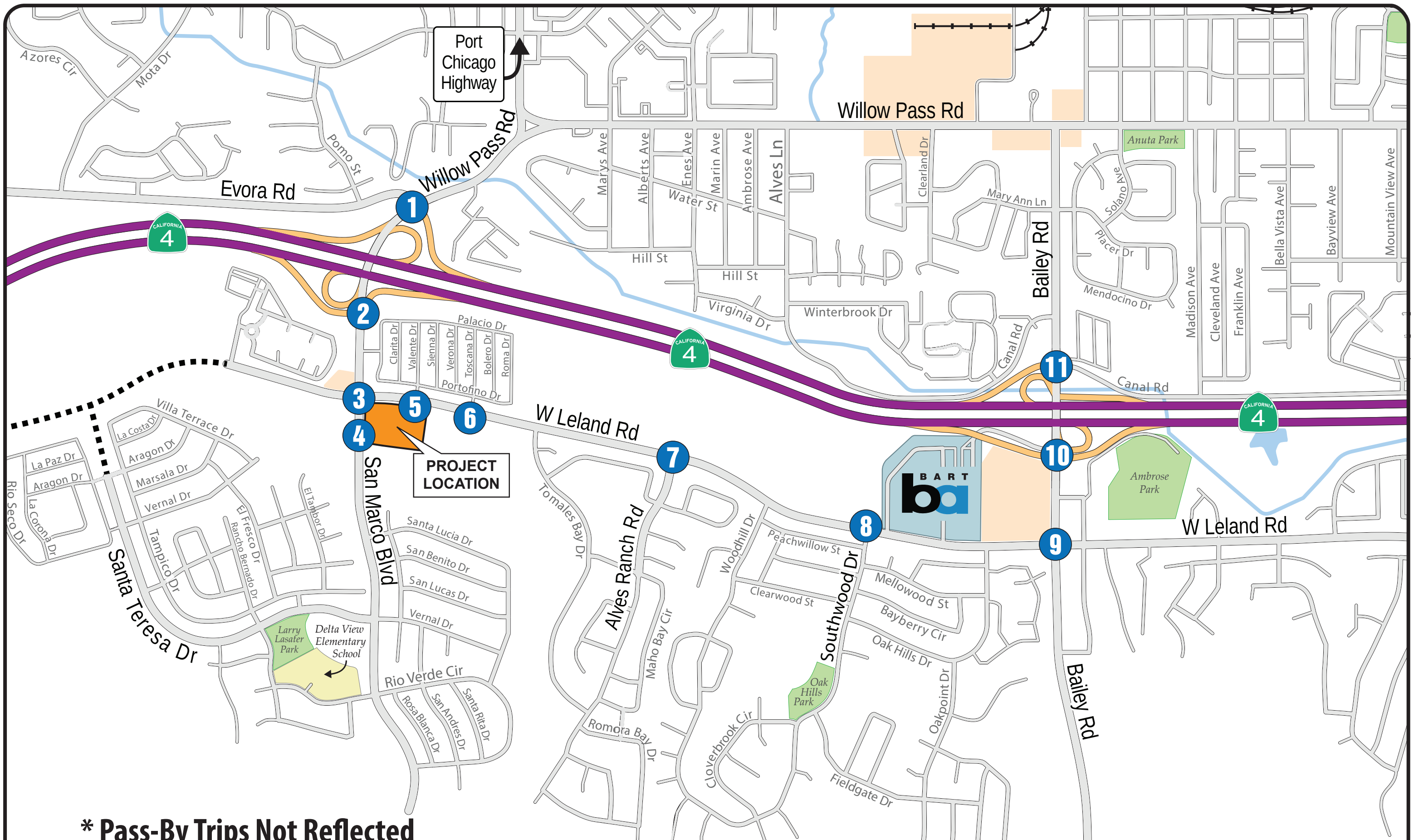
FIGURE A4-P1 | CUMULATIVE AM(PM) PEAK HOUR PROJECT TRIPS

TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.



* Pass-By Trips Not Reflected

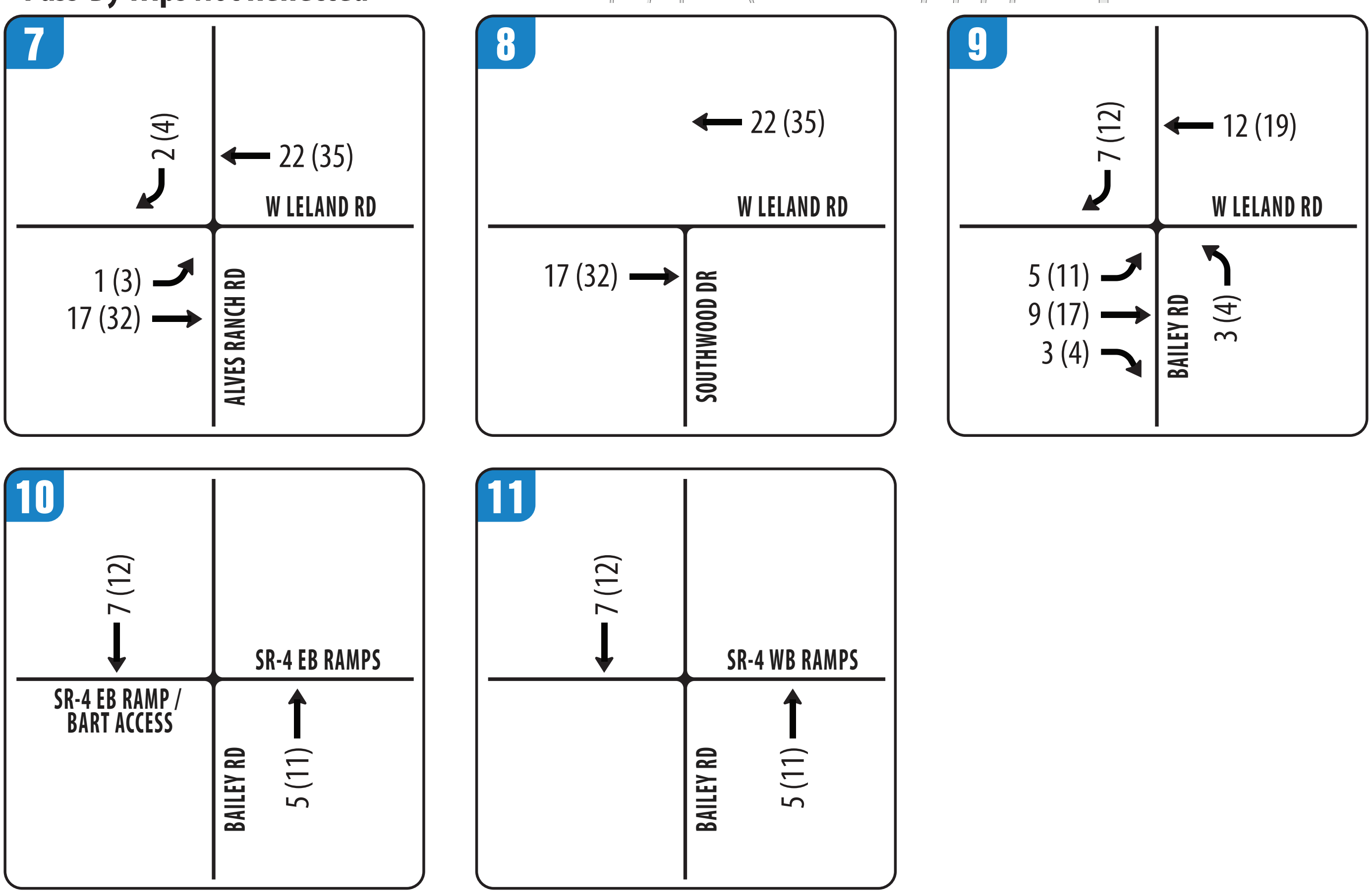


FIGURE A4-P2 | CUMULATIVE AM(PM) PEAK HOUR PROJECT TRIPS

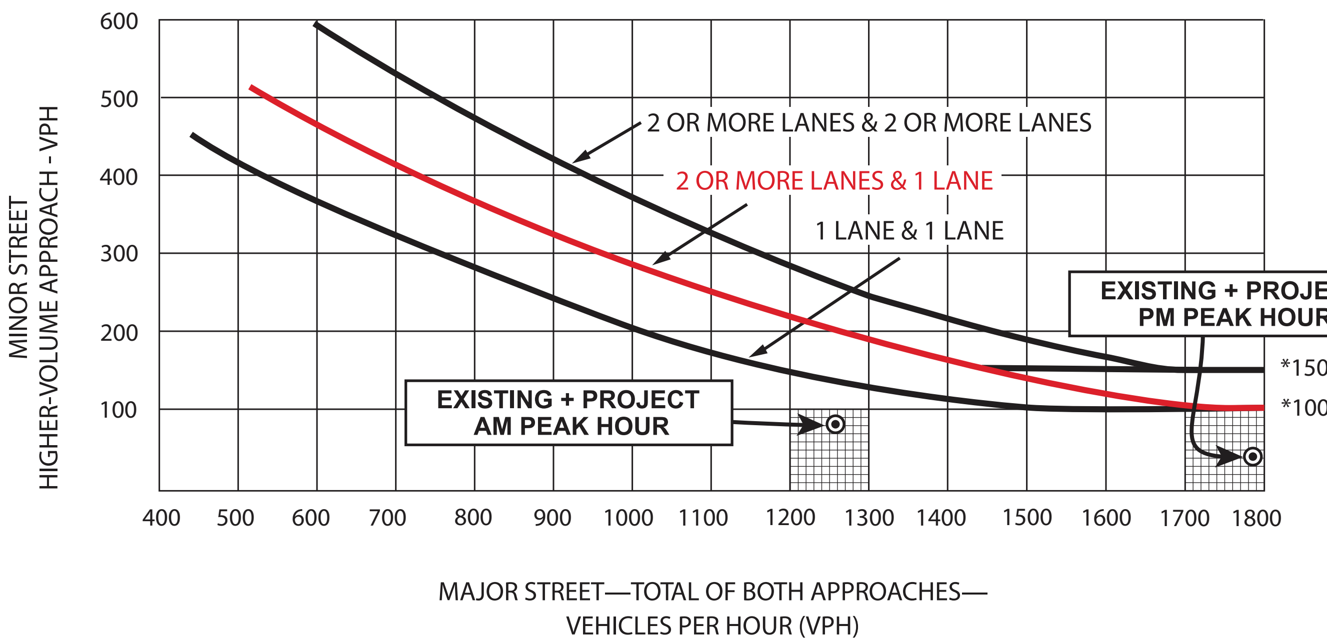
TRANSPORTATION IMPACT ANALYSIS

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



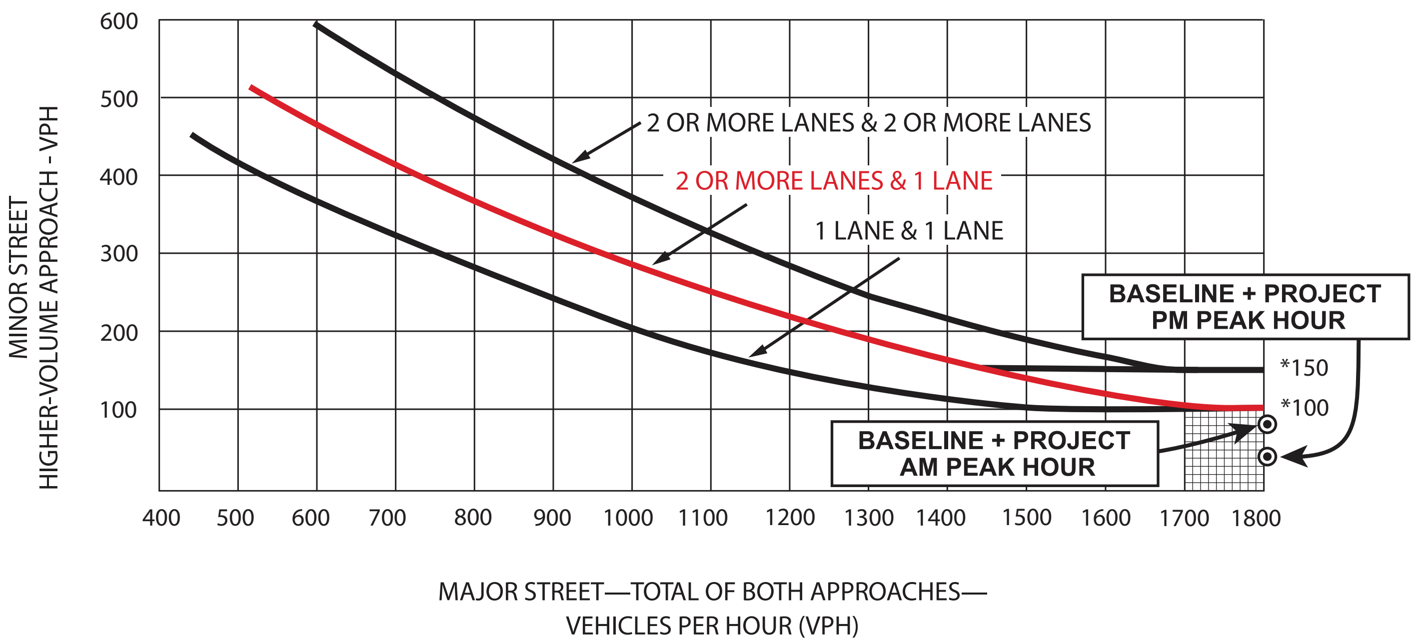
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#5 - SAN MARCO BOULEVARD & VALENTE DRIVE - EXISTING PLUS PROJECT
San Marco Commercial Project
City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



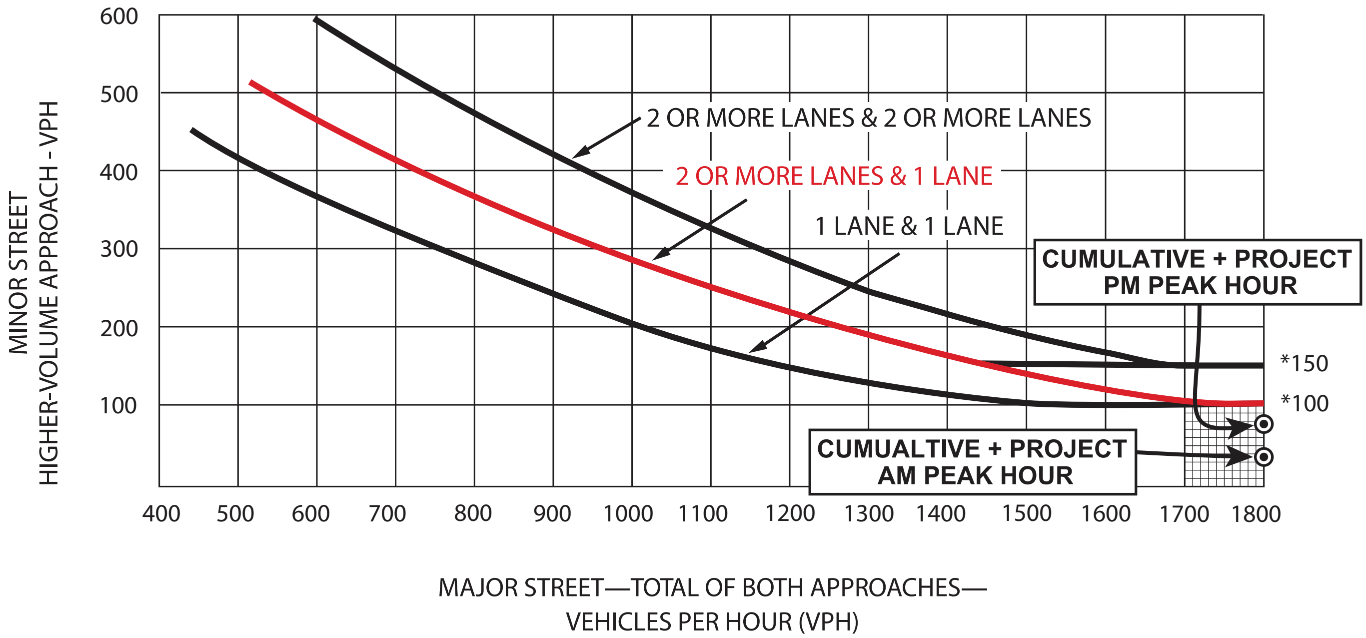
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#5 - SAN MARCO BOULEVARD & VALENTE DRIVE - BASELINE PLUS PROJECT
San Marco Commercial Project
City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

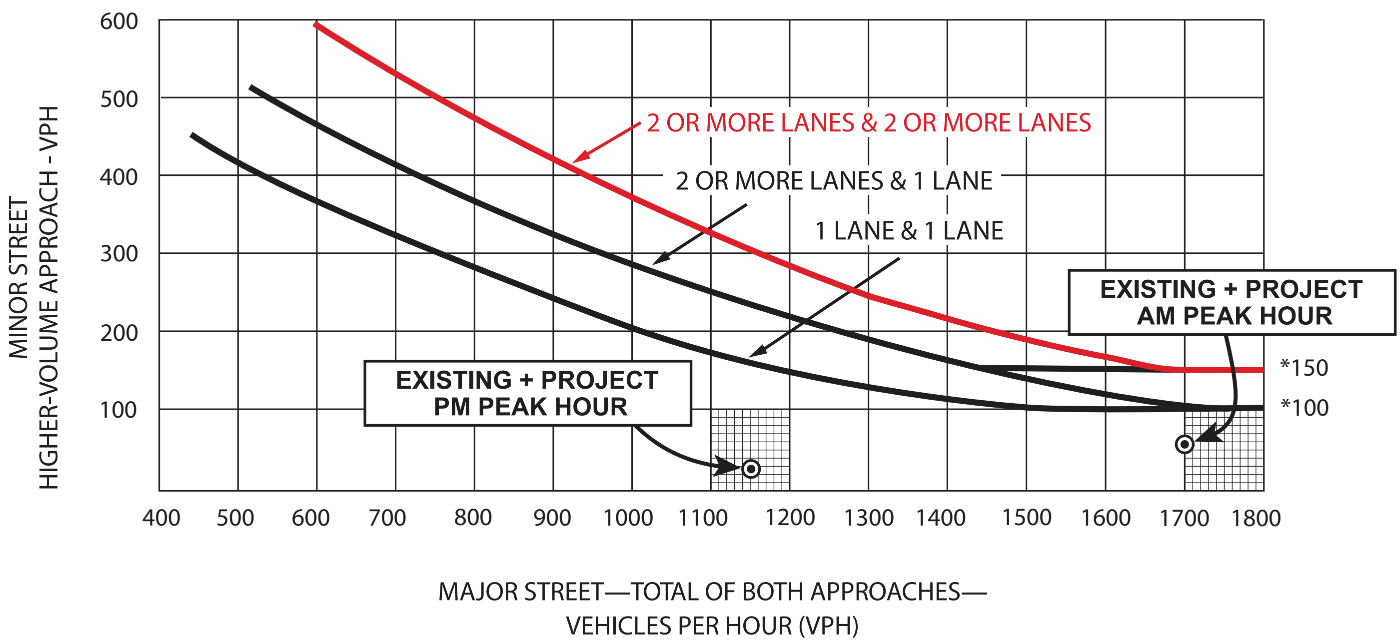
#5 - SAN MARCO BOULEVARD & VALENTE DRIVE - CUMULATIVE PLUS PROJECT

San Marco Commercial Project

City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



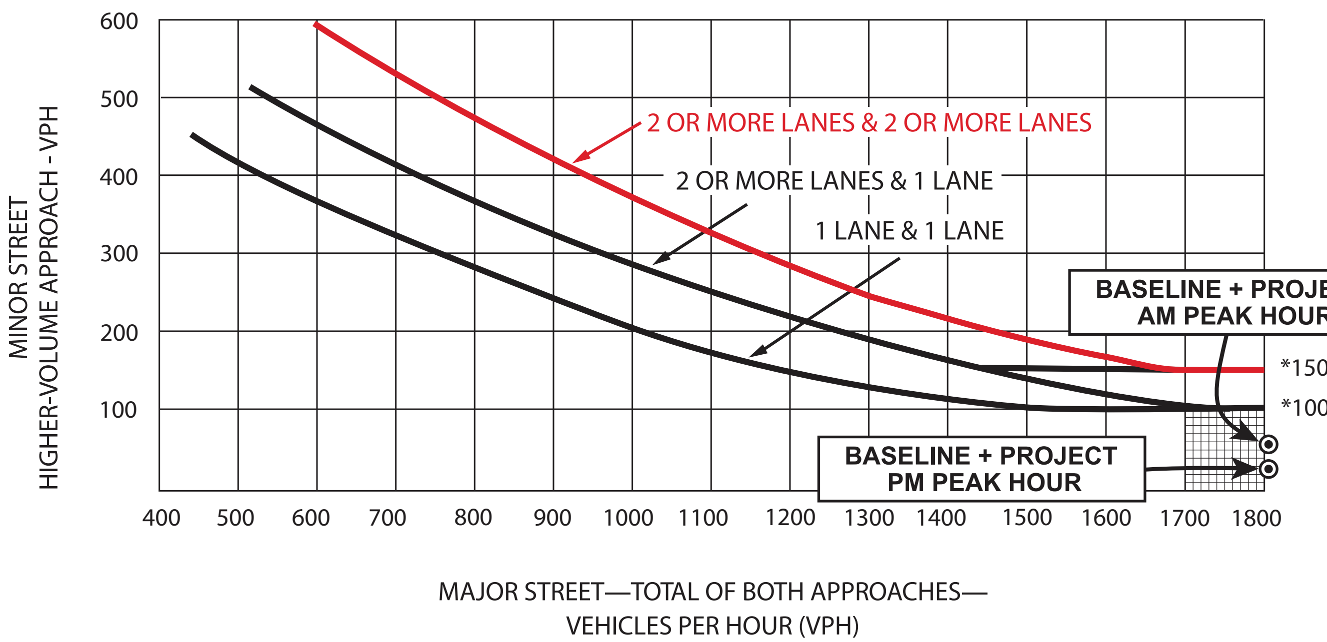
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#6 - SAN MARCO BOULEVARD & TOSCANA DRIVE - EXISTING PLUS PROJECT
San Marco Commercial Project
City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



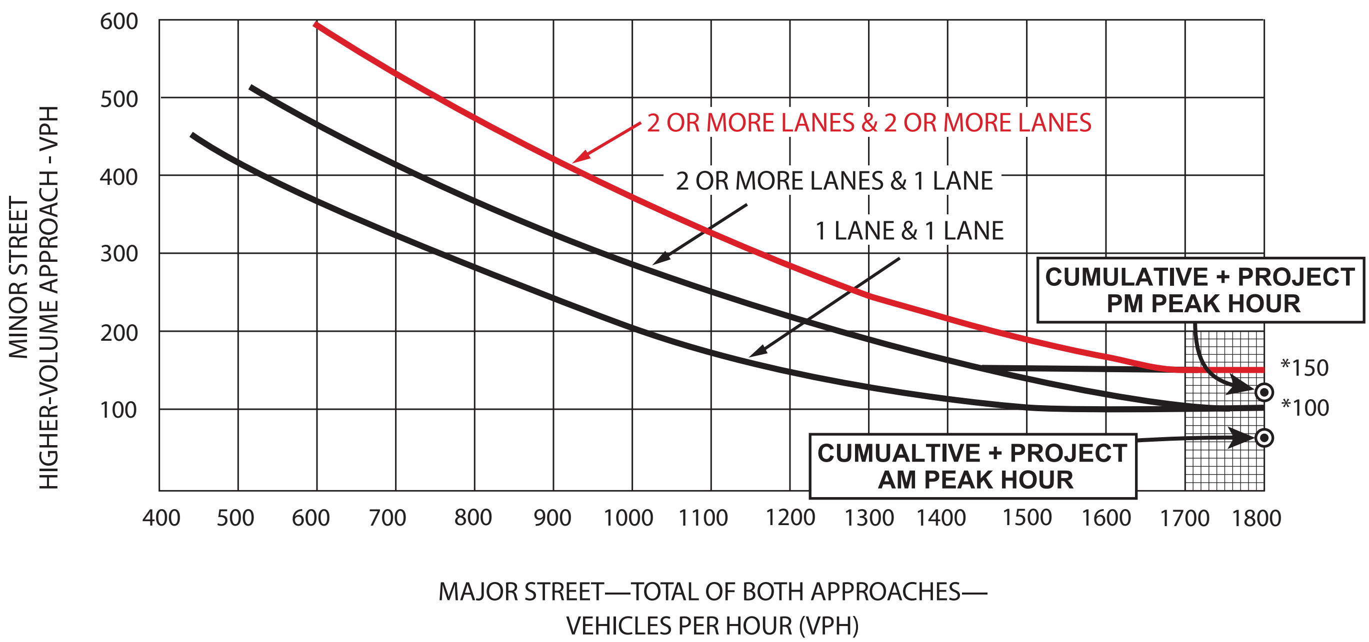
* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#6 - SAN MARCO BOULEVARD & TOSCANA DRIVE - BASELINE PLUS PROJECT
San Marco Commercial Project
City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

PEAK HOUR VOLUME WARRANT
(Urban Areas)



* **NOTE:**
150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR-STREET APPROACH WITH ONE LANE.

SOURCE:
MUTCD, CHAPTER 4
(FIGURE 4C-3)

#6 - SAN MARCO BOULEVARD & TOSCANA DRIVE - CUMULATIVE PLUS PROJECT
San Marco Commercial Project
City of Pittsburg

Abrams Associates
TRAFFIC ENGINEERING, INC.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	311	7	18	11	320	384	0	0	1680	175
Future Volume (veh/h)	17	0	311	7	18	11	320	384	0	0	1680	175
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	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	18	0	331	7	19	12	340	409	0	0	1787	186
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	103	279	328	383	3377	0	0	2470	177
Arrive On Green	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.67	0.00	0.00	0.39	0.39
Sat Flow, veh/h		0		467	1269	1493	1757	5202	0	0	6202	618
Grp Volume(v), veh/h		0.0		26	0	12	340	409	0	0	1446	527
Grp Sat Flow(s),veh/h/ln				1736	0	1493	1757	1679	0	0	1602	1754
Q Serve(g_s), s				1.0	0.0	0.5	15.2	2.4	0.0	0.0	21.2	21.2
Cycle Q Clear(g_c), s				1.0	0.0	0.5	15.2	2.4	0.0	0.0	21.2	21.2
Prop In Lane				0.27		1.00	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				381	0	328	383	3377	0	0	1914	708
V/C Ratio(X)				0.07	0.00	0.04	0.89	0.12	0.00	0.00	0.76	0.75
Avail Cap(c_a), veh/h				387	0	333	489	3794	0	0	2016	735
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.4	0.0	25.2	31.1	4.8	0.0	0.0	23.0	22.7
Incr Delay (d2), s/veh				0.3	0.0	0.2	14.9	0.0	0.0	0.0	1.6	4.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.9	22.5
%ile BackOfQ(50%),veh/ln				0.5	0.0	0.2	9.0	1.1	0.0	0.0	17.3	17.9
LnGrp Delay(d),s/veh				25.7	0.0	25.4	46.0	4.9	0.0	0.0	53.5	49.2
LnGrp LOS				C		C	D	A			D	D
Approach Vol, veh/h					38			749			1973	
Approach Delay, s/veh					25.6			23.5			52.4	
Approach LOS					C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		58.3			22.2	36.2		22.5
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		60.9			22.5	33.9		18.0
Max Q Clear Time (g_c+I1), s		4.4			17.2	23.2		3.0
Green Ext Time (p_c), s		3.2			0.5	8.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.2
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	254	212	0	1550	267	0
Future Volume (veh/h)	254	212	0	1550	267	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	276	230	0	1685	290	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	701	323	0	3215	2238	0
Arrive On Green	0.21	0.21	0.00	0.63	0.63	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	276	230	0	1685	290	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	3.8	7.5	0.0	9.9	1.8	0.0
Cycle Q Clear(g_c), s	3.8	7.5	0.0	9.9	1.8	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	701	323	0	3215	2238	0
V/C Ratio(X)	0.39	0.71	0.00	0.52	0.13	0.00
Avail Cap(c_a), veh/h	2151	990	0	7257	5051	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	18.5	19.9	0.0	5.6	4.1	0.0
Incr Delay (d2), s/veh	0.4	2.9	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
%ile BackOfQ(50%),veh/ln	1.8	3.5	0.0	4.6	0.9	0.0
LnGrp Delay(d),s/veh	18.9	22.9	0.0	5.8	4.1	0.0
LnGrp LOS	B	C		A	A	
Approach Vol, veh/h	506			1685	290	
Approach Delay, s/veh	20.7			5.8	4.1	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		38.4		15.7		38.4		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		76.5		34.5		76.5		
Max Q Clear Time (g_c+I1), s		11.9		9.5		3.8		
Green Ext Time (p_c), s		22.0		1.8		2.1		

Intersection Summary			
HCM 2010 Ctrl Delay			8.6
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	46	63	234	142	809	36	440	223	204	176	16
Future Volume (veh/h)	216	46	63	234	142	809	36	440	223	204	176	16
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	251	53	73	272	165	941	42	512	259	237	205	19
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	231	709	626	304	1564	700	57	513	258	217	834	77
Arrive On Green	0.13	0.40	0.40	0.17	0.44	0.44	0.03	0.22	0.22	0.06	0.25	0.25
Sat Flow, veh/h	1792	1787	1578	1792	3574	1599	1810	2322	1170	3476	3311	304
Grp Volume(v), veh/h	251	53	73	272	165	941	42	398	373	237	110	114
Grp Sat Flow(s),veh/h/ln	1792	1787	1578	1792	1787	1599	1810	1805	1688	1738	1787	1828
Q Serve(g_s), s	15.5	2.2	3.5	17.8	3.3	52.5	2.8	26.4	26.5	7.5	5.9	6.0
Cycle Q Clear(g_c), s	15.5	2.2	3.5	17.8	3.3	52.5	2.8	26.4	26.5	7.5	5.9	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.17
Lane Grp Cap(c), veh/h	231	709	626	304	1564	700	57	399	373	217	450	460
V/C Ratio(X)	1.08	0.07	0.12	0.89	0.11	1.35	0.74	1.00	1.00	1.09	0.24	0.25
Avail Cap(c_a), veh/h	231	709	626	431	1564	700	106	399	373	217	450	460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	22.5	22.9	48.8	19.9	33.8	57.6	46.7	46.8	56.3	35.8	35.8
Incr Delay (d2), s/veh	83.5	0.0	0.1	15.8	0.0	164.8	17.0	44.3	47.1	87.5	0.3	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	13.0	1.1	1.5	10.2	1.6	55.0	1.7	18.0	17.2	6.2	2.9	3.0
LnGrp Delay(d),s/veh	135.8	22.5	23.0	64.6	19.9	198.5	74.6	91.0	93.9	143.7	36.1	36.1
LnGrp LOS	F	C	C	E	B	F	E	F	F	F	D	D
Approach Vol, veh/h		377			1378			813			461	
Approach Delay, s/veh		98.0			150.7			91.5			91.4	
Approach LOS		F			F			F			F	

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	12.0	31.0	24.9	52.1	8.3	34.7	20.0	57.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	26.5	28.9	39.1	7.0	27.0	15.5	52.5
Max Q Clear Time (g_c+I1), s	19.5	28.5	19.8	5.5	4.8	8.0	17.5	54.5
Green Ext Time (p_c), s	0.0	0.0	0.5	0.7	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	119.2
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	448	1	2	1196	10	0	0	1	0	0	10
Future Vol, veh/h	13	448	1	2	1196	10	0	0	1	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	487	1	2	1300	11	0	0	1	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1325	0	0	496	0	0	-	-	260	-	-	684
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	512	-	-	1057	-	-	0	0	736	0	0	389
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	505	-	-	1049	-	-	-	-	725	-	-	379
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	10	14.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	725	505	-	-	1049	-	-	379
HCM Lane V/C Ratio	0.001	0.028	-	-	0.002	-	-	0.029
HCM Control Delay (s)	10	12.3	-	-	8.4	-	-	14.8
HCM Lane LOS	B	B	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	406	1199	18	35	22
Future Vol, veh/h	26	406	1199	18	35	22
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	441	1303	20	38	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1337	0	-	0	1604	690
Stage 1	-	-	-	-	1327	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	506	-	-	-	95	385
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	499	-	-	-	87	375
Mov Cap-2 Maneuver	-	-	-	-	87	-
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	732	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	52.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	499	-	-	-	87	375
HCM Lane V/C Ratio	0.057	-	-	-	0.437	0.064
HCM Control Delay (s)	12.6	-	-	-	75.2	15.3
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.8	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	415	30	30	1076	0	115	0	94	0	0	0
Future Volume (veh/h)	10	415	30	30	1076	0	115	0	94	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	494	36	36	1281	0	137	0	112	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	28	1991	863	72	2059	0	184	216	184	4	4	0
Arrive On Green	0.02	0.55	0.55	0.04	0.58	0.00	0.10	0.00	0.11	0.00	0.00	0.00
Sat Flow, veh/h	1810	3610	1565	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	12	494	36	36	1281	0	137	0	112	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1565	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.3	3.3	0.5	0.9	10.8	0.0	3.4	0.0	3.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	3.3	0.5	0.9	10.8	0.0	3.4	0.0	3.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	28	1991	863	72	2059	0	184	216	184	4	4	0
V/C Ratio(X)	0.43	0.25	0.04	0.50	0.62	0.00	0.75	0.00	0.61	0.00	0.00	0.00
Avail Cap(c_a), veh/h	217	4523	1962	258	4564	0	731	1369	1163	194	793	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	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	22.4	5.3	4.7	21.5	6.4	0.0	20.0	0.0	19.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	10.1	0.1	0.0	5.3	0.3	0.0	5.9	0.0	3.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.6	0.2	0.5	5.2	0.0	2.0	0.0	1.5	0.0	0.0	0.0
LnGrp Delay(d),s/veh	32.4	5.4	4.7	26.8	6.7	0.0	25.9	0.0	22.6	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A		C		C			
Approach Vol, veh/h		542			1317			249			0	
Approach Delay, s/veh		6.0			7.3			24.4			0.0	
Approach LOS		A			A			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	0.0	9.7	6.3	29.8	9.2	0.6	5.2	30.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	33.0	6.6	57.4	18.5	19.5	5.5	58.5
Max Q Clear Time (g_c+I1), s	0.0	5.0	2.9	5.3	5.4	0.0	2.3	12.8
Green Ext Time (p_c), s	0.0	0.3	0.0	3.9	0.3	0.0	0.0	13.5

Intersection Summary		
HCM 2010 Ctrl Delay		9.0
HCM 2010 LOS		A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	501	73	34	763	124	103
Future Volume (vph)	501	73	34	763	124	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3474		1787	3574	1726	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3474		1787	3574	1726	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	557	81	38	848	138	114
RTOR Reduction (vph)	7	0	0	0	38	0
Lane Group Flow (vph)	631	0	38	848	214	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	65.1		5.2	74.3	17.7	
Effective Green, g (s)	65.1		5.2	74.3	17.7	
Actuated g/C Ratio	0.65		0.05	0.74	0.18	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2261		92	2655	305	
v/s Ratio Prot	0.18		0.02	c0.24	c0.12	
v/s Ratio Perm						
v/c Ratio	0.28		0.41	0.32	0.70	
Uniform Delay, d1	7.4		45.9	4.3	38.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.3		3.0	0.1	7.1	
Delay (s)	7.8		48.9	4.4	45.8	
Level of Service	A		D	A	D	
Approach Delay (s)	7.8			6.3	45.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	124	364	293	887	613	74	202	19	166	413	92
Future Volume (veh/h)	178	124	364	293	887	613	74	202	19	166	413	92
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	189	132	227	312	944	386	79	215	20	177	439	98
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	226	471	421	357	1208	527	100	834	77	251	508	431
Arrive On Green	0.13	0.27	0.27	0.20	0.34	0.34	0.06	0.26	0.26	0.07	0.28	0.28
Sat Flow, veh/h	1774	1770	1583	1792	3574	1558	1707	3151	290	3343	1810	1535
Grp Volume(v), veh/h	189	132	227	312	944	386	79	115	120	177	439	98
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1558	1707	1703	1739	1672	1810	1535
Q Serve(g_s), s	9.6	5.5	11.3	15.6	21.9	20.1	4.2	4.9	5.0	4.8	21.2	4.5
Cycle Q Clear(g_c), s	9.6	5.5	11.3	15.6	21.9	20.1	4.2	4.9	5.0	4.8	21.2	4.5
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	226	471	421	357	1208	527	100	451	460	251	508	431
V/C Ratio(X)	0.84	0.28	0.54	0.87	0.78	0.73	0.79	0.26	0.26	0.71	0.86	0.23
Avail Cap(c_a), veh/h	321	471	421	628	1512	659	165	643	656	417	734	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	26.9	29.0	35.8	27.5	26.9	42.8	26.7	26.8	41.7	31.5	25.5
Incr Delay (d2), s/veh	12.5	0.3	1.4	6.7	2.1	3.2	12.7	0.3	0.3	3.6	7.4	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	5.5	2.7	5.1	8.4	11.1	9.1	2.3	2.3	2.4	2.3	11.7	1.9
LnGrp Delay(d),s/veh	51.8	27.2	30.4	42.5	29.6	30.1	55.5	27.0	27.1	45.3	38.9	25.7
LnGrp LOS	D	C	C	D	C	C	E	C	C	D	D	C
Approach Vol, veh/h		548			1642			314			714	
Approach Delay, s/veh		37.0			32.2			34.2			38.7	
Approach LOS		D			C			C			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	11.4	28.9	22.9	29.0	9.9	30.4	16.2	35.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	11.5	34.8	32.3	23.4	8.9	37.4	16.7	39.0				
Max Q Clear Time (g_c+I1), s	6.8	7.0	17.6	13.3	6.2	23.2	11.6	23.9				
Green Ext Time (p_c), s	0.2	1.4	0.8	1.5	0.0	2.7	0.2	7.3				
Intersection Summary												
HCM 2010 Ctrl Delay			34.6									
HCM 2010 LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	48	187	0	0	0	0	938	263	210	577	198
Future Volume (veh/h)	52	48	187	0	0	0	0	938	263	210	577	198
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	54	49	193				0	967	271	216	595	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	169	469	276				0	1582	705	362	2277	1019
Arrive On Green	0.18	0.18	0.18				0.00	0.45	0.45	0.11	0.64	0.00
Sat Flow, veh/h	924	2558	1508				0	3597	1561	3442	3539	1583
Grp Volume(v), veh/h	103	0	193				0	967	271	216	595	0
Grp Sat Flow(s),veh/h/ln	1763	1719	1508				0	1752	1561	1721	1770	1583
Q Serve(g_s), s	2.6	0.0	6.2				0.0	10.9	6.0	3.1	3.7	0.0
Cycle Q Clear(g_c), s	2.6	0.0	6.2				0.0	10.9	6.0	3.1	3.7	0.0
Prop In Lane	0.52		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	315	276				0	1582	705	362	2277	1019
V/C Ratio(X)	0.32	0.00	0.70				0.00	0.61	0.38	0.60	0.26	0.00
Avail Cap(c_a), veh/h	967	943	827				0	4554	2028	1358	6302	2820
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.4	0.0	19.9				0.0	10.8	9.5	22.2	4.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	3.2				0.0	0.4	0.3	1.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.8				0.0	5.2	2.6	1.5	1.8	0.0
LnGrp Delay(d),s/veh	19.0	0.0	23.0				0.0	11.2	9.8	23.8	4.0	0.0
LnGrp LOS	B		C					B	A	C	A	
Approach Vol, veh/h		296						1238			811	
Approach Delay, s/veh		21.6						10.9			9.3	
Approach LOS		C						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.0	28.0		14.0		37.9		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	20.5	67.5		28.5		92.5		
Max Q Clear Time (g_c+I1), s	5.1	12.9		8.2		5.7		
Green Ext Time (p_c), s	0.6	10.6		1.2		4.8		

Intersection Summary	
HCM 2010 Ctrl Delay	11.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	283	338	127	546	497	245	89	476	193
Future Volume (veh/h)	0	0	0	283	338	127	546	497	245	89	476	193
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.95
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				295	352	132	569	518	255	93	496	201
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				401	509	197	732	1442	668	121	687	276
Arrive On Green				0.31	0.31	0.31	0.21	0.43	0.43	0.07	0.28	0.28
Sat Flow, veh/h				1306	1658	641	3408	3357	1555	1774	2427	977
Grp Volume(v), veh/h				414	0	365	569	518	255	93	361	336
Grp Sat Flow(s),veh/h/ln				1835	0	1771	1704	1679	1555	1774	1770	1634
Q Serve(g_s), s				14.0	0.0	12.4	10.9	7.2	7.7	3.6	12.7	12.9
Cycle Q Clear(g_c), s				14.0	0.0	12.4	10.9	7.2	7.7	3.6	12.7	12.9
Prop In Lane				0.71		0.36	1.00		1.00	1.00		0.60
Lane Grp Cap(c), veh/h				564	0	544	732	1442	668	121	501	463
V/C Ratio(X)				0.74	0.00	0.67	0.78	0.36	0.38	0.77	0.72	0.73
Avail Cap(c_a), veh/h				1021	0	985	1453	2644	1225	346	985	909
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				21.5	0.0	20.9	25.6	13.3	13.5	31.7	22.3	22.4
Incr Delay (d2), s/veh				1.9	0.0	1.4	1.8	0.2	0.4	9.7	2.0	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
%ile BackOfQ(50%),veh/ln				7.3	0.0	6.3	5.3	3.3	3.4	2.1	6.5	6.1
LnGrp Delay(d),s/veh				23.3	0.0	22.4	27.4	13.5	13.8	41.4	24.3	24.6
LnGrp LOS				C		C	C	B	B	D	C	C
Approach Vol, veh/h					779			1342			790	
Approach Delay, s/veh					22.9			19.5			26.4	
Approach LOS					C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	9.2	34.2			19.4	24.1		25.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	13.5	54.5			29.5	38.5		38.5
Max Q Clear Time (g_c+I1), s	5.6	9.7			12.9	14.9		16.0
Green Ext Time (p_c), s	0.1	6.3			2.0	4.7		5.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	0	136	121	81	243	123	883	0	0	621	31
Future Volume (veh/h)	68	0	136	121	81	243	123	883	0	0	621	31
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		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	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	74	0	148	132	88	264	134	960	0	0	675	34
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	283	189	413	181	2517	0	0	1716	86
Arrive On Green	0.00	0.00	0.00	0.26	0.26	0.26	0.10	0.49	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0		1096	731	1599	1774	5253	0	0	6624	317
Grp Volume(v), veh/h		0.0		220	0	264	134	960	0	0	514	195
Grp Sat Flow(s),veh/h/ln				1826	0	1599	1774	1695	0	0	1618	1825
Q Serve(g_s), s				3.7	0.0	5.4	2.7	4.3	0.0	0.0	3.2	3.2
Cycle Q Clear(g_c), s				3.7	0.0	5.4	2.7	4.3	0.0	0.0	3.2	3.2
Prop In Lane				0.60		1.00	1.00		0.00	0.00		0.17
Lane Grp Cap(c), veh/h				472	0	413	181	2517	0	0	1309	492
V/C Ratio(X)				0.47	0.00	0.64	0.74	0.38	0.00	0.00	0.39	0.40
Avail Cap(c_a), veh/h				1377	0	1205	948	6761	0	0	3260	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.4	0.0	12.0	15.9	5.7	0.0	0.0	10.9	10.9
Incr Delay (d2), s/veh				0.7	0.0	1.7	5.9	0.1	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	2.5	1.6	2.0	0.0	0.0	1.4	1.6
LnGrp Delay(d),s/veh				12.1	0.0	13.7	21.8	5.8	0.0	0.0	11.1	11.4
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					484			1094			709	
Approach Delay, s/veh					13.0			7.8			11.2	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		22.6			8.2	14.3		13.9
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		48.5			19.5	24.5		27.5
Max Q Clear Time (g_c+I1), s		6.3			4.7	5.2		7.4
Green Ext Time (p_c), s		8.5			0.3	4.6		2.1

Intersection Summary		
HCM 2010 Ctrl Delay		9.9
HCM 2010 LOS		A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	800	605	0	580	297	0
Future Volume (veh/h)	800	605	0	580	297	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	833	630	0	604	309	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	1828	841	0	1293	909	0
Arrive On Green	0.53	0.53	0.00	0.25	0.25	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	833	630	0	604	309	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	6.2	12.8	0.0	4.1	2.9	0.0
Cycle Q Clear(g_c), s	6.2	12.8	0.0	4.1	2.9	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1828	841	0	1293	909	0
V/C Ratio(X)	0.46	0.75	0.00	0.47	0.34	0.00
Avail Cap(c_a), veh/h	6767	3113	0	3655	2569	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	6.0	7.6	0.0	13.1	12.7	0.0
Incr Delay (d2), s/veh	0.2	1.4	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	5.7	0.0	2.0	1.4	0.0
LnGrp Delay(d),s/veh	6.2	8.9	0.0	13.4	12.9	0.0
LnGrp LOS	A	A		B	B	
Approach Vol, veh/h	1463			604	309	
Approach Delay, s/veh	7.4			13.4	12.9	
Approach LOS	A			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		14.9		26.5		14.9		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		29.5		81.5		29.5		
Max Q Clear Time (g_c+I1), s		6.1		14.8		4.9		
Green Ext Time (p_c), s		4.3		7.2		2.0		

Intersection Summary		
HCM 2010 Ctrl Delay		9.6
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	74	18	129	78	222	22	182	101	453	264	88
Future Volume (veh/h)	133	74	18	129	78	222	22	182	101	453	264	88
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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	79	19	137	83	236	23	194	107	482	281	94
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	188	578	135	183	716	321	49	353	186	695	875	287
Arrive On Green	0.11	0.20	0.20	0.10	0.20	0.20	0.03	0.16	0.16	0.20	0.33	0.33
Sat Flow, veh/h	1774	2850	663	1810	3610	1615	1792	2259	1191	3510	2674	876
Grp Volume(v), veh/h	141	48	50	137	83	236	23	152	149	482	188	187
Grp Sat Flow(s),veh/h/ln	1774	1770	1743	1810	1805	1615	1792	1787	1663	1755	1805	1745
Q Serve(g_s), s	4.1	1.2	1.2	3.9	1.0	7.2	0.7	4.1	4.4	6.7	4.1	4.3
Cycle Q Clear(g_c), s	4.1	1.2	1.2	3.9	1.0	7.2	0.7	4.1	4.4	6.7	4.1	4.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.72	1.00		0.50
Lane Grp Cap(c), veh/h	188	359	354	183	716	321	49	279	260	695	591	571
V/C Ratio(X)	0.75	0.13	0.14	0.75	0.12	0.74	0.47	0.54	0.57	0.69	0.32	0.33
Avail Cap(c_a), veh/h	757	856	843	738	1678	751	255	831	773	2031	1627	1573
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	17.2	17.2	23.0	17.3	19.8	25.3	20.5	20.6	19.6	13.3	13.4
Incr Delay (d2), s/veh	6.0	0.2	0.2	6.0	0.1	3.3	7.0	1.6	2.0	1.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.6	0.6	2.2	0.5	3.5	0.4	2.1	2.1	3.3	2.1	2.1
LnGrp Delay(d),s/veh	28.9	17.4	17.4	29.0	17.4	23.1	32.3	22.1	22.6	20.9	13.6	13.7
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		239			456			324			857	
Approach Delay, s/veh		24.2			23.8			23.1			17.7	
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	14.9	12.7	9.8	15.2	5.9	21.7	10.1	15.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	30.5	24.5	21.5	25.5	7.5	47.5	22.5	24.5
Max Q Clear Time (g_c+I1), s	8.7	6.4	5.9	3.2	2.7	6.3	6.1	9.2
Green Ext Time (p_c), s	1.7	1.6	0.3	0.4	0.0	2.5	0.3	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	598	10	9	408	13	0	0	10	0	0	4
Future Vol, veh/h	40	598	10	9	408	13	0	0	10	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	650	11	10	443	14	0	0	11	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	471	0	0	669	0	0	-	-	347	-	-	257
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	1080	-	-	910	-	-	0	0	646	0	0	739
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1066	-	-	903	-	-	-	-	636	-	-	719
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	10.8	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	636	1066	-	-	903	-	-	719
HCM Lane V/C Ratio	0.017	0.041	-	-	0.011	-	-	0.006
HCM Control Delay (s)	10.8	8.5	-	-	9	-	-	10
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	598	412	20	21	6
Future Vol, veh/h	29	598	412	20	21	6
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	650	448	22	23	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	484	0	-	0	862	263
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	389	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1068	-	-	-	292	732
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	651	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1054	-	-	-	276	713
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	643	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1054	-	-	-	276	713
HCM Lane V/C Ratio	0.03	-	-	-	0.083	0.009
HCM Control Delay (s)	8.5	-	-	-	19.2	10.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	500	63	93	400	0	44	0	50	0	0	0
Future Volume (veh/h)	8	500	63	93	400	0	44	0	50	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	515	65	96	412	0	45	0	52	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
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	0	0	0	2	2	2
Cap, veh/h	19	1197	532	168	1493	0	95	179	152	6	7	0
Arrive On Green	0.01	0.33	0.33	0.09	0.42	0.00	0.05	0.00	0.09	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1587	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	8	515	65	96	412	0	45	0	52	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1587	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.1	3.2	0.8	1.5	2.1	0.0	0.7	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	3.2	0.8	1.5	2.1	0.0	0.7	0.0	0.9	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	19	1197	532	168	1493	0	95	179	152	6	7	0
V/C Ratio(X)	0.41	0.43	0.12	0.57	0.28	0.00	0.47	0.00	0.34	0.00	0.00	0.00
Avail Cap(c_a), veh/h	538	5370	2384	1488	7265	0	1055	2082	1770	314	1284	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	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	13.9	7.3	6.5	12.3	5.4	0.0	13.0	0.0	12.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.6	0.2	0.1	3.1	0.1	0.0	3.6	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.5	0.4	0.9	1.1	0.0	0.4	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	27.5	7.6	6.6	15.3	5.5	0.0	16.6	0.0	13.3	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A		B		B			
Approach Vol, veh/h		588			508			97			0	
Approach Delay, s/veh		7.7			7.4			14.8			0.0	
Approach LOS		A			A			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	0.0	7.2	7.1	14.0	6.0	1.2	4.8	16.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	31.0	23.5	42.5	16.5	19.5	8.5	57.5
Max Q Clear Time (g_c+I1), s	0.0	2.9	3.5	5.2	2.7	0.0	2.1	4.1
Green Ext Time (p_c), s	0.0	0.1	0.2	4.1	0.1	0.0	0.0	3.1

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	396	73	114	450	48	73
Future Volume (vph)	396	73	114	450	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3495		1787	3574	1711	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3495		1787	3574	1711	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	445	82	128	506	54	82
RTOR Reduction (vph)	8	0	0	0	68	0
Lane Group Flow (vph)	519	0	128	506	68	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	66.0		12.5	82.0	9.5	
Effective Green, g (s)	66.0		12.5	82.0	9.5	
Actuated g/C Ratio	0.66		0.12	0.82	0.10	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2306		223	2930	162	
v/s Ratio Prot	c0.15		c0.07	0.14	c0.04	
v/s Ratio Perm						
v/c Ratio	0.22		0.57	0.17	0.42	
Uniform Delay, d1	6.8		41.2	1.9	42.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.2		3.5	0.0	1.8	
Delay (s)	7.0		44.8	1.9	44.4	
Level of Service	A		D	A	D	
Approach Delay (s)	7.0			10.6	44.4	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	353	77	26	192	264	205	439	157	477	186	181
Future Volume (veh/h)	145	353	77	26	192	264	205	439	157	477	186	181
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	149	364	38	27	198	169	211	453	162	492	192	187
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	194	794	82	54	595	262	269	659	234	663	554	470
Arrive On Green	0.11	0.24	0.24	0.03	0.16	0.16	0.15	0.25	0.25	0.19	0.29	0.29
Sat Flow, veh/h	1792	3261	338	1810	3610	1591	1810	2612	927	3476	1881	1597
Grp Volume(v), veh/h	149	198	204	27	198	169	211	312	303	492	192	187
Grp Sat Flow(s),veh/h/ln	1792	1787	1812	1810	1805	1591	1810	1805	1734	1738	1881	1597
Q Serve(g_s), s	5.1	6.0	6.1	0.9	3.1	6.3	7.1	9.9	10.1	8.5	5.1	5.9
Cycle Q Clear(g_c), s	5.1	6.0	6.1	0.9	3.1	6.3	7.1	9.9	10.1	8.5	5.1	5.9
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	194	435	441	54	595	262	269	455	437	663	554	470
V/C Ratio(X)	0.77	0.46	0.46	0.50	0.33	0.64	0.79	0.69	0.69	0.74	0.35	0.40
Avail Cap(c_a), veh/h	551	1000	1014	185	1281	565	727	953	916	1452	1023	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	20.4	20.5	30.3	23.4	24.8	26.0	21.4	21.5	24.2	17.6	17.9
Incr Delay (d2), s/veh	6.2	0.7	0.8	7.0	0.3	2.6	5.0	1.8	2.0	1.7	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	2.9	3.0	3.1	0.6	1.6	3.0	4.0	5.2	5.0	4.2	2.7	2.7
LnGrp Delay(d),s/veh	33.7	21.2	21.2	37.3	23.7	27.4	31.1	23.3	23.5	25.9	18.0	18.4
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	B	B
Approach Vol, veh/h		551			394			826			871	
Approach Delay, s/veh		24.6			26.2			25.3			22.5	
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	16.6	20.5	6.4	19.9	13.9	23.2	11.4	15.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	33.5	6.5	35.5	25.5	34.5	19.5	22.5
Max Q Clear Time (g_c+I1), s	10.5	12.1	2.9	8.1	9.1	7.9	7.1	8.3
Green Ext Time (p_c), s	1.6	3.9	0.0	2.5	0.5	1.8	0.3	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	263	369	0	0	0	0	809	389	276	697	134
Future Volume (veh/h)	109	263	369	0	0	0	0	809	389	276	697	134
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	121	292	410				0	899	432	307	774	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	327	841	503				0	1371	605	421	1997	893
Arrive On Green	0.32	0.32	0.32				0.00	0.38	0.38	0.12	0.56	0.00
Sat Flow, veh/h	1023	2631	1576				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	219	194	410				0	899	432	307	774	0
Grp Sat Flow(s),veh/h/ln	1849	1805	1576				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	7.1	6.3	18.5				0.0	16.0	18.0	6.6	9.4	0.0
Cycle Q Clear(g_c), s	7.1	6.3	18.5				0.0	16.0	18.0	6.6	9.4	0.0
Prop In Lane	0.55		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	591	577	503				0	1371	605	421	1997	893
V/C Ratio(X)	0.37	0.34	0.81				0.00	0.66	0.71	0.73	0.39	0.00
Avail Cap(c_a), veh/h	1087	1061	927				0	2333	1030	912	3454	1545
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.3	20.1	24.2				0.0	19.6	20.2	32.7	9.4	0.0
Incr Delay (d2), s/veh	0.4	0.3	3.3				0.0	0.5	1.6	2.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.2	8.4				0.0	8.0	8.1	3.3	4.5	0.0
LnGrp Delay(d),s/veh	20.7	20.4	27.5				0.0	20.2	21.8	35.1	9.5	0.0
LnGrp LOS	C	C	C					C	C	D	A	
Approach Vol, veh/h		823						1331			1081	
Approach Delay, s/veh		24.0						20.7			16.8	
Approach LOS		C						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.0	34.2		29.2		48.1		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	20.5	50.5		45.5		75.5		
Max Q Clear Time (g_c+I1), s	8.6	20.0		20.5		11.4		
Green Ext Time (p_c), s	0.8	9.7		4.2		6.6		

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	176	128	106	236	894	633	75	513	119
Future Volume (veh/h)	0	0	0	176	128	106	236	894	633	75	513	119
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				196	142	118	262	993	703	83	570	132
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				275	210	179	366	2000	909	108	1530	353
Arrive On Green				0.19	0.19	0.19	0.11	0.58	0.58	0.06	0.54	0.54
Sat Flow, veh/h				1465	1117	952	3476	3424	1557	1774	2836	654
Grp Volume(v), veh/h				244	0	212	262	993	703	83	355	347
Grp Sat Flow(s),veh/h/ln				1827	0	1706	1738	1712	1557	1774	1770	1720
Q Serve(g_s), s				10.1	0.0	9.3	5.9	13.7	27.7	3.7	9.3	9.4
Cycle Q Clear(g_c), s				10.1	0.0	9.3	5.9	13.7	27.7	3.7	9.3	9.4
Prop In Lane				0.80		0.56	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h				343	0	320	366	2000	909	108	955	928
V/C Ratio(X)				0.71	0.00	0.66	0.71	0.50	0.77	0.77	0.37	0.37
Avail Cap(c_a), veh/h				645	0	602	796	2692	1224	319	1304	1267
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				30.8	0.0	30.4	34.9	9.8	12.7	37.4	10.7	10.7
Incr Delay (d2), s/veh				2.8	0.0	2.3	2.6	0.2	2.2	10.8	0.2	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	4.6	3.0	6.4	12.3	2.1	4.6	4.5
LnGrp Delay(d),s/veh				33.5	0.0	32.7	37.6	10.0	14.9	48.2	10.9	11.0
LnGrp LOS				C		C	D	B	B	D	B	B
Approach Vol, veh/h					456			1958			785	
Approach Delay, s/veh					33.1			15.5			14.9	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	9.4	51.7			13.0	48.1		19.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	14.5	63.5			18.5	59.5		28.5
Max Q Clear Time (g_c+I1), s	5.7	29.7			7.9	11.4		12.1
Green Ext Time (p_c), s	0.1	17.5			0.6	5.2		2.5

Intersection Summary		
HCM 2010 Ctrl Delay		17.8
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	314	12	18	11	322	396	0	0	1694	175
Future Volume (veh/h)	17	0	314	12	18	11	322	396	0	0	1694	175
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	40	0	0	0	100	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	18	0	334	13	19	12	343	421	0	0	1802	186
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	31	46	66	514	4095	0	0	2920	227
Arrive On Green	0.00	0.00	0.00	0.05	0.05	0.05	0.23	0.80	0.00	0.00	0.48	0.48
Sat Flow, veh/h		0		700	1024	1490	1757	5202	0	0	6207	614
Grp Volume(v), veh/h		0.0		32	0	12	343	421	0	0	1456	532
Grp Sat Flow(s),veh/h/ln				1724	0	1490	1757	1679	0	0	1602	1754
Q Serve(g_s), s				1.0	0.0	0.4	10.6	1.1	0.0	0.0	12.8	12.8
Cycle Q Clear(g_c), s				1.0	0.0	0.4	10.6	1.1	0.0	0.0	12.8	12.8
Prop In Lane				0.41		1.00	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				77	0	66	514	4095	0	0	2282	848
V/C Ratio(X)				0.42	0.00	0.18	0.67	0.10	0.00	0.00	0.64	0.63
Avail Cap(c_a), veh/h				544	0	470	662	5165	0	0	2738	1000
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.8	0.0	29.5	23.9	1.2	0.0	0.0	14.1	13.5
Incr Delay (d2), s/veh				3.6	0.0	1.3	1.7	0.0	0.0	0.0	0.4	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	130.9	0.0	0.0	0.0	21.5	16.8
%ile BackOfQ(50%),veh/ln				0.6	0.0	0.2	28.3	0.5	0.0	0.0	13.6	13.5
LnGrp Delay(d),s/veh				33.3	0.0	30.7	156.5	1.2	0.0	0.0	36.0	31.2
LnGrp LOS				C		C	F	A			D	C
Approach Vol, veh/h					44			764			1988	
Approach Delay, s/veh					32.6			70.9			34.7	
Approach LOS					C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		49.9			17.8	32.1		7.1
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		58.5			21.5	32.5		18.0
Max Q Clear Time (g_c+I1), s		3.1			12.6	14.8		3.0
Green Ext Time (p_c), s		3.3			0.7	12.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.6
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	254	224	0	1576	289	0
Future Volume (veh/h)	254	224	0	1576	289	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	276	243	0	1713	314	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	722	332	0	3214	2237	0
Arrive On Green	0.21	0.21	0.00	0.63	0.63	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	276	243	0	1713	314	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	3.9	8.2	0.0	10.5	2.0	0.0
Cycle Q Clear(g_c), s	3.9	8.2	0.0	10.5	2.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	722	332	0	3214	2237	0
V/C Ratio(X)	0.38	0.73	0.00	0.53	0.14	0.00
Avail Cap(c_a), veh/h	2073	954	0	6993	4867	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	18.9	20.6	0.0	5.9	4.3	0.0
Incr Delay (d2), s/veh	0.3	3.1	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
%ile BackOfQ(50%),veh/ln	1.9	3.8	0.0	5.0	1.0	0.0
LnGrp Delay(d),s/veh	19.2	23.7	0.0	6.0	4.3	0.0
LnGrp LOS	B	C		A	A	
Approach Vol, veh/h	519			1713	314	
Approach Delay, s/veh	21.3			6.0	4.3	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		39.7		16.5		39.7		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		76.5		34.5		76.5		
Max Q Clear Time (g_c+I1), s		12.5		10.2		4.0		
Green Ext Time (p_c), s		22.6		1.8		2.3		

Intersection Summary			
HCM 2010 Ctrl Delay			8.9
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	216	47	63	241	142	813	43	462	231	228	186	16
Future Volume (veh/h)	216	47	63	241	142	813	43	462	231	228	186	16
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	251	55	73	280	165	945	50	537	269	265	216	19
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	231	686	606	312	1534	686	65	515	257	246	851	74
Arrive On Green	0.13	0.38	0.38	0.17	0.43	0.43	0.04	0.22	0.22	0.07	0.26	0.26
Sat Flow, veh/h	1792	1787	1578	1792	3574	1599	1810	2330	1164	3476	3327	290
Grp Volume(v), veh/h	251	55	73	280	165	945	50	416	390	265	115	120
Grp Sat Flow(s),veh/h/ln	1792	1787	1578	1792	1787	1599	1810	1805	1689	1738	1787	1830
Q Serve(g_s), s	15.5	2.3	3.6	18.4	3.3	51.5	3.3	26.5	26.5	8.5	6.2	6.3
Cycle Q Clear(g_c), s	15.5	2.3	3.6	18.4	3.3	51.5	3.3	26.5	26.5	8.5	6.2	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.69	1.00		0.16
Lane Grp Cap(c), veh/h	231	686	606	312	1534	686	65	399	373	246	457	468
V/C Ratio(X)	1.08	0.08	0.12	0.90	0.11	1.38	0.77	1.04	1.05	1.08	0.25	0.26
Avail Cap(c_a), veh/h	231	686	606	440	1534	686	133	399	373	246	457	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	23.5	23.9	48.5	20.5	34.3	57.4	46.7	46.8	55.8	35.5	35.6
Incr Delay (d2), s/veh	83.5	0.0	0.1	16.0	0.0	178.8	17.2	56.7	59.2	79.1	0.3	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	18.0	1.2	1.6	10.5	1.6	56.7	1.9	19.5	18.5	6.8	3.1	3.2
LnGrp Delay(d),s/veh	135.8	23.5	24.0	64.4	20.5	213.0	74.6	103.5	106.0	134.9	35.8	35.8
LnGrp LOS	F	C	C	E	C	F	E	F	F	F	D	D
Approach Vol, veh/h		379			1390			856			500	
Approach Delay, s/veh		98.0			160.2			102.9			88.3	
Approach LOS		F			F			F			F	

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	13.0	31.0	25.4	50.6	8.8	35.2	20.0	56.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	26.5	29.5	37.5	8.8	26.2	15.5	51.5
Max Q Clear Time (g_c+I1), s	10.5	28.5	20.4	5.6	5.3	8.3	17.5	53.5
Green Ext Time (p_c), s	0.0	0.0	0.6	0.7	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	125.5
HCM 2010 LOS	F

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	57	703	40	0	512
Future Vol, veh/h	0	57	703	40	0	512
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	63	781	44	0	569

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	413	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	585	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	585	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	585	-
HCM Lane V/C Ratio	-	-	0.108	-
HCM Control Delay (s)	-	-	11.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	456	50	37	1218	10	0	0	41	0	0	10
Future Vol, veh/h	13	456	50	37	1218	10	0	0	41	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	496	54	40	1324	11	0	0	45	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1349	0	0	558	0	0	-	-	291	-	-	696
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	501	-	-	1002	-	-	0	0	703	0	0	382
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	494	-	-	994	-	-	-	-	692	-	-	372
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	10.6	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	692	494	-	-	994	-	-	372
HCM Lane V/C Ratio	0.064	0.029	-	-	0.04	-	-	0.029
HCM Control Delay (s)	10.6	12.5	-	-	8.8	-	-	15
HCM Lane LOS	B	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	426	1223	18	35	22
Future Vol, veh/h	33	426	1223	18	35	22
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	463	1329	20	38	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1363	0	-	0	1657	703
Stage 1	-	-	-	-	1353	-
Stage 2	-	-	-	-	304	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	495	-	-	-	88	378
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	488	-	-	-	79	368
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	59.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	488	-	-	-	79	368
HCM Lane V/C Ratio	0.074	-	-	-	0.482	0.065
HCM Control Delay (s)	13	-	-	-	87.2	15.5
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	2	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	435	30	30	1100	0	115	0	94	0	0	0
Future Volume (veh/h)	10	435	30	30	1100	0	115	0	94	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	518	36	36	1310	0	137	0	112	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	28	2019	876	72	2086	0	184	215	182	4	4	0
Arrive On Green	0.02	0.56	0.56	0.04	0.58	0.00	0.10	0.00	0.11	0.00	0.00	0.00
Sat Flow, veh/h	1810	3610	1566	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	12	518	36	36	1310	0	137	0	112	0	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1566	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.3	3.5	0.5	0.9	11.3	0.0	3.5	0.0	3.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	3.5	0.5	0.9	11.3	0.0	3.5	0.0	3.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	28	2019	876	72	2086	0	184	215	182	4	4	0
V/C Ratio(X)	0.43	0.26	0.04	0.50	0.63	0.00	0.75	0.00	0.61	0.00	0.00	0.00
Avail Cap(c_a), veh/h	212	4496	1950	252	4535	0	714	1297	1102	189	735	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	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	22.9	5.3	4.7	22.1	6.4	0.0	20.5	0.0	19.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	10.1	0.1	0.0	5.4	0.3	0.0	5.9	0.0	3.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	0.2	0.6	5.5	0.0	2.0	0.0	1.6	0.0	0.0	0.0
LnGrp Delay(d),s/veh	33.0	5.4	4.7	27.4	6.7	0.0	26.4	0.0	23.2	0.0	0.0	0.0
LnGrp LOS	C	A	A	C	A		C		C			
Approach Vol, veh/h		566			1346			249			0	
Approach Delay, s/veh		5.9			7.3			24.9			0.0	
Approach LOS		A			A			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	0.0	9.8	6.4	30.7	9.3	0.5	5.2	31.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	32.0	6.6	58.4	18.5	18.5	5.5	59.5
Max Q Clear Time (g_c+I1), s	0.0	5.1	2.9	5.5	5.5	0.0	2.3	13.3
Green Ext Time (p_c), s	0.0	0.3	0.0	4.1	0.3	0.0	0.0	14.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	518	73	34	785	124	103
Future Volume (vph)	518	73	34	785	124	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3477		1787	3574	1726	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3477		1787	3574	1726	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	576	81	38	872	138	114
RTOR Reduction (vph)	7	0	0	0	38	0
Lane Group Flow (vph)	650	0	38	872	214	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	65.1		5.2	74.3	17.7	
Effective Green, g (s)	65.1		5.2	74.3	17.7	
Actuated g/C Ratio	0.65		0.05	0.74	0.18	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2263		92	2655	305	
v/s Ratio Prot	0.19		0.02	c0.24	c0.12	
v/s Ratio Perm						
v/c Ratio	0.29		0.41	0.33	0.70	
Uniform Delay, d1	7.5		45.9	4.4	38.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.3		3.0	0.1	7.1	
Delay (s)	7.8		48.9	4.4	45.8	
Level of Service	A		D	A	D	
Approach Delay (s)	7.8			6.3	45.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	134	367	293	900	613	77	202	19	166	413	100
Future Volume (veh/h)	185	134	367	293	900	613	77	202	19	166	413	100
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	197	143	230	312	957	386	82	215	20	177	439	106
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	233	479	429	356	1208	527	104	837	77	249	505	428
Arrive On Green	0.13	0.27	0.27	0.20	0.34	0.34	0.06	0.27	0.27	0.07	0.28	0.28
Sat Flow, veh/h	1774	1770	1583	1792	3574	1558	1707	3151	290	3343	1810	1535
Grp Volume(v), veh/h	197	143	230	312	957	386	82	115	120	177	439	106
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1558	1707	1703	1739	1672	1810	1535
Q Serve(g_s), s	10.2	6.1	11.7	16.0	22.9	20.6	4.5	5.0	5.1	4.9	21.8	5.1
Cycle Q Clear(g_c), s	10.2	6.1	11.7	16.0	22.9	20.6	4.5	5.0	5.1	4.9	21.8	5.1
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	233	479	429	356	1208	527	104	452	462	249	505	428
V/C Ratio(X)	0.84	0.30	0.54	0.88	0.79	0.73	0.79	0.25	0.26	0.71	0.87	0.25
Avail Cap(c_a), veh/h	329	479	429	613	1476	643	164	613	626	407	697	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	27.3	29.4	36.7	28.3	27.5	43.7	27.3	27.4	42.7	32.4	26.4
Incr Delay (d2), s/veh	13.1	0.3	1.3	7.3	2.5	3.4	12.3	0.3	0.3	3.7	8.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	3.0	5.3	8.6	11.7	9.3	2.5	2.4	2.5	2.4	12.1	2.2
LnGrp Delay(d),s/veh	53.2	27.7	30.7	44.1	30.7	30.9	56.1	27.6	27.7	46.4	41.1	26.7
LnGrp LOS	D	C	C	D	C	C	E	C	C	D	D	C
Approach Vol, veh/h		570			1655			317			722	
Approach Delay, s/veh		37.7			33.3			35.0			40.3	
Approach LOS		D			C			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	11.5	29.6	23.3	30.1	10.3	30.9	16.9	36.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.5	34.0	32.3	24.2	9.1	36.4	17.5	39.0
Max Q Clear Time (g_c+I1), s	6.9	7.1	18.0	13.7	6.5	23.8	12.2	24.9
Green Ext Time (p_c), s	0.2	1.3	0.8	1.7	0.0	2.5	0.2	7.1

Intersection Summary		
HCM 2010 Ctrl Delay		35.8
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	48	187	0	0	0	0	945	263	210	585	198
Future Volume (veh/h)	52	48	187	0	0	0	0	945	263	210	585	198
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	54	49	193				0	974	271	216	603	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	169	468	276				0	1589	708	362	2282	1021
Arrive On Green	0.18	0.18	0.18				0.00	0.45	0.45	0.11	0.64	0.00
Sat Flow, veh/h	924	2558	1508				0	3597	1561	3442	3539	1583
Grp Volume(v), veh/h	103	0	193				0	974	271	216	603	0
Grp Sat Flow(s),veh/h/ln	1763	1719	1508				0	1752	1561	1721	1770	1583
Q Serve(g_s), s	2.6	0.0	6.3				0.0	11.0	6.0	3.1	3.8	0.0
Cycle Q Clear(g_c), s	2.6	0.0	6.3				0.0	11.0	6.0	3.1	3.8	0.0
Prop In Lane	0.52		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	323	315	276				0	1589	708	362	2282	1021
V/C Ratio(X)	0.32	0.00	0.70				0.00	0.61	0.38	0.60	0.26	0.00
Avail Cap(c_a), veh/h	962	938	823				0	4528	2016	1350	6266	2803
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.5	0.0	20.0				0.0	10.8	9.4	22.3	4.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	3.2				0.0	0.4	0.3	1.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.8				0.0	5.4	2.6	1.5	1.9	0.0
LnGrp Delay(d),s/veh	19.1	0.0	23.2				0.0	11.2	9.8	23.9	4.0	0.0
LnGrp LOS	B		C					B	A	C	A	
Approach Vol, veh/h		296						1245			819	
Approach Delay, s/veh		21.8						10.9			9.3	
Approach LOS		C						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.0	28.2		14.1		38.2		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	20.5	67.5		28.5		92.5		
Max Q Clear Time (g_c+I1), s	5.1	13.0		8.3		5.8		
Green Ext Time (p_c), s	0.6	10.7		1.2		4.8		

Intersection Summary		
HCM 2010 Ctrl Delay		11.7
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	283	338	127	546	504	245	89	484	193
Future Volume (veh/h)	0	0	0	283	338	127	546	504	245	89	484	193
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.95
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				295	352	132	569	525	255	93	504	201
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				400	508	197	731	1448	671	121	695	276
Arrive On Green				0.31	0.31	0.31	0.21	0.43	0.43	0.07	0.29	0.29
Sat Flow, veh/h				1306	1658	641	3408	3357	1555	1774	2440	967
Grp Volume(v), veh/h				414	0	365	569	525	255	93	365	340
Grp Sat Flow(s),veh/h/ln				1835	0	1771	1704	1679	1555	1774	1770	1637
Q Serve(g_s), s				14.1	0.0	12.5	11.0	7.3	7.8	3.6	12.9	13.1
Cycle Q Clear(g_c), s				14.1	0.0	12.5	11.0	7.3	7.8	3.6	12.9	13.1
Prop In Lane				0.71		0.36	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h				563	0	543	731	1448	671	121	504	467
V/C Ratio(X)				0.74	0.00	0.67	0.78	0.36	0.38	0.77	0.72	0.73
Avail Cap(c_a), veh/h				1015	0	979	1444	2629	1218	344	979	905
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				21.6	0.0	21.1	25.8	13.3	13.5	31.9	22.4	22.5
Incr Delay (d2), s/veh				1.9	0.0	1.4	1.8	0.2	0.4	9.7	2.0	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
%ile BackOfQ(50%),veh/ln				7.4	0.0	6.3	5.3	3.4	3.4	2.1	6.6	6.1
LnGrp Delay(d),s/veh				23.5	0.0	22.5	27.6	13.5	13.8	41.6	24.4	24.7
LnGrp LOS				C		C	C	B	B	D	C	C
Approach Vol, veh/h					779			1349			798	
Approach Delay, s/veh					23.1			19.5			26.5	
Approach LOS					C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	9.3	34.5			19.4	24.3		25.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	13.5	54.5			29.5	38.5		38.5
Max Q Clear Time (g_c+I1), s	5.6	9.8			13.0	15.1		16.1
Green Ext Time (p_c), s	0.1	6.3			2.0	4.8		5.3

Intersection Summary		
HCM 2010 Ctrl Delay		22.4
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	0	141	129	81	243	127	905	0	0	646	31
Future Volume (veh/h)	68	0	141	129	81	243	127	905	0	0	646	31
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		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	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	74	0	153	140	88	264	138	984	0	0	702	34
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	289	182	413	185	2541	0	0	1749	84
Arrive On Green	0.00	0.00	0.00	0.26	0.26	0.26	0.10	0.50	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0		1121	704	1599	1774	5253	0	0	6638	306
Grp Volume(v), veh/h		0.0		228	0	264	138	984	0	0	533	203
Grp Sat Flow(s),veh/h/ln				1825	0	1599	1774	1695	0	0	1618	1827
Q Serve(g_s), s				3.9	0.0	5.4	2.8	4.5	0.0	0.0	3.3	3.4
Cycle Q Clear(g_c), s				3.9	0.0	5.4	2.8	4.5	0.0	0.0	3.3	3.4
Prop In Lane				0.61		1.00	1.00		0.00	0.00		0.17
Lane Grp Cap(c), veh/h				471	0	413	185	2541	0	0	1331	501
V/C Ratio(X)				0.48	0.00	0.64	0.75	0.39	0.00	0.00	0.40	0.40
Avail Cap(c_a), veh/h				1352	0	1184	932	6641	0	0	3202	1205
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.7	0.0	12.2	16.2	5.8	0.0	0.0	11.0	11.0
Incr Delay (d2), s/veh				0.8	0.0	1.7	5.9	0.1	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	2.5	1.7	2.0	0.0	0.0	1.5	1.8
LnGrp Delay(d),s/veh				12.5	0.0	13.9	22.1	5.9	0.0	0.0	11.2	11.5
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					492			1122			736	
Approach Delay, s/veh					13.2			7.9			11.3	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		23.1			8.4	14.7		14.1
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		48.5			19.5	24.5		27.5
Max Q Clear Time (g_c+I1), s		6.5			4.8	5.4		7.4
Green Ext Time (p_c), s		8.8			0.3	4.8		2.2

Intersection Summary			
HCM 2010 Ctrl Delay			10.1
HCM 2010 LOS			B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	800	621	0	629	335	0
Future Volume (veh/h)	800	621	0	629	335	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	833	647	0	655	349	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	1838	845	0	1342	943	0
Arrive On Green	0.53	0.53	0.00	0.26	0.26	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	833	647	0	655	349	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	6.5	14.2	0.0	4.7	3.5	0.0
Cycle Q Clear(g_c), s	6.5	14.2	0.0	4.7	3.5	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1838	845	0	1342	943	0
V/C Ratio(X)	0.45	0.77	0.00	0.49	0.37	0.00
Avail Cap(c_a), veh/h	6303	2900	0	3564	2505	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	6.3	8.1	0.0	13.7	13.3	0.0
Incr Delay (d2), s/veh	0.2	1.5	0.0	0.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	6.3	0.0	2.3	1.7	0.0
LnGrp Delay(d),s/veh	6.5	9.5	0.0	14.0	13.5	0.0
LnGrp LOS	A	A		B	B	
Approach Vol, veh/h	1480			655	349	
Approach Delay, s/veh	7.8			14.0	13.5	
Approach LOS	A			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		16.0		28.0		16.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		30.5		80.5		30.5		
Max Q Clear Time (g_c+I1), s		6.7		16.2		5.5		
Green Ext Time (p_c), s		4.7		7.3		2.3		

Intersection Summary			
HCM 2010 Ctrl Delay			10.3
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	75	18	145	78	229	35	224	114	494	277	88
Future Volume (veh/h)	133	75	18	145	78	229	35	224	114	494	277	88
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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	141	80	19	154	83	244	37	238	121	526	295	94
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	186	546	125	204	718	321	70	399	196	730	924	289
Arrive On Green	0.11	0.19	0.19	0.11	0.20	0.20	0.04	0.17	0.17	0.21	0.34	0.34
Sat Flow, veh/h	1774	2857	657	1810	3610	1615	1792	2320	1140	3510	2709	847
Grp Volume(v), veh/h	141	49	50	154	83	244	37	181	178	526	195	194
Grp Sat Flow(s),veh/h/ln	1774	1770	1744	1810	1805	1615	1792	1787	1673	1755	1805	1751
Q Serve(g_s), s	4.4	1.3	1.4	4.7	1.1	8.1	1.2	5.3	5.6	7.9	4.5	4.7
Cycle Q Clear(g_c), s	4.4	1.3	1.4	4.7	1.1	8.1	1.2	5.3	5.6	7.9	4.5	4.7
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.68	1.00		0.48
Lane Grp Cap(c), veh/h	186	338	333	204	718	321	70	307	288	730	616	597
V/C Ratio(X)	0.76	0.14	0.15	0.75	0.12	0.76	0.53	0.59	0.62	0.72	0.32	0.33
Avail Cap(c_a), veh/h	670	700	690	715	1491	667	268	801	750	1943	1538	1492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	19.2	19.2	24.5	18.7	21.5	26.8	21.7	21.8	21.0	13.9	13.9
Incr Delay (d2), s/veh	6.2	0.2	0.2	5.6	0.1	3.7	6.1	1.8	2.2	1.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.7	0.7	2.7	0.5	3.9	0.7	2.8	2.7	3.9	2.3	2.3
LnGrp Delay(d),s/veh	30.9	19.3	19.4	30.0	18.8	25.2	33.0	23.5	24.0	22.3	14.1	14.2
LnGrp LOS	C	B	B	C	B	C	C	C	C	C	B	B
Approach Vol, veh/h		240			481			396			915	
Approach Delay, s/veh		26.2			25.7			24.6			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	16.3	14.3	10.9	15.4	6.7	23.9	10.5	15.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	25.5	22.5	22.5	8.5	48.5	21.5	23.5
Max Q Clear Time (g_c+I1), s	9.9	7.6	6.7	3.4	3.2	6.7	6.4	10.1
Green Ext Time (p_c), s	1.9	2.0	0.3	0.4	0.0	2.6	0.3	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Intersection						
Int Delay, s/veh	1.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	105	311	59	0	472
Future Vol, veh/h	0	105	311	59	0	472
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	338	64	0	513

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	201	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	803	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	803	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	803	-
HCM Lane V/C Ratio	-	-	0.142	-
HCM Control Delay (s)	-	-	10.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	613	84	68	440	13	0	0	81	0	0	4
Future Vol, veh/h	40	613	84	68	440	13	0	0	81	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	666	91	74	478	14	0	0	88	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	506	0	0	765	0	0	-	-	395	-	-	274
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	1048	-	-	837	-	-	0	0	601	0	0	721
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1034	-	-	831	-	-	-	-	592	-	-	702
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	12.1	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	592	1034	-	-	831	-	-	702
HCM Lane V/C Ratio	0.149	0.042	-	-	0.089	-	-	0.006
HCM Control Delay (s)	12.1	8.6	-	-	9.8	-	-	10.2
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.3	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	634	452	20	21	6
Future Vol, veh/h	45	634	452	20	21	6
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	49	689	491	22	23	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	527	0	-	0	959	285
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	443	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1029	-	-	-	253	709
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1015	-	-	-	235	690
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	19.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1015	-	-	-	235	690
HCM Lane V/C Ratio	0.048	-	-	-	0.097	0.009
HCM Control Delay (s)	8.7	-	-	-	22	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	536	63	93	440	0	44	0	50	0	0	0
Future Volume (veh/h)	8	536	63	93	440	0	44	0	50	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	553	65	96	454	0	45	0	52	0	0	0
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	0
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	0	0	0	2	2	2
Cap, veh/h	19	1246	553	166	1539	0	95	178	151	6	6	0
Arrive On Green	0.01	0.35	0.35	0.09	0.43	0.00	0.05	0.00	0.09	0.00	0.00	0.00
Sat Flow, veh/h	1792	3574	1588	1792	3668	0	1810	1900	1615	1774	1863	0
Grp Volume(v), veh/h	8	553	65	96	454	0	45	0	52	0	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1588	1792	1787	0	1810	1900	1615	1774	1863	0
Q Serve(g_s), s	0.1	3.5	0.8	1.5	2.4	0.0	0.7	0.0	0.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	3.5	0.8	1.5	2.4	0.0	0.7	0.0	0.9	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	19	1246	553	166	1539	0	95	178	151	6	6	0
V/C Ratio(X)	0.41	0.44	0.12	0.58	0.29	0.00	0.47	0.00	0.34	0.00	0.00	0.00
Avail Cap(c_a), veh/h	525	5480	2434	1389	7203	0	966	1964	1669	306	1251	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	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	14.3	7.3	6.4	12.6	5.4	0.0	13.4	0.0	12.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	13.6	0.2	0.1	3.1	0.1	0.0	3.6	0.0	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.7	0.4	0.9	1.2	0.0	0.4	0.0	0.4	0.0	0.0	0.0
LnGrp Delay(d),s/veh	27.9	7.5	6.5	15.8	5.5	0.0	17.0	0.0	13.7	0.0	0.0	0.0
LnGrp LOS	C	A	A	B	A		B		B			
Approach Vol, veh/h		626			550			97			0	
Approach Delay, s/veh		7.7			7.3			15.2			0.0	
Approach LOS		A			A			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	0.0	7.2	7.2	14.6	6.0	1.2	4.8	17.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	30.0	22.5	44.5	15.5	19.5	8.5	58.5
Max Q Clear Time (g_c+I1), s	0.0	2.9	3.5	5.5	2.7	0.0	2.1	4.4
Green Ext Time (p_c), s	0.0	0.1	0.2	4.5	0.1	0.0	0.0	3.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	432	73	114	490	48	73
Future Volume (vph)	432	73	114	490	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3503		1787	3574	1711	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3503		1787	3574	1711	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	485	82	128	551	54	82
RTOR Reduction (vph)	7	0	0	0	67	0
Lane Group Flow (vph)	560	0	128	551	69	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	66.0		12.5	82.0	9.5	
Effective Green, g (s)	66.0		12.5	82.0	9.5	
Actuated g/C Ratio	0.66		0.12	0.82	0.10	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2311		223	2930	162	
v/s Ratio Prot	c0.16		c0.07	0.15	c0.04	
v/s Ratio Perm						
v/c Ratio	0.24		0.57	0.19	0.43	
Uniform Delay, d1	6.9		41.2	1.9	42.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.2		3.5	0.0	1.8	
Delay (s)	7.1		44.8	1.9	44.5	
Level of Service	A		D	A	D	
Approach Delay (s)	7.1			10.0	44.5	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	372	81	26	214	264	209	439	157	477	186	195
Future Volume (veh/h)	158	372	81	26	214	264	209	439	157	477	186	195
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	163	384	43	27	221	169	215	453	162	492	192	201
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	211	819	91	54	597	263	272	652	231	659	543	461
Arrive On Green	0.12	0.25	0.25	0.03	0.17	0.17	0.15	0.25	0.25	0.19	0.29	0.29
Sat Flow, veh/h	1792	3235	360	1810	3610	1592	1810	2612	927	3476	1881	1597
Grp Volume(v), veh/h	163	211	216	27	221	169	215	312	303	492	192	201
Grp Sat Flow(s),veh/h/ln	1792	1787	1808	1810	1805	1592	1810	1805	1734	1738	1881	1597
Q Serve(g_s), s	5.7	6.5	6.6	1.0	3.5	6.4	7.4	10.2	10.3	8.7	5.2	6.6
Cycle Q Clear(g_c), s	5.7	6.5	6.6	1.0	3.5	6.4	7.4	10.2	10.3	8.7	5.2	6.6
Prop In Lane	1.00		0.20	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	211	453	458	54	597	263	272	450	433	659	543	461
V/C Ratio(X)	0.77	0.47	0.47	0.50	0.37	0.64	0.79	0.69	0.70	0.75	0.35	0.44
Avail Cap(c_a), veh/h	567	1007	1018	182	1254	553	712	905	870	1422	973	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	20.5	20.5	31.0	24.0	25.3	26.5	22.1	22.1	24.8	18.2	18.7
Incr Delay (d2), s/veh	5.9	0.7	0.8	7.1	0.4	2.6	5.1	1.9	2.1	1.7	0.4	0.6
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	3.2	3.3	3.3	0.6	1.8	3.0	4.1	5.3	5.1	4.3	2.8	3.0
LnGrp Delay(d),s/veh	33.7	21.2	21.3	38.0	24.4	27.9	31.6	24.0	24.2	26.5	18.6	19.4
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	B	B
Approach Vol, veh/h		590			417			830			885	
Approach Delay, s/veh		24.7			26.7			26.0			23.2	
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	16.8	20.7	6.4	20.9	14.2	23.2	12.1	15.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	32.5	6.5	36.5	25.5	33.5	20.5	22.5
Max Q Clear Time (g_c+I1), s	10.7	12.3	3.0	8.6	9.4	8.6	7.7	8.4
Green Ext Time (p_c), s	1.6	3.8	0.0	2.7	0.5	1.8	0.3	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	263	369	0	0	0	0	822	389	276	711	134
Future Volume (veh/h)	109	263	369	0	0	0	0	822	389	276	711	134
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	121	292	410				0	913	432	307	790	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	326	840	503				0	1377	608	419	2000	895
Arrive On Green	0.32	0.32	0.32				0.00	0.39	0.39	0.12	0.57	0.00
Sat Flow, veh/h	1023	2631	1576				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	219	194	410				0	913	432	307	790	0
Grp Sat Flow(s),veh/h/ln	1849	1805	1576				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	7.1	6.4	18.6				0.0	16.4	18.0	6.7	9.7	0.0
Cycle Q Clear(g_c), s	7.1	6.4	18.6				0.0	16.4	18.0	6.7	9.7	0.0
Prop In Lane	0.55		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	590	576	503				0	1377	608	419	2000	895
V/C Ratio(X)	0.37	0.34	0.82				0.00	0.66	0.71	0.73	0.40	0.00
Avail Cap(c_a), veh/h	1082	1056	922				0	2367	1045	863	3436	1537
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	20.2	24.4				0.0	19.7	20.2	32.9	9.5	0.0
Incr Delay (d2), s/veh	0.4	0.3	3.3				0.0	0.6	1.6	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	3.6	3.2	8.5				0.0	8.1	8.1	3.3	4.8	0.0
LnGrp Delay(d),s/veh	20.8	20.5	27.6				0.0	20.3	21.8	35.4	9.6	0.0
LnGrp LOS	C	C	C					C	C	D	A	
Approach Vol, veh/h		823						1345			1097	
Approach Delay, s/veh		24.2						20.8			16.8	
Approach LOS		C						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.0	34.5		29.3		48.4		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.5	51.5		45.5		75.5		
Max Q Clear Time (g_c+I1), s	8.7	20.0		20.6		11.7		
Green Ext Time (p_c), s	0.8	9.9		4.2		6.8		

Intersection Summary		
HCM 2010 Ctrl Delay		20.3
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	176	128	106	236	907	633	75	527	119
Future Volume (veh/h)	0	0	0	176	128	106	236	907	633	75	527	119
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				196	142	118	262	1008	703	83	586	132
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				275	209	178	366	2003	911	108	1542	346
Arrive On Green				0.19	0.19	0.19	0.11	0.58	0.58	0.06	0.54	0.54
Sat Flow, veh/h				1465	1117	952	3476	3424	1557	1774	2852	640
Grp Volume(v), veh/h				244	0	212	262	1008	703	83	363	355
Grp Sat Flow(s),veh/h/ln				1827	0	1706	1738	1712	1557	1774	1770	1723
Q Serve(g_s), s				10.2	0.0	9.3	5.9	14.0	27.7	3.7	9.6	9.7
Cycle Q Clear(g_c), s				10.2	0.0	9.3	5.9	14.0	27.7	3.7	9.6	9.7
Prop In Lane				0.80		0.56	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h				343	0	320	366	2003	911	108	956	931
V/C Ratio(X)				0.71	0.00	0.66	0.72	0.50	0.77	0.77	0.38	0.38
Avail Cap(c_a), veh/h				643	0	600	794	2683	1220	317	1300	1265
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				30.9	0.0	30.5	35.1	9.9	12.7	37.5	10.8	10.8
Incr Delay (d2), s/veh				2.8	0.0	2.3	2.6	0.2	2.2	10.8	0.2	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	4.6	3.0	6.6	12.3	2.1	4.7	4.6
LnGrp Delay(d),s/veh				33.6	0.0	32.9	37.7	10.1	14.9	48.3	11.0	11.0
LnGrp LOS				C		C	D	B	B	D	B	B
Approach Vol, veh/h					456			1973			801	
Approach Delay, s/veh					33.3			15.5			14.9	
Approach LOS					C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	9.4	51.9			13.0	48.3		19.7
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	14.5	63.5			18.5	59.5		28.5
Max Q Clear Time (g_c+I1), s	5.7	29.7			7.9	11.7		12.2
Green Ext Time (p_c), s	0.1	17.7			0.6	5.4		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	343	48	20	20	379	416	0	0	1817	190
Future Volume (veh/h)	20	0	343	48	20	20	379	416	0	0	1817	190
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	20	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	21	0	365	51	21	21	403	443	0	0	1933	202
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	81	33	101	446	3942	0	0	2767	219
Arrive On Green	0.00	0.00	0.00	0.07	0.07	0.07	0.26	0.78	0.00	0.00	0.45	0.45
Sat Flow, veh/h		0		1204	496	1490	1757	5202	0	0	6200	620
Grp Volume(v), veh/h		0.0		72	0	21	403	443	0	0	1564	571
Grp Sat Flow(s),veh/h/ln				1699	0	1490	1757	1679	0	0	1602	1753
Q Serve(g_s), s				2.4	0.0	0.8	13.0	1.3	0.0	0.0	15.7	15.8
Cycle Q Clear(g_c), s				2.4	0.0	0.8	13.0	1.3	0.0	0.0	15.7	15.8
Prop In Lane				0.71		1.00	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				115	0	101	446	3942	0	0	2167	799
V/C Ratio(X)				0.63	0.00	0.21	0.90	0.11	0.00	0.00	0.72	0.71
Avail Cap(c_a), veh/h				519	0	455	462	4102	0	0	2284	833
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.3	0.0	26.5	22.8	1.6	0.0	0.0	14.6	14.3
Incr Delay (d2), s/veh				5.5	0.0	1.0	20.6	0.0	0.0	0.0	1.1	2.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	118.4	0.0	0.0	0.0	19.9	15.8
%ile BackOfQ(50%),veh/ln				1.3	0.0	0.4	24.6	0.6	0.0	0.0	13.0	13.6
LnGrp Delay(d),s/veh				32.8	0.0	27.5	161.8	1.6	0.0	0.0	35.5	32.9
LnGrp LOS				C		C	F	A			D	C
Approach Vol, veh/h					93			846			2135	
Approach Delay, s/veh					31.6			77.9			34.8	
Approach LOS					C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		50.4			19.6	30.8		8.5
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		48.0			15.5	28.0		18.0
Max Q Clear Time (g_c+I1), s		3.3			15.0	17.8		4.4
Green Ext Time (p_c), s		3.4			0.1	8.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	46.6
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	270	342	0	2092	318	0
Future Volume (veh/h)	270	342	0	2092	318	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	293	372	0	2274	346	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	910	419	0	3272	2277	0
Arrive On Green	0.27	0.27	0.00	0.64	0.64	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	293	372	0	2274	346	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	6.7	22.2	0.0	27.8	3.8	0.0
Cycle Q Clear(g_c), s	6.7	22.2	0.0	27.8	3.8	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	910	419	0	3272	2277	0
V/C Ratio(X)	0.32	0.89	0.00	0.69	0.15	0.00
Avail Cap(c_a), veh/h	1172	539	0	4127	2872	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.2	33.8	0.0	11.4	7.0	0.0
Incr Delay (d2), s/veh	0.2	13.8	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	11.1	0.0	13.2	1.8	0.0
LnGrp Delay(d),s/veh	28.4	47.7	0.0	11.8	7.1	0.0
LnGrp LOS	C	D		B	A	
Approach Vol, veh/h	665			2274	346	
Approach Delay, s/veh	39.2			11.8	7.1	
Approach LOS	D			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.9		30.5		65.9		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		77.5		33.5		77.5		
Max Q Clear Time (g_c+I1), s		29.8		24.2		5.8		
Green Ext Time (p_c), s		31.6		1.8		2.6		

Intersection Summary		
HCM 2010 Ctrl Delay		16.8
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
Future Volume (veh/h)	470	160	70	298	190	1032	40	500	288	300	250	110
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	547	186	81	347	221	1200	47	581	335	349	291	128
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	321	867	362	381	1385	620	61	468	270	246	608	261
Arrive On Green	0.18	0.35	0.35	0.21	0.39	0.39	0.03	0.21	0.21	0.07	0.25	0.25
Sat Flow, veh/h	1792	2448	1023	1792	3574	1599	1810	2204	1270	3476	2437	1047
Grp Volume(v), veh/h	547	134	133	347	221	1200	47	476	440	349	212	207
Grp Sat Flow(s),veh/h/ln	1792	1787	1684	1792	1787	1599	1810	1805	1669	1738	1787	1696
Q Serve(g_s), s	21.5	6.3	6.7	22.7	4.8	46.5	3.1	25.5	25.5	8.5	12.1	12.5
Cycle Q Clear(g_c), s	21.5	6.3	6.7	22.7	4.8	46.5	3.1	25.5	25.5	8.5	12.1	12.5
Prop In Lane	1.00		0.61	1.00		1.00	1.00		0.76	1.00		0.62
Lane Grp Cap(c), veh/h	321	633	596	381	1385	620	61	384	355	246	446	423
V/C Ratio(X)	1.70	0.21	0.22	0.91	0.16	1.94	0.77	1.24	1.24	1.42	0.47	0.49
Avail Cap(c_a), veh/h	321	633	596	532	1385	620	130	384	355	246	446	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	27.1	27.2	46.1	24.0	36.8	57.5	47.3	47.3	55.8	38.3	38.5
Incr Delay (d2), s/veh	329.9	0.2	0.2	15.8	0.1	427.4	18.2	128.6	130.2	210.1	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.0	3.1	3.1	12.9	2.4	94.0	1.9	26.4	24.6	11.3	6.1	6.0
LnGrp Delay(d),s/veh	379.1	27.2	27.4	61.9	24.0	464.2	75.7	175.8	177.4	265.9	39.1	39.4
LnGrp LOS	F	C	C	E	C	F	E	F	F	F	D	D
Approach Vol, veh/h		814			1768			963			768	
Approach Delay, s/veh		263.7			330.2			171.7			142.2	
Approach LOS		F			F			F			F	

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	13.0	30.0	30.0	47.0	8.5	34.5	26.0	51.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	25.5	35.6	32.4	8.6	25.4	21.5	46.5
Max Q Clear Time (g_c+I1), s	10.5	27.5	24.7	8.7	5.1	14.5	23.5	48.5
Green Ext Time (p_c), s	0.0	0.0	0.8	1.5	0.0	1.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	248.8
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	748	1	2	1496	10	0	0	1	0	0	10
Future Vol, veh/h	13	748	1	2	1496	10	0	0	1	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	813	1	2	1626	11	0	0	1	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1651	0	0	822	0	0	-	-	423	-	-	847
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	383	-	-	797	-	-	0	0	577	0	0	303
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	378	-	-	791	-	-	-	-	568	-	-	295
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	11.4	17.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	378	-	-	791	-	-	295
HCM Lane V/C Ratio	0.002	0.037	-	-	0.003	-	-	0.037
HCM Control Delay (s)	11.4	14.9	-	-	9.6	-	-	17.7
HCM Lane LOS	B	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	756	1424	18	35	22
Future Vol, veh/h	26	756	1424	18	35	22
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	822	1548	20	38	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1582	0	-	0	2039	812
Stage 1	-	-	-	-	1572	-
Stage 2	-	-	-	-	467	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	407	-	-	-	48	320
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	594	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	402	-	-	-	43	312
Mov Cap-2 Maneuver	-	-	-	-	43	-
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	586	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	158.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	402	-	-	-	43	312
HCM Lane V/C Ratio	0.07	-	-	-	0.885	0.077
HCM Control Delay (s)	14.6	-	-	-	247.2	17.5
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.2	-	-	-	3.5	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	694	40	40	1188	77	130	6	100	85	6	98
Future Volume (veh/h)	118	694	40	40	1188	77	130	6	100	85	6	98
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		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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	140	826	48	48	1414	92	155	7	119	101	7	117
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	174	2024	878	69	1712	111	191	248	211	129	182	155
Arrive On Green	0.10	0.56	0.56	0.04	0.50	0.50	0.11	0.13	0.13	0.07	0.10	0.10
Sat Flow, veh/h	1810	3610	1566	1792	3403	221	1810	1900	1615	1774	1863	1578
Grp Volume(v), veh/h	140	826	48	48	740	766	155	7	119	101	7	117
Grp Sat Flow(s),veh/h/ln	1810	1805	1566	1792	1787	1837	1810	1900	1615	1774	1863	1578
Q Serve(g_s), s	6.9	11.9	1.3	2.4	32.0	32.4	7.6	0.3	6.3	5.1	0.3	6.6
Cycle Q Clear(g_c), s	6.9	11.9	1.3	2.4	32.0	32.4	7.6	0.3	6.3	5.1	0.3	6.6
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	2024	878	69	899	924	191	248	211	129	182	155
V/C Ratio(X)	0.80	0.41	0.05	0.69	0.82	0.83	0.81	0.03	0.57	0.78	0.04	0.76
Avail Cap(c_a), veh/h	268	2374	1030	173	1083	1113	288	410	349	263	382	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	11.4	9.1	43.3	19.2	19.3	39.9	34.6	37.2	41.6	37.3	40.1
Incr Delay (d2), s/veh	9.6	0.1	0.0	11.8	4.4	4.6	10.1	0.0	2.4	9.7	0.1	7.3
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	3.9	5.9	0.6	1.4	16.7	17.6	4.4	0.2	3.0	2.8	0.2	3.2
LnGrp Delay(d),s/veh	50.0	11.5	9.1	55.1	23.7	23.9	50.1	34.7	39.6	51.3	37.3	47.4
LnGrp LOS	D	B	A	E	C	C	D	C	D	D	D	D
Approach Vol, veh/h		1014			1554			281			225	
Approach Delay, s/veh		16.7			24.7			45.3			48.8	
Approach LOS		B			C			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	11.2	16.4	8.0	55.7	14.1	13.4	13.3	50.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	19.7	8.8	60.0	14.5	18.7	13.5	55.3
Max Q Clear Time (g_c+I1), s	7.1	8.3	4.4	13.9	9.6	8.6	8.9	34.4
Green Ext Time (p_c), s	0.1	0.3	0.0	7.3	0.2	0.2	0.1	11.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	779	86	40	1048	149	110
Future Volume (vph)	779	86	40	1048	149	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3496		1787	3574	1731	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3496		1787	3574	1731	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	866	96	44	1164	166	122
RTOR Reduction (vph)	6	0	0	0	31	0
Lane Group Flow (vph)	956	0	44	1164	257	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	62.5		5.5	71.5	20.0	
Effective Green, g (s)	62.5		5.5	71.5	20.0	
Actuated g/C Ratio	0.62		0.06	0.72	0.20	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2185		98	2555	346	
v/s Ratio Prot	c0.27		0.02	c0.33	c0.15	
v/s Ratio Perm						
v/c Ratio	0.44		0.45	0.46	0.74	
Uniform Delay, d1	9.7		45.8	6.0	37.6	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6		3.2	0.1	8.3	
Delay (s)	10.3		49.0	6.2	45.9	
Level of Service	B		D	A	D	
Approach Delay (s)	10.3			7.7	45.9	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	222	458	310	984	650	106	220	20	180	440	135
Future Volume (veh/h)	287	222	458	310	984	650	106	220	20	180	440	135
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	305	236	327	330	1047	425	113	234	21	191	468	144
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	325	514	460	360	1099	479	137	893	79	249	501	425
Arrive On Green	0.18	0.29	0.29	0.20	0.31	0.31	0.08	0.28	0.28	0.07	0.28	0.28
Sat Flow, veh/h	1774	1770	1583	1792	3574	1556	1707	3162	281	3343	1810	1535
Grp Volume(v), veh/h	305	236	327	330	1047	425	113	125	130	191	468	144
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1556	1707	1703	1741	1672	1810	1535
Q Serve(g_s), s	20.1	12.9	21.9	21.3	33.9	30.8	7.7	6.7	6.8	6.6	29.8	8.9
Cycle Q Clear(g_c), s	20.1	12.9	21.9	21.3	33.9	30.8	7.7	6.7	6.8	6.6	29.8	8.9
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	325	514	460	360	1099	479	137	481	491	249	501	425
V/C Ratio(X)	0.94	0.46	0.71	0.92	0.95	0.89	0.83	0.26	0.26	0.77	0.93	0.34
Avail Cap(c_a), veh/h	325	514	460	417	1103	480	137	481	491	339	525	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	34.4	37.5	46.3	40.1	39.0	53.6	32.9	32.9	53.7	41.7	34.1
Incr Delay (d2), s/veh	33.8	0.6	5.1	23.1	16.9	18.0	32.1	0.3	0.3	7.0	23.7	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	12.9	6.4	10.2	12.8	19.3	15.6	4.9	3.2	3.3	3.3	18.2	3.8
LnGrp Delay(d),s/veh	81.4	35.0	42.6	69.4	56.9	57.0	85.7	33.2	33.2	60.8	65.5	34.6
LnGrp LOS	F	D	D	E	E	E	F	C	C	E	E	C
Approach Vol, veh/h		868			1802			368			803	
Approach Delay, s/veh		54.2			59.2			49.3			58.8	
Approach LOS		D			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	13.3	37.9	28.3	38.8	14.0	37.2	26.2	40.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.0	31.8	27.5	30.7	9.5	34.3	21.7	36.5
Max Q Clear Time (g_c+I1), s	8.6	8.8	23.3	23.9	9.7	31.8	22.1	35.9
Green Ext Time (p_c), s	0.2	1.4	0.4	2.0	0.0	0.9	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	57.1
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	200	0	0	0	0	1043	324	230	645	210
Future Volume (veh/h)	60	60	200	0	0	0	0	1043	324	230	645	210
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	62	62	206				0	1075	334	237	665	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	304	339	281				0	1678	747	373	2345	1049
Arrive On Green	0.19	0.19	0.19				0.00	0.48	0.48	0.11	0.66	0.00
Sat Flow, veh/h	1631	1816	1508				0	3597	1561	3442	3539	1583
Grp Volume(v), veh/h	66	58	206				0	1075	334	237	665	0
Grp Sat Flow(s),veh/h/ln	1728	1719	1508				0	1752	1561	1721	1770	1583
Q Serve(g_s), s	1.9	1.7	7.7				0.0	13.8	8.5	3.9	4.7	0.0
Cycle Q Clear(g_c), s	1.9	1.7	7.7				0.0	13.8	8.5	3.9	4.7	0.0
Prop In Lane	0.94		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	321	281				0	1678	747	373	2345	1049
V/C Ratio(X)	0.20	0.18	0.73				0.00	0.64	0.45	0.63	0.28	0.00
Avail Cap(c_a), veh/h	767	763	670				0	4082	1818	1182	5605	2508
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.5	20.4	22.9				0.0	11.7	10.3	25.5	4.2	0.0
Incr Delay (d2), s/veh	0.3	0.3	3.7				0.0	0.4	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	0.9	0.8	3.5				0.0	6.7	3.7	2.0	2.2	0.0
LnGrp Delay(d),s/veh	20.8	20.7	26.5				0.0	12.1	10.7	27.3	4.2	0.0
LnGrp LOS	C	C	C					B	B	C	A	
Approach Vol, veh/h		330						1409			902	
Approach Delay, s/veh		24.4						11.8			10.3	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	33.1		15.6		44.0		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	20.5	69.5		26.5		94.5		
Max Q Clear Time (g_c+I1), s	5.9	15.8		9.7		6.7		
Green Ext Time (p_c), s	0.7	12.8		1.3		5.5		

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	302	360	140	580	582	261	100	537	210
Future Volume (veh/h)	0	0	0	302	360	140	580	582	261	100	537	210
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.96
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				315	375	146	604	606	272	104	559	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				407	515	207	746	1509	661	134	730	285
Arrive On Green				0.31	0.31	0.31	0.22	0.44	0.44	0.08	0.30	0.30
Sat Flow, veh/h				1298	1644	660	3408	3423	1500	1774	2453	958
Grp Volume(v), veh/h				445	0	391	604	594	284	104	403	375
Grp Sat Flow(s),veh/h/ln				1835	0	1767	1704	1679	1566	1774	1770	1641
Q Serve(g_s), s				17.5	0.0	15.5	13.4	9.5	9.8	4.6	16.4	16.5
Cycle Q Clear(g_c), s				17.5	0.0	15.5	13.4	9.5	9.8	4.6	16.4	16.5
Prop In Lane				0.71		0.37	1.00		0.96	1.00		0.58
Lane Grp Cap(c), veh/h				575	0	554	746	1480	690	134	527	489
V/C Ratio(X)				0.77	0.00	0.71	0.81	0.40	0.41	0.77	0.76	0.77
Avail Cap(c_a), veh/h				890	0	857	1267	2302	1073	304	859	796
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				24.7	0.0	24.0	29.4	15.1	15.2	36.0	25.3	25.4
Incr Delay (d2), s/veh				2.3	0.0	1.7	2.2	0.2	0.4	9.1	2.3	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
%ile BackOfQ(50%),veh/ln				9.1	0.0	7.7	6.5	4.4	4.3	2.6	8.3	7.9
LnGrp Delay(d),s/veh				27.0	0.0	25.7	31.6	15.3	15.6	45.1	27.7	27.9
LnGrp LOS				C		C	C	B	B	D	C	C
Approach Vol, veh/h					836			1482			882	
Approach Delay, s/veh					26.4			22.0			29.8	
Approach LOS					C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.5	39.5			21.9	28.1		29.4
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	13.6	54.4			29.5	38.5		38.5
Max Q Clear Time (g_c+I1), s	6.6	11.8			15.4	18.5		19.5
Green Ext Time (p_c), s	0.1	7.3			2.0	5.1		5.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	180	152	90	260	156	947	0	0	690	40
Future Volume (veh/h)	80	0	180	152	90	260	156	947	0	0	690	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	87	0	196	165	98	283	170	1029	0	0	750	43
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	306	182	428	228	2597	0	0	1713	97
Arrive On Green	0.00	0.00	0.00	0.27	0.27	0.27	0.13	0.51	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0		1144	680	1599	1774	5253	0	0	6576	359
Grp Volume(v), veh/h		0.0		263	0	283	170	1029	0	0	575	218
Grp Sat Flow(s),veh/h/ln				1824	0	1599	1774	1695	0	0	1618	1817
Q Serve(g_s), s				5.0	0.0	6.4	3.8	5.0	0.0	0.0	4.0	4.0
Cycle Q Clear(g_c), s				5.0	0.0	6.4	3.8	5.0	0.0	0.0	4.0	4.0
Prop In Lane				0.63		1.00	1.00		0.00	0.00		0.20
Lane Grp Cap(c), veh/h				488	0	428	228	2597	0	0	1317	493
V/C Ratio(X)				0.54	0.00	0.66	0.74	0.40	0.00	0.00	0.44	0.44
Avail Cap(c_a), veh/h				1279	0	1121	895	6019	0	0	2759	1033
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				12.7	0.0	13.2	17.1	6.1	0.0	0.0	12.2	12.3
Incr Delay (d2), s/veh				0.9	0.0	1.8	4.8	0.1	0.0	0.0	0.2	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	3.0	2.1	2.3	0.0	0.0	1.8	2.1
LnGrp Delay(d),s/veh				13.7	0.0	15.0	21.8	6.2	0.0	0.0	12.5	12.9
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					546			1199			793	
Approach Delay, s/veh					14.3			8.4			12.6	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		25.3			9.7	15.5		15.4
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		48.1			20.5	23.1		28.5
Max Q Clear Time (g_c+I1), s		7.0			5.8	6.0		8.4
Green Ext Time (p_c), s		9.3			0.4	5.0		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	840	997	0	932	401	0
Future Volume (veh/h)	840	997	0	932	401	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	875	1039	0	971	418	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	2374	1092	0	1168	821	0
Arrive On Green	0.69	0.69	0.00	0.23	0.23	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	875	1039	0	971	418	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	11.5	64.5	0.0	19.6	11.0	0.0
Cycle Q Clear(g_c), s	11.5	64.5	0.0	19.6	11.0	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	2374	1092	0	1168	821	0
V/C Ratio(X)	0.37	0.95	0.00	0.83	0.51	0.00
Avail Cap(c_a), veh/h	2638	1213	0	1296	911	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	7.0	15.2	0.0	40.1	36.8	0.0
Incr Delay (d2), s/veh	0.1	14.8	0.0	4.4	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	32.2	0.0	9.7	5.6	0.0
LnGrp Delay(d),s/veh	7.1	30.1	0.0	44.4	37.3	0.0
LnGrp LOS	A	C		D	D	
Approach Vol, veh/h	1914			971	418	
Approach Delay, s/veh	19.6			44.4	37.3	
Approach LOS	B			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		29.3		79.7		29.3		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		27.5		83.5		27.5		
Max Q Clear Time (g_c+I1), s		21.6		66.5		13.0		
Green Ext Time (p_c), s		3.2		8.7		2.3		

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
Future Volume (veh/h)	300	150	20	220	200	372	30	260	202	698	370	330
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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	319	160	21	234	213	396	32	277	215	743	394	351
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	359	779	101	273	707	317	53	343	258	858	711	628
Arrive On Green	0.20	0.25	0.25	0.15	0.20	0.20	0.03	0.18	0.18	0.24	0.39	0.39
Sat Flow, veh/h	1774	3152	408	1810	3610	1615	1792	1942	1460	3510	1817	1605
Grp Volume(v), veh/h	319	89	92	234	213	396	32	254	238	743	391	354
Grp Sat Flow(s),veh/h/ln	1774	1770	1790	1810	1805	1615	1792	1787	1615	1755	1805	1617
Q Serve(g_s), s	17.4	4.0	4.1	12.5	5.0	19.5	1.8	13.6	14.2	20.2	16.8	16.9
Cycle Q Clear(g_c), s	17.4	4.0	4.1	12.5	5.0	19.5	1.8	13.6	14.2	20.2	16.8	16.9
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.90	1.00		0.99
Lane Grp Cap(c), veh/h	359	437	442	273	707	317	53	316	285	858	707	633
V/C Ratio(X)	0.89	0.20	0.21	0.86	0.30	1.25	0.61	0.80	0.83	0.87	0.55	0.56
Avail Cap(c_a), veh/h	526	437	442	464	707	317	115	386	349	1111	845	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	29.7	29.7	41.2	34.2	40.0	47.7	39.3	39.5	36.0	23.5	23.6
Incr Delay (d2), s/veh	12.4	0.2	0.2	7.9	0.2	136.5	10.7	9.8	13.4	6.0	0.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	2.0	2.1	6.8	2.5	20.6	1.0	7.6	7.3	10.5	8.5	7.7
LnGrp Delay(d),s/veh	51.0	29.9	30.0	49.0	34.4	176.5	58.4	49.1	53.0	42.0	24.2	24.4
LnGrp LOS	D	C	C	D	C	F	E	D	D	D	C	C
Approach Vol, veh/h		500			843			524			1488	
Approach Delay, s/veh		43.4			105.2			51.4			33.1	
Approach LOS		D			F			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	28.8	22.1	19.5	29.1	7.4	43.5	24.6	24.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	31.5	21.5	25.5	23.5	6.4	46.6	29.5	19.5
Max Q Clear Time (g_c+I1), s	22.2	16.2	14.5	6.1	3.8	18.9	19.4	21.5
Green Ext Time (p_c), s	2.1	1.4	0.5	0.8	0.0	5.4	0.7	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.6
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	998	10	9	788	13	0	0	10	0	0	4
Future Vol, veh/h	40	998	10	9	788	13	0	0	10	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	1085	11	10	857	14	0	0	11	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	885	0	0	1104	0	0	-	-	564	-	-	464
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	754	-	-	622	-	-	0	0	466	0	0	542
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	744	-	-	617	-	-	-	-	459	-	-	528
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	13	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	459	744	-	-	617	-	-	528
HCM Lane V/C Ratio	0.024	0.058	-	-	0.016	-	-	0.008
HCM Control Delay (s)	13	10.1	-	-	10.9	-	-	11.9
HCM Lane LOS	B	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	948	792	20	21	6
Future Vol, veh/h	29	948	792	20	21	6
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	1030	861	22	23	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	897	0	-	0	1465	470
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	579	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	746	-	-	-	118	537
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	736	-	-	-	110	523
Mov Cap-2 Maneuver	-	-	-	-	110	-
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	514	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	38.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	736	-	-	-	110	523
HCM Lane V/C Ratio	0.043	-	-	-	0.208	0.012
HCM Control Delay (s)	10.1	-	-	-	46.1	12
HCM Lane LOS	B	-	-	-	E	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	547	70	100	542	210	47	16	57	208	15	217
Future Volume (veh/h)	261	547	70	100	542	210	47	16	57	208	15	217
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		0.98	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	269	564	72	103	559	216	48	16	59	214	15	224
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	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	0	0	0	2	2	2
Cap, veh/h	330	1484	660	135	767	295	81	148	126	269	344	292
Arrive On Green	0.18	0.42	0.42	0.08	0.31	0.31	0.04	0.08	0.08	0.15	0.18	0.18
Sat Flow, veh/h	1792	3574	1589	1792	2506	965	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	269	564	72	103	398	377	48	16	59	214	15	224
Grp Sat Flow(s),veh/h/ln	1792	1787	1589	1792	1787	1684	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	9.3	7.0	1.8	3.6	12.8	12.8	1.7	0.5	2.2	7.5	0.4	8.6
Cycle Q Clear(g_c), s	9.3	7.0	1.8	3.6	12.8	12.8	1.7	0.5	2.2	7.5	0.4	8.6
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	330	1484	660	135	547	515	81	148	126	269	344	292
V/C Ratio(X)	0.81	0.38	0.11	0.76	0.73	0.73	0.59	0.11	0.47	0.80	0.04	0.77
Avail Cap(c_a), veh/h	739	2533	1126	377	905	853	245	607	516	622	995	846
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	13.0	11.5	29.1	19.9	19.9	30.1	27.5	28.3	26.3	21.5	24.9
Incr Delay (d2), s/veh	4.9	0.2	0.1	8.6	1.9	2.0	6.7	0.3	2.7	5.3	0.1	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	5.0	3.5	0.8	2.1	6.6	6.3	1.0	0.3	1.1	4.0	0.2	4.1
LnGrp Delay(d),s/veh	30.0	13.2	11.6	37.8	21.8	21.9	36.8	27.9	31.1	31.6	21.6	29.1
LnGrp LOS	C	B	B	D	C	C	D	C	C	C	C	C
Approach Vol, veh/h		905			878			123			453	
Approach Delay, s/veh		18.1			23.7			32.9			30.0	
Approach LOS		B			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	14.2	9.5	9.3	31.2	7.4	16.3	16.3	24.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	20.5	13.5	45.5	8.7	34.3	26.5	32.5
Max Q Clear Time (g_c+I1), s	9.5	4.2	5.6	9.0	3.7	10.6	11.3	14.8
Green Ext Time (p_c), s	0.5	0.2	0.1	4.6	0.0	0.8	0.7	4.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	639	95	120	771	74	80
Future Volume (vph)	639	95	120	771	74	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.5	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3514		1787	3574	1725	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3514		1787	3574	1725	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	718	107	135	866	83	90
RTOR Reduction (vph)	8	0	0	0	45	0
Lane Group Flow (vph)	817	0	135	866	128	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	62.6		12.8	78.9	12.6	
Effective Green, g (s)	62.6		12.8	78.9	12.6	
Actuated g/C Ratio	0.63		0.13	0.79	0.13	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2199		228	2819	217	
v/s Ratio Prot	c0.23		c0.08	0.24	c0.07	
v/s Ratio Perm						
v/c Ratio	0.37		0.59	0.31	0.59	
Uniform Delay, d1	9.1		41.1	2.9	41.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.5		4.1	0.1	4.3	
Delay (s)	9.6		45.2	3.0	45.5	
Level of Service	A		D	A	D	
Approach Delay (s)	9.6			8.7	45.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	537	132	30	322	280	291	470	170	510	200	303
Future Volume (veh/h)	245	537	132	30	322	280	291	470	170	510	200	303
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	253	554	95	31	332	186	300	485	175	526	206	312
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	302	923	158	57	599	264	353	643	231	661	455	386
Arrive On Green	0.17	0.30	0.30	0.03	0.17	0.17	0.20	0.25	0.25	0.19	0.24	0.24
Sat Flow, veh/h	1792	3042	520	1810	3610	1592	1810	2604	934	3476	1881	1597
Grp Volume(v), veh/h	253	325	324	31	332	186	300	335	325	526	206	312
Grp Sat Flow(s),veh/h/ln	1792	1787	1775	1810	1805	1592	1810	1805	1733	1738	1881	1597
Q Serve(g_s), s	10.8	12.2	12.3	1.3	6.7	8.7	12.6	13.5	13.7	11.4	7.4	14.5
Cycle Q Clear(g_c), s	10.8	12.2	12.3	1.3	6.7	8.7	12.6	13.5	13.7	11.4	7.4	14.5
Prop In Lane	1.00		0.29	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	302	542	539	57	599	264	353	446	428	661	455	386
V/C Ratio(X)	0.84	0.60	0.60	0.55	0.55	0.70	0.85	0.75	0.76	0.80	0.45	0.81
Avail Cap(c_a), veh/h	579	877	871	145	893	394	704	721	692	1124	627	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	23.4	23.4	37.7	30.2	31.1	30.6	27.5	27.5	30.5	25.5	28.2
Incr Delay (d2), s/veh	6.1	1.1	1.1	8.0	0.8	3.4	5.7	2.6	2.8	2.2	0.7	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	5.9	6.1	6.2	0.8	3.4	4.1	6.8	7.0	6.8	5.7	3.9	7.1
LnGrp Delay(d),s/veh	37.8	24.4	24.5	45.7	31.0	34.5	36.4	30.1	30.3	32.7	26.2	34.6
LnGrp LOS	D	C	C	D	C	C	D	C	C	C	C	C
Approach Vol, veh/h		902			549			960			1044	
Approach Delay, s/veh		28.2			33.0			32.1			32.0	
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	19.5	24.0	7.0	28.4	19.9	23.6	17.8	17.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	31.5	6.3	38.7	30.7	26.3	25.5	19.5
Max Q Clear Time (g_c+I1), s	13.4	15.7	3.3	14.3	14.6	16.5	12.8	10.7
Green Ext Time (p_c), s	1.6	3.8	0.0	4.2	0.8	1.7	0.6	1.9

Intersection Summary		
HCM 2010 Ctrl Delay		31.2
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	280	390	0	0	0	0	911	454	290	843	150
Future Volume (veh/h)	120	280	390	0	0	0	0	911	454	290	843	150
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	133	311	433				0	1012	504	322	937	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	338	843	510				0	1470	649	414	2053	918
Arrive On Green	0.32	0.32	0.32				0.00	0.41	0.41	0.12	0.58	0.00
Sat Flow, veh/h	1045	2607	1576				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	235	209	433				0	1012	504	322	937	0
Grp Sat Flow(s),veh/h/ln	1848	1805	1576				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	9.2	8.2	23.9				0.0	21.7	25.7	8.5	14.1	0.0
Cycle Q Clear(g_c), s	9.2	8.2	23.9				0.0	21.7	25.7	8.5	14.1	0.0
Prop In Lane	0.57		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	598	584	510				0	1470	649	414	2053	918
V/C Ratio(X)	0.39	0.36	0.85				0.00	0.69	0.78	0.78	0.46	0.00
Avail Cap(c_a), veh/h	891	870	760				0	2007	886	713	2891	1293
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.4	24.1	29.4				0.0	22.5	23.7	39.8	11.2	0.0
Incr Delay (d2), s/veh	0.4	0.4	6.0				0.0	0.6	3.0	3.2	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	4.8	4.2	11.2				0.0	10.8	11.7	4.2	6.8	0.0
LnGrp Delay(d),s/veh	24.9	24.5	35.4				0.0	23.1	26.8	42.9	11.3	0.0
LnGrp LOS	C	C	D					C	C	D	B	
Approach Vol, veh/h		877						1516			1259	
Approach Delay, s/veh		30.0						24.3			19.4	
Approach LOS		C						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.7	42.8		34.6		58.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.3	52.3		44.9		76.1		
Max Q Clear Time (g_c+I1), s	10.5	27.7		25.9		16.1		
Green Ext Time (p_c), s	0.8	10.6		4.2		8.7		

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	140	120	250	989	672	80	617	130
Future Volume (veh/h)	0	0	0	192	140	120	250	989	672	80	617	130
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				213	156	133	278	1099	747	89	686	144
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				280	216	189	371	2020	918	115	1586	333
Arrive On Green				0.19	0.19	0.19	0.11	0.59	0.59	0.06	0.55	0.55
Sat Flow, veh/h				1443	1112	975	3476	3424	1557	1774	2894	607
Grp Volume(v), veh/h				270	0	232	278	1099	747	89	419	411
Grp Sat Flow(s),veh/h/ln				1828	0	1703	1738	1712	1557	1774	1770	1731
Q Serve(g_s), s				12.5	0.0	11.4	6.9	17.3	33.8	4.4	12.5	12.6
Cycle Q Clear(g_c), s				12.5	0.0	11.4	6.9	17.3	33.8	4.4	12.5	12.6
Prop In Lane				0.79		0.57	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h				355	0	330	371	2020	918	115	970	948
V/C Ratio(X)				0.76	0.00	0.70	0.75	0.54	0.81	0.77	0.43	0.43
Avail Cap(c_a), veh/h				604	0	562	681	2396	1089	288	1179	1153
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				34.0	0.0	33.6	38.7	11.1	14.4	41.1	12.0	12.0
Incr Delay (d2), s/veh				3.4	0.0	2.7	3.0	0.2	4.1	10.4	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.6	0.0	5.6	3.5	8.2	15.4	2.5	6.1	6.0
LnGrp Delay(d),s/veh				37.4	0.0	36.3	41.8	11.3	18.6	51.5	12.3	12.3
LnGrp LOS				D		D	D	B	B	D	B	B
Approach Vol, veh/h					502			2124			919	
Approach Delay, s/veh					36.9			17.8			16.1	
Approach LOS					D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.3	57.2			14.0	53.4		21.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	14.5	62.5			17.5	59.5		29.5
Max Q Clear Time (g_c+I1), s	6.4	35.8			8.9	14.6		14.5
Green Ext Time (p_c), s	0.1	16.9			0.6	6.5		2.7

Intersection Summary			
HCM 2010 Ctrl Delay			20.1
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	0	346	53	20	20	381	427	0	0	1832	190
Future Volume (veh/h)	20	0	346	53	20	20	381	427	0	0	1832	190
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	20	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	21	0	368	56	21	21	405	454	0	0	1949	202
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	89	33	107	482	3862	0	0	2598	178
Arrive On Green	0.00	0.00	0.00	0.07	0.07	0.07	0.26	0.76	0.00	0.00	0.42	0.42
Sat Flow, veh/h		0		1235	463	1490	1757	5202	0	0	6205	616
Grp Volume(v), veh/h		0.0		77	0	21	405	454	0	0	1576	575
Grp Sat Flow(s),veh/h/ln				1698	0	1490	1757	1679	0	0	1602	1754
Q Serve(g_s), s				2.4	0.0	0.7	12.1	1.3	0.0	0.0	15.5	15.5
Cycle Q Clear(g_c), s				2.4	0.0	0.7	12.1	1.3	0.0	0.0	15.5	15.5
Prop In Lane				0.73		1.00	1.00		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				122	0	107	482	3862	0	0	2002	745
V/C Ratio(X)				0.63	0.00	0.20	0.84	0.12	0.00	0.00	0.79	0.77
Avail Cap(c_a), veh/h				639	0	561	500	4020	0	0	2072	756
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.2	0.0	24.4	20.5	1.7	0.0	0.0	15.3	14.9
Incr Delay (d2), s/veh				5.3	0.0	0.9	11.9	0.0	0.0	0.0	2.0	4.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	77.9	0.0	0.0	0.0	30.4	22.8
%ile BackOfQ(50%),veh/ln				1.3	0.0	0.3	19.4	0.6	0.0	0.0	14.7	14.9
LnGrp Delay(d),s/veh				30.5	0.0	25.3	110.3	1.7	0.0	0.0	47.7	42.6
LnGrp LOS				C		C	F	A			D	D
Approach Vol, veh/h					98			859			2151	
Approach Delay, s/veh					29.4			52.9			46.3	
Approach LOS					C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.0			18.8	27.3		8.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		43.5			15.5	23.5		20.5				
Max Q Clear Time (g_c+I1), s		3.3			14.1	17.5		4.4				
Green Ext Time (p_c), s		3.5			0.2	5.3		0.3				

Intersection Summary			
HCM 2010 Ctrl Delay			47.6
HCM 2010 LOS			D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	270	351	0	2117	341	0
Future Volume (veh/h)	270	351	0	2117	341	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	293	382	0	2301	371	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	926	426	0	3260	2269	0
Arrive On Green	0.27	0.27	0.00	0.63	0.63	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	293	382	0	2301	371	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	6.8	23.4	0.0	29.3	4.2	0.0
Cycle Q Clear(g_c), s	6.8	23.4	0.0	29.3	4.2	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	926	426	0	3260	2269	0
V/C Ratio(X)	0.32	0.90	0.00	0.71	0.16	0.00
Avail Cap(c_a), veh/h	1143	526	0	4025	2801	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.5	34.5	0.0	11.9	7.4	0.0
Incr Delay (d2), s/veh	0.2	15.7	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	11.8	0.0	13.8	2.1	0.0
LnGrp Delay(d),s/veh	28.7	50.2	0.0	12.4	7.4	0.0
LnGrp LOS	C	D		B	A	
Approach Vol, veh/h	675			2301	371	
Approach Delay, s/veh	40.9			12.4	7.4	
Approach LOS	D			B	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		67.3		31.6		67.3		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		77.5		33.5		77.5		
Max Q Clear Time (g_c+I1), s		31.3		25.4		6.2		
Green Ext Time (p_c), s		31.5		1.7		2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	163	71	304	191	1035	48	522	293	324	258	110
Future Volume (veh/h)	470	163	71	304	191	1035	48	522	293	324	258	110
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	547	190	83	353	222	1203	56	607	341	377	300	128
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	306	837	351	387	1385	620	73	492	276	246	619	258
Arrive On Green	0.17	0.34	0.34	0.22	0.39	0.39	0.04	0.22	0.22	0.07	0.25	0.25
Sat Flow, veh/h	1792	2445	1026	1792	3574	1599	1810	2227	1251	3476	2460	1027
Grp Volume(v), veh/h	547	137	136	353	222	1203	56	492	456	377	216	212
Grp Sat Flow(s),veh/h/ln	1792	1787	1684	1792	1787	1599	1810	1805	1673	1738	1787	1700
Q Serve(g_s), s	20.5	6.5	6.9	23.1	4.9	46.5	3.7	26.5	26.5	8.5	12.4	12.8
Cycle Q Clear(g_c), s	20.5	6.5	6.9	23.1	4.9	46.5	3.7	26.5	26.5	8.5	12.4	12.8
Prop In Lane	1.00		0.61	1.00		1.00	1.00		0.75	1.00		0.60
Lane Grp Cap(c), veh/h	306	612	576	387	1385	620	73	399	369	246	449	428
V/C Ratio(X)	1.79	0.22	0.24	0.91	0.16	1.94	0.77	1.23	1.23	1.53	0.48	0.50
Avail Cap(c_a), veh/h	306	612	576	537	1385	620	139	399	369	246	449	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	28.1	28.2	45.9	24.0	36.8	57.0	46.7	46.8	55.8	38.2	38.4
Incr Delay (d2), s/veh	367.1	0.2	0.2	15.9	0.1	429.6	15.6	125.4	126.8	258.6	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	41.3	3.3	3.3	13.1	2.4	94.3	2.2	27.1	25.2	12.9	6.2	6.1
LnGrp Delay(d),s/veh	416.9	28.3	28.4	61.8	24.1	466.3	72.6	172.1	173.5	314.3	39.0	39.3
LnGrp LOS	F	C	C	E	C	F	E	F	F	F	D	D
Approach Vol, veh/h		820			1778			1004			805	
Approach Delay, s/veh		287.5			330.8			167.2			168.0	
Approach LOS		F			F			F			F	

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	13.0	31.0	30.4	45.6	9.3	34.7	25.0	51.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	26.5	36.0	31.0	9.2	25.8	20.5	46.5
Max Q Clear Time (g_c+I1), s	10.5	28.5	25.1	8.9	5.7	14.8	22.5	48.5
Green Ext Time (p_c), s	0.0	0.0	0.8	1.5	0.0	1.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	255.7
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	59	832	37	0	654
Future Vol, veh/h	0	59	832	37	0	654
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	66	924	41	0	727

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	483	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	527	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	527	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	527	-
HCM Lane V/C Ratio	-	-	0.124	-
HCM Control Delay (s)	-	-	12.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	757	49	41	1514	10	0	0	39	0	0	10
Future Vol, veh/h	13	757	49	41	1514	10	0	0	39	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	823	53	45	1646	11	0	0	42	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1671	0	0	884	0	0	-	-	454	-	-	857
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	376	-	-	755	-	-	0	0	550	0	0	299
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	371	-	-	749	-	-	-	-	542	-	-	291
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.3	12.2	17.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	371	-	-	749	-	-	291
HCM Lane V/C Ratio	0.078	0.038	-	-	0.059	-	-	0.037
HCM Control Delay (s)	12.2	15.1	-	-	10.1	-	-	17.9
HCM Lane LOS	B	C	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.2	-	-	0.1

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	774	1448	18	35	22
Future Vol, veh/h	34	774	1448	18	35	22
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	841	1574	20	38	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1608	0	-	0	2093	825
Stage 1	-	-	-	-	1598	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	398	-	-	-	45	314
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	575	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	393	-	-	-	40	306
Mov Cap-2 Maneuver	-	-	-	-	40	-
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	568	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	179.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	393	-	-	-	40	306
HCM Lane V/C Ratio	0.094	-	-	-	0.951	0.078
HCM Control Delay (s)	15.1	-	-	-	280.6	17.8
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	0.3	-	-	-	3.7	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰	↑	↱	↰	↑	↱
Traffic Volume (veh/h)	119	711	40	40	1210	77	130	6	100	85	6	100
Future Volume (veh/h)	119	711	40	40	1210	77	130	6	100	85	6	100
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		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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	142	846	48	48	1440	92	155	7	119	101	7	119
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	175	2039	885	68	1725	110	190	249	212	129	184	156
Arrive On Green	0.10	0.56	0.56	0.04	0.51	0.51	0.10	0.13	0.13	0.07	0.10	0.10
Sat Flow, veh/h	1810	3610	1566	1792	3408	217	1810	1900	1615	1774	1863	1579
Grp Volume(v), veh/h	142	846	48	48	752	780	155	7	119	101	7	119
Grp Sat Flow(s),veh/h/ln	1810	1805	1566	1792	1787	1838	1810	1900	1615	1774	1863	1579
Q Serve(g_s), s	7.2	12.4	1.3	2.5	33.5	33.9	7.8	0.3	6.4	5.2	0.3	6.8
Cycle Q Clear(g_c), s	7.2	12.4	1.3	2.5	33.5	33.9	7.8	0.3	6.4	5.2	0.3	6.8
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	2039	885	68	905	930	190	249	212	129	184	156
V/C Ratio(X)	0.81	0.41	0.05	0.70	0.83	0.84	0.82	0.03	0.56	0.78	0.04	0.76
Avail Cap(c_a), veh/h	243	2297	996	167	1064	1094	262	449	381	228	410	347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	11.5	9.1	44.3	19.6	19.7	40.8	35.3	38.0	42.5	38.0	40.9
Incr Delay (d2), s/veh	13.2	0.1	0.0	12.3	5.0	5.1	13.2	0.0	2.3	10.0	0.1	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	6.1	0.6	1.5	17.6	18.4	4.6	0.2	3.0	2.9	0.2	3.3
LnGrp Delay(d),s/veh	54.4	11.7	9.1	56.6	24.6	24.9	54.0	35.4	40.3	52.4	38.1	48.4
LnGrp LOS	D	B	A	E	C	C	D	D	D	D	D	D
Approach Vol, veh/h		1036			1580			281			227	
Approach Delay, s/veh		17.4			25.7			47.7			49.9	
Approach LOS		B			C			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	11.3	16.7	8.1	57.1	14.3	13.7	13.5	51.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.0	22.0	8.7	59.3	13.5	20.5	12.5	55.5
Max Q Clear Time (g_c+I1), s	7.2	8.4	4.5	14.4	9.8	8.8	9.2	35.9
Green Ext Time (p_c), s	0.1	0.3	0.0	7.5	0.1	0.3	0.1	11.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.7
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	796	86	40	1070	149	110
Future Volume (vph)	796	86	40	1070	149	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3497		1787	3574	1731	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3497		1787	3574	1731	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	884	96	44	1189	166	122
RTOR Reduction (vph)	6	0	0	0	31	0
Lane Group Flow (vph)	974	0	44	1189	257	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	63.2		4.8	71.5	20.0	
Effective Green, g (s)	63.2		4.8	71.5	20.0	
Actuated g/C Ratio	0.63		0.05	0.72	0.20	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2210		85	2555	346	
v/s Ratio Prot	0.28		0.02	c0.33	c0.15	
v/s Ratio Perm						
v/c Ratio	0.44		0.52	0.47	0.74	
Uniform Delay, d1	9.4		46.5	6.1	37.6	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6		5.2	0.1	8.3	
Delay (s)	10.0		51.7	6.2	45.9	
Level of Service	B		D	A	D	
Approach Delay (s)	10.0			7.8	45.9	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	231	461	310	996	650	109	220	20	180	440	142
Future Volume (veh/h)	292	231	461	310	996	650	109	220	20	180	440	142
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	311	246	330	330	1060	425	116	234	21	191	468	151
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	335	523	468	359	1098	478	133	880	78	248	497	421
Arrive On Green	0.19	0.30	0.30	0.20	0.31	0.31	0.08	0.28	0.28	0.07	0.27	0.27
Sat Flow, veh/h	1774	1770	1583	1792	3574	1556	1707	3162	281	3343	1810	1535
Grp Volume(v), veh/h	311	246	330	330	1060	425	116	125	130	191	468	151
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1792	1787	1556	1707	1703	1741	1672	1810	1535
Q Serve(g_s), s	20.5	13.5	22.1	21.5	34.8	31.0	8.0	6.8	6.9	6.7	30.1	9.4
Cycle Q Clear(g_c), s	20.5	13.5	22.1	21.5	34.8	31.0	8.0	6.8	6.9	6.7	30.1	9.4
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	335	523	468	359	1098	478	133	474	484	248	497	421
V/C Ratio(X)	0.93	0.47	0.71	0.92	0.96	0.89	0.87	0.26	0.27	0.77	0.94	0.36
Avail Cap(c_a), veh/h	335	523	468	414	1098	478	133	474	484	337	511	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	34.3	37.3	46.6	40.6	39.3	54.3	33.5	33.5	54.1	42.3	34.8
Incr Delay (d2), s/veh	31.2	0.7	4.8	23.4	19.2	18.2	41.9	0.3	0.3	7.2	25.8	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	12.9	6.7	10.2	13.0	20.0	15.7	5.3	3.2	3.4	3.3	18.6	4.1
LnGrp Delay(d),s/veh	78.7	35.0	42.1	70.0	59.8	57.5	96.2	33.8	33.8	61.4	68.1	35.3
LnGrp LOS	E	C	D	E	E	E	F	C	C	E	E	D
Approach Vol, veh/h		887			1815			371			810	
Approach Delay, s/veh		53.0			61.2			53.3			60.4	
Approach LOS		D			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	13.3	37.6	28.4	39.7	13.8	37.2	27.0	41.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.0	30.9	27.5	31.6	9.3	33.6	22.5	36.6
Max Q Clear Time (g_c+I1), s	8.7	8.9	23.5	24.1	10.0	32.1	22.5	36.8
Green Ext Time (p_c), s	0.2	1.4	0.4	2.2	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	58.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	60	200	0	0	0	0	1048	324	230	652	210
Future Volume (veh/h)	60	60	200	0	0	0	0	1048	324	230	652	210
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	62	62	206				0	1080	334	237	672	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	304	338	281				0	1682	749	373	2348	1051
Arrive On Green	0.19	0.19	0.19				0.00	0.48	0.48	0.11	0.66	0.00
Sat Flow, veh/h	1631	1816	1508				0	3597	1561	3442	3539	1583
Grp Volume(v), veh/h	66	58	206				0	1080	334	237	672	0
Grp Sat Flow(s),veh/h/ln	1728	1719	1508				0	1752	1561	1721	1770	1583
Q Serve(g_s), s	1.9	1.7	7.7				0.0	13.9	8.5	4.0	4.7	0.0
Cycle Q Clear(g_c), s	1.9	1.7	7.7				0.0	13.9	8.5	4.0	4.7	0.0
Prop In Lane	0.94		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	320	281				0	1682	749	373	2348	1051
V/C Ratio(X)	0.20	0.18	0.73				0.00	0.64	0.45	0.64	0.29	0.00
Avail Cap(c_a), veh/h	764	760	667				0	4065	1811	1178	5582	2497
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.6	20.5	23.0				0.0	11.7	10.3	25.6	4.2	0.0
Incr Delay (d2), s/veh	0.3	0.3	3.7				0.0	0.4	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	0.9	0.8	3.5				0.0	6.7	3.7	2.0	2.3	0.0
LnGrp Delay(d),s/veh	20.9	20.8	26.7				0.0	12.1	10.7	27.4	4.3	0.0
LnGrp LOS	C	C	C					B	B	C	A	
Approach Vol, veh/h		330						1414			909	
Approach Delay, s/veh		24.5						11.8			10.3	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	33.3		15.7		44.3		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	20.5	69.5		26.5		94.5		
Max Q Clear Time (g_c+I1), s	6.0	15.9		9.7		6.7		
Green Ext Time (p_c), s	0.7	12.9		1.3		5.5		

Intersection Summary			
HCM 2010 Ctrl Delay			12.9
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	302	360	140	580	587	261	100	544	210
Future Volume (veh/h)	0	0	0	302	360	140	580	587	261	100	544	210
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.96
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				315	375	146	604	611	272	104	567	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				406	514	207	745	1518	660	134	738	284
Arrive On Green				0.31	0.31	0.31	0.22	0.44	0.44	0.08	0.30	0.30
Sat Flow, veh/h				1298	1644	660	3408	3432	1493	1774	2464	949
Grp Volume(v), veh/h				445	0	391	604	597	286	104	407	379
Grp Sat Flow(s),veh/h/ln				1835	0	1767	1704	1679	1567	1774	1770	1643
Q Serve(g_s), s				17.6	0.0	15.6	13.4	9.6	9.9	4.6	16.7	16.8
Cycle Q Clear(g_c), s				17.6	0.0	15.6	13.4	9.6	9.9	4.6	16.7	16.8
Prop In Lane				0.71		0.37	1.00		0.95	1.00		0.58
Lane Grp Cap(c), veh/h				574	0	553	745	1485	693	134	530	492
V/C Ratio(X)				0.78	0.00	0.71	0.81	0.40	0.41	0.77	0.77	0.77
Avail Cap(c_a), veh/h				885	0	852	1259	2288	1068	302	853	792
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				24.9	0.0	24.2	29.6	15.1	15.2	36.2	25.4	25.5
Incr Delay (d2), s/veh				2.3	0.0	1.7	2.2	0.2	0.4	9.1	2.4	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
%ile BackOfQ(50%),veh/ln				9.3	0.0	7.9	6.5	4.5	4.4	2.6	8.5	7.9
LnGrp Delay(d),s/veh				27.2	0.0	25.9	31.8	15.3	15.6	45.3	27.8	28.0
LnGrp LOS				C		C	C	B	B	D	C	C
Approach Vol, veh/h					836			1487			890	
Approach Delay, s/veh					26.6			22.1			30.0	
Approach LOS					C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.5	39.8			21.9	28.4		29.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	13.6	54.4			29.5	38.5		38.5
Max Q Clear Time (g_c+I1), s	6.6	11.9			15.4	18.8		19.6
Green Ext Time (p_c), s	0.1	7.4			2.0	5.1		5.4

Intersection Summary		
HCM 2010 Ctrl Delay		25.4
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	185	160	90	260	160	968	0	0	714	40
Future Volume (veh/h)	80	0	185	160	90	260	160	968	0	0	714	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		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	87	0	201	174	98	283	174	1052	0	0	776	43
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	312	176	428	233	2619	0	0	1737	95
Arrive On Green	0.00	0.00	0.00	0.27	0.27	0.27	0.13	0.52	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0		1166	657	1599	1774	5253	0	0	6589	348
Grp Volume(v), veh/h		0.0		272	0	283	174	1052	0	0	594	225
Grp Sat Flow(s),veh/h/ln				1823	0	1599	1774	1695	0	0	1618	1819
Q Serve(g_s), s				5.3	0.0	6.5	3.9	5.2	0.0	0.0	4.2	4.2
Cycle Q Clear(g_c), s				5.3	0.0	6.5	3.9	5.2	0.0	0.0	4.2	4.2
Prop In Lane				0.64		1.00	1.00		0.00	0.00		0.19
Lane Grp Cap(c), veh/h				487	0	428	233	2619	0	0	1333	500
V/C Ratio(X)				0.56	0.00	0.66	0.75	0.40	0.00	0.00	0.45	0.45
Avail Cap(c_a), veh/h				1256	0	1102	888	5926	0	0	2699	1012
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.0	0.0	13.5	17.3	6.1	0.0	0.0	12.4	12.4
Incr Delay (d2), s/veh				1.0	0.0	1.8	4.7	0.1	0.0	0.0	0.2	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	3.0	2.2	2.5	0.0	0.0	1.9	2.2
LnGrp Delay(d),s/veh				14.0	0.0	15.2	22.0	6.2	0.0	0.0	12.6	13.1
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					555			1226			819	
Approach Delay, s/veh					14.7			8.5			12.7	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		25.8			9.9	15.9		15.6
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		48.2			20.7	23.0		28.5
Max Q Clear Time (g_c+I1), s		7.2			5.9	6.2		8.5
Green Ext Time (p_c), s		9.6			0.4	5.1		2.6

Intersection Summary			
HCM 2010 Ctrl Delay			11.1
HCM 2010 LOS			B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	840	1013	0	979	438	0
Future Volume (veh/h)	840	1013	0	979	438	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	875	1055	0	1020	456	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	2374	1092	0	1190	837	0
Arrive On Green	0.69	0.69	0.00	0.23	0.23	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	875	1055	0	1020	456	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	12.1	71.0	0.0	21.8	12.7	0.0
Cycle Q Clear(g_c), s	12.1	71.0	0.0	21.8	12.7	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	2374	1092	0	1190	837	0
V/C Ratio(X)	0.37	0.97	0.00	0.86	0.55	0.00
Avail Cap(c_a), veh/h	2479	1140	0	1278	898	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	7.4	16.5	0.0	42.2	38.7	0.0
Incr Delay (d2), s/veh	0.1	18.7	0.0	5.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	36.1	0.0	10.9	6.4	0.0
LnGrp Delay(d),s/veh	7.5	35.2	0.0	47.9	39.3	0.0
LnGrp LOS	A	D		D	D	
Approach Vol, veh/h	1930			1020	456	
Approach Delay, s/veh	22.6			47.9	39.3	
Approach LOS	C			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		31.0		83.5		31.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		28.5		82.5		28.5		
Max Q Clear Time (g_c+I1), s		23.8		73.0		14.7		
Green Ext Time (p_c), s		2.7		6.0		2.5		

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	155	21	230	201	377	46	302	213	738	383	330
Future Volume (veh/h)	300	155	21	230	201	377	46	302	213	738	383	330
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		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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	319	165	22	245	214	401	49	321	227	785	407	351
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	355	702	92	283	646	289	65	387	267	894	756	648
Arrive On Green	0.20	0.22	0.22	0.16	0.18	0.18	0.04	0.19	0.19	0.25	0.41	0.41
Sat Flow, veh/h	1774	3145	413	1810	3610	1615	1792	2019	1395	3510	1846	1580
Grp Volume(v), veh/h	319	92	95	245	214	401	49	283	265	785	398	360
Grp Sat Flow(s),veh/h/ln	1774	1770	1789	1810	1805	1615	1792	1787	1627	1755	1805	1621
Q Serve(g_s), s	18.1	4.4	4.5	13.6	5.3	18.5	2.8	15.7	16.2	22.2	17.2	17.4
Cycle Q Clear(g_c), s	18.1	4.4	4.5	13.6	5.3	18.5	2.8	15.7	16.2	22.2	17.2	17.4
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.86	1.00		0.97
Lane Grp Cap(c), veh/h	355	395	399	283	646	289	65	343	312	894	740	664
V/C Ratio(X)	0.90	0.23	0.24	0.87	0.33	1.39	0.75	0.83	0.85	0.88	0.54	0.54
Avail Cap(c_a), veh/h	472	395	399	459	646	289	153	407	370	1104	825	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	32.9	32.9	42.5	37.0	42.4	49.3	40.1	40.3	37.0	23.1	23.1
Incr Delay (d2), s/veh	16.1	0.3	0.3	9.6	0.3	194.0	15.5	11.5	14.7	7.0	0.6	0.7
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	10.5	2.2	2.3	7.6	2.7	23.8	1.7	8.9	8.6	11.7	8.6	7.9
LnGrp Delay(d),s/veh	56.4	33.2	33.2	52.1	37.3	236.4	64.8	51.6	55.0	44.0	23.7	23.8
LnGrp LOS	E	C	C	D	D	F	E	D	E	D	C	C
Approach Vol, veh/h		506			860			597			1543	
Approach Delay, s/veh		47.8			134.3			54.2			34.1	
Approach LOS		D			F			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	30.8	24.3	20.6	27.6	8.3	46.8	25.2	23.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	32.5	23.5	26.2	19.8	8.8	47.2	27.5	18.5
Max Q Clear Time (g_c+I1), s	24.2	18.2	15.6	6.5	4.8	19.4	20.1	20.5
Green Ext Time (p_c), s	2.1	1.6	0.5	0.8	0.0	5.5	0.6	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.1
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	105	498	60	0	672
Future Vol, veh/h	0	105	498	60	0	672
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	541	65	0	730

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	303	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	690	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	690	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	690	-
HCM Lane V/C Ratio	-	-	0.165	-
HCM Control Delay (s)	-	-	11.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.6	-

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	40	1013	82	69	822	13	0	0	81	0	0	4
Future Vol, veh/h	40	1013	82	69	822	13	0	0	81	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	1101	89	75	893	14	0	0	88	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	921	0	0	1198	0	0	-	-	611	-	-	482
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	731	-	-	573	-	-	0	0	434	0	0	528
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	721	-	-	569	-	-	-	-	427	-	-	514
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.9	15.6	12.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	427	721	-	-	569	-	-	514
HCM Lane V/C Ratio	0.206	0.06	-	-	0.132	-	-	0.008
HCM Control Delay (s)	15.6	10.3	-	-	12.3	-	-	12.1
HCM Lane LOS	C	B	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0.5	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	983	830	20	21	6
Future Vol, veh/h	43	983	830	20	21	6
Conflicting Peds, #/hr	14	0	0	14	0	14
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	70	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	47	1068	902	22	23	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	938	0	-	0	1555	490
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	628	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	720	-	-	-	103	521
Stage 1	-	-	-	-	343	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	710	-	-	-	94	507
Mov Cap-2 Maneuver	-	-	-	-	94	-
Stage 1	-	-	-	-	316	-
Stage 2	-	-	-	-	485	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	45.6
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	710	-	-	-	94	507
HCM Lane V/C Ratio	0.066	-	-	-	0.243	0.013
HCM Control Delay (s)	10.4	-	-	-	55.2	12.2
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.9	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	579	70	100	577	210	47	16	57	208	15	220
Future Volume (veh/h)	264	579	70	100	577	210	47	16	57	208	15	220
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		0.98	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	272	597	72	103	595	216	48	16	59	214	15	227
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	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	0	0	0	2	2	2
Cap, veh/h	332	1521	677	135	806	292	80	144	122	267	339	288
Arrive On Green	0.19	0.43	0.43	0.08	0.32	0.32	0.04	0.08	0.08	0.15	0.18	0.18
Sat Flow, veh/h	1792	3574	1590	1792	2554	925	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	272	597	72	103	416	395	48	16	59	214	15	227
Grp Sat Flow(s),veh/h/ln	1792	1787	1590	1792	1787	1693	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	9.6	7.6	1.8	3.7	13.7	13.7	1.7	0.5	2.3	7.7	0.4	9.0
Cycle Q Clear(g_c), s	9.6	7.6	1.8	3.7	13.7	13.7	1.7	0.5	2.3	7.7	0.4	9.0
Prop In Lane	1.00		1.00	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	332	1521	677	135	564	534	80	144	122	267	339	288
V/C Ratio(X)	0.82	0.39	0.11	0.76	0.74	0.74	0.60	0.11	0.48	0.80	0.04	0.79
Avail Cap(c_a), veh/h	720	2519	1120	367	907	859	239	590	502	578	940	799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	13.1	11.4	29.9	20.1	20.2	30.9	28.4	29.3	27.1	22.3	25.8
Incr Delay (d2), s/veh	5.0	0.2	0.1	8.7	1.9	2.0	7.0	0.3	2.9	5.5	0.1	4.8
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	5.2	3.8	0.8	2.2	7.0	6.7	1.0	0.3	1.1	4.2	0.2	4.3
LnGrp Delay(d),s/veh	30.8	13.2	11.5	38.6	22.1	22.2	37.9	28.8	32.2	32.6	22.3	30.5
LnGrp LOS	C	B	B	D	C	C	D	C	C	C	C	C
Approach Vol, veh/h		941			914			123			456	
Approach Delay, s/veh		18.2			24.0			34.0			31.2	
Approach LOS		B			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	14.4	9.5	9.5	32.6	7.4	16.5	16.7	25.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	20.5	13.5	46.5	8.7	33.3	26.5	33.5
Max Q Clear Time (g_c+I1), s	9.7	4.3	5.7	9.6	3.7	11.0	11.6	15.7
Green Ext Time (p_c), s	0.5	0.2	0.1	4.9	0.0	0.8	0.7	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	671	95	120	806	74	80
Future Volume (vph)	671	95	120	806	74	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.5	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.98		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3518		1787	3574	1725	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3518		1787	3574	1725	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	754	107	135	906	83	90
RTOR Reduction (vph)	7	0	0	0	45	0
Lane Group Flow (vph)	854	0	135	906	128	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3	7	
Permitted Phases						
Actuated Green, G (s)	62.6		12.8	78.9	12.6	
Effective Green, g (s)	62.6		12.8	78.9	12.6	
Actuated g/C Ratio	0.63		0.13	0.79	0.13	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2202		228	2819	217	
v/s Ratio Prot	c0.24		c0.08	0.25	c0.07	
v/s Ratio Perm						
v/c Ratio	0.39		0.59	0.32	0.59	
Uniform Delay, d1	9.2		41.1	3.0	41.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.5		4.1	0.1	4.3	
Delay (s)	9.8		45.2	3.0	45.5	
Level of Service	A		D	A	D	
Approach Delay (s)	9.8			8.5	45.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	554	136	30	341	280	295	470	170	510	200	315
Future Volume (veh/h)	256	554	136	30	341	280	295	470	170	510	200	315
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	264	571	99	31	352	186	304	485	175	526	206	325
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	313	939	162	56	598	264	356	644	231	655	450	382
Arrive On Green	0.17	0.31	0.31	0.03	0.17	0.17	0.20	0.25	0.25	0.19	0.24	0.24
Sat Flow, veh/h	1792	3037	525	1810	3610	1592	1810	2604	934	3476	1881	1597
Grp Volume(v), veh/h	264	335	335	31	352	186	304	335	325	526	206	325
Grp Sat Flow(s),veh/h/ln	1792	1787	1774	1810	1805	1592	1810	1805	1733	1738	1881	1597
Q Serve(g_s), s	11.5	12.8	12.9	1.4	7.3	8.9	13.1	13.8	14.0	11.6	7.5	15.6
Cycle Q Clear(g_c), s	11.5	12.8	12.9	1.4	7.3	8.9	13.1	13.8	14.0	11.6	7.5	15.6
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	313	553	549	56	598	264	356	447	429	655	450	382
V/C Ratio(X)	0.84	0.61	0.61	0.55	0.59	0.71	0.85	0.75	0.76	0.80	0.46	0.85
Avail Cap(c_a), veh/h	590	882	875	142	875	386	663	707	678	1058	620	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	23.6	23.7	38.4	31.0	31.7	31.2	28.0	28.0	31.2	26.1	29.2
Incr Delay (d2), s/veh	6.1	1.1	1.1	8.2	0.9	3.4	5.9	2.6	2.8	2.4	0.7	9.4
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	6.2	6.5	6.5	0.8	3.7	4.1	7.1	7.2	7.0	5.8	4.0	7.9
LnGrp Delay(d),s/veh	38.3	24.7	24.8	46.6	32.0	35.2	37.1	30.6	30.8	33.6	26.9	38.6
LnGrp LOS	D	C	C	D	C	D	D	C	C	C	C	D
Approach Vol, veh/h		934			569			964			1057	
Approach Delay, s/veh		28.6			33.8			32.7			33.8	
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	19.7	24.4	7.0	29.4	20.3	23.8	18.6	17.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	24.5	31.5	6.3	39.7	29.5	26.5	26.5	19.5				
Max Q Clear Time (g_c+I1), s	13.6	16.0	3.4	14.9	15.1	17.6	13.5	10.9				
Green Ext Time (p_c), s	1.5	3.7	0.0	4.4	0.8	1.6	0.6	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			32.1									
HCM 2010 LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	280	390	0	0	0	0	922	454	290	855	150
Future Volume (veh/h)	120	280	390	0	0	0	0	922	454	290	855	150
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	133	311	433				0	1024	504	322	950	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	338	843	510				0	1471	650	414	2053	919
Arrive On Green	0.32	0.32	0.32				0.00	0.41	0.41	0.12	0.58	0.00
Sat Flow, veh/h	1045	2607	1576				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	235	209	433				0	1024	504	322	950	0
Grp Sat Flow(s),veh/h/ln	1848	1805	1576				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	9.2	8.3	23.9				0.0	22.1	25.8	8.5	14.4	0.0
Cycle Q Clear(g_c), s	9.2	8.3	23.9				0.0	22.1	25.8	8.5	14.4	0.0
Prop In Lane	0.57		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	598	584	510				0	1471	650	414	2053	919
V/C Ratio(X)	0.39	0.36	0.85				0.00	0.70	0.78	0.78	0.46	0.00
Avail Cap(c_a), veh/h	893	872	761				0	1995	881	712	2878	1287
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.5	24.2	29.5				0.0	22.6	23.7	39.8	11.2	0.0
Incr Delay (d2), s/veh	0.4	0.4	5.9				0.0	0.7	3.1	3.2	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	4.8	4.2	11.2				0.0	10.9	11.8	4.2	7.0	0.0
LnGrp Delay(d),s/veh	24.9	24.5	35.4				0.0	23.3	26.8	43.0	11.4	0.0
LnGrp LOS	C	C	D					C	C	D	B	
Approach Vol, veh/h		877						1528			1272	
Approach Delay, s/veh		30.0						24.5			19.4	
Approach LOS		C						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.7	42.9		34.7		58.7		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	19.3	52.1		45.1		75.9		
Max Q Clear Time (g_c+I1), s	10.5	27.8		25.9		16.4		
Green Ext Time (p_c), s	0.8	10.6		4.3		8.8		

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	192	140	120	250	1000	672	80	629	130
Future Volume (veh/h)	0	0	0	192	140	120	250	1000	672	80	629	130
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				213	156	133	278	1111	747	89	699	144
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				280	216	189	371	2021	919	115	1593	328
Arrive On Green				0.19	0.19	0.19	0.11	0.59	0.59	0.06	0.55	0.55
Sat Flow, veh/h				1443	1112	975	3476	3424	1557	1774	2904	598
Grp Volume(v), veh/h				270	0	232	278	1111	747	89	426	417
Grp Sat Flow(s),veh/h/ln				1828	0	1703	1738	1712	1557	1774	1770	1733
Q Serve(g_s), s				12.5	0.0	11.4	6.9	17.6	33.8	4.4	12.8	12.8
Cycle Q Clear(g_c), s				12.5	0.0	11.4	6.9	17.6	33.8	4.4	12.8	12.8
Prop In Lane				0.79		0.57	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h				354	0	330	371	2021	919	115	970	950
V/C Ratio(X)				0.76	0.00	0.70	0.75	0.55	0.81	0.77	0.44	0.44
Avail Cap(c_a), veh/h				603	0	561	680	2391	1087	287	1177	1152
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				34.1	0.0	33.7	38.8	11.1	14.4	41.2	12.0	12.0
Incr Delay (d2), s/veh				3.4	0.0	2.7	3.0	0.2	4.1	10.4	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.6	0.0	5.6	3.5	8.2	15.4	2.5	6.4	6.2
LnGrp Delay(d),s/veh				37.5	0.0	36.4	41.8	11.4	18.6	51.6	12.3	12.3
LnGrp LOS				D		D	D	B	B	D	B	B
Approach Vol, veh/h					502			2136			932	
Approach Delay, s/veh					37.0			17.8			16.1	
Approach LOS					D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	10.3	57.3			14.1	53.6		21.9
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	14.5	62.5			17.5	59.5		29.5
Max Q Clear Time (g_c+I1), s	6.4	35.8			8.9	14.8		14.5
Green Ext Time (p_c), s	0.1	17.0			0.6	6.6		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	450	68	30	40	260	446	0	0	2017	250
Future Volume (veh/h)	30	0	450	68	30	40	260	446	0	0	2017	250
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	20	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	32	0	479	72	32	43	277	474	0	0	2146	266
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	232	103	294	349	3549	0	0	2843	245
Arrive On Green	0.00	0.00	0.00	0.20	0.20	0.20	0.18	0.70	0.00	0.00	0.47	0.47
Sat Flow, veh/h		0		1177	523	1493	1757	5202	0	0	6083	719
Grp Volume(v), veh/h		0.0		104	0	43	277	474	0	0	1770	642
Grp Sat Flow(s),veh/h/ln				1700	0	1493	1757	1679	0	0	1602	1736
Q Serve(g_s), s				4.6	0.0	2.1	13.6	2.8	0.0	0.0	27.6	27.8
Cycle Q Clear(g_c), s				4.6	0.0	2.1	13.6	2.8	0.0	0.0	27.6	27.8
Prop In Lane				0.69		1.00	1.00		0.00	0.00		0.41
Lane Grp Cap(c), veh/h				335	0	294	349	3549	0	0	2231	822
V/C Ratio(X)				0.31	0.00	0.15	0.79	0.13	0.00	0.00	0.79	0.78
Avail Cap(c_a), veh/h				345	0	303	367	3756	0	0	2337	844
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.4	0.0	30.4	37.3	4.4	0.0	0.0	22.6	22.0
Incr Delay (d2), s/veh				2.4	0.0	1.0	10.9	0.0	0.0	0.0	1.9	4.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	113.3	0.0	0.0	0.0	25.2	19.4
%ile BackOfQ(50%),veh/ln				2.5	0.0	1.0	21.0	1.3	0.0	0.0	21.3	22.0
LnGrp Delay(d),s/veh				33.8	0.0	31.4	161.5	4.4	0.0	0.0	49.7	46.1
LnGrp LOS				C		C	F	A			D	D
Approach Vol, veh/h					147			751			2412	
Approach Delay, s/veh					33.1			62.4			48.8	
Approach LOS					C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.1			20.3	45.8		22.5
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		66.1			18.5	43.1		18.0
Max Q Clear Time (g_c+I1), s		4.8			15.6	29.8		6.6
Green Ext Time (p_c), s		3.7			0.2	11.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	51.1
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	350	441	0	1752	505	0
Future Volume (veh/h)	350	441	0	1752	505	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	380	479	0	1904	549	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	1181	543	0	2804	1951	0
Arrive On Green	0.35	0.35	0.00	0.55	0.55	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	380	479	0	1904	549	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	7.1	25.1	0.0	23.1	7.1	0.0
Cycle Q Clear(g_c), s	7.1	25.1	0.0	23.1	7.1	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1181	543	0	2804	1951	0
V/C Ratio(X)	0.32	0.88	0.00	0.68	0.28	0.00
Avail Cap(c_a), veh/h	1816	835	0	3832	2667	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.6	26.4	0.0	14.2	10.5	0.0
Incr Delay (d2), s/veh	0.2	7.2	0.0	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	11.7	0.0	10.8	3.5	0.0
LnGrp Delay(d),s/veh	20.7	33.6	0.0	14.5	10.6	0.0
LnGrp LOS	C	C		B	B	
Approach Vol, veh/h	859			1904	549	
Approach Delay, s/veh	27.9			14.5	10.6	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		51.7		34.8		51.7		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		64.5		46.5		64.5		
Max Q Clear Time (g_c+I1), s		25.1		27.1		9.1		
Green Ext Time (p_c), s		22.1		3.2		4.3		

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
Future Volume (veh/h)	270	433	80	316	834	841	90	540	294	316	270	360
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	314	503	93	367	970	978	105	628	342	367	314	419
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	246	888	163	397	1355	606	130	554	302	304	467	418
Arrive On Green	0.14	0.30	0.30	0.22	0.38	0.38	0.07	0.25	0.25	0.09	0.26	0.26
Sat Flow, veh/h	1792	3008	553	1792	3574	1599	1810	2255	1228	3476	1787	1599
Grp Volume(v), veh/h	314	298	298	367	970	978	105	503	467	367	314	419
Grp Sat Flow(s),veh/h/ln	1792	1787	1774	1792	1787	1599	1810	1805	1678	1738	1787	1599
Q Serve(g_s), s	16.5	16.9	17.1	24.1	27.7	45.5	6.9	29.5	29.5	10.5	18.9	31.4
Cycle Q Clear(g_c), s	16.5	16.9	17.1	24.1	27.7	45.5	6.9	29.5	29.5	10.5	18.9	31.4
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.73	1.00		1.00
Lane Grp Cap(c), veh/h	246	528	524	397	1355	606	130	444	413	304	467	418
V/C Ratio(X)	1.27	0.56	0.57	0.93	0.72	1.61	0.81	1.13	1.13	1.21	0.67	1.00
Avail Cap(c_a), veh/h	246	528	524	452	1355	606	148	444	413	304	467	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	35.7	35.8	45.8	31.7	37.3	54.9	45.3	45.3	54.7	39.7	44.3
Incr Delay (d2), s/veh	151.3	1.4	1.5	23.4	1.8	283.5	24.8	84.3	85.7	119.8	3.7	44.5
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	18.5	8.6	8.6	14.5	14.0	67.7	4.3	25.1	23.5	10.1	9.8	19.0
LnGrp Delay(d),s/veh	203.0	37.1	37.3	69.2	33.6	320.7	79.7	129.6	131.0	174.6	43.4	88.8
LnGrp LOS	F	D	D	E	C	F	E	F	F	F	D	F
Approach Vol, veh/h		910			2315			1075			1100	
Approach Delay, s/veh		94.4			160.5			125.3			104.5	
Approach LOS		F			F			F			F	
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	15.0	34.0	31.1	39.9	13.1	35.9	21.0	50.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	29.5	30.3	31.7	9.8	30.2	16.5	45.5				
Max Q Clear Time (g_c+I1), s	12.5	31.5	26.1	19.1	8.9	33.4	18.5	47.5				
Green Ext Time (p_c), s	0.0	0.0	0.5	3.0	0.0	0.0	0.0	0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	131.0
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1048	1	2	1956	10	0	0	1	0	0	10
Future Vol, veh/h	13	1048	1	2	1956	10	0	0	1	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	1139	1	2	2126	11	0	0	1	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2151	0	0	1148	0	0	-	-	586	-	-	1097
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	243	-	-	599	-	-	0	0	451	0	0	206
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	240	-	-	594	-	-	-	-	444	-	-	201
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	13.1	23.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	444	240	-	-	594	-	-	201
HCM Lane V/C Ratio	0.002	0.059	-	-	0.004	-	-	0.054
HCM Control Delay (s)	13.1	20.9	-	-	11.1	-	-	23.9
HCM Lane LOS	B	C	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	1056	19	12	1899	18	73	0	49	35	0	22
Future Volume (veh/h)	26	1056	19	12	1899	18	73	0	49	35	0	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		0.97	1.00		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	28	1148	21	13	2064	20	79	0	53	38	0	24
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	49	2266	41	27	2245	22	102	0	141	93	0	130
Arrive On Green	0.03	0.64	0.64	0.02	0.63	0.63	0.06	0.00	0.09	0.05	0.00	0.09
Sat Flow, veh/h	1757	3519	64	1757	3555	34	1757	0	1527	1757	0	1493
Grp Volume(v), veh/h	28	572	597	13	1015	1069	79	0	53	38	0	24
Grp Sat Flow(s),veh/h/ln	1757	1752	1831	1757	1752	1837	1757	0	1527	1757	0	1493
Q Serve(g_s), s	1.5	15.9	15.9	0.7	46.7	47.2	4.1	0.0	3.0	1.9	0.0	1.4
Cycle Q Clear(g_c), s	1.5	15.9	15.9	0.7	46.7	47.2	4.1	0.0	3.0	1.9	0.0	1.4
Prop In Lane	1.00		0.04	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	49	1128	1179	27	1107	1160	102	0	141	93	0	130
V/C Ratio(X)	0.57	0.51	0.51	0.48	0.92	0.92	0.78	0.00	0.38	0.41	0.00	0.18
Avail Cap(c_a), veh/h	95	1130	1181	97	1132	1187	231	0	323	343	0	412
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	0.00	1.00
Uniform Delay (d), s/veh	44.2	8.7	8.7	45.0	14.9	15.0	42.8	0.0	39.3	42.2	0.0	39.0
Incr Delay (d2), s/veh	10.2	0.4	0.4	12.7	11.6	11.5	11.8	0.0	1.6	2.9	0.0	0.7
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	0.8	7.7	8.1	0.4	25.8	27.2	2.3	0.0	1.3	1.0	0.0	0.6
LnGrp Delay(d),s/veh	54.4	9.0	9.0	57.7	26.4	26.5	54.6	0.0	40.9	45.1	0.0	39.7
LnGrp LOS	D	A	A	E	C	C	D		D	D		D
Approach Vol, veh/h		1197			2097			132			62	
Approach Delay, s/veh		10.1			26.7			49.1			43.0	
Approach LOS		B			C			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	9.4	13.0	5.9	63.8	9.8	12.5	7.1	62.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	19.5	5.1	59.4	12.1	25.4	5.0	59.5
Max Q Clear Time (g_c+I1), s	3.9	5.0	2.7	17.9	6.1	3.4	3.5	49.2
Green Ext Time (p_c), s	0.0	0.2	0.0	10.3	0.1	0.1	0.0	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	965	80	50	1658	71	150	5	120	65	3	79
Future Volume (veh/h)	101	965	80	50	1658	71	150	5	120	65	3	79
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		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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	120	1149	95	60	1974	85	179	6	143	77	4	94
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	143	2175	944	78	1978	84	202	257	218	99	148	125
Arrive On Green	0.08	0.60	0.60	0.04	0.57	0.57	0.11	0.14	0.14	0.06	0.08	0.08
Sat Flow, veh/h	1810	3610	1567	1792	3489	149	1810	1900	1615	1774	1863	1577
Grp Volume(v), veh/h	120	1149	95	60	1003	1056	179	6	143	77	4	94
Grp Sat Flow(s),veh/h/ln	1810	1805	1567	1792	1787	1851	1810	1900	1615	1774	1863	1577
Q Serve(g_s), s	7.2	20.5	2.8	3.7	61.1	62.5	10.8	0.3	9.3	4.7	0.2	6.4
Cycle Q Clear(g_c), s	7.2	20.5	2.8	3.7	61.1	62.5	10.8	0.3	9.3	4.7	0.2	6.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	2175	944	78	1013	1050	202	257	218	99	148	125
V/C Ratio(X)	0.84	0.53	0.10	0.77	0.99	1.01	0.89	0.02	0.65	0.78	0.03	0.75
Avail Cap(c_a), veh/h	143	2175	944	154	1013	1050	202	346	294	172	313	265
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	12.8	9.3	52.2	23.6	23.9	48.3	41.3	45.2	51.4	46.8	49.7
Incr Delay (d2), s/veh	33.8	0.2	0.0	14.9	25.8	29.3	34.3	0.0	3.3	12.5	0.1	8.7
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	4.9	10.1	1.2	2.1	37.1	40.3	7.3	0.2	4.3	2.7	0.1	3.1
LnGrp Delay(d),s/veh	83.9	13.0	9.3	67.0	49.3	53.1	82.6	41.4	48.5	63.9	46.9	58.4
LnGrp LOS	F	B	A	E	D	F	F	D	D	E	D	E
Approach Vol, veh/h		1364			2119			328			175	
Approach Delay, s/veh		19.0			51.7			67.0			60.5	
Approach LOS		B			D			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	10.6	19.4	9.3	70.9	16.8	13.2	13.2	67.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.7	20.1	9.5	61.7	12.3	18.5	8.7	62.5				
Max Q Clear Time (g_c+I1), s	6.7	11.3	5.7	22.5	12.8	8.4	9.2	64.5				
Green Ext Time (p_c), s	0.0	0.3	0.0	11.6	0.0	0.2	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			42.2									
HCM 2010 LOS			D									

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1123	93	50	1453	168	130
Future Volume (vph)	1123	93	50	1453	168	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3514		1787	3574	1730	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3514		1787	3574	1730	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1248	103	56	1614	187	144
RTOR Reduction (vph)	5	0	0	0	31	0
Lane Group Flow (vph)	1346	0	56	1614	300	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	40.2		14.7	58.4	33.1	
Effective Green, g (s)	40.2		14.7	58.9	33.1	
Actuated g/C Ratio	0.40		0.15	0.59	0.33	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1412		262	2105	572	
v/s Ratio Prot	c0.38		0.03	c0.45	c0.17	
v/s Ratio Perm						
v/c Ratio	0.95		0.21	0.77	0.52	
Uniform Delay, d1	29.0		37.6	15.4	27.1	
Progression Factor	1.00		1.79	1.60	1.00	
Incremental Delay, d2	15.1		0.0	0.2	0.9	
Delay (s)	44.1		67.1	24.8	27.9	
Level of Service	D		E	C	C	
Approach Delay (s)	44.1			26.2	27.9	
Approach LOS	D			C	C	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
Future Volume (veh/h)	480	524	408	300	1491	640	196	500	50	250	620	323
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	511	557	274	319	1586	415	209	532	53	266	660	344
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	334	712	350	342	1114	485	151	834	83	317	494	419
Arrive On Green	0.19	0.31	0.31	0.19	0.31	0.31	0.09	0.27	0.27	0.09	0.27	0.27
Sat Flow, veh/h	1774	2302	1131	1792	3574	1556	1707	3127	311	3343	1810	1535
Grp Volume(v), veh/h	511	428	403	319	1586	415	209	289	296	266	660	344
Grp Sat Flow(s),veh/h/ln	1774	1770	1663	1792	1787	1556	1707	1703	1735	1672	1810	1535
Q Serve(g_s), s	24.5	28.6	28.7	22.8	40.5	32.6	11.5	19.5	19.6	10.2	35.5	27.3
Cycle Q Clear(g_c), s	24.5	28.6	28.7	22.8	40.5	32.6	11.5	19.5	19.6	10.2	35.5	27.3
Prop In Lane	1.00		0.68	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	334	547	514	342	1114	485	151	454	463	317	494	419
V/C Ratio(X)	1.53	0.78	0.78	0.93	1.42	0.86	1.38	0.64	0.64	0.84	1.34	0.82
Avail Cap(c_a), veh/h	334	547	514	343	1114	485	151	454	463	352	494	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	40.9	40.9	51.8	44.8	42.0	59.3	42.1	42.1	57.9	47.3	44.3
Incr Delay (d2), s/veh	252.4	7.2	7.8	31.8	196.2	14.1	208.4	2.9	2.9	15.1	164.4	12.3
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	35.4	15.1	14.3	14.3	50.3	15.9	14.2	9.5	9.8	5.4	40.3	13.0
LnGrp Delay(d),s/veh	305.2	48.1	48.7	83.6	241.0	56.1	267.7	45.0	45.1	73.0	211.6	56.5
LnGrp LOS	F	D	D	F	F	E	F	D	D	E	F	E
Approach Vol, veh/h		1342			2320			794			1270	
Approach Delay, s/veh		146.2			186.3			103.6			140.6	
Approach LOS		F			F			F			F	

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	16.8	39.2	29.3	44.7	16.0	40.0	29.0	45.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.7	33.3	24.9	40.1	11.5	35.5	24.5	40.5
Max Q Clear Time (g_c+I1), s	12.2	21.6	24.8	30.7	13.5	37.5	26.5	42.5
Green Ext Time (p_c), s	0.1	2.8	0.0	3.7	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	155.3
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	140	270	0	0	0	0	1421	360	230	1023	280
Future Volume (veh/h)	90	140	270	0	0	0	0	1421	360	230	1023	280
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	93	144	278				0	1465	371	237	1055	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	280	470	327				0	1917	854	320	2434	1089
Arrive On Green	0.22	0.22	0.22				0.00	0.55	0.55	0.09	0.69	0.00
Sat Flow, veh/h	1294	2170	1510				0	3597	1562	3442	3539	1583
Grp Volume(v), veh/h	125	112	278				0	1465	371	237	1055	0
Grp Sat Flow(s),veh/h/ln	1745	1719	1510				0	1752	1562	1721	1770	1583
Q Serve(g_s), s	5.7	5.1	16.6				0.0	30.6	13.3	6.3	12.5	0.0
Cycle Q Clear(g_c), s	5.7	5.1	16.6				0.0	30.6	13.3	6.3	12.5	0.0
Prop In Lane	0.74		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	378	372	327				0	1917	854	320	2434	1089
V/C Ratio(X)	0.33	0.30	0.85				0.00	0.76	0.43	0.74	0.43	0.00
Avail Cap(c_a), veh/h	529	521	458				0	2704	1205	568	3483	1558
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.1	30.8	35.4				0.0	16.6	12.7	41.5	6.5	0.0
Incr Delay (d2), s/veh	0.5	0.4	10.4				0.0	0.9	0.3	3.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.5	7.9				0.0	14.9	5.8	3.1	6.0	0.0
LnGrp Delay(d),s/veh	31.6	31.3	45.8				0.0	17.4	13.0	44.9	6.7	0.0
LnGrp LOS	C	C	D					B	B	D	A	
Approach Vol, veh/h		515						1836			1292	
Approach Delay, s/veh		39.2						16.5			13.7	
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	13.2	55.9		24.9		69.1		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	15.5	72.5		28.5		92.5		
Max Q Clear Time (g_c+I1), s	8.3	32.6		18.6		14.5		
Green Ext Time (p_c), s	0.5	18.8		1.7		10.5		

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	291	750	290	630	960	301	100	957	210
Future Volume (veh/h)	0	0	0	291	750	290	630	960	301	100	957	210
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.96
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				303	781	302	656	1000	314	104	997	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				284	759	307	625	1715	538	129	978	214
Arrive On Green				0.38	0.38	0.38	0.18	0.45	0.45	0.07	0.34	0.34
Sat Flow, veh/h				757	2023	819	3408	3792	1189	1774	2863	627
Grp Volume(v), veh/h				746	0	640	656	885	429	104	615	601
Grp Sat Flow(s),veh/h/ln				1862	0	1736	1704	1679	1624	1774	1770	1721
Q Serve(g_s), s				45.0	0.0	43.8	22.0	23.5	23.6	6.9	41.0	41.0
Cycle Q Clear(g_c), s				45.0	0.0	43.8	22.0	23.5	23.6	6.9	41.0	41.0
Prop In Lane				0.41		0.47	1.00		0.73	1.00		0.36
Lane Grp Cap(c), veh/h				698	0	651	625	1518	734	129	605	588
V/C Ratio(X)				1.07	0.00	0.98	1.05	0.58	0.58	0.81	1.02	1.02
Avail Cap(c_a), veh/h				698	0	651	625	1518	734	201	605	588
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				37.5	0.0	37.1	49.0	24.5	24.5	54.8	39.5	39.5
Incr Delay (d2), s/veh				53.6	0.0	31.0	49.8	0.6	1.2	12.3	41.0	42.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				33.5	0.0	26.6	14.6	11.1	10.8	3.9	26.9	26.4
LnGrp Delay(d),s/veh				91.1	0.0	68.1	98.8	25.0	25.6	67.1	80.5	82.3
LnGrp LOS				F		E	F	C	C	E	F	F
Approach Vol, veh/h					1386			1970			1320	
Approach Delay, s/veh					80.5			49.7			80.3	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	12.7	58.3			26.0	45.0		49.0
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0		4.0
Max Green Setting (Gmax), s	13.6	49.4			22.0	41.0		45.0
Max Q Clear Time (g_c+I1), s	8.9	25.6			24.0	43.0		47.0
Green Ext Time (p_c), s	0.1	10.4			0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	250	172	110	300	130	1158	0	0	780	60
Future Volume (veh/h)	110	0	250	172	110	300	130	1158	0	0	780	60
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		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	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	120	0	272	187	120	326	141	1259	0	0	848	65
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	327	210	470	187	2549	0	0	1812	138
Arrive On Green	0.00	0.00	0.00	0.29	0.29	0.29	0.11	0.50	0.00	0.00	0.29	0.29
Sat Flow, veh/h		0		1112	714	1599	1774	5253	0	0	6445	469
Grp Volume(v), veh/h		0.0		307	0	326	141	1259	0	0	664	249
Grp Sat Flow(s),veh/h/ln				1826	0	1599	1774	1695	0	0	1618	1798
Q Serve(g_s), s				6.3	0.0	7.9	3.4	7.2	0.0	0.0	4.9	5.0
Cycle Q Clear(g_c), s				6.3	0.0	7.9	3.4	7.2	0.0	0.0	4.9	5.0
Prop In Lane				0.61		1.00	1.00		0.00	0.00		0.26
Lane Grp Cap(c), veh/h				536	0	470	187	2549	0	0	1423	527
V/C Ratio(X)				0.57	0.00	0.69	0.75	0.49	0.00	0.00	0.47	0.47
Avail Cap(c_a), veh/h				1227	0	1075	667	5272	0	0	2709	1004
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.2	0.0	13.7	19.1	7.3	0.0	0.0	12.7	12.7
Incr Delay (d2), s/veh				1.0	0.0	1.9	6.0	0.1	0.0	0.0	0.2	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	3.7	2.0	3.3	0.0	0.0	2.2	2.5
LnGrp Delay(d),s/veh				14.1	0.0	15.6	25.1	7.4	0.0	0.0	12.9	13.4
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					633			1400			913	
Approach Delay, s/veh					14.9			9.2			13.1	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		26.5			9.1	17.4		17.4
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		45.5			16.5	24.5		29.5
Max Q Clear Time (g_c+I1), s		9.2			5.4	7.0		9.9
Green Ext Time (p_c), s		11.9			0.3	5.8		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1060	919	0	823	472	0
Future Volume (veh/h)	1060	919	0	823	472	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	1104	957	0	857	492	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	2309	1062	0	1166	820	0
Arrive On Green	0.67	0.67	0.00	0.23	0.23	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	1104	957	0	857	492	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	13.7	44.4	0.0	13.7	10.8	0.0
Cycle Q Clear(g_c), s	13.7	44.4	0.0	13.7	10.8	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	2309	1062	0	1166	820	0
V/C Ratio(X)	0.48	0.90	0.00	0.73	0.60	0.00
Avail Cap(c_a), veh/h	3294	1516	0	1542	1084	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	7.0	12.1	0.0	31.7	30.5	0.0
Incr Delay (d2), s/veh	0.2	5.8	0.0	1.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	20.8	0.0	6.6	5.4	0.0
LnGrp Delay(d),s/veh	7.2	17.8	0.0	32.9	31.2	0.0
LnGrp LOS	A	B		C	C	
Approach Vol, veh/h	2061			857	492	
Approach Delay, s/veh	12.1			32.9	31.2	
Approach LOS	B			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		24.5		63.7		24.5		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		26.5		84.5		26.5		
Max Q Clear Time (g_c+I1), s		15.7		46.4		12.8		
Green Ext Time (p_c), s		4.4		12.9		2.7		

Intersection Summary		
HCM 2010 Ctrl Delay		20.1
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
Future Volume (veh/h)	170	1110	30	263	896	393	60	260	223	821	370	200
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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	181	1181	32	280	953	258	64	277	131	873	394	213
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	209	1111	30	277	1268	567	83	332	153	838	757	404
Arrive On Green	0.12	0.32	0.32	0.15	0.35	0.35	0.05	0.14	0.14	0.24	0.33	0.33
Sat Flow, veh/h	1774	3520	95	1810	3610	1615	1792	2375	1093	3510	2276	1215
Grp Volume(v), veh/h	181	594	619	280	953	258	64	207	201	873	311	296
Grp Sat Flow(s),veh/h/ln	1774	1770	1846	1810	1805	1615	1792	1787	1680	1755	1805	1686
Q Serve(g_s), s	11.8	37.3	37.3	18.1	27.5	14.6	4.2	13.3	13.8	28.2	16.4	16.8
Cycle Q Clear(g_c), s	11.8	37.3	37.3	18.1	27.5	14.6	4.2	13.3	13.8	28.2	16.4	16.8
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.65	1.00		0.72
Lane Grp Cap(c), veh/h	209	559	583	277	1268	567	83	250	235	838	600	561
V/C Ratio(X)	0.87	1.06	1.06	1.01	0.75	0.45	0.77	0.83	0.86	1.04	0.52	0.53
Avail Cap(c_a), veh/h	242	559	583	277	1268	567	149	278	262	838	600	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	40.4	40.4	50.0	33.8	29.6	55.7	49.4	49.6	45.0	31.8	31.9
Incr Delay (d2), s/veh	24.2	55.7	55.1	56.6	2.6	0.6	14.2	16.8	21.9	42.5	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	26.8	27.9	13.4	14.1	6.6	2.4	7.7	7.9	18.6	8.4	7.9
LnGrp Delay(d),s/veh	75.4	96.1	95.5	106.7	36.3	30.2	69.9	66.2	71.5	87.4	32.6	32.8
LnGrp LOS	E	F	F	F	D	C	E	E	E	F	C	C
Approach Vol, veh/h		1394			1491			472			1480	
Approach Delay, s/veh		93.1			48.5			69.0			65.0	
Approach LOS		F			D			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	32.7	21.0	22.6	41.8	9.9	43.8	18.4	46.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	28.2	18.4	18.1	37.3	9.8	36.8	16.1	39.3
Max Q Clear Time (g_c+I1), s	30.2	15.8	20.1	39.3	6.2	18.8	13.8	29.5
Green Ext Time (p_c), s	0.0	0.6	0.0	0.0	0.0	3.6	0.1	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	68.4
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	2028	30	9	1548	13	0	0	10	0	0	4
Future Vol, veh/h	50	2028	30	9	1548	13	0	0	10	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	54	2204	33	10	1683	14	0	0	11	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1711	0	0	2245	0	0	-	-	1135	-	-	877
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	363	-	-	223	-	-	0	0	195	0	0	290
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	358	-	-	221	-	-	-	-	192	-	-	282
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	24.9	18
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	192	358	-	-	221	-	-	282
HCM Lane V/C Ratio	0.057	0.152	-	-	0.044	-	-	0.015
HCM Control Delay (s)	24.9	16.8	-	-	22	-	-	18
HCM Lane LOS	C	C	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.2	0.5	-	-	0.1	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	29	1948	73	48	1552	20	39	0	26	21	0	6
Future Volume (veh/h)	29	1948	73	48	1552	20	39	0	26	21	0	6
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		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	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	32	2117	79	52	1687	22	42	0	28	23	0	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	54	2280	85	72	2379	31	64	0	75	82	0	92
Arrive On Green	0.03	0.66	0.66	0.04	0.67	0.67	0.04	0.00	0.05	0.05	0.00	0.06
Sat Flow, veh/h	1757	3447	128	1757	3543	46	1757	0	1568	1757	0	1568
Grp Volume(v), veh/h	32	1070	1126	52	833	876	42	0	28	23	0	7
Grp Sat Flow(s),veh/h/ln	1757	1752	1822	1757	1752	1837	1757	0	1568	1757	0	1568
Q Serve(g_s), s	1.6	47.0	48.6	2.6	26.4	26.5	2.1	0.0	1.5	1.1	0.0	0.4
Cycle Q Clear(g_c), s	1.6	47.0	48.6	2.6	26.4	26.5	2.1	0.0	1.5	1.1	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	54	1159	1205	72	1177	1233	64	0	75	82	0	92
V/C Ratio(X)	0.59	0.92	0.93	0.73	0.71	0.71	0.66	0.00	0.37	0.28	0.00	0.08
Avail Cap(c_a), veh/h	101	1176	1223	99	1177	1233	145	0	345	357	0	534
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	0.00	1.00
Uniform Delay (d), s/veh	42.4	13.0	13.3	42.0	9.1	9.1	42.2	0.0	40.9	40.8	0.0	39.5
Incr Delay (d2), s/veh	9.9	11.9	12.9	15.2	2.0	1.9	10.9	0.0	3.0	1.8	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	26.1	28.4	1.6	13.1	13.8	1.2	0.0	0.7	0.6	0.0	0.2
LnGrp Delay(d),s/veh	52.3	24.9	26.2	57.2	11.1	11.1	53.1	0.0	44.0	42.6	0.0	39.8
LnGrp LOS	D	C	C	E	B	B	D		D	D		D
Approach Vol, veh/h		2228			1761			70			30	
Approach Delay, s/veh		26.0			12.4			49.4			42.0	
Approach LOS		C			B			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	8.7	8.7	8.1	63.2	7.7	9.7	7.2	64.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	19.5	5.0	59.5	7.3	30.2	5.1	59.4
Max Q Clear Time (g_c+I1), s	3.1	3.5	4.6	50.6	4.1	2.4	3.6	28.5
Green Ext Time (p_c), s	0.0	0.1	0.0	8.1	0.0	0.0	0.0	17.0

Intersection Summary			
HCM 2010 Ctrl Delay			20.7
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	1607	80	110	1251	222	67	17	77	248	20	251
Future Volume (veh/h)	282	1607	80	110	1251	222	67	17	77	248	20	251
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		0.98	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	291	1657	82	113	1290	229	69	18	79	256	21	259
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	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	0	0	0	2	2	2
Cap, veh/h	308	1882	838	139	1309	230	89	152	129	270	340	289
Arrive On Green	0.17	0.53	0.53	0.08	0.43	0.43	0.05	0.08	0.08	0.15	0.18	0.18
Sat Flow, veh/h	1792	3574	1591	1792	3028	532	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	291	1657	82	113	756	763	69	18	79	256	21	259
Grp Sat Flow(s),veh/h/ln	1792	1787	1591	1792	1787	1773	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	17.6	45.0	2.8	6.8	45.7	47.2	4.1	1.0	5.2	15.7	1.0	17.6
Cycle Q Clear(g_c), s	17.6	45.0	2.8	6.8	45.7	47.2	4.1	1.0	5.2	15.7	1.0	17.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	1882	838	139	772	766	89	152	129	270	340	289
V/C Ratio(X)	0.94	0.88	0.10	0.81	0.98	1.00	0.77	0.12	0.61	0.95	0.06	0.90
Avail Cap(c_a), veh/h	308	1882	838	140	772	766	165	327	278	270	434	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	23.0	13.0	49.9	30.7	31.1	51.6	46.9	48.9	46.2	37.1	43.9
Incr Delay (d2), s/veh	36.7	5.2	0.1	28.9	26.9	31.5	13.1	0.3	4.6	41.2	0.1	20.0
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	11.9	23.5	1.2	4.5	28.2	29.6	2.4	0.5	2.5	10.8	0.5	9.3
LnGrp Delay(d),s/veh	81.7	28.2	13.0	78.8	57.6	62.6	64.7	47.3	53.5	87.3	37.2	63.9
LnGrp LOS	F	C	B	E	E	E	E	D	D	F	D	E
Approach Vol, veh/h		2030			1632			166			536	
Approach Delay, s/veh		35.3			61.4			57.5			74.0	
Approach LOS		D			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	21.2	13.3	13.0	62.4	9.9	24.6	23.4	52.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.7	18.9	8.6	57.8	10.0	25.6	18.9	47.5
Max Q Clear Time (g_c+I1), s	17.7	7.2	8.8	47.0	6.1	19.6	19.6	49.2
Green Ext Time (p_c), s	0.0	0.2	0.0	8.2	0.0	0.5	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.6
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1766	110	140	1441	77	90
Future Volume (vph)	1766	110	140	1441	77	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3563		1787	3574	1722	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3563		1787	3574	1722	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	1984	124	157	1619	87	101
RTOR Reduction (vph)	3	0	0	0	28	0
Lane Group Flow (vph)	2105	0	157	1619	160	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	85.0		17.2	105.7	35.8	
Effective Green, g (s)	85.0		17.2	106.2	35.8	
Actuated g/C Ratio	0.57		0.11	0.71	0.24	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2019		204	2530	410	
v/s Ratio Prot	c0.59		c0.09	c0.45	c0.09	
v/s Ratio Perm						
v/c Ratio	1.04		0.77	0.64	0.39	
Uniform Delay, d1	32.5		64.5	11.7	47.9	
Progression Factor	1.00		1.66	0.44	1.00	
Incremental Delay, d2	32.2		1.6	0.0	0.6	
Delay (s)	64.7		109.0	5.2	48.5	
Level of Service	E		F	A	D	
Approach Delay (s)	64.7			14.3	48.5	
Approach LOS	E			B	D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
Future Volume (veh/h)	724	1763	102	60	819	470	320	500	180	510	530	556
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	746	1818	64	62	844	382	330	515	186	526	546	573
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	517	1571	55	70	708	313	244	580	209	535	456	387
Arrive On Green	0.29	0.45	0.45	0.04	0.20	0.20	0.13	0.22	0.22	0.15	0.24	0.24
Sat Flow, veh/h	1792	3520	123	1810	3610	1595	1810	2602	935	3476	1881	1597
Grp Volume(v), veh/h	746	918	964	62	844	382	330	357	344	526	546	573
Grp Sat Flow(s),veh/h/ln	1792	1787	1856	1810	1805	1595	1810	1805	1732	1738	1881	1597
Q Serve(g_s), s	37.5	58.0	58.0	4.4	25.5	25.5	17.5	24.9	25.1	19.6	31.5	31.5
Cycle Q Clear(g_c), s	37.5	58.0	58.0	4.4	25.5	25.5	17.5	24.9	25.1	19.6	31.5	31.5
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	517	797	828	70	708	313	244	403	386	535	456	387
V/C Ratio(X)	1.44	1.15	1.16	0.89	1.19	1.22	1.35	0.89	0.89	0.98	1.20	1.48
Avail Cap(c_a), veh/h	517	797	828	70	708	313	244	403	386	535	456	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	36.0	36.0	62.2	52.2	52.2	56.2	48.9	49.0	54.8	49.3	49.3
Incr Delay (d2), s/veh	210.3	82.2	87.1	71.3	100.0	124.7	184.1	20.3	21.9	34.6	108.6	229.8
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	48.7	46.8	49.7	3.6	22.5	22.1	21.2	14.7	14.3	12.0	30.1	38.6
LnGrp Delay(d),s/veh	256.6	118.2	123.1	133.6	152.2	176.9	240.4	69.2	70.9	89.4	157.9	279.1
LnGrp LOS	F	F	F	F	F	F	F	E	E	F	F	F
Approach Vol, veh/h		2628			1288			1031			1645	
Approach Delay, s/veh		159.2			158.7			124.6			178.2	
Approach LOS		F			F			F			F	

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	24.5	33.5	9.5	62.5	22.0	36.0	42.0	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.0	29.0	5.0	58.0	17.5	31.5	37.5	25.5
Max Q Clear Time (g_c+I1), s	21.6	27.1	6.4	60.0	19.5	33.5	39.5	27.5
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	158.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	210	720	0	0	0	0	1223	531	310	1076	190
Future Volume (veh/h)	120	210	720	0	0	0	0	1223	531	310	1076	190
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	133	233	578				0	1359	423	344	1196	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	482	907	602				0	1466	672	389	2021	904
Arrive On Green	0.38	0.38	0.38				0.00	0.41	0.43	0.11	0.57	0.00
Sat Flow, veh/h	1264	2377	1579				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	193	173	578				0	1359	423	344	1196	0
Grp Sat Flow(s),veh/h/ln	1837	1805	1579				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	9.1	8.2	44.9				0.0	45.5	26.4	12.4	27.5	0.0
Cycle Q Clear(g_c), s	9.1	8.2	44.9				0.0	45.5	26.4	12.4	27.5	0.0
Prop In Lane	0.69		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	700	688	602				0	1466	672	389	2021	904
V/C Ratio(X)	0.28	0.25	0.96				0.00	0.93	0.63	0.88	0.59	0.00
Avail Cap(c_a), veh/h	731	718	628				0	1531	701	389	2085	933
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.9	26.6	37.9				0.0	35.3	28.3	54.9	17.5	0.0
Incr Delay (d2), s/veh	0.1	0.1	25.4				0.0	9.6	1.2	20.1	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
%ile BackOfQ(50%),veh/ln	4.6	4.1	23.8				0.0	24.4	11.7	7.0	13.5	0.0
LnGrp Delay(d),s/veh	26.9	26.7	63.3				0.0	44.9	29.5	75.0	17.7	0.0
LnGrp LOS	C	C	E					D	C	E	B	
Approach Vol, veh/h		944						1782			1540	
Approach Delay, s/veh		49.2						41.2			30.5	
Approach LOS		D						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.2	55.5		51.9		73.7		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	14.2	53.8		50.0		72.0		
Max Q Clear Time (g_c+I1), s	14.4	47.5		46.9		29.5		
Green Ext Time (p_c), s	0.0	4.1		1.0		7.4		

Intersection Summary			
HCM 2010 Ctrl Delay			39.1
HCM 2010 LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↰↑↱		↰↰	↑↑↱		↰	↑↱	
Traffic Volume (veh/h)	0	0	0	233	150	120	290	1390	773	90	707	140
Future Volume (veh/h)	0	0	0	233	150	120	290	1390	773	90	707	140
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				259	167	133	322	1544	859	100	786	156
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				307	212	172	396	2091	951	126	1661	330
Arrive On Green				0.19	0.19	0.19	0.11	0.61	0.61	0.07	0.57	0.57
Sat Flow, veh/h				1577	1085	881	3476	3424	1557	1774	2926	581
Grp Volume(v), veh/h				299	0	260	322	1544	859	100	475	467
Grp Sat Flow(s),veh/h/ln				1821	0	1722	1738	1712	1557	1774	1770	1737
Q Serve(g_s), s				17.3	0.0	15.7	9.9	35.0	52.4	6.1	17.4	17.4
Cycle Q Clear(g_c), s				17.3	0.0	15.7	9.9	35.0	52.4	6.1	17.4	17.4
Prop In Lane				0.87		0.51	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h				355	0	336	396	2091	951	126	1004	986
V/C Ratio(X)				0.84	0.00	0.77	0.81	0.74	0.90	0.80	0.47	0.47
Avail Cap(c_a), veh/h				441	0	417	562	2144	975	187	1008	989
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				42.4	0.0	41.7	47.3	15.1	18.5	50.0	14.0	14.0
Incr Delay (d2), s/veh				11.5	0.0	7.0	6.1	1.3	11.4	13.3	0.3	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.9	0.0	8.1	5.1	16.7	25.2	3.4	8.5	8.4
LnGrp Delay(d),s/veh				53.9	0.0	48.8	53.4	16.4	29.9	63.4	14.3	14.3
LnGrp LOS				D		D	D	B	C	E	B	B
Approach Vol, veh/h					559			2725			1042	
Approach Delay, s/veh					51.5			25.0			19.0	
Approach LOS					D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	12.2	71.3			17.0	66.6		25.8
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s	11.5	68.5			17.7	62.3		26.5
Max Q Clear Time (g_c+I1), s	8.1	54.4			11.9	19.4		19.3
Green Ext Time (p_c), s	0.1	12.4			0.6	7.7		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	453	73	30	40	262	457	0	0	2032	250
Future Volume (veh/h)	30	0	453	73	30	40	262	457	0	0	2032	250
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	20	0	0	0	80	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1900	1759	1759	1845	1845	0	0	1863	1900
Adj Flow Rate, veh/h	32	0	482	78	32	43	279	486	0	0	2162	266
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	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, %	3	0	3	8	8	8	3	3	0	0	2	2
Cap, veh/h	0	0	0	237	97	294	350	3548	0	0	2843	240
Arrive On Green	0.00	0.00	0.00	0.20	0.20	0.20	0.18	0.70	0.00	0.00	0.46	0.46
Sat Flow, veh/h		0		1205	494	1493	1757	5202	0	0	6089	715
Grp Volume(v), veh/h		0.0		110	0	43	279	486	0	0	1782	646
Grp Sat Flow(s),veh/h/ln				1699	0	1493	1757	1679	0	0	1602	1737
Q Serve(g_s), s				4.9	0.0	2.1	13.7	2.9	0.0	0.0	28.0	28.1
Cycle Q Clear(g_c), s				4.9	0.0	2.1	13.7	2.9	0.0	0.0	28.0	28.1
Prop In Lane				0.71		1.00	1.00		0.00	0.00		0.41
Lane Grp Cap(c), veh/h				335	0	294	350	3548	0	0	2226	821
V/C Ratio(X)				0.33	0.00	0.15	0.80	0.14	0.00	0.00	0.80	0.79
Avail Cap(c_a), veh/h				345	0	303	366	3742	0	0	2325	840
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.5	0.0	30.4	37.2	4.4	0.0	0.0	22.8	22.2
Incr Delay (d2), s/veh				2.6	0.0	1.0	11.3	0.0	0.0	0.0	2.0	4.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	114.7	0.0	0.0	0.0	26.2	20.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	1.0	21.1	1.3	0.0	0.0	21.6	22.4
LnGrp Delay(d),s/veh				34.1	0.0	31.4	163.2	4.4	0.0	0.0	51.0	47.2
LnGrp LOS				C		C	F	A			D	D
Approach Vol, veh/h					153			765			2428	
Approach Delay, s/veh					33.4			62.3			50.0	
Approach LOS					C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.2			20.5	45.7		22.5
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		65.9			18.5	42.9		18.0
Max Q Clear Time (g_c+I1), s		4.9			15.7	30.1		6.9
Green Ext Time (p_c), s		3.8			0.2	11.1		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	52.0
HCM 2010 LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	350	450	0	1777	528	0
Future Volume (veh/h)	350	450	0	1777	528	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	0	1881	1881	0
Adj Flow Rate, veh/h	380	489	0	1932	574	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	0	1	1	0
Cap, veh/h	1199	552	0	2790	1942	0
Arrive On Green	0.36	0.36	0.00	0.54	0.54	0.00
Sat Flow, veh/h	3375	1553	0	5474	3762	0
Grp Volume(v), veh/h	380	489	0	1932	574	0
Grp Sat Flow(s),veh/h/ln	1688	1553	0	1712	1787	0
Q Serve(g_s), s	7.3	26.3	0.0	24.4	7.8	0.0
Cycle Q Clear(g_c), s	7.3	26.3	0.0	24.4	7.8	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	1199	552	0	2790	1942	0
V/C Ratio(X)	0.32	0.89	0.00	0.69	0.30	0.00
Avail Cap(c_a), veh/h	1808	832	0	3677	2559	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.8	26.9	0.0	14.8	11.0	0.0
Incr Delay (d2), s/veh	0.2	7.8	0.0	0.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	12.5	0.0	11.5	3.8	0.0
LnGrp Delay(d),s/veh	20.9	34.7	0.0	15.2	11.1	0.0
LnGrp LOS	C	C		B	B	
Approach Vol, veh/h	869			1932	574	
Approach Delay, s/veh	28.7			15.2	11.1	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		52.7		36.0		52.7		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		63.5		47.5		63.5		
Max Q Clear Time (g_c+I1), s		26.4		28.3		9.8		
Green Ext Time (p_c), s		21.8		3.2		4.5		

Intersection Summary		
HCM 2010 Ctrl Delay		18.0
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	436	81	322	835	844	98	562	299	340	278	360
Future Volume (veh/h)	270	436	81	322	835	844	98	562	299	340	278	360
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		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	1881	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	314	507	94	374	971	981	114	653	348	395	323	419
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	0	0	0	1	1	1
Cap, veh/h	246	851	157	403	1325	593	140	559	298	333	473	423
Arrive On Green	0.14	0.28	0.28	0.23	0.37	0.37	0.08	0.25	0.25	0.10	0.26	0.26
Sat Flow, veh/h	1792	3007	555	1792	3574	1599	1810	2274	1212	3476	1787	1599
Grp Volume(v), veh/h	314	300	301	374	971	981	114	518	483	395	323	419
Grp Sat Flow(s),veh/h/ln	1792	1787	1774	1792	1787	1599	1810	1805	1681	1738	1787	1599
Q Serve(g_s), s	16.5	17.4	17.6	24.5	28.2	44.5	7.4	29.5	29.5	11.5	19.5	31.3
Cycle Q Clear(g_c), s	16.5	17.4	17.6	24.5	28.2	44.5	7.4	29.5	29.5	11.5	19.5	31.3
Prop In Lane	1.00		0.31	1.00		1.00	1.00		0.72	1.00		1.00
Lane Grp Cap(c), veh/h	246	506	502	403	1325	593	140	444	413	333	473	423
V/C Ratio(X)	1.27	0.59	0.60	0.93	0.73	1.65	0.82	1.17	1.17	1.19	0.68	0.99
Avail Cap(c_a), veh/h	246	506	502	458	1325	593	166	444	413	333	473	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	37.1	37.1	45.5	32.6	37.7	54.5	45.3	45.3	54.3	39.6	44.0
Incr Delay (d2), s/veh	151.3	1.9	2.0	23.5	2.1	302.0	22.8	97.5	98.8	109.9	4.0	41.3
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	18.5	8.9	8.9	14.8	14.3	69.3	4.6	26.7	25.0	10.6	10.1	18.7
LnGrp Delay(d),s/veh	203.0	38.9	39.1	69.0	34.7	339.7	77.3	142.7	144.1	164.1	43.7	85.3
LnGrp LOS	F	D	D	E	C	F	E	F	F	F	D	F
Approach Vol, veh/h		915			2326			1115			1137	
Approach Delay, s/veh		95.3			168.9			136.6			100.8	
Approach LOS		F			F			F			F	

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	34.0	31.5	38.5	13.8	36.2	21.0	49.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.5	29.5	30.7	30.3	11.0	30.0	16.5	44.5
Max Q Clear Time (g_c+I1), s	13.5	31.5	26.5	19.6	9.4	33.3	18.5	46.5
Green Ext Time (p_c), s	0.0	0.0	0.5	2.8	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	136.0
HCM 2010 LOS	F

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	61	926	36	0	700
Future Vol, veh/h	0	61	926	36	0	700
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	68	1029	40	0	778

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	535	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	487	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	487	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	487	-
HCM Lane V/C Ratio	-	-	0.139	-
HCM Control Delay (s)	-	-	13.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1056	50	41	1971	10	0	0	37	0	0	10
Future Vol, veh/h	13	1056	50	41	1971	10	0	0	37	0	0	10
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	14	1148	54	45	2142	11	0	0	40	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2167	0	0	1210	0	0	-	-	617	-	-	1105
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	240	-	-	567	-	-	0	0	430	0	0	204
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	237	-	-	563	-	-	-	-	423	-	-	199
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	14.4	24.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	423	237	-	-	563	-	-	199
HCM Lane V/C Ratio	0.095	0.06	-	-	0.079	-	-	0.055
HCM Control Delay (s)	14.4	21.2	-	-	11.9	-	-	24.1
HCM Lane LOS	B	C	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.3	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	1074	19	12	1923	18	73	0	49	35	0	22
Future Volume (veh/h)	34	1074	19	12	1923	18	73	0	49	35	0	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		0.97	1.00		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	37	1167	21	13	2090	20	79	0	53	38	0	24
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	58	2277	41	27	2237	21	102	0	141	92	0	129
Arrive On Green	0.03	0.65	0.65	0.02	0.63	0.63	0.06	0.00	0.09	0.05	0.00	0.09
Sat Flow, veh/h	1757	3520	63	1757	3556	34	1757	0	1527	1757	0	1492
Grp Volume(v), veh/h	37	581	607	13	1028	1082	79	0	53	38	0	24
Grp Sat Flow(s),veh/h/ln	1757	1752	1831	1757	1752	1837	1757	0	1527	1757	0	1492
Q Serve(g_s), s	1.9	16.3	16.3	0.7	49.1	49.5	4.1	0.0	3.0	2.0	0.0	1.4
Cycle Q Clear(g_c), s	1.9	16.3	16.3	0.7	49.1	49.5	4.1	0.0	3.0	2.0	0.0	1.4
Prop In Lane	1.00		0.03	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	58	1134	1184	27	1103	1156	102	0	141	92	0	129
V/C Ratio(X)	0.64	0.51	0.51	0.48	0.93	0.94	0.78	0.00	0.38	0.41	0.00	0.19
Avail Cap(c_a), veh/h	94	1134	1184	96	1118	1173	228	0	319	339	0	407
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	0.00	1.00
Uniform Delay (d), s/veh	44.5	8.7	8.7	45.5	15.5	15.6	43.3	0.0	39.8	42.8	0.0	39.5
Incr Delay (d2), s/veh	11.0	0.4	0.4	12.8	13.6	13.6	11.8	0.0	1.6	3.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.9	8.2	0.4	27.6	29.0	2.3	0.0	1.3	1.0	0.0	0.6
LnGrp Delay(d),s/veh	55.5	9.1	9.1	58.3	29.1	29.2	55.2	0.0	41.4	45.8	0.0	40.2
LnGrp LOS	E	A	A	E	C	C	E		D	D		D
Approach Vol, veh/h		1225			2123			132			62	
Approach Delay, s/veh		10.5			29.3			49.6			43.6	
Approach LOS		B			C			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	9.4	13.1	5.9	64.8	9.9	12.6	7.6	63.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	19.5	5.1	59.4	12.1	25.4	5.0	59.5
Max Q Clear Time (g_c+I1), s	4.0	5.0	2.7	18.3	6.1	3.4	3.9	51.5
Green Ext Time (p_c), s	0.0	0.2	0.0	10.6	0.1	0.1	0.0	7.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	982	80	50	1680	71	150	5	120	65	3	81
Future Volume (veh/h)	102	982	80	50	1680	71	150	5	120	65	3	81
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		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	1900	1900	1900	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	121	1169	95	60	2000	85	179	6	143	77	4	96
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	0	0	0	1	1	1	0	0	0	2	2	2
Cap, veh/h	127	2166	940	78	2003	84	194	253	215	98	152	128
Arrive On Green	0.07	0.60	0.60	0.04	0.57	0.57	0.11	0.13	0.13	0.06	0.08	0.08
Sat Flow, veh/h	1810	3610	1567	1792	3491	147	1810	1900	1615	1774	1863	1577
Grp Volume(v), veh/h	121	1169	95	60	1016	1069	179	6	143	77	4	96
Grp Sat Flow(s),veh/h/ln	1810	1805	1567	1792	1787	1852	1810	1900	1615	1774	1863	1577
Q Serve(g_s), s	7.1	20.5	2.8	3.6	60.2	61.5	10.5	0.3	9.0	4.6	0.2	6.4
Cycle Q Clear(g_c), s	7.1	20.5	2.8	3.6	60.2	61.5	10.5	0.3	9.0	4.6	0.2	6.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	127	2166	940	78	1025	1062	194	253	215	98	152	128
V/C Ratio(X)	0.96	0.54	0.10	0.77	0.99	1.01	0.92	0.02	0.67	0.78	0.03	0.75
Avail Cap(c_a), veh/h	127	2166	940	159	1025	1062	194	434	369	141	374	316
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	12.7	9.1	50.8	22.6	22.9	47.4	40.4	44.2	50.0	45.3	48.2
Incr Delay (d2), s/veh	66.2	0.3	0.0	14.8	25.8	29.3	43.2	0.0	3.5	16.3	0.1	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	5.9	10.1	1.2	2.1	36.7	39.9	7.6	0.2	4.2	2.7	0.1	3.1
LnGrp Delay(d),s/veh	115.9	12.9	9.2	65.6	48.4	52.2	90.7	40.5	47.7	66.3	45.4	56.5
LnGrp LOS	F	B	A	E	D	F	F	D	D	E	D	E
Approach Vol, veh/h		1385			2145			328			177	
Approach Delay, s/veh		21.7			50.8			71.0			60.6	
Approach LOS		C			D			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	10.5	18.8	9.1	68.9	16.0	13.2	12.0	66.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	24.5	9.5	59.5	11.5	21.5	7.5	61.5
Max Q Clear Time (g_c+I1), s	6.6	11.0	5.6	22.5	12.5	8.4	9.1	63.5
Green Ext Time (p_c), s	0.0	0.4	0.0	11.7	0.0	0.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1140	93	50	1475	168	130
Future Volume (vph)	1140	93	50	1475	168	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3514		1787	3574	1730	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3514		1787	3574	1730	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1267	103	56	1639	187	144
RTOR Reduction (vph)	5	0	0	0	31	0
Lane Group Flow (vph)	1365	0	56	1639	300	0
Confl. Peds. (#/hr)		18				
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	39.6		15.0	58.1	33.4	
Effective Green, g (s)	39.6		15.0	58.6	33.4	
Actuated g/C Ratio	0.40		0.15	0.59	0.33	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	1391		268	2094	577	
v/s Ratio Prot	c0.39		0.03	c0.46	c0.17	
v/s Ratio Perm						
v/c Ratio	0.98		0.21	0.78	0.52	
Uniform Delay, d1	29.8		37.3	15.8	26.8	
Progression Factor	1.00		1.80	1.63	1.00	
Incremental Delay, d2	20.0		0.0	0.2	0.8	
Delay (s)	49.8		67.2	25.9	27.6	
Level of Service	D		E	C	C	
Approach Delay (s)	49.8			27.3	27.6	
Approach LOS	D			C	C	

Intersection Summary			
HCM 2000 Control Delay	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	485	533	411	300	1503	640	199	500	50	250	620	330
Future Volume (veh/h)	485	533	411	300	1503	640	199	500	50	250	620	330
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		0.97	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	1863	1863	1900	1881	1881	1881	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	516	567	277	319	1599	415	212	532	53	266	660	351
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	1	1	1	6	6	6	5	5	5
Cap, veh/h	334	714	348	342	1114	485	151	834	83	317	494	419
Arrive On Green	0.19	0.31	0.31	0.19	0.31	0.31	0.09	0.27	0.27	0.09	0.27	0.27
Sat Flow, veh/h	1774	2308	1126	1792	3574	1556	1707	3127	311	3343	1810	1535
Grp Volume(v), veh/h	516	435	409	319	1599	415	212	289	296	266	660	351
Grp Sat Flow(s),veh/h/ln	1774	1770	1664	1792	1787	1556	1707	1703	1735	1672	1810	1535
Q Serve(g_s), s	24.5	29.2	29.3	22.8	40.5	32.6	11.5	19.5	19.6	10.2	35.5	28.0
Cycle Q Clear(g_c), s	24.5	29.2	29.3	22.8	40.5	32.6	11.5	19.5	19.6	10.2	35.5	28.0
Prop In Lane	1.00		0.68	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	334	547	515	342	1114	485	151	454	463	317	494	419
V/C Ratio(X)	1.54	0.79	0.80	0.93	1.44	0.86	1.40	0.64	0.64	0.84	1.34	0.84
Avail Cap(c_a), veh/h	334	547	515	343	1114	485	151	454	463	352	494	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	41.1	41.1	51.8	44.8	42.0	59.3	42.1	42.1	57.9	47.3	44.5
Incr Delay (d2), s/veh	258.9	7.9	8.5	31.8	201.4	14.1	216.5	2.9	2.9	15.1	164.4	13.9
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	36.0	15.4	14.6	14.3	51.1	15.8	14.5	9.5	9.8	5.4	40.3	13.5
LnGrp Delay(d),s/veh	311.7	49.0	49.6	83.6	246.1	56.1	275.8	45.0	45.1	73.0	211.6	58.4
LnGrp LOS	F	D	D	F	F	E	F	D	D	E	F	E
Approach Vol, veh/h		1360			2333			797			1277	
Approach Delay, s/veh		148.9			190.1			106.4			140.6	
Approach LOS		F			F			F			F	

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	16.8	39.2	29.3	44.7	16.0	40.0	29.0	45.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.7	33.3	24.9	40.1	11.5	35.5	24.5	40.5
Max Q Clear Time (g_c+I1), s	12.2	21.6	24.8	31.3	13.5	37.5	26.5	42.5
Green Ext Time (p_c), s	0.1	2.8	0.0	3.6	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	157.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑	↱					↑↑	↱	↰↰	↑↑	↱
Traffic Volume (veh/h)	90	140	270	0	0	0	0	1426	360	230	1030	280
Future Volume (veh/h)	90	140	270	0	0	0	0	1426	360	230	1030	280
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1810	1810				0	1845	1845	1863	1863	1863
Adj Flow Rate, veh/h	93	144	278				0	1470	371	237	1062	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5				0	3	3	2	2	2
Cap, veh/h	280	470	327				0	1919	855	320	2436	1090
Arrive On Green	0.22	0.22	0.22				0.00	0.55	0.55	0.09	0.69	0.00
Sat Flow, veh/h	1294	2170	1510				0	3597	1562	3442	3539	1583
Grp Volume(v), veh/h	125	112	278				0	1470	371	237	1062	0
Grp Sat Flow(s),veh/h/ln	1745	1719	1510				0	1752	1562	1721	1770	1583
Q Serve(g_s), s	5.7	5.1	16.7				0.0	30.8	13.3	6.3	12.6	0.0
Cycle Q Clear(g_c), s	5.7	5.1	16.7				0.0	30.8	13.3	6.3	12.6	0.0
Prop In Lane	0.74		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	378	372	327				0	1919	855	320	2436	1090
V/C Ratio(X)	0.33	0.30	0.85				0.00	0.77	0.43	0.74	0.44	0.00
Avail Cap(c_a), veh/h	529	521	458				0	2690	1199	565	3466	1551
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.2	31.0	35.5				0.0	16.6	12.7	41.7	6.6	0.0
Incr Delay (d2), s/veh	0.5	0.4	10.5				0.0	0.9	0.3	3.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.5	7.9				0.0	14.9	5.8	3.1	6.1	0.0
LnGrp Delay(d),s/veh	31.7	31.4	45.9				0.0	17.5	13.0	45.1	6.7	0.0
LnGrp LOS	C	C	D					B	B	D	A	
Approach Vol, veh/h		515						1841			1299	
Approach Delay, s/veh		39.3						16.6			13.7	
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	13.3	56.2		24.9		69.4		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	15.5	72.4		28.6		92.4		
Max Q Clear Time (g_c+I1), s	8.3	32.8		18.7		14.6		
Green Ext Time (p_c), s	0.4	18.8		1.7		10.6		

Intersection Summary			
HCM 2010 Ctrl Delay			18.8
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	291	750	290	630	965	301	100	964	210
Future Volume (veh/h)	0	0	0	291	750	290	630	965	301	100	964	210
Number				3	8	18	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		0.98	1.00		0.99	1.00		0.96
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				1900	1900	1900	1845	1845	1900	1863	1863	1900
Adj Flow Rate, veh/h				303	781	302	656	1005	314	104	1004	219
Adj No. of Lanes				0	2	0	2	3	0	1	2	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, %				0	0	0	3	3	3	2	2	2
Cap, veh/h				284	759	307	625	1717	536	129	980	213
Arrive On Green				0.38	0.38	0.38	0.18	0.45	0.45	0.07	0.34	0.34
Sat Flow, veh/h				757	2023	819	3408	3797	1185	1774	2868	624
Grp Volume(v), veh/h				746	0	640	656	889	430	104	618	605
Grp Sat Flow(s),veh/h/ln				1862	0	1736	1704	1679	1625	1774	1770	1722
Q Serve(g_s), s				45.0	0.0	43.8	22.0	23.7	23.7	6.9	41.0	41.0
Cycle Q Clear(g_c), s				45.0	0.0	43.8	22.0	23.7	23.7	6.9	41.0	41.0
Prop In Lane				0.41		0.47	1.00		0.73	1.00		0.36
Lane Grp Cap(c), veh/h				698	0	651	625	1518	735	129	605	588
V/C Ratio(X)				1.07	0.00	0.98	1.05	0.59	0.59	0.81	1.02	1.03
Avail Cap(c_a), veh/h				698	0	651	625	1518	735	201	605	588
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				37.5	0.0	37.1	49.0	24.5	24.5	54.8	39.5	39.5
Incr Delay (d2), s/veh				53.6	0.0	31.0	49.8	0.6	1.2	12.3	42.5	44.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				33.5	0.0	26.6	14.6	11.1	10.9	3.9	27.1	26.7
LnGrp Delay(d),s/veh				91.1	0.0	68.1	98.8	25.1	25.7	67.1	82.0	83.9
LnGrp LOS				F		E	F	C	C	E	F	F
Approach Vol, veh/h					1386			1975			1327	
Approach Delay, s/veh					80.5			49.7			81.7	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		8
Phs Duration (G+Y+Rc), s	12.7	58.3			26.0	45.0		49.0
Change Period (Y+Rc), s	4.0	4.0			4.0	4.0		4.0
Max Green Setting (Gmax), s	13.6	49.4			22.0	41.0		45.0
Max Q Clear Time (g_c+I1), s	8.9	25.7			24.0	43.0		47.0
Green Ext Time (p_c), s	0.1	10.4			0.0	0.0		0.0

Intersection Summary			
HCM 2010 Ctrl Delay			67.9
HCM 2010 LOS			E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	0	255	180	110	300	134	1179	0	0	804	60
Future Volume (veh/h)	110	0	255	180	110	300	134	1179	0	0	804	60
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		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	0	1881	1900	1881	1881	1863	1863	0	0	1881	1900
Adj Flow Rate, veh/h	120	0	277	196	120	326	146	1282	0	0	874	65
Adj No. of Lanes	2	0	1	0	1	1	1	3	0	0	4	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	0	1	1	1	1	2	2	0	0	1	1
Cap, veh/h	0	0	0	332	204	470	194	2570	0	0	1833	135
Arrive On Green	0.00	0.00	0.00	0.29	0.29	0.29	0.11	0.51	0.00	0.00	0.30	0.30
Sat Flow, veh/h		0		1132	693	1599	1774	5253	0	0	6460	457
Grp Volume(v), veh/h		0.0		316	0	326	146	1282	0	0	683	256
Grp Sat Flow(s),veh/h/ln				1825	0	1599	1774	1695	0	0	1618	1800
Q Serve(g_s), s				6.6	0.0	8.1	3.6	7.5	0.0	0.0	5.2	5.2
Cycle Q Clear(g_c), s				6.6	0.0	8.1	3.6	7.5	0.0	0.0	5.2	5.2
Prop In Lane				0.62		1.00	1.00		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				536	0	470	194	2570	0	0	1435	532
V/C Ratio(X)				0.59	0.00	0.69	0.75	0.50	0.00	0.00	0.48	0.48
Avail Cap(c_a), veh/h				1242	0	1089	653	5165	0	0	2654	984
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.5	0.0	14.0	19.4	7.3	0.0	0.0	12.9	13.0
Incr Delay (d2), s/veh				1.0	0.0	1.9	5.8	0.2	0.0	0.0	0.2	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.5	0.0	3.8	2.1	3.5	0.0	0.0	2.3	2.7
LnGrp Delay(d),s/veh				14.6	0.0	15.9	25.2	7.5	0.0	0.0	13.2	13.6
LnGrp LOS				B		B	C	A			B	B
Approach Vol, veh/h					642			1428			939	
Approach Delay, s/veh					15.2			9.3			13.3	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		27.1			9.4	17.7		17.7
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5
Max Green Setting (Gmax), s		45.5			16.5	24.5		30.5
Max Q Clear Time (g_c+I1), s		9.5			5.6	7.2		10.1
Green Ext Time (p_c), s		12.2			0.3	6.0		3.1

Intersection Summary		
HCM 2010 Ctrl Delay		11.8
HCM 2010 LOS		B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1060	935	0	870	509	0
Future Volume (veh/h)	1060	935	0	870	509	0
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			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	1881	1900	0
Adj Flow Rate, veh/h	1104	974	0	906	530	0
Adj No. of Lanes	2	1	0	3	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	0	0
Cap, veh/h	2318	1067	0	1189	836	0
Arrive On Green	0.67	0.67	0.00	0.23	0.23	0.00
Sat Flow, veh/h	3442	1583	0	5474	3800	0
Grp Volume(v), veh/h	1104	974	0	906	530	0
Grp Sat Flow(s),veh/h/ln	1721	1583	0	1712	1805	0
Q Serve(g_s), s	14.6	49.5	0.0	15.6	12.6	0.0
Cycle Q Clear(g_c), s	14.6	49.5	0.0	15.6	12.6	0.0
Prop In Lane	1.00	1.00	0.00			0.00
Lane Grp Cap(c), veh/h	2318	1067	0	1189	836	0
V/C Ratio(X)	0.48	0.91	0.00	0.76	0.63	0.00
Avail Cap(c_a), veh/h	3028	1393	0	1488	1046	0
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	7.4	13.1	0.0	34.0	32.8	0.0
Incr Delay (d2), s/veh	0.2	7.8	0.0	1.8	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	23.4	0.0	7.6	6.4	0.0
LnGrp Delay(d),s/veh	7.6	21.0	0.0	35.9	33.7	0.0
LnGrp LOS	A	C		D	C	
Approach Vol, veh/h	2078			906	530	
Approach Delay, s/veh	13.9			35.9	33.7	
Approach LOS	B			D	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		26.5		68.4		26.5		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		27.5		83.5		27.5		
Max Q Clear Time (g_c+I1), s		17.6		51.5		14.6		
Green Ext Time (p_c), s		4.4		12.4		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1115	31	273	897	398	76	302	234	861	383	200
Future Volume (veh/h)	170	1115	31	273	897	398	76	302	234	861	383	200
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	1863	1863	1900	1900	1900	1900	1881	1881	1900	1900	1900	1900
Adj Flow Rate, veh/h	181	1186	33	290	954	263	81	321	143	916	407	213
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	2	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, %	2	2	2	0	0	0	1	1	1	0	0	0
Cap, veh/h	209	1089	30	269	1228	550	103	377	165	819	764	395
Arrive On Green	0.12	0.31	0.31	0.15	0.34	0.34	0.06	0.16	0.16	0.23	0.33	0.33
Sat Flow, veh/h	1774	3517	98	1810	3610	1615	1792	2419	1055	3510	2303	1192
Grp Volume(v), veh/h	181	597	622	290	954	263	81	235	229	916	318	302
Grp Sat Flow(s),veh/h/ln	1774	1770	1845	1810	1805	1615	1792	1787	1688	1755	1805	1690
Q Serve(g_s), s	11.8	36.5	36.5	17.5	27.9	15.1	5.3	15.1	15.6	27.5	16.8	17.2
Cycle Q Clear(g_c), s	11.8	36.5	36.5	17.5	27.9	15.1	5.3	15.1	15.6	27.5	16.8	17.2
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.63	1.00		0.71
Lane Grp Cap(c), veh/h	209	548	571	269	1228	550	103	279	263	819	598	560
V/C Ratio(X)	0.87	1.09	1.09	1.08	0.78	0.48	0.78	0.84	0.87	1.12	0.53	0.54
Avail Cap(c_a), veh/h	242	548	571	269	1228	550	181	311	293	819	598	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	40.7	40.7	50.2	34.9	30.6	54.8	48.4	48.6	45.2	32.0	32.1
Incr Delay (d2), s/veh	24.1	64.8	64.3	77.7	3.2	0.6	12.1	17.4	21.6	69.3	0.9	1.0
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	7.2	27.5	28.6	14.5	14.5	6.8	3.0	8.8	8.8	21.1	8.5	8.1
LnGrp Delay(d),s/veh	75.1	105.5	105.0	127.9	38.1	31.3	66.9	65.7	70.2	114.5	32.9	33.1
LnGrp LOS	E	F	F	F	D	C	E	E	E	F	C	C
Approach Vol, veh/h		1400			1507			545			1536	
Approach Delay, s/veh		101.3			54.2			67.8			81.6	
Approach LOS		F			D			E			F	

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	32.0	22.9	22.0	41.0	11.3	43.6	18.4	44.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	20.5	17.5	36.5	11.9	36.1	16.1	37.9
Max Q Clear Time (g_c+I1), s	29.5	17.6	19.5	38.5	7.3	19.2	13.8	29.9
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.1	3.6	0.1	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	77.4
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	109	547	57	0	720
Future Vol, veh/h	0	109	547	57	0	720
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	118	595	62	0	783

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	329	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	664	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	664	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	664	-
HCM Lane V/C Ratio	-	-	0.178	-
HCM Control Delay (s)	-	-	11.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.6	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	2082	85	69	1576	13	0	0	77	0	0	4
Future Vol, veh/h	40	2082	85	69	1576	13	0	0	77	0	0	4
Conflicting Peds, #/hr	14	0	8	8	0	10	0	0	8	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	175	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	43	2263	92	75	1713	14	0	0	84	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1741	0	0	2363	0	0	-	-	1194	-	-	892
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.16	-	-	4.16	-	-	-	-	6.96	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	-	-	3.33	-	-	3.33
Pot Cap-1 Maneuver	353	-	-	200	-	-	0	0	178	0	0	283
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	348	-	-	198	-	-	-	-	175	-	-	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.4	43.1	18.3
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	175	348	-	-	198	-	-	276
HCM Lane V/C Ratio	0.478	0.125	-	-	0.379	-	-	0.016
HCM Control Delay (s)	43.1	16.8	-	-	33.9	-	-	18.3
HCM Lane LOS	E	C	-	-	D	-	-	C
HCM 95th %tile Q(veh)	2.3	0.4	-	-	1.7	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1983	73	48	1590	20	39	0	26	21	0	6
Future Volume (veh/h)	43	1983	73	48	1590	20	39	0	26	21	0	6
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		0.97	1.00		0.97	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	47	2155	79	52	1728	22	42	0	28	23	0	7
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	66	2199	80	70	2268	29	62	0	127	80	0	139
Arrive On Green	0.04	0.64	0.64	0.04	0.64	0.64	0.04	0.00	0.08	0.05	0.00	0.09
Sat Flow, veh/h	1757	3444	125	1757	3542	45	1757	0	1523	1757	0	1497
Grp Volume(v), veh/h	47	1088	1146	52	853	897	42	0	28	23	0	7
Grp Sat Flow(s),veh/h/ln	1757	1752	1817	1757	1752	1835	1757	0	1523	1757	0	1497
Q Serve(g_s), s	2.5	55.2	57.5	2.7	31.8	32.0	2.2	0.0	1.6	1.2	0.0	0.4
Cycle Q Clear(g_c), s	2.5	55.2	57.5	2.7	31.8	32.0	2.2	0.0	1.6	1.2	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	1119	1160	70	1122	1175	62	0	127	80	0	139
V/C Ratio(X)	0.71	0.97	0.99	0.75	0.76	0.76	0.67	0.00	0.22	0.29	0.00	0.05
Avail Cap(c_a), veh/h	100	1119	1160	94	1122	1175	138	0	319	339	0	485
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	0.00	1.00
Uniform Delay (d), s/veh	44.3	16.1	16.5	44.3	11.7	11.8	44.4	0.0	39.9	43.0	0.0	38.5
Incr Delay (d2), s/veh	13.0	20.5	23.3	19.3	3.1	3.0	11.8	0.0	0.9	2.0	0.0	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	1.4	32.7	35.8	1.7	16.1	16.9	1.3	0.0	0.7	0.6	0.0	0.2
LnGrp Delay(d),s/veh	57.3	36.6	39.8	63.5	14.8	14.8	56.2	0.0	40.7	45.0	0.0	38.6
LnGrp LOS	E	D	D	E	B	B	E		D	D		D
Approach Vol, veh/h		2281			1802			70			30	
Approach Delay, s/veh		38.6			16.2			50.0			43.5	
Approach LOS		D			B			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	8.7	12.3	8.2	64.0	7.8	13.2	8.0	64.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.0	19.5	5.0	59.5	7.3	30.2	5.3	59.2
Max Q Clear Time (g_c+I1), s	3.2	3.6	4.7	59.5	4.2	2.4	4.5	34.0
Green Ext Time (p_c), s	0.0	0.1	0.0	0.0	0.0	0.0	0.0	15.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1639	80	110	1286	222	67	17	77	248	20	254
Future Volume (veh/h)	285	1639	80	110	1286	222	67	17	77	248	20	254
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		0.98	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	1881	1881	1881	1900	1900	1900	1900	1863	1863	1863
Adj Flow Rate, veh/h	294	1690	82	113	1326	229	69	18	79	256	21	262
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	1	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	0	0	0	2	2	2
Cap, veh/h	305	1889	841	137	1323	226	89	161	137	263	342	291
Arrive On Green	0.17	0.53	0.53	0.08	0.43	0.43	0.05	0.08	0.08	0.15	0.18	0.18
Sat Flow, veh/h	1792	3574	1591	1792	3043	519	1810	1900	1615	1774	1863	1583
Grp Volume(v), veh/h	294	1690	82	113	772	783	69	18	79	256	21	262
Grp Sat Flow(s),veh/h/ln	1792	1787	1591	1792	1787	1776	1810	1900	1615	1774	1863	1583
Q Serve(g_s), s	18.1	47.0	2.8	6.9	47.8	48.3	4.2	1.0	5.2	16.0	1.0	18.0
Cycle Q Clear(g_c), s	18.1	47.0	2.8	6.9	47.8	48.3	4.2	1.0	5.2	16.0	1.0	18.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	1889	841	137	777	772	89	161	137	263	342	291
V/C Ratio(X)	0.96	0.89	0.10	0.82	0.99	1.01	0.77	0.11	0.58	0.97	0.06	0.90
Avail Cap(c_a), veh/h	305	1889	841	137	777	772	163	313	266	263	416	353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	23.4	13.0	50.6	31.2	31.4	52.2	47.0	48.9	47.1	37.4	44.3
Incr Delay (d2), s/veh	41.9	6.0	0.0	31.8	30.7	35.9	13.1	0.3	3.8	47.4	0.1	22.2
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	12.5	24.6	1.3	4.6	30.0	31.3	2.4	0.5	2.5	11.3	0.5	9.6
LnGrp Delay(d),s/veh	87.6	29.5	13.1	82.4	61.9	67.3	65.3	47.3	52.8	94.5	37.5	66.6
LnGrp LOS	F	C	B	F	E	F	E	D	D	F	D	E
Approach Vol, veh/h		2066			1668			166			539	
Approach Delay, s/veh		37.1			65.8			57.4			78.7	
Approach LOS		D			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	21.0	13.9	13.0	63.2	10.0	24.9	23.4	52.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.3	8.5	58.7	10.0	24.8	18.9	48.3
Max Q Clear Time (g_c+I1), s	18.0	7.2	8.9	49.0	6.2	20.0	20.1	50.3
Green Ext Time (p_c), s	0.0	0.2	0.0	7.6	0.0	0.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1798	110	140	1476	77	90
Future Volume (vph)	1798	110	140	1476	77	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frpb, ped/bikes	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.93	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3563		1787	3574	1722	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3563		1787	3574	1722	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	2020	124	157	1658	87	101
RTOR Reduction (vph)	3	0	0	0	28	0
Lane Group Flow (vph)	2141	0	157	1658	160	0
Confl. Peds. (#/hr)		13				
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	NA		Prot	NA	Prot	
Protected Phases	2		1	6 3 5	7	
Permitted Phases						
Actuated Green, G (s)	85.0		17.0	105.5	36.0	
Effective Green, g (s)	85.0		17.0	106.0	36.0	
Actuated g/C Ratio	0.57		0.11	0.71	0.24	
Clearance Time (s)	4.0		4.0		4.0	
Vehicle Extension (s)	3.0		3.0		3.0	
Lane Grp Cap (vph)	2019		202	2525	413	
v/s Ratio Prot	c0.60		c0.09	c0.46	c0.09	
v/s Ratio Perm						
v/c Ratio	1.06		0.78	0.66	0.39	
Uniform Delay, d1	32.5		64.7	12.0	47.8	
Progression Factor	1.00		1.67	0.49	1.00	
Incremental Delay, d2	38.3		1.8	0.1	0.6	
Delay (s)	70.8		109.5	5.9	48.4	
Level of Service	E		F	A	D	
Approach Delay (s)	70.8			14.9	48.4	
Approach LOS	E			B	D	

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	735	1780	106	60	838	470	324	500	180	510	530	568
Future Volume (veh/h)	735	1780	106	60	838	470	324	500	180	510	530	568
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		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	1900	1900	1900	1900	1900	1900	1881	1881	1881
Adj Flow Rate, veh/h	758	1835	68	62	864	382	334	515	186	526	546	586
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	2	1	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	0	0	0	0	0	0	1	1	1
Cap, veh/h	517	1567	58	70	708	313	244	580	209	535	456	387
Arrive On Green	0.29	0.45	0.45	0.04	0.20	0.20	0.13	0.22	0.22	0.15	0.24	0.24
Sat Flow, veh/h	1792	3513	129	1810	3610	1595	1810	2602	935	3476	1881	1597
Grp Volume(v), veh/h	758	928	975	62	864	382	334	357	344	526	546	586
Grp Sat Flow(s),veh/h/ln	1792	1787	1855	1810	1805	1595	1810	1805	1732	1738	1881	1597
Q Serve(g_s), s	37.5	58.0	58.0	4.4	25.5	25.5	17.5	24.9	25.1	19.6	31.5	31.5
Cycle Q Clear(g_c), s	37.5	58.0	58.0	4.4	25.5	25.5	17.5	24.9	25.1	19.6	31.5	31.5
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.54	1.00		1.00
Lane Grp Cap(c), veh/h	517	797	828	70	708	313	244	403	386	535	456	387
V/C Ratio(X)	1.47	1.16	1.18	0.89	1.22	1.22	1.37	0.89	0.89	0.98	1.20	1.51
Avail Cap(c_a), veh/h	517	797	828	70	708	313	244	403	386	535	456	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	36.0	36.0	62.2	52.2	52.2	56.2	48.9	49.0	54.8	49.3	49.3
Incr Delay (d2), s/veh	220.4	87.1	92.8	71.3	111.6	124.7	190.9	20.3	21.9	34.6	108.6	244.4
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	50.2	47.9	51.0	3.6	23.7	22.1	21.6	14.7	14.3	12.0	30.1	40.2
LnGrp Delay(d),s/veh	266.7	123.1	128.8	133.6	163.8	176.9	247.2	69.2	70.9	89.4	157.9	293.7
LnGrp LOS	F	F	F	F	F	F	F	E	E	F	F	F
Approach Vol, veh/h		2661			1308			1035			1658	
Approach Delay, s/veh		166.1			166.2			127.2			184.2	
Approach LOS		F			F			F			F	

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	24.5	33.5	9.5	62.5	22.0	36.0	42.0	30.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.0	29.0	5.0	58.0	17.5	31.5	37.5	25.5
Max Q Clear Time (g_c+I1), s	21.6	27.1	6.4	60.0	19.5	33.5	39.5	27.5
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	164.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	210	720	0	0	0	0	1234	531	310	1088	190
Future Volume (veh/h)	120	210	720	0	0	0	0	1234	531	310	1088	190
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		0.98				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
Adj Sat Flow, veh/h/ln	1900	1900	1900				0	1881	1881	1863	1863	1863
Adj Flow Rate, veh/h	133	233	578				0	1371	423	344	1209	0
Adj No. of Lanes	0	2	1				0	2	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0				0	1	1	2	2	2
Cap, veh/h	482	906	601				0	1470	674	387	2023	905
Arrive On Green	0.38	0.38	0.38				0.00	0.41	0.43	0.11	0.57	0.00
Sat Flow, veh/h	1264	2377	1579				0	3668	1578	3442	3539	1583
Grp Volume(v), veh/h	193	173	578				0	1371	423	344	1209	0
Grp Sat Flow(s),veh/h/ln	1837	1805	1579				0	1787	1578	1721	1770	1583
Q Serve(g_s), s	9.2	8.3	45.1				0.0	46.2	26.5	12.4	28.1	0.0
Cycle Q Clear(g_c), s	9.2	8.3	45.1				0.0	46.2	26.5	12.4	28.1	0.0
Prop In Lane	0.69		1.00				0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	700	688	601				0	1470	674	387	2023	905
V/C Ratio(X)	0.28	0.25	0.96				0.00	0.93	0.63	0.89	0.60	0.00
Avail Cap(c_a), veh/h	728	715	626				0	1524	698	387	2076	929
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.0	26.7	38.1				0.0	35.5	28.3	55.2	17.6	0.0
Incr Delay (d2), s/veh	0.1	0.1	25.7				0.0	10.3	1.2	20.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.1	23.9				0.0	24.8	11.7	7.0	13.7	0.0
LnGrp Delay(d),s/veh	27.1	26.8	63.8				0.0	45.8	29.5	76.0	17.9	0.0
LnGrp LOS	C	C	E					D	C	E	B	
Approach Vol, veh/h		944						1794			1553	
Approach Delay, s/veh		49.5						41.9			30.8	
Approach LOS		D						D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.2	55.9		52.1		74.1		
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		
Max Green Setting (Gmax), s	14.2	53.8		50.0		72.0		
Max Q Clear Time (g_c+I1), s	14.4	48.2		47.1		30.1		
Green Ext Time (p_c), s	0.0	3.7		1.0		7.5		

Intersection Summary			
HCM 2010 Ctrl Delay			39.6
HCM 2010 LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	233	150	120	290	1401	773	90	719	140
Future Volume (veh/h)	0	0	0	233	150	120	290	1401	773	90	719	140
Number				3	8	18	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		0.98	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
Adj Sat Flow, veh/h/ln				1900	1900	1900	1881	1881	1900	1863	1863	1900
Adj Flow Rate, veh/h				259	167	133	322	1557	859	100	799	156
Adj No. of Lanes				0	2	0	2	3	0	1	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	0	0	1	1	1	2	2	2
Cap, veh/h				307	212	172	396	2091	951	126	1666	325
Arrive On Green				0.19	0.19	0.19	0.11	0.61	0.61	0.07	0.57	0.57
Sat Flow, veh/h				1577	1085	881	3476	3424	1557	1774	2935	573
Grp Volume(v), veh/h				299	0	260	322	1557	859	100	482	473
Grp Sat Flow(s),veh/h/ln				1821	0	1722	1738	1712	1557	1774	1770	1739
Q Serve(g_s), s				17.3	0.0	15.7	9.9	35.5	52.4	6.1	17.7	17.7
Cycle Q Clear(g_c), s				17.3	0.0	15.7	9.9	35.5	52.4	6.1	17.7	17.7
Prop In Lane				0.87		0.51	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h				355	0	336	396	2091	951	126	1004	987
V/C Ratio(X)				0.84	0.00	0.77	0.81	0.74	0.90	0.80	0.48	0.48
Avail Cap(c_a), veh/h				441	0	417	562	2143	975	186	1008	990
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh				42.4	0.0	41.8	47.3	15.2	18.5	50.1	14.1	14.1
Incr Delay (d2), s/veh				11.6	0.0	7.0	6.1	1.4	11.4	13.4	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.9	0.0	8.1	5.1	17.1	25.2	3.4	8.7	8.5
LnGrp Delay(d),s/veh				54.0	0.0	48.8	53.4	16.6	29.9	63.4	14.4	14.4
LnGrp LOS				D		D	D	B	C	E	B	B
Approach Vol, veh/h					559			2738			1055	
Approach Delay, s/veh					51.6			25.1			19.1	
Approach LOS					D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	12.2	71.3			17.0	66.6		25.8				
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s	11.5	68.5			17.7	62.3		26.5				
Max Q Clear Time (g_c+I1), s	8.1	54.4			11.9	19.7		19.3				
Green Ext Time (p_c), s	0.1	12.4			0.6	7.8		2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			27.0									
HCM 2010 LOS			C									

Appendix F

Abrams Associates
TRAFFIC ENGINEERING, INC.

March 4, 2020

Paul Reinders
City Traffic Engineer
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

Re: Vehicle Miles Traveled Analysis for the San Marco Commercial Center Project

Dear Paul,

This letter was prepared to summarize our analysis of the effects on vehicle miles traveled (VMT) that would result from approval of the San Marco Commercial Center Project. As you know, VMT is one performance measure that can be used to quantify potential changes in travel from a project. This letter presents the extent of the VMT-related transportation impacts forecast to be caused by the Project. The City has the authority to set VMT thresholds in the CEQA analysis but because VMT is a relatively new method for measuring transportation impacts under CEQA, less data exists to estimate VMT than trip generation based on use and location. However, VMT is still a particularly useful metric for evaluating the impacts of growth on greenhouse gas (GHG) emissions because it can be used to estimate fuel consumption by motor vehicles. Increases in VMT cause proportional increases in greenhouse gas emissions and air pollution. The Office of Planning and Research (OPR) released their final proposed Guidelines in a Technical Advisory on Evaluating Transportation Impacts in CEQA, dated December 2018. The new guidelines state that they do not take effect until July 1, 2020 unless the lead agency adopts them earlier. Therefore, this information is provided for informational purposes only.

OPR's 2018 Technical Advisory states "By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact." It goes on to state "Because lead agencies will best understand their own communities and the likely travel behaviors of future project users, they are likely in the best position to decide when a project will likely be local-serving. Generally, however, retail development including stores larger than 50,000 square feet might be considered regional-serving." Therefore,

1875 Olympic Boulevard, Suite 210 • Walnut Creek, CA 94596 • 925.945.0201 • Fax: 925.945.7966

subject to City approval, this project would include no more than about 35,000 square feet of space and would be considered a local serving retail project that would have a less than significant impact on the VMT in the area.

Please don't hesitate to contact me if you have any questions about this information.

Sincerely,

Stephen C. Abrams
President
Abrams Associates
T.E. License No. 1852