INITIAL STUDY – MITIGATED NEGATIVE DECLARATION

FOR THE RETHERFORD – CORVINA APARTMENTS PROJECT

March 2022

Table of Contents

City of Tulare
Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

Executive Summary

Project Title: Retherford-Corvina Apartments

Project Location

The project site is located within Tulare County in the northern area of the City of Tulare (City). The project area is composed of an approximately 14.67-acre parcel that is located on the northeast corner of Retherford Street and Corvina Avenue (APN 166-230-007).

The proposed project parcel is designated as Community Commercial within the City of Tulare adopted 2035 General Plan. The proposed project parcel has a zoning designation of C-3 (Retail Commercial). The proposed project parcel is currently vacant.

Project Overview

The proposed project is a multi-family residential subdivision consisting of 216 dwelling units. The development of the subdivision would result in on-site infrastructure improvements, including a new security gate, new sidewalks, curb and gutter, and new landscaping.

Summary of IS/MND Findings

The analysis in Section 3 of this Initial Study and Proposed Mitigated Negative Declaration (IS/MND) evaluates the potential environmental impacts associated with project implementation. It was found that implementation of the proposed project would not result in potentially significant impacts on the environment, as detailed in Section 3.

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Mitigation Monitoring and Reporting Program

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
BIO-1: 1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August. 2. If it is not possible to schedule construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SWTAC 2000, Appendix D). These methods require six surveys, three in each of the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site. 3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.	Construction Contractor & Qualified Biologist	Prior to ground-disturbing activities	City of Tulare	

BIO-2: 1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August. 2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.	Construction Contractor & Qualified Biologist	Prior to ground-disturbing activities	City of Tulare	

CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any potential significant impacts.	Construction Contractor & Qualified Archaeologist	During ground-disturbing activities	City of Tulare	

CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	Construction Contractor	During ground-disturbing activities	City of Tulare; County Coroner; NAHC	

HYD-1: Prior to the issuance of any grading and/or construction permit, and or the commencement of any clearing, grading, or excavation, the project proponent or construction contractor shall submit a Notice of Intent (NOI) for discharge from the Project site to the California SWRCB Storm Water Permit Unit. Prior to the issuance of grading permits, the applicant or construction contractor shall submit a copy of the NOI to the City. The City shall review noticing documentation prior to approval of the grading permit. City monitoring staff will inspect the site during construction for compliance.	Project Applicant; Construction Contractor	Prior to the issuance of a grading permit or to commencement of any ground clearing, grading, or excavation	City of Tulare	

HYD-2: The Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the City 45 days prior to the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. A SWPPP for site construction shall be developed prior to the initiation of grading and implemented for all construction activity on the Project site in excess of one (1) acre, or where the area of disturbance is less than one acre but is part of the Project's plan of development that in total disturbs one or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to storm water and shall include specific BMPs to control the discharge of material from the site. The following BMP methods shall include, but would not be limited to: • Dust control measures will be implemented to ensure success of all onsite activities to control fugitive dust; • A routine monitoring plan will be implemented to ensure success of all onsite erosion and sedimentation control measures; • Provisional detention basins, straw bales, erosion control blankets, mulching, silt	Applicant; Construction Contractor	45 Days Prior to Starting Work and or Grading; Prior to Issuance of Grading Permit	City of Tulare	

fencing, sand bagging, and soil stabilizers will be used; • Soil stockpiles and graded slopes will be covered after two weeks of inactivity and 24 hours prior to and during extreme weather conditions; and, • BMPs will be strictly followed to prevent spills and discharges of pollutants onsite, such as material storage, trash disposal, construction entrances, etc.				

HYD-3: A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned and maintained in accordance with the manufacturer's maintenance conditions. The manual shall require that devices be cleaned prior to the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events. The Development Maintenance Manual shall include the following: • Runoff shall be directed away from trash and loading dock areas; • Bins shall be lined or otherwise constructed to reduce leaking of liquid wastes; • Trash and loading dock areas shall be screened or walled to minimize offsite transport of trash; and, • Impervious berms, trench catch basin, drop inlets, or overflow containment structures nearby docks and trash areas shall be installed to minimize the potential for leaks,	Project Proponent & Project Engineer; Construction Contractor	Prior to issuance of building permits, and if not master planned, prior to issuance of building permits for each phase	City of Tulare	

spills or wash down water to enter the drainage system.				
TCR-1 If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any adverse effects.	Applicant; Construction Contractor	During ground-disturbing activities	City of Tulare	

TCR-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	Applicant; Construction Contractor	During ground-disturbing activities	City of Tulare; County Coroner; NAHC	

TCR-3: Upon coordination with the Tulare County Resource Management Agency, any archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded long-term preservation. Documentation for the work shall be provided in accordance with applicable cultural resource laws and guidelines.	Applicant; Construction Contractor	During ground-disturbing activities	City of Tulare	
Mitigation Measure TCR-4: A cultural resources survey shall be performed on-site by a qualified archaeologist prior to earth-moving activities.	Applicant, Qualified Archaeologist	Prior to ground-disturbing activities	City of Tulare	
Mitigation Measure TCR-5: The Santa Rosa Rancheria Tachi-Yokut Tribe shall be retained by the Project Applicant prior to earth-moving activities to give a cultural presentation for all construction staff.	Applicant	Prior to ground-disturbing activities	City of Tulare	

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City of Tulare
Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

Introduction

Project Title: Retherford-Corvina Apartments Project

This Initial Study/Mitigated Negative Declaration has been prepared for the City of Tulare to address the environmental effects of the construction of a multi-family residential subdivision consisting of 216 dwelling units on approximately 14.67-acres within the City of Tulare, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA) Guidelines. The City of Tulare is the CEQA lead agency for this project.

The project site is located within Tulare County in the northern area of the City of Tulare, on the northeast corner of Retherford Street and Corvina Avenue.

This Initial Study document for the **Retherford-Corvina Apartments Project**, is organized as follows:

Section 1: Environmental Review Process
The Environmental Review Process covers the procedures, under the California Environmental Quality Act (CEQA), for evaluating the environmental effects of the proposed project including the CEQA guidelines, Initial Study, Environmental Checklist, Notice of Intent to adopt a Mitigated Negative Declaration, Mitigated Negative Declaration, and the Notice of Determination.

Section 2: Project Description
The Project Description identifies the project location, provides a background to the project, and describes the project.

Section 3: Evaluation of Environmental Impacts
Evaluation of Environmental Impacts contains the CEQA Environmental Checklist, Environmental Factors Potentially Affected, Evaluation of Environmental Impacts, Draft Notice of Intent to Adopt Initial Study/Mitigated Negative Declaration, Draft Mitigated Negative Declaration, Notice of Completion and Environmental Document Transmittal form, Draft Notice of Determination, and a Schedule of Compliance with CEQA for a Mitigated Negative Declaration.

Section 4: References
References provides a list of reference material used during the preparation of the Initial Study.

Section 5: List of Report Preparers

The List of Report Preparers provides a list of key personnel involved in the preparation of the Environmental Assessment/Initial Study.

Appendices

The Appendices consist of Appendix A through Appendix D. Appendix A includes the modeling output sheets from the California Emissions Estimator Model (CalEEMod) run for estimating construction and operational emissions summarized in the air quality and greenhouse gas sections of this Initial Study/Mitigated Negative Declaration. Appendix B includes a Biological Resource Evaluation prepared by Colibri Ecological Consulting, LLC., and Appendix C consists of the results letter from the Cultural Resources Records Search conducted by the Southern San Joaquin Valley Information Center. Lastly, Appendix D consists of the Traffic Impact Study (TIS) performed on behalf of the proposed project by VRPA Technologies, Inc. on July 2021.

City of Tulare
Planning and Building Department
411 East Kern Avenue
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SECTON 1
CEQA Environmental Review Process
Project Title: Retherford-Corvina Apartments

1.1 California Environmental Quality Act Guidelines

Section 15063 of the California Environmental Quality Act (CEQA) Guidelines requires that the Lead Agency prepare an Initial Study to determine whether a discretionary project will have a significant effect on the environment. All phases of the project planning, implementation, and operation must be considered in the Initial Study. The purposes of an Initial Study, as listed under Section 15063(c) of the CEQA Guidelines, include:

> *(1) Provide the lead agency with information to use as the basis for deciding whether to prepare an EIR or negative declaration;*
>
> *(2) Enable an applicant or lead agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a mitigated negative declaration;*
>
> *(3) Assist the preparation of an EIR, if one is required, by:*
>
> > *(A) Focusing the EIR on the effects determined to be significant,*
> >
> > *(B) Identifying the effects determined not to be significant,*
> >
> > *(C) Explaining the reasons for determining that potentially significant effects would not be significant, and*
> >
> > *(D) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.*
>
> *(4) Facilitate environmental assessment early in the design of a project;*
>
> *(5) Provide documentation of the factual basis for the finding in a mitigated negative declaration that a project will not have a significant effect on the environment;*
>
> *(6) Eliminate unnecessary EIRs;*

(7) Determine whether a previously prepared EIR could be used with the project.

1.2 Initial Study

The Initial Study provided herein covers the potential environmental effects of the construction of a multi-family residential subdivision consisting of 216 residential dwelling units as well as related improvements along Retherford Street, Corvina Avenue and the proposed Glass Avenue.

The City of Tulare will act as the Lead Agency for processing the Initial Study/Mitigated Negative Declaration pursuant to the CEQA and the CEQA Guidelines.

1.3 Environmental Checklist

The Lead Agency may use the CEQA Environmental Checklist Form [CEQA Guidelines, Section 15063(d)(3) and (f)] in preparation of an Initial Study to provide information for determination if there are significant effects of the project on the environment. A copy of the completed Environmental Checklist is set forth in Section Three.

1.4 Notice of Intent to Adopt a Mitigated Negative Declaration

The Lead Agency shall provide a Notice of Intent to Adopt a Mitigated Negative Declaration (CEQA Guidelines, Section 15072) to the public, responsible agencies, trustee agencies and the County Clerk within which the project is located, sufficiently prior to adoption by the Lead Agency of the Negative Declaration to allow the public and agencies the review period. The public review period (CEQA Guidelines, Section 15105) shall not be less than 20 days. When the Initial Study/Mitigated Negative Declaration is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less than 30 days, unless a shorter period, not less than 20 days, is approved by the State Clearinghouse.

Prior to approving the project, the Lead Agency shall consider the proposed Mitigated Negative Declaration together with any comments received during the public review process, and shall adopt the proposed Mitigated Negative Declaration only if it finds on the basis of the whole record before it, that there is no substantial evidence that the project will have a significant effect on the environment and that the Mitigated Negative Declaration reflects the Lead Agency's independent judgment and analysis.

The written and oral comments received during the public review period will be considered by the City of Tulare prior to adopting the Mitigated Negative Declaration.

Regardless of the type of CEQA document that must be prepared, the overall purpose of the CEQA process is to:

1) Assure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns;

2) Provide for full disclosure of the project's environmental effects to the public, the agency decision-makers who will approve or deny the project, and the responsible

trustee agencies charged with managing resources (e.g. wildlife, air quality) that may be affected by the project; and

3) Provide a forum for public participation in the decision-making process pertaining to potential environmental effects.

According to Section 15070(a) a public agency shall prepare or have prepared a proposed mitigated negative declaration for a project subject to CEQA when:

The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment. Less than significant impacts have been identified, with implementation of mitigation measures.

The Environmental Checklist Discussion contained in Section Three of this document has determined that the environmental impacts of the project are less than significant with mitigation measures and that a Mitigated Negative Declaration is adequate for adoption by the Lead Agency.

1.5 Negative Declaration or Mitigated Negative Declaration

The Lead Agency shall prepare or have prepared a proposed Negative Declaration or Mitigated Negative Declaration (CEQA Guidelines Section 15070) for a project subject to CEQA when the Initial Study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment.

The proposed Negative Declaration or Mitigated Negative Declaration circulated for public review shall include the following:

(a) A brief description of the project, including a commonly used name for the project.

(b) The location of the project, preferably shown on a map.

(c) A proposed finding that the project will not have a significant effect on the environment.

(d) An attached copy of the Initial Study documenting reasons to support the finding.

(e) Mitigation measures, if any.

1.6 Intended Uses of Initial Study/Mitigated Negative Declaration Documents

The Initial Study/Mitigated Negative Declaration document is an informational document that is intended to inform decision-makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed project. The environmental review process has been established to enable the public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency must balance any potential environmental effects against other public objectives, including economic and social goals.

The City of Tulare, as Lead Agency, will make a determination, based on the environmental review for the Initial Study and comments from the general public, if there are less than significant impacts from the proposed project and the requirements of CEQA can be met by adoption of a Mitigated Negative Declaration.

1.7 Notice of Determination (NOD)

The Lead Agency shall file a Notice of Determination within five working days after deciding to approve the project. The Notice of Determination (CEQA Guidelines, Section 15075) shall include the following:

> *(1) An identification of the project including the project title as identified on the proposed negative declaration, its location, and the State Clearinghouse identification number for the proposed negative declaration if the notice of determination is filed with the State Clearinghouse.*
>
> *(2) A brief description of the project.*
>
> *(3) The agency's name and the date on which the agency approved the project.*
>
> *(4) The determination of the agency that the project will not have a significant effect on the environment.*
>
> *(5) A statement that a negative declaration or a mitigated negative declaration was adopted pursuant to the provisions of CEQA.*
>
> *(6) A statement indicating whether mitigation measures were made a condition of the approval of the project, and whether a mitigation monitoring plan/program was adopted.*
>
> *(7) The address where a copy of the negative declaration or mitigated negative declaration may be examined.*
>
> *(8) The Notice of Determination filed with the County Clerk shall be available for public inspection and shall be posted by the County Clerk within 24 hours of receipt for a period of at least 30 days. Thereafter, the clerk shall return the Notice to the Lead Agency with a notation of the period posted.*

City of Tulare

Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

SECTON 2
Project Description

Project Title: Retherford-Corvina Apartments

2.1 Project Location

The project site is located within Tulare County in the northern area of the City of Tulare (City). The project site is surrounded by Retherford Street and vacant land further to the west, vacant land to the north, an apartment complex, commercial shopping area, and Corvina Avenue to the east, and vacant land to the south. The project area is composed of a single parcel (APN 166-230-007) which is approximately 14.67-acres. Figure 2-1 shows the regional location of the proposed project, while Figure 2-2 shows the proposed tentative subdivision map and Figure 2-3 shows the proposed site plan and development of the parcel.

The proposed project site is designated by the City as Community Commercial under the General Plan and C-3 (Retail Commercial) under the current zoning code. The proposed project site is currently vacant and has been graded in the past as a result of prior development activity in the vicinity.

2.2 Project Description

The proposed project is a multi-family residential subdivision consisting of 24- two story buildings and 12- one story buildings which will house 216 residential dwelling units on approximately 14.67-acres. Also included is a one-story clubhouse offering resident amenities and a pool. The development of the apartment complex would result in on-site infrastructure improvements, such as security fencing, covered parking, connections to existing city water, sewer and storm drain inlets, and landscaping. The project would also require frontage improvements on Glass Avenue, Corvina Avenue, and Retherford Street, and to stripe for a class II bike lane along Corvina Avenue.

Other Permits and Approvals

Other permits and approvals required for the Retherford-Corvina Apartments Project are listed below.

- *City of Tulare Conditional Use Permit*
- *City of Tulare Building and Encroachment Permits*
- *San Joaquin Valley Air Pollution Control District (SJVAPCD)*. The proposed project is within the jurisdiction of the SJVAPCD and will be required to comply with Rules 3135, 4101, 9510 and any other pertinent rules and permit fees.

- *Central Valley Regional Water Quality Control Board, SWPPP*. The proposed project site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB). The CVRWQCB will require a Storm Water Pollution Prevention Plan (SWPPP) to prevent impacts related to stormwater as a result of project construction.

Figure 2-1 Regional Location

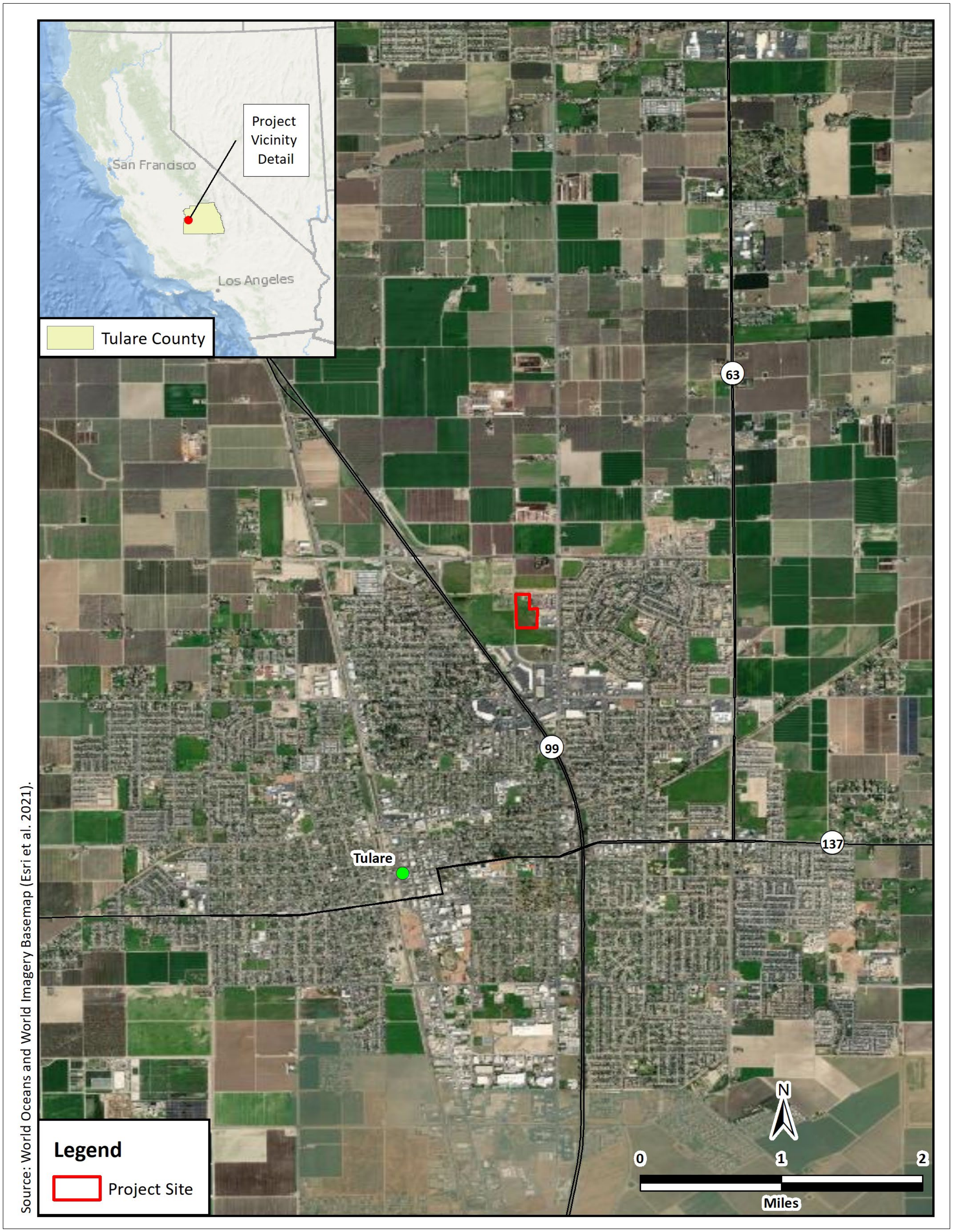

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Figure 2-2 Project Site Plan

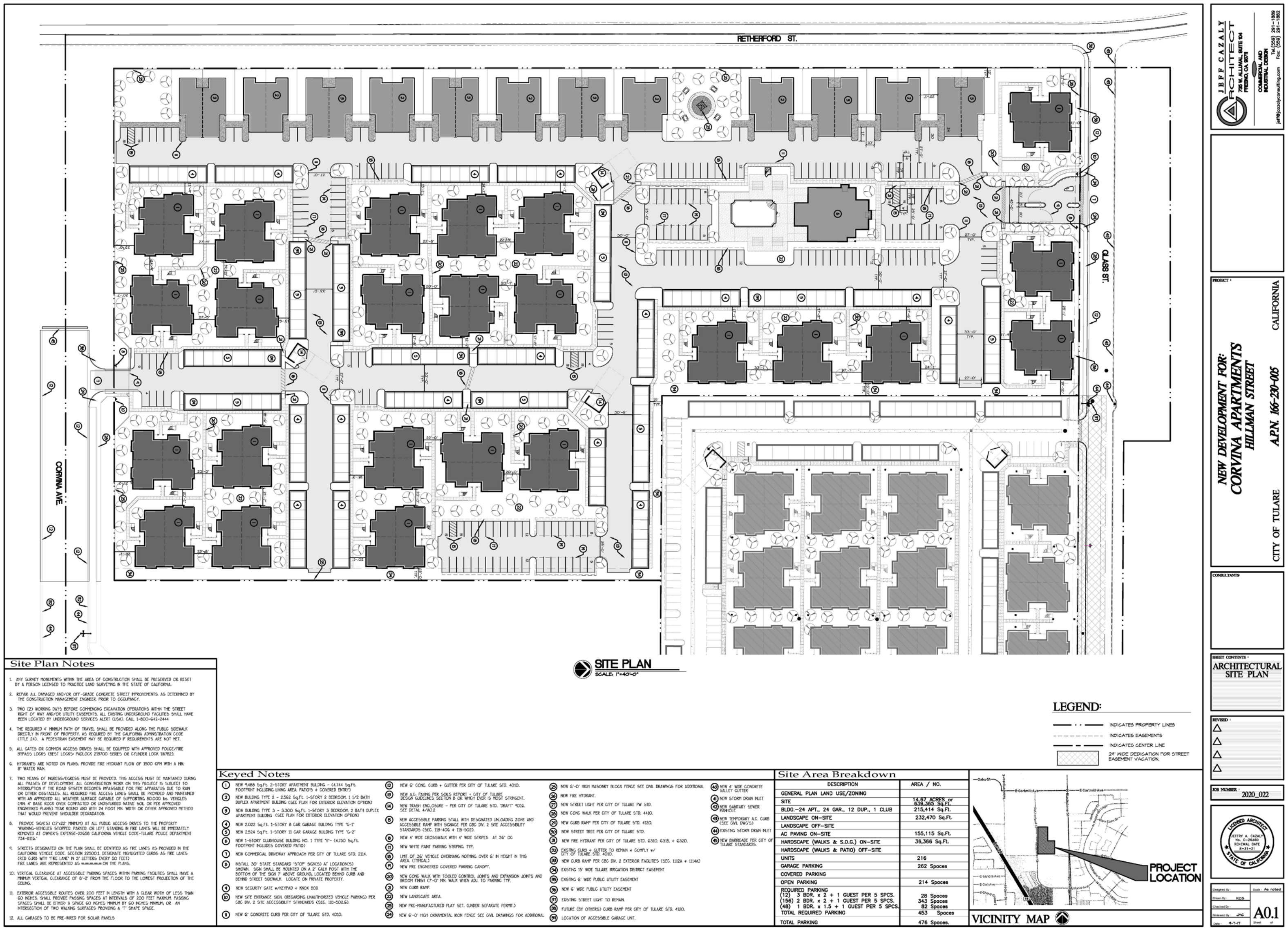

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Figure 2-3 Aerial Photo of Project Site

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SECTON 3
Evaluation of Environmental Impacts
Project Title: Retherford-Corvina Apartments

This document is the Initial Study/Mitigated Negative Declaration for a proposed multi-family residential complex consisting of 216 dwelling units on approximately 14.67-acres within the City of Tulare, California. The City of Tulare will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

3.1 PROJECT PURPOSE
The purpose of this environmental document is to implement the California Environmental Quality Act (CEQA). Section 15002(a) of the CEQA Guidelines describes the basic purposes of CEQA as follows.

(1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify the ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

This Initial Study of environmental impacts has been prepared to conform to the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.).

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that: (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment.

INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

1. **Project Title:** Retherford-Corvina Apartments Project

2. **Lead Agency:** City of Tulare
411 E. Kern Avenue
Tulare, Ca 93274
(559) 684-4217 FAX 685-2339

3. **Applicant:** Ginder Development
759 W. Alluvial Ave #102
Fresno, CA 93711

4. **Contact Person:** Steven Sopp, Senior Planner
City of Tulare
411 E. Kern Avenue
Tulare, CA 93274
(559) 684-4216

5. **Project Location:**
The project site is located within Tulare County in the northern area of the City of Tulare (City). The project site is surrounded by Retherford Street and vacant land further to the west, vacant land to the north, an apartment complex and professional offices to the east, and vacant land to the south. The project area is composed of a single parcel (APN 166-230-007) which is approximately 14.67-acres.

6. **General Plan Designation:**
Tulare General Plan designates the proposed project site as Community Commercial.

7. **Zoning Designation:**
Tulare Zoning Map designates the proposed project site as C-3 (Retail Commercial).

8. **Surrounding Land Use Designations and Existing Land Use:**

North	Community Commercial	Vacant land
South	Community Commercial	Vacant land
East	HDR, Community Commercial	Apartments, office buildings
West	HDR, Regional Commercial	Vacant land

9. **Project Description:** The proposed project is a multi-family residential subdivision consisting of 24- two story buildings and 12- one story buildings which will house 216 residential dwelling units on approximately 14.67-acres. Also included is a one-story clubhouse offering resident amenities and a pool. The development of the apartment complex would result in

on-site infrastructure improvements, such as security fencing, covered parking, connections to existing city water, sewer and storm drain inlets, and landscaping. The project would also require frontage improvements on Glass Avenue, Corvina Avenue, and Retherford Street and to stripe for a class II bike lane along Corvina Avenue.

10. **Parking and access:** The proposed development will require two spaces for each 3- bedroom unit, plus one guest space per five spaces (28 spaces), two spaces for each 2-bedroom unit, plus one guest space per five units (343 spaces), and 1.5 spaces for each 1-bedroom unit, plus one guest space per five units (82 spaces), for a total of 453 spaces. However, the development exceeds the parking requirements and will have a total of 476 spaces (262 garaged and 214 open). The parking spaces provided comply with the City of Tulare Code of Ordinances § 10.192.040. During construction, workers will utilize on-site temporary construction staging and parking areas for parking of vehicles and equipment. The development will be accessed by two new commercial driveways; one located on Corvina Avenue and one located on Glass Avenue.

11. **Landscaping and Design**: All landscaping and design components will comply with the City of Tulare Code of Ordinances §8.24 for Subdivisions, and §10.36 for Multi-family Residential development. The landscape and design plans will be required at time the project submits for a building permit on the project and will also be subject to water efficient landscape ordinance (WELO).

12. **Utilities and Electrical Services:** The proposed project would be required to extend connections to the City's water and sewer systems. In addition, electrical service would be provided by Southern California Edison and natural gas service will be provided by The Southern California Gas Company.

13. **Project Components:** The discretionary approvals required from the City of Tulare for the proposed project include:

    - *City of Tulare Conditional Use Permit*
    - *City of Tulare Building and Encroachment Permits*

Acronyms

AFY	Acre-feet Per Year
APN	Assessor's Parcel Number
ARB	Air Resources Board
BMP	Best Management Practices
CAA	Clean Air Act
CARB	California Air Resources Board
CC	Community Commercial
CCR	California Code of Regulation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CWA	California Water Act
DHS	Department of Health Services
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
EV	Electric Vehicles
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FMBTA	Federal Migratory Bird Treaty Act
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IS/MND	Initial Study Mitigated Negative Declaration
ISR	Indirect Source Review
IT	Information Technology
LDR	Low Density Residential
LOS	Level of Service
MCL	Maximum Contaminant Level
MGD	Million Gallons a Day
MKJPA	Mid-Kaweah Joint Powers Authority
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MT	Metric Tons
NAC	Noise Abatement Criteria
NAAQS	National Ambient Air Quality Standards

NAHC	Native American Heritage Commission
NDIR	Non-Dispersive Infrared Photometry
NOD	Notice of Determination
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
OB/GYN	Obstetrics/Gynecology
OSHPD	Office of Statewide Health Planning and Development
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act of 1976
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SCH	State Clearinghouse
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Office
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO2	Sulfur Dioxide
SO_x	Sulfur Oxides
SPAL	Small Project Analysis Level
SWPPP	Storm Water Pollution Prevention Plan
TID	Tulare Irrigation District
UBSC	Uniform Building and Safety Code (UBSC)
USC	United States Code
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirements
WELO	Water Efficient Landscape Ordinance
WWTP	Wastewater Treatment Facility
WWTT	Wastewater Treatment Train

3.2 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "no Impact" answers that are adequately supported by the information sources a lead agency cites, in the parentheses following each question. A "No Impact" answer is adequately supported if the reference information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR if required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated." Describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

3.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DETERMINATION: (To be completed by the Lead Agency) Where potential impacts are anticipated to be significant, mitigation measures will be required, so that impacts may be avoided or reduced to insignificant levels.

On the basis of this initial evaluation:

☐ 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 project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPAT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact 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. A Negative Declaration 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 or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is requested.

	3-8-22
SIGNATURE	DATE
Steven Sopp, Senior Planner	City of Tulare
PRINTED NAME	Agency

3.4 ENVIRONMENTAL ANALYSIS

The following section provides an evaluation of the impact categories and questions contained in the checklist and identify mitigation measures, if applicable.

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 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) **<u>No Impact:</u>** A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. In the project vicinity the Sierra Nevada Mountains in the background is the primary scenic vista. Due to the distance between the project site and the Sierra Nevada Mountains, in conjunction with the poor air quality of the valley, the Sierra Nevada Mountains can rarely be seen from this location. The views to the mountains are prevalent along east-west transportation corridors. The proposed project would not impede these views or affect these corridors. For these reasons, this project would have *no impact* on scenic vistas.

b) **<u>No Impact:</u>** The site does not contain any rock outcropping or historic buildings, nor would it remove any trees. After review of the state route “scenic highways” in Tulare County, it was determined that there are no highways designated by State or local agencies as “Scenic highways” near the project site. Therefore, the proposed project would have *no impact* to any scenic resources.

c) **<u>Less Than Significant Impact:</u>** The proposed project site is surrounded by vacant lands, residential subdivisions, and commercial shopping areas; therefore, the City does not anticipate that the development of the proposed project will create a visually degraded character or quality to the project site or to the properties near and around the project site. Additionally, all of the development will be required to comply with the site plan review and design limitations required by the General Plan and the City's adopted design guidelines and zoning regulations which require setbacks, landscaping and designs to limit impacts to neighboring properties. Therefore, the proposed project would have a *less than significant impact* on the visual character of the area.

d) **<u>Less Than Significant Impact:</u>** The proposed project would not create a new source of light or glare so substantial that it would affect day or nighttime views in the area. Any proposed overhead or perimeter lighting would be designed using best practices to avoid spillover light to adjacent or nearby properties. The design and orientation of the proposed project lighting for this project would prevent substantial increases in light or glare in the vicinity of the project site. Therefore, the proposed project would have a *less than significant impact* with regard to existing day or nighttime views in the area of the project site.

II. AGRICULTURE AND FOREST RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California air Resources Board. - -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) **<u>No Impact:</u>** Agriculture is a vital component of the City of Tulare's economy and is a significant source of the City's cultural identity. As such, preserving the productivity of agricultural lands is integral to maintaining the City's culture and economic viability. The proposed project site is not under Williamson Act Contract. The California Department of

Conservation (DOC) applies the United States Department of Agriculture, National Resources Conservation Service soil classifications to identify agricultural lands. These designations are used in planning California's present and future agricultural land resources. Maps of important farmlands are prepared by the DOC as part of its Farmland Mapping and Monitoring Program (FMMP).

According to the DOC's 2016 FMMP, the project site is designated as Farmland of Local Importance. The site is within the City limits and is surrounded by urban uses and is not economically viable farmland. The City of Tulare General Plan designates the Project site for commercial uses (residential uses are a conditional use in a commercial zone) and as such, agricultural conversion impacts have been evaluated in the City's adopted General Plan EIR (SCH#2012071064).

The site has been graded and is not actively used for agricultural activities, has not been used for agricultural activities since 2006, and no agricultural uses occur on the adjacent properties. Therefore, the project would not conflict with existing zoning or agricultural use or a Williamson Act contract, nor would it convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. *No impact* would occur.

b) **No Impact:** The project site is located within Tulare city limits and is zoned for commercial land uses (residential land uses are conditional uses in commercial zones). The project site is not under Williamson Act contract and therefore would create *no impacts.*

c) **No Impact:** The project site is not zoned for forest land or timberland and there is no forest land or timberland zone change proposed for the site, therefore *no impacts* would occur.

d) **No Impact:** No conversion of forestland, as defined under Public Resource Code or General Code, will occur as a result of the project, and the proposed project would create *no impacts*.

e) **No Impact:** The site is within an urban area and the City's General Plan land use designation for the area is commercial. Surrounding land uses include residential and commercial uses. No land conversion from Farmland would occur for the Project. Therefore, the Project has *no impacts* to Farmland.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **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?	☐	☐	☑	☐

CLIMATE AND TOPOGRAPHY

The proposed project is located in California's San Joaquin Valley (SJV) and within the San Joaquin Valley Air Basin (SJVAB). The SJV's topography and meteorology provide ideal conditions for trapping air pollution for long periods of time and producing harmful levels of air pollutants, including ozone and particulate matter. Low precipitation levels, cloudless days, high temperatures, and light winds during the summer in the SJV are conducive to high ozone levels resulting from the photochemical reaction of nitrogen oxides (NOx) and volatile organic compounds (VOC). Inversion layers in the atmosphere during the winter can trap emissions of directly emitted PM2.5 (particulate matter that is 2.5 microns or less in diameter) and PM2.5 precursors (such as NOx and sulfur dioxide (SO2)) within the SJV for several days, accumulating to unhealthy levels.

The region also houses the State's major arteries for goods and people movement, I-5 to the west and CA Highway 99 through the Central Valley (Valley), thereby attracting a large volume of vehicular traffic. Another compounding factor is the region's historically high rate of population growth compared to other regions of California. Increased population typically results in an even greater increase in vehicle activity and more consumer product use, leading to increased emissions of air pollution, including NOx. In fact, mobile sources account for about 80% of the Valley's total NOx emissions inventory. Since NOx is a significant precursor for both ozone and PM2.5, reducing NOx from mobile sources is critical for progressing the Valley towards attainment of ozone and PM2.5 standards.

The geography of mountainous areas to the east, west and south, in combination with long summers and relatively short winters, contributes to local climate episodes that prevent the dispersion of pollutants. Transport, as affected by wind flows and inversions, also plays a role in the creation of air pollution.

REGULATORY ENVIRONMENT

Federal Clean Air Act - The 1977 Federal Clean Air Act (CAA) authorized the establishment of the National Ambient Air Quality Standards (NAAQS) and set deadlines for their attainment. The Clean Air Act identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to meet interim milestones. The U.S. EPA is the federal agency charged with administering the Act and other air quality-related legislation. EPA's principal function include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations.

California Clean Air Act - California Air Resources Board coordinates and oversees both state and federal air pollution control programs in California. As part of this responsibility, California Air Resources Board monitors existing air quality, establishes California Ambient Air Quality Standards, and limits allowable emissions from vehicular sources. Regulatory authority within established air basins is provided by air pollution control and management districts, which control stationary-source and most categories of area-source emissions and develop regional air quality plans. The project is located within the jurisdiction of the San Joaquin Valley Air Pollution Control District.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) CONSIDERATION

Regulatory requirements identify areas that are rare, unique, pristine, and classified as a Class I airshed. These airsheds are subject to specific standards, e.g. Prevention of Significant Deterioration requirements. Within the air district, the Kings Canyon and Sequoia National Parks, as well as the Ansel Adams, Kaiser, John Muir, and Domeland Wilderness Areas are Class I areas. These areas are in the Sierra Nevada Mountains to the east, and distant from the City of Tulare, as well as vertically distant from the Valley floor and the SJAB.

AIR QUALITY STANDARDS

The state and federal standards for the criteria pollutants are presented in (see Table 1). These standards are designed to protect public health and welfare. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soils, water, visibility, materials, vegetation and other aspects of general welfare. The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005, and the annual PM_{10} standard on September 21, 2006, when a new $PM_{2.5}$ 24-hour standard was established.

Air quality is described in terms of emissions rate and concentration of emissions. An emissions rate is the amount of pollutant released into the atmosphere by a given source over a specified time period. Emissions rates are generally expressed in units such as pounds per hour (1lbs/hr) or tons per year. Concentrations of emissions, on the other hand, represent the amount of pollutant in a given space at any time.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	**Method[4]**	**Primary[3,5]**	**Secondary[3,6]**	**Method[7]**
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet 8 Hour Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	20 µg/m^3		-		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	-	Gravimetric or Beta Attenuation	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Annual Analysis
	Annual Arithmetic Mean	12 µg/m^3		12 µg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		-		
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	-	Gas Phase Chemiluminescence
		0.030 ppm		53 ppb		

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
	Arithmetic Mean	(57 µg/m³)		(100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	-	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	-		-	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³		0.14 ppm (for certain areas)[9]	-	
	Annual Arithmetic Mean	-		0.030 ppm (for certain areas)[9]	-	
Lead[10,11]	30 Day Average	1.5 µg/m³	Atomic Absorption	-	-	High Volume Sampler and Atomic Absorption
	Calendar Quarter	-		1.5 µg/m³ (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-month Average	-		0.15 µg/m³		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standard		

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Flourescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm. 10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants. 11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved. 12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.						

Concentration is usually expressed in units such as micrograms per cubic meter, kilograms per metric ton, or parts per million. There are 4 primary sources of air pollution within the SJVAB: motor vehicles, stationary sources, agricultural activities, and construction activities.

Criteria air pollutants are classified in each air basin, county, or, in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with state and federal standards. If a pollutant concentration is lower than the standard, the pollutant is classified as "attainment" in that area. If an area exceeds the standard, the pollutant is classified as "non-attainment." If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

Air quality in the vicinity of the proposed project is regulated by several jurisdictions including the State and Federal Environmental Protection Agency (EPA), California Air Resources Board (CARB), and the San Joaquin Valley Air Pollution Control District (SJVAPCD). Each jurisdiction develops rules, regulations, policies, and/or goals to attain the directives imposed upon them through Federal and State legislation.

The Clean Air Act (CAA) of 1990 requires emission controls on factories, businesses, and automobiles by:

- Lowering the limits on hydrochloric acid and nitrogen oxides (NO_X) emissions, requiring the increased use of alternative-fuel cars, on-board canisters to capture vapors during refueling, and extending emission-control warranties.

- Reducing airborne toxins by requiring factories to install "maximum achievable control technology" and installing urban pollution control programs.

Reducing Acid rain production by cutting sulfur dioxide emissions for coal-burning power plants. In July of 1997, the EPA adopted a PM2.5 standard in recognition of increased concern over particulate matter 2.5 microns in diameter (PM2.5). Ending several years of litigation, EPA's PM2.5 regulations were upheld by the U.S. Supreme Court on February 27, 2001. According to information provided by the EPA, designations for the new PM2.5 standards began in the year 2002 with attainment plans submitted by 2005 for regions that violate the standard. In October 2006, EPA revised the PM2.5 standard to 35 µg/m3. The most recent revision to the PM2.5 standard was in 2012 when the EPA revised the annual PM2.5 standard to 12 µg/m3. The San Joaquin Valley was classified as a moderate nonattainment area for the 2012 PM2.5 standard effective April 15, 2015.

The following rules and regulations have been adopted by the Air District to reduce PM2.5 emissions from development projects throughout the San Joaquin Valley.

- Rule 4002 – National Emission Standards for Hazardous Air Pollutants due to existing structures located on the proposed site.

- Rule 4102 – Nuisance
  This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and be subject to district enforcement action.

- Rule 4601 – Architectural coatings. The purpose of this rule is to limit volatile organic compound (VOC) emissions from architectural coatings. Emission are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling

- Rule 4641- Cutback, slow cure, and emulsified asphalt, paving and maintenance operations. The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.

- Rule 9510 – Indirect Source Review (ISR). This rule reduces the impact of PM10 and NOX emissions from growth on the SJVAB. This rule places application and emission reduction requirements on applicable development projects in order to reduce emissions through onsite mitigation, offsite SJVAPCD-administered projects, or a combination of the two.

- Compliance with SJVAPCD Rule 9510 (ISR) reduces the emissions impact of the project through incorporation of onsite measures as well as payment of an offsite fee that funds emissions reduction projects in the SJVAB.

- Regulation VIII – fugitive PM10 Prohibitions Rules 8011 – 8081 are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track-out etc. Among the Regulation VIII Rules applicable to the project are the following:

- Rule 8011 – Fugitive Dust Administrative Requirements for Control of Fine Particulate Matter (PM10)

- Rule 8021 – Fugitive Dust Requirements for Control of fine Particulate Matter (PM10) from Construction, Excavation, and Extraction Activities

- Rule 8030 – Fugitive dust Requirements for Control of Fine Particulate Matter (PM10) from Handling and Storage of Fine Bulk Materials.

- Rule 8060 – Fugitive dust Requirements for Control of fine Particulate Matter (PM10) from Paved and Unpaved Roads.

AMBIENT AIR QUALITY

The District, the CARB, the U.S. National Park Service, and the Santa Rosa Rancheria in Lemoore operate an extensive air monitoring network to measure progress toward attainment of the NAAQS. Air quality monitoring networks are designed to monitor areas with: high population densities, areas with high pollutant concentrations, areas impacted by major pollutant sources, and areas representative of background concentrations. Some monitors are operated specifically for use in determining attainment status, while others are operated for other purposes, such as for generating daily air quality forecasts. In total, the District utilizes ozone and PM data from over 60 monitors operated at 29 sites in the Valley. The closest air monitoring site to the project site and the City of Tulare is the Visalia-Church St. site, located approximately eight miles to the northeast.

EXISTING EMISSIONS

The Project site is a vacant parcel, and as such is not a source of existing emissions. Dust from the site can, however, be blown during windy conditions.

SENSITIVE RECEPTORS

The Project site is surrounded by existing sensitive receptors in one direction. Existing multi-family residences are located east of the project site, along N. Hillman Street, and north of the existing commercial shopping area and Corvina Avenue. Large numbers of single-family residential homes are located further east, across N. Hillman. The Tulare Outlets mall lies approximately 0.4 miles south and southwest of the project site. Vacant lands zoned C-3 surround the site on all sides, with a vacant lot zoned RM4 also to the west.

SOURCES OF AIR POLLUTANTS IN PROJECT VICINITY

The Project site is surrounded by other vacant parcels, as well as existing residential and commercial development. There is no stationary source of substantial emissions in the immediate Project vicinity. Existing emissions consist of vehicle exhaust from nearby roadways and occasional emissions from home landscaping equipment. The Project site is also subject to particulate matter resulting from dust blowing from nearby vacant parcels.

TRANSPORTATION SYSTEM

Transportation access to and from the Project site is achieved primarily via local neighborhood streets, such as the proposed Glass Avenue, and Retherford Street and Corvina Avenue, which are minor arterials. There is also a bus stop for Route 4 (Northeast Tulare) of the Tulare InterModal Express (TIME) Tulare Transit line system located approximately 0.3 miles south of the project along Retherford Street, as well as an additional stop 0.4-miles south along Leland Avenue across from the Tulare Outlets mall.

DISCUSSION:

a) **__Less Than Significant Impact:__** The proposed project is located within the boundaries of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is responsible for bringing air quality in the City of Tulare into compliance with federal and state air quality standards. The air district has Particulate Matter (PM) plans, Ozone Plans, and Carbon Monoxide Plans that serve as the clean air plans for the basin. Together, these plans quantify the required emission reductions to meet federal and state air quality standards and provide strategies to meet these standards.

Construction Phase. Project construction would generate pollution emissions from the following construction activities: site preparation, grading, building construction, grading, trenching, and application of architectural coatings. The construction related emissions from these activities were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The full CalEEMod Modeling output sheets can be found in Appendix A. As demonstrated in Table 2 below, project construction related emissions do not exceed the thresholds established by the SJVAPCD.

Table 2: Estimated Project Construction Emissions in Tons Per Year

	CO	ROG	SO_x	NO_x	PM10	PM2.5
Maximum Annual Emissions Generated from Project Construction	2.68	2.11	0.01	2.40	0.29	0.16
SJVAPCD Air Quality Thresholds of Significance	100	10	27	10	15	15
*Threshold established by SJVAPCD for SO_x, however emissions are reported as SO2 by CalEEMod.						

Source: SJVAPCD, CalEEMod (Appendix A)

Operation Phase. Implementation of the proposed project would result in long-term emissions associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, as well as mobile emissions. Operational emissions from these factors were calculated using CalEEMod. The full CalEEMod Modeling output sheets can be found in Appendix A. As shown in Table 3 below, project operational emissions do not exceed the SJVAPCD thresholds of significance. Because construction and operational emissions would not exceed SJVAPCD thresholds of significance, the proposed project would have *less than significant impacts*.

Table 3: Estimated Project Operational Emissions in Tons Per Year

	CO	ROG	SO_x	NO_x	PM10	PM2.5
Total Annual Emissions Generated from Project Operations	6.57	1.60	0.03	4.72	1.68	0.48
SJVAPCD Air Quality	100	10	27	10	15	15

	CO	ROG	SO_x	NO_x	PM10	PM2.5
Thresholds of Significance						
*Threshold established by SJVAPCD for SO_x, however emissions are reported as SO2 by CalEEMod.						

Source: SJVAPCD, CalEEMod (Appendix A)

b) **<u>Less Than Significant Impact:</u>** The SJVAPCD accounts for cumulative impacts to air quality in Section 1.8 "Thresholds of Significance – Cumulative Impacts" in its 2015 Guide for Assessing and Mitigating Air Quality Impacts. The SJVAPCD considered basin-wide cumulative impacts to air quality when developing its significance thresholds. Construction emissions and potential toxic air contaminants are relatively insignificant due to their temporary nature and limited quantities as a result of this project. Furthermore, construction emissions can be mitigated with implementation of standard required air district construction control measures. During project operation, annual emissions of criteria pollutants would not exceed SJVAPCD thresholds of significance, a and the proposed project is a multi-family residential development, which is not considered a source of substantial toxic air contaminants. Therefore, impacts regarding cumulative emissions would be *less than significant*.

c) **<u>Less Than Significant Impact:</u>** The nearest sensitive receptors to the Project site would be the existing residences located approximately 95 feet away to the east. However, while pollution concentrations will temporarily increase during Project construction, emissions resulting from construction activities will remain below the thresholds of significance established by the SJVAPCD. During operations, project annual emissions would not exceed significance thresholds established by SJVAPCD. Therefore, impacts would be mitigated to *less than significant*.

d) **<u>Less Than Significant Impact</u>:** The project would create temporary typical construction odors during the construction phase. Since any odors from project construction would be temporary and common to any construction activity, and the project operations would not create objectionable odors, impacts would be *less than significant*.

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 & Game 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, regulations or by the California Department of Fish and Game 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 native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☑	☐	☐
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 Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Federal Endangered Species Act (FESA**)** - defines an *endangered species* as "any species or subspecies that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712): FMBTA prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the

Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Although the United States Fish & Wildlife Service (USFWS) and its parent administration, the U.S. Department of the Interior, have traditionally interpreted the FMBTA as prohibiting incidental as well as intentional "take" of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the FMBTA. However, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

Birds of Prey (CA Fish and Game Code Section 3503.5): Birds of prey are protected in California under provisions of the Fish and Game Code (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

California Endangered Species Act (CESA) – prohibits the take of any state-listed threatened and endangered species. CESA defines *take* as "any action or attempt to hunt, pursue, catch, capture, or kill any listed species." If the proposed project results in a take of a listed species, a permit pursuant to Section 2080 of CESA is required from the CDFW.
The Project site is situated within a combination of vacant land and suburban development. The project site is surrounded by Retherford Street and vacant land further to the west, vacant land to the north, an apartment complex, commercial shopping area, and Corvina Avenue to the east, and vacant land to the south.

The Project site itself is a vacant parcel, currently containing minimal vegetation and some rock debris. The Project site is uniformly disked and levelled, except for a square-shaped raised area in the center, a fenced retention pond in the northeast corner, and another fenced retention pond in the southeast corner. Both retention ponds are dry. The Project site supported fields that had been under agricultural production from at least 1985 to 2005 but have been fallow and routinely disked since 2006. The Project site is underlain by Nord fine sandy loam, 0 to 2 percent slopes. The Project site is at an elevation of 282–298 feet above mean sea level.

A Biological Resource Evaluation was performed on behalf of the proposed Project. A USFWS species list for the Project was obtained as a framework for the evaluation and reconnaissance survey (USFWS 2021a, Appendix A). In addition, the California Natural Diversity Data Base (CDFW 2021, Appendix B) and the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2021, Appendix C) were searched for records of special-status plant and animal species from the vicinity of the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Tulare 7.5-minute United States Geological Survey (USGS) topographic quadrangle, which encompasses the Project site, and the eight surrounding quadrangles (Goshen, Visalia, Exeter, Paige, Cairns Corner, Taylor Weir, Tipton, and Woodville). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies or public interest groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. Aerial imagery from Google Earth (Google 2021) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2021), the National Wetlands Inventory (USFWS 2021b), and relevant literature was also reviewed. See Appendix C for references.

A field reconnaissance survey of the Project site was conducted on 6 September 2021. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the area to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of nesting special-status raptors. The 0.5-mile buffer was surveyed by driving public roads and identifying the presence of large trees or other potentially suitable substrates for nesting raptors as well as open areas that could provide foraging habitat. The main survey area, including the Project site and surrounding 50- foot buffer, was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the Wetlands Delineation Manual and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa) and under the Porter-Cologne Water Quality Control Act. All plants except those planted for cultivation or landscaping and all animals (vertebrate wildlife species) observed in the survey area were identified and documented.

DISCUSSION:

a) **Less Than Significant Impact with Mitigation:** The USFWS species list for the Project included 10 species listed as threatened or endangered under the FESA. Of those 10 species, none are expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence. As identified in the species list, the Project site does not occur in USFWS-designated or proposed critical habitat for any species. See Appendix C for full list.

Searching the CNPS Inventory of Rare and Endangered Plants of California yielded 12 taxa, 11 of which have a CRPR of 1B and one of which has a CRPR of 2B. None of those species are expected to occur on or near the Project site due to the lack of habitat. See Appendix B for full list.

Searching the CNDDB for records of special-status species from the Tulare 7.5-minute USGS topographic quadrangle and the eight surrounding quadrangles produced 123 records of 34 species. Of those 34 species, four were not considered further because state or federal regulatory agencies or public interest groups do not recognize them through special designation. Of the remaining 30 species, six are known from within 5 miles of the Project site. Of those six species, five are not expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, (3) their absence during the reconnaissance survey, or (4) a combination thereof. See Appendix C for full list. The remaining species, Swainson's hawk (*Buteo swainsoni*), could occur on or near the Project site.

There are two CNDDB records, from 1994 and 2016, of Swainson's hawk from within 5 miles of the Project site. The fallow fields of the Project site provide potential foraging habitat for Swainson's hawk, and several potential nest trees were observed within 0.5 miles of the Project site. However, the mostly dense urban surroundings minimize the potential use of the Project site for foraging by Swainson's hawk. Therefore, the potential for this species to occur is low. Mitigation measure incorporation will ensure that potential impacts on Swainson's hawk remain *less than significant.*

Mitigation Measures:

BIO1 - Protect nesting Swainson's hawks.

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.

2. If it is not possible to schedule construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SWTAC 2000, Appendix D). These methods require six surveys, three in each of the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site.

3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

b) **No Impact:** As identified in the City's General Plan EIR, the project site in not located within or adjacent to an identified sensitive riparian habitat or other natural community. Therefore, the proposed project would have *no impact* to riparian habitat.

c) **<u>Less Than Significant Impact:</u>** Two potentially jurisdictional features, both fenced retention ponds, are within the Project site. No impacts to these features are anticipated. Neither of these features are identified in the National Wetlands Inventory (USFWS 2021b) but may be regulated by the SWRCB. If impacts to these two features are unavoidable, further delineation of their boundaries and consultation with the SWRCB may be required. However, the City's General Plan EIR does not identify known wetlands located in or around the Project site. The project will have a *less than significant impact* on federal or state protected wetlands.

d) **<u>Less Than Significant Impact with Mitigation:</u>** As identified in the City's General Plan EIR, there are no identified migratory corridors on or near the site. However, Migratory birds could nest on or near the Project site. Bird species that may nest on or near the property include, but are not limited to, mourning dove (*Zenaida macroura*) and northern mockingbird (*Mimus polyglottos*). Therefore, the proposed project would have a *less than significant impact* with mitigation incorporation.

Mitigation Measures:

BIO3 – Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.

2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

e) **<u>No Impact:</u>** The City of Tulare has an oak tree preservation policy according to Tulare Municipal Code 8.52.100 (Preservation of Heritage Trees). The Project site is devoid of any trees, including oak trees. Therefore, there would be *no impacts*.

f) **<u>No Impact:</u>** There are no local or regional habitat conservation plans encompassing the Project site and *no impacts* would occur.

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 an archaeological resource pursuant to Section 15064.5?	☐	☑	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☑	☐	☐

DISCUSSION:

a) **Less Than Significant Impact with Mitigation Incorporated:** Table 4.5-1 in the City's General Plan EIR lists previously recorded historical resources within the City, however none of those resources are located in the vicinity of the proposed project site. A records search conducted at the South San Joaquin Valley Information Center (see Appendix C) indicated that there are no recorded cultural resources within the Project area and it is unknown if any exist. The project site is an infill development, previous grading activities on-site have not uncovered any historical resources. There would be no excavation in undisturbed soils or in areas with known historical resources. However, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of cultural resources during excavation would be *less than significant with mitigation incorporated*.

Mitigation Measure CUL-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any potential significant impacts.

b) **Less Than Significant Impact with Mitigation Incorporated:** There are no known archaeological resources located within the Project area. Implementation of Mitigation Measure CUL-1 will ensure that potential impacts will be *less than significant with mitigation incorporated*.

c) **<u>Less Than Significant Impact with Mitigation Incorporated:</u>** There are no known human remains buried in the project vicinity and the soils in the project area have been previously disturbed. No excavation in undisturbed soils is proposed, however if human remains are unearthed during development, there is a potential for a significant impact. As such, implementation of Mitigation Measure CUL-2 would ensure that impacts remain *less than significant with mitigation incorporated*.

Mitigation Measure CUL-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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) **Less Than Significant Impact:** While construction of the proposed project will result in additional energy consumption, this energy use is not unnecessary or inefficient. During project construction there would be an increase in energy consumption related to worker trips and operation of construction equipment. This energy use would be limited to the greatest extent possible through compliance with local, state, and federal regulations. Once construction is complete, the project is expected to achieve net zero energy consumption. The proposed project is subject to the California New Residential Zero Net Energy Action Plan 2015-2020. This plan establishes a goal for all residential buildings built after January 1, 2020 to be zero net energy. The California Energy Commission is responsible for the development and enforcement of specific strategies to achieve this goal. These strategies are implemented through Title 24, Part 6 of the California Building Code, which requires developers to include certain measures (including solar panels on all new residential buildings) to achieve required building efficiency standards.

Since the proposed project will comply with all energy efficiency standards required under Title 24, Section 6, and these standards were specifically developed to achieve net zero energy for residential projects, it can be presumed that the project will achieve net zero energy. Therefore, project impacts related to energy consumption would be considered less than significant.

b) **No Impact:** The proposed project will not conflict with or obstruct any state or local plans for renewable energy or energy efficiency. The project will be designed to meet Title 24 and CALGreen requirements. Compliance with these standards will be enforced by the City of Tulare Building Division. There would be no impact.

VII. GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	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 or 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- 1-B 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 waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑	☐

Discussion:

a-i and ii) **Less Than Significant Impact:** According to the state Regulatory Earthquake maps, no active faults underlay the project site, nor are any active faults located in the surrounding project vicinity. Although the project is located in an area of low seismic activity, the project could be affected by ground shaking from nearby faults. The nearest fault is the Pond fault, located approximately 39 miles south of the Project site. The potential for strong seismic ground shaking on the project site is not a significant environmental concern due to the infrequent seismic activity of the area and distance to the faults. Furthermore, the proposed project would not expose people to seismic ground shaking beyond the conditions that currently exist throughout the project area. The project would be constructed to the standards of the most recent seismic Uniform Building and Safety Code (UBSC). Compliance with these design standards will ensure potential impacts related to strong seismic ground shaking would be *less than significant.*

a-iii) **Less Than Significant Impact:** Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like behavior of the soil. The 2017 Tulare Multi-Jurisdictional Local Hazard Mitigation Plan identifies the risk of liquefaction within the county as low because the soil types in the area are either too coarse or too high in clay content to be suitable for liquefaction. According to the US Department of Agriculture Natural Resources Conservation Service Soil Map, the project site consists of Nord fine sandy loam and does not contain soils suitable for liquefaction. The impact would be *less than significant*.

a-iv) **No Impact:** The project site is generally flat and previously disturbed. There are no hill slopes in the area and no potential for landslides. No geologic landforms exist on or near the site that would result in a landslide event. There would be *no impact.*

b) **Less Than Significant Impact:** Because the project site is relatively flat, the potential for erosion is low. However, construction-related activities and increased impermeable surfaces can increase the probability for erosion to occur. Construction-related impacts to erosion will be temporary and subject to best management practices (BMPs) required by stormwater pollution prevention plans (SWPPP), which are developed to prevent significant impacts related to erosion from construction. Because impacts related to erosion would be temporary and limited to construction and required best management practices would prevent significant impacts related to erosion, the impact will remain *less than significant*.

c) **Less Than Significant Impact:** Substantial grade change would not occur in the topography to the point where the project would expose people or structures to potential adverse effects on-, or off-site, such as landslides, lateral spreading, subsidence, liquefaction or collapse. The impact would be *less than significant*.

d) **No Impact:** Expansive soils contain large amounts of clay, which absorb water and cause the soil to increase in volume. Conversely, the soils associated with the proposed project site are granular, well-draining, and therefore have a limited ability to absorb water or exhibit expansive behavior. Nevertheless, the project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of expansive soils. Therefore, there would be *no impact*.

e) **<u>No Impact</u>:** The proposed project will have access to existing City wastewater infrastructure and would not require the use of septic tanks or alternative wastewater disposal systems. There is *no impact*.

f) **<u>Less Than Significant Impact:</u>** According to a database search of the UC Museum of Paleontology, there are no known paleontological resources located within the Project area and no excavation proposed in undisturbed soils, particularly to a depth with a potential to unearth paleontological resources. Additionally, mitigation measure CUL1 has been added that will protect unknown (buried) resources during construction, including paleontological resources. Potential impacts would be *less than significant*.

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 gases?	☐	☐	☐	☑

Climate Change - (also referred to as Global Climate change) is sometimes used to refer to all forms of climatic inconsistency, but because the earth's climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, climate change has been used synonymously with the term "global warming." Scientists however, tend to use the term in the wider sense to address uneven patterns of predicted global warming and cooling and include natural changes in climate.

Global Warming - refers to an increase in the near surface temperature of the earth. Global warming has occurred in the distant past as the result of natural influences, but the term is commonly used to refer to the warming predicted to occur because of increased emissions of greenhouse gases. Scientists generally agree that the earth's surface has warmed by about 1^{o} F in the past 140 years, but warming is not predicted evenly around the globe. Due to predicted changes in the ocean currents, some places that are currently moderated by warm ocean currents are predicted to fall into deep freeze as the pattern changes.

Greenhouse Effect - is the warming of the earth's atmosphere attributed to a buildup of carbon dioxide (CO_2) or other gases; some scientists think that this build-up allows the sun's rays to heat the earth, while making the infrared radiation atmosphere opaque to infrared radiation, thereby preventing a counterbalancing loss of heat.

Greenhouse Gases - are those that absorb infrared radiation in the atmosphere. GHG include water vapor, CO_2, methane, nitrous oxide (N_2O), halogenated fluorocarbons, ozone, per fluorinated carbons (PFCs), and hydroflurocarbons.

The effect of greenhouse gasses on earth's temperature is equivalent to the way a greenhouse retains heat. Some gases are more effective than others. The Global Warming Potential (GWP) has been calculated for each greenhouse gas to reflect how long it remains in the atmosphere, on average, and how strongly it absorbs energy. Gases with a higher GWP absorb more energy, per pound, than gases with a lower GWP, and thus contribute more to global warming. For example, one pound of methane is equivalent to twenty-one pounds of carbon dioxide. GHGs as defined by AB 32 are summarized in Table 4.

Table 4: Effect of GHGs on Climate Change

Greenhouse Gas	Description and Physical Properties	Lifetime	GWP	Sources
Methane (CH_4)	Is a flammable gas and is the main component of natural gas	12 years	21	Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
Carbon dioxide (CO_2)	An odorless, colorless, natural greenhouse gas	30-95 years	1	Enters the atmosphere through burning fossil fuels (coal, natural gas and oil), solid waste, trees, and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
Chloro-fluorocarbons	Gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are non-toxic nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	55-140 years	3,800 to 8,100	Were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone.
Hydro-fluorocarbons	A man-made greenhouse gas. It was developed to replace ozone-depleting gases found in a variety of appliances. Composed of a group of greenhouse	14 years	140 to 11,700	Powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for

	gases containing carbon, chlorine, and at least one hydrogen atom.			stratospheric ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases.
Nitrous oxide (N_2O)	Commonly known as laughing gas, is a chemical compound with the formula N_2O. It is an oxide of nitrogen. At room temperature, it is a colorless, non-flammable gas, with a slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effects.	120 years	310	Emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
Pre-fluorocarbons	Has a stable molecular structure and only breaks down by ultraviolet rays about 60 kilometers above Earth's surface.	50,000 years	6,500 to 9,200	Two main sources of pre-fluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	An inorganic, odorless, colorless, and nontoxic nonflammable gas.	3,200 years	23,900	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing and as a tracer gas.

Source: EPA, Intergovernmental Panel on Climate Change.

GHGs as defined by AB 32 include the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Each gas's effect on climate change depends on three main factors. The first being the quantity of these gases are in the atmosphere, followed by how long they stay in the atmosphere, and finally how strongly they impact global temperatures.

In regards to the quantity of these gases are in the atmosphere, we first must establish the amount of particular gas in the air, known as Concentration, or abundance, which are measured in parts per million, parts per billion and even parts per trillion. To put these measurements in more relatable terms, one part per million is equivalent to one drop of water diluted into about 13 gallons of water, roughly a full tank of gas in a compact car. Therefore, it can be assumed larger emission of greenhouse gases lead to a higher concentration in the atmosphere.

Each of the designated gases described above can reside in the atmosphere for different amounts of time, ranging from a few years to thousands of years. All of these gases remain in the atmosphere long enough to become well mixed, meaning that the amount that is measured in the atmosphere is roughly the same all over the world regardless of the source of the emission.

DISCUSSION:

a) **Less Than Significant Impact:** Emissions of 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. A project's GHG emissions are at a micro-scale relative to global emissions, but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. Implementation of the proposed project would 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 CO2 and other GHG pollutants, such as methane (CH4) and nitrous oxide (N_2O), from mobile sources and utility usage.

The proposed project's short-term construction-related and long-term operational GHG emissions were estimated using CalEEMod Version 2016.3.2. See Appendix A of this IS-MND for complete CalEEMod inputs and results. CalEEMod is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify GHG emissions from land use projects. The model quantifies direct GHG emissions from construction and operation (including vehicle use), as well as indirect GHG emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Emissions are expressed in annual metric tons of CO_2 equivalent units of measure (i.e., $MTCO_2e$), based on the global warming potential of the individual pollutants.

Short-Term Construction GHG Emissions: Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 5. As presented in the table, the total short-term construction emissions of GHG associated with the Project are estimated to be approximately 522.35 metric tons (MT) of CO_2e. This represents a low of approximately 97 and a high of 520 MT of CO_2e emitted during each of the construction years (2021 through 2023). These construction GHG emissions are a one-time release and are comparatively much lower than emissions associated with operational phases of a project. Cumulatively, these construction emissions would not generate a significant contribution to global climate change, as they would not continue to occur into the future.

Table 5: Estimated Project Construction GHG Emissions (Unmitigated Metric Tons Per Year)

	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
2021	0.00	144.30	144.30	0.04	0.00	145.37
2022	0.00	520.31	520.30	0.08	0.00	522.35
2023	0.00	96.61	96.61	0.02	0.00	97.05
Total	**0.00**	**520.31**	**520.31**	**0.08**	**0.00**	**522.35**

Source: SJVAPCD, CalEEMod (Appendix A)

Long-Term Operational GHG Emissions: Implementation of the proposed project would result in long-term greenhouse gas emissions associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, as well as mobile emissions.

The U.S. Environmental Protection Agency (EPA) published a rule for the mandatory reporting of greenhouse gases (GHG) from sources that in general emit 25,000 MT or more of CO_2e per year. Project GHG emissions were calculated using CalEEMod (emissions output results found in Appendix A) based on development of 216 multi-family dwelling units and a 4,750 square foot clubhouse located on approximately 14.67 acres. The proposed project is estimated to produce 2,787 MT of CO_2e per year, which is well below the 25,000 MT threshold for GHG emissions.

Therefore, because the GHG emissions related to construction and operation of the proposed project are below accepted thresholds of significance, the potential impacts are considered *less than significant*.

b) **<u>No Impact:</u>** The proposed project would comply with all federal, state, and local rules pertaining to the regulation of greenhouse gas emissions. In addition, the project would implement Best Performance Standards developed by the SJVAPCD. Projects implementing Best Performance Standards are determined to have a less than significant impact on global climate change. The project would not conflict with any plan, policy, or regulation developed to reduce GHG emissions. There would be *no impact*.

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 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 a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☑

DISCUSSION:

a) **<u>Less Than Significant Impact:</u>** Project construction activities may involve the use and transport of hazardous materials. The use of such materials would be considered minimal and would not require these materials to be stored in bulk form. The project is a residential subdivision and does not involve the use or storage of hazardous substances other than the small amounts of pesticides, fertilizers, and cleaning agents required for normal maintenance of structures and landscaping. The project must adhere to applicable zoning and fire regulations regarding the use and storage of any hazardous substances. Further, there is no evidence that the site has been used for underground storage of hazardous materials. Therefore, the proposed project will have *less than significant impacts* to hazardous materials.

b) **Less Than Significant Impact:** The proposed project is a residential subdivision. There is no reasonably foreseeable condition or incident involving the project that could result in release of hazardous materials into the environment, other than any potential accidental releases of standard fuels, solvents, or chemicals encountered during typical construction of a residential subdivision. Should an accidental hazardous release occur or should the project encounter hazardous soils, existing regulations for handling hazardous materials require coordination with the California Department of Toxic Substances Control for an appropriate plan of action, which can include studies or testing to determine the nature and extent of contamination, as well as handling and proper disposal. Therefore, potential impacts are considered to be *less than significant impacts.*

c) **Less Than Significant Impact:** No schools are located within 0.25 mile of the Project site. This condition precludes the possibility of activities associated with the proposed Project exposing schools within a 0.25-mile radius of the project site to hazardous materials. The project does not involve the use or storage of hazardous substances other than small amounts of pesticides, fertilizers, and cleaning agents required for normal maintenance of structures and landscaping. Mission Valley Elementary School is located approximately 0.5 miles to the east of the site. The project would not emit hazardous emissions or involve the handling of acutely hazardous materials or waste. Therefore, impacts would be *less than significant*.

d) **No Impact:** The project site is not listed as a hazardous materials site pursuant to Government Code Section 65962.5 and is not included on a list compiled by the Department of Toxic Substances Control (DTSC). A review of the Envirostor database search tool confirmed the absence of the Project site or its surroundings being listed as a hazardous materials site. The Project site supported fields that had been under agricultural production from at least 1985 to 2005 but have been fallow and routinely disked since 2006, according to the Biological Resource Evaluation performed on behalf of the proposed Project (See Appendix C). Therefore, there would be *no impact*.

e) **No Impact:** The proposed project site is not located within the boundary of an airport land use plan and is not within two miles of a public airport or public use airport. Mefford Field Airport is located approximately five miles south of the project site and Visalia Municipal Airport is located approximately 6.1 miles northwest of the project site. Therefore, there is *no impact*.

f) **No Impact:** The proposed project does not include any characteristics (e.g., permanent road closures) that would physically impair or otherwise interfere with emergency response or evacuation in the project vicinity. Therefore, the proposed project would have *no impact* on emergency evacuation.

g) **<u>No Impact</u>:** The land surrounding the project site is developed with suburban residential and commercial uses, as well as vacant sites, not considered to be wildlands. Additionally, the 2017 Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan finds that fire hazards within the City of Tulare, including the proposed project site, have low frequency, limited extent, limited magnitude, and low significance. The proposed project would not expose people or structures to significant risk of loss, injury or death involving wildland fires and there is *no impact*.

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) **Less Than Significant with Mitigation Incorporated:** The project will result in less than significant impacts to water quality due to potentially polluted runoff generated during construction activities. Construction would include excavation, grading, and other earthwork that may occur across most of the 14.67-acre project site. During storm events, exposed construction areas across the project site may cause runoff to carry pollutants, such as chemicals, oils, sediment, and debris. In addition, possible soil erosion will require implementation of a Stormwater Pollution Prevention Plan (SWPPP) for the project. A SWPPP identifies all potential sources of pollution that could affect stormwater discharges from the project site and identifies best management practices (BMPs) related to stormwater runoff. There may be chemicals or surfactants used during project maintenance or operations, so discharge could impact water quality standards. Therefore, the impacts are *less than significant with mitigation incorporated*.

Mitigation Measure HYD-1: Prior to the issuance of any construction/grading permit and/or the commencement of any clearing, grading, or excavation, the Applicant shall submit a Notice of Intent (NOI) for discharge from the Project site to the California SWRCB Storm Water Permit Unit.

- Prior to issuance of grading permits the Applicant shall submit a copy of the NOI to the City.

- The City shall review noticing documentation prior to approval of the grading permit. City monitoring staff will inspect the site during construction for compliance.

Mitigation Measure HYD-2: The Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the City 45 days prior to the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. A SWPPP for site construction shall be developed prior to the initiation of grading and implemented for all construction activity on the Project site in excess of one (1) acre, or where the area of disturbance is less than one acre but is part of the Project's plan of development that in total disturbs one or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to storm water and shall include specific BMPs to control the discharge of material from the site. The following BMP methods shall include, but would not be limited to:

- Dust control measures will be implemented to ensure success of all onsite activities to control fugitive dust;

- A routine monitoring plan will be implemented to ensure success of all onsite erosion and sedimentation control measures;

- Provisional detention basins, straw bales, erosion control blankets, mulching, silt fencing, sand bagging, and soil stabilizers will be used;

- Soil stockpiles and graded slopes will be covered after two weeks of inactivity and 24 hours prior to and during extreme weather conditions; and,

- BMPs will be strictly followed to prevent spills and discharges of pollutants onsite, such as material storage, trash disposal, construction entrances, etc.

b) **<u>Less Than Significant Impact:</u>** The 14.67-acre Project site is currently a vacant site, zoned for retail commercial use. Water services would be provided by the City of Tulare upon development. The City's water supply is comprised entirely of groundwater pumped by wells located throughout the City. During construction, water will be brought on to the site by water trucks, and the demand for water will be limited and temporary during construction activities for the proposed development.

The proposed project is within City limits and would not require annexation or acquisition of additional water rights. The Project site has been accounted for retail commercial uses within the City's General Plan EIR (2013) and the City's Urban Water Management Plan (2021). The proposed project would involve a Conditional Use Permit to develop a residential use in a commercial zone. It is therefore relevant to compare the water demand of the proposed project to the expected water demand if the site had been developed for commercial use.

The projected water demand for the proposed project and the baseline underlying retail commercial use water demand assumption are both based on the City's standard water demand factors, which were applied in the city's Water System Master Plan (2009) to calculate projected water demands summarized in Table 3.7 of the Water System Master Plan. The projected water demand for the proposed project and the underlying retail commercial use designation of the site are both shown in Table 6.

Table 6: Projected Water Demand for the Retherford-Corvina Apartments Project vs Baseline Assumption

Land Use Type	Units	Quantity	Water Demand Factor(A)	Average Day Demand, GPD	Annual Water Demand, AFY(B)
High Density Residential (proposed project)	Acres	14.67	4,000 gpd/AC(c)	58,680	65.77
Community Commercial	Acres	14.67	1,300 gpd/AC(c)	19,071	21.38
Note: (A) Water Demand Factors are Provided from Table 3.8 of the City of Tulare Water System Master Plan, July 2009. (B) AFY=Acre-feet Per Year (C) GPD/AC = Gallons Per Day Per Acre					

Source: City of Tulare Water System Master Plan, 2009.

As shown in Table 6, the total projected annual water demand for the proposed project would be 65.77 AFY. The proposed development is consistent with the High-Density Residential land use category based on the project's density, and therefore, the High-

Density Residential demand coefficient (4,000 gpd/acre) has been utilized to calculate the projected annual and daily water demand for the Project. The proposed project would therefore result in a net increase in water demand of 40.39 AFY. Although the proposed project would result in a net increase in water demand over projected demand of the existing retail commercial baseline use, the increase is well within the projected water demand accounted for in the city's Urban Water Management Plan (2021) projecting sufficient water supplies for development within the city limits as well as within the city's urban development boundary.

The Project would result in a reduction in percolation to the groundwater basin, because the project would create an increase in the amount of paved and impervious surfaces. However, the project has been reviewed by the City of Tulare Public Works Director and Engineer who have determined that the Project will not have a significant impact on the existing water system, and would tie into the existing water infrastructure for this part of the City.

Therefore, since the proposed project would not *substantially* decrease water supplies or interfere with groundwater recharge, the Project would have a *less than significant impact* on groundwater resources.

c) **<u>Less Than Significant with Mitigation Incorporated:</u>**

(i) The proposed project includes the construction and operation of 216 residential units on approximately 14.67 acres. The construction of these units may be considered an alteration in drainage patterns, however this would not result in substantial erosion or siltation on- or off-site. A Stormwater Pollution Prevention Plan (SWPPP) will be implemented during project construction. SWPPPs include mandated erosion control measures, which are developed to prevent significant impacts related to erosion caused by runoff during construction. The impact is *less than significant.*

(ii) Since the project would result in an increase of impervious surfaces within the project site, an increase in surface runoff may occur. However, the project has been reviewed by the city's engineers who have determined that the implementation of the proposed project will not result in substantial flooding on- or-off site. As such, the potential for flooding on or off-site as a result of the project is considered a *less than significant impact*.

(iii) The proposed project would include the construction and operation of 216 residential units on approximately 14.67-acres of land which is currently vacant. Existing maintenance operations of the vacant property consist of plowing of the soil. These activities have a potential to contribute to polluted runoff, however most of the existing runoff is naturally cleaned through soil percolation. Urban residential uses would change the quality and volume of runoff with the addition of oil, grease, and other urban pollutants. New impervious surfaces, such as the roads and driveways, collect automobile derived pollutants such as oils, greases, rubber and heavy metals. During storms, pollutants would be transported into the drainage systems by surface runoff. Due to the increase in population and impervious surfaces within the site, there would be an increase in pollutants in surface runoff. As a result, an increase in point source and non-point source pollution may result from increases in urban development. The project is not a source which would otherwise create substantial degradation of water quality. Upon compliance with the City's SWMP, Engineering Standards, General Plan, and City Ordinance requirements, as well as Mitigation Measure HYD-3, impacts related to water quality would be *less than significant with mitigation incorporation*.

Mitigation Measure HYD-3: A Development Maintenance Manual for the Project shall include comprehensive procedures for maintenance and operations of any stormwater facilities to ensure long-term operation and maintenance of post-construction stormwater controls. The maintenance manual shall require that stormwater BMP devices be inspected, cleaned and maintained in accordance with the manufacturer's maintenance conditions. The manual shall require that devices be cleaned prior to the onset of the rainy season (i.e., mid-October) and immediately after the end of the rainy season (i.e., mid-May). The manual shall also require that all devices be checked after major storm events. The Development Maintenance Manual shall include the following:

- Runoff shall be directed away from trash and loading dock areas;
- Bins shall be lined or otherwise constructed to reduce leaking of liquid wastes;
- Trash and loading dock areas shall be screened or walled to minimize offsite transport of trash; and,
- Impervious berms, trench catch basin, drop inlets, or overflow containment structures nearby docks and trash areas shall be installed to minimize the potential for leaks, spills or wash down water to enter the drainage system.

(iv) The Project site is generally flat and no significant grading or leveling will be required. The proposed project site is not in proximity to a stream or river and will not alter the course of a stream or river. According to National Flood Hazard mapping by the Federal Emergency Management Agency, the site is not within a 100-year flood hazard zone or any other Areas of Flood Hazard. There would be *no impact* in regard to impeding or redirecting flood flows.

d) **No Impact:** The proposed project is located inland and not near an ocean or large body of water, or dam, and therefore, would not be affected by a tsunami or seiche. The proposed project is located in a relatively flat area and would not be impacted by inundation related to mudflow. Therefore, the proposed project would have *no impact* due to seiche, tsunami, or mudflow.

e) **No Impact:** The proposed project will not conflict with or obstruct implementation of a water quality control plan. The proposed project will be subject to the requirements of the NPDES Stormwater Program and will be required to comply with a SWPPP which will identify all potential sources of pollution that could affect stormwater discharges from the project site and identify Best Management Practices (BMPs) related to stormwater runoff for the project to use.

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) **No Impact:** The project proposes the development of 216 residential units on approximately 14.67 acres within the City of Tulare on vacant land that is designated for retail commercial development in the City's latest General Plan. The project site is surrounded on most sides by existing suburban residential development and vacant land; the proposed project would not physically divide an established community. There is *no impact*.

b) **No Impact:** Residential uses are permitted in the retail commercial zone with approval of a Conditional Use Permit, which the project applicant is applying for. The proposed project does not conflict with any applicable land use plan, policy, or regulation, adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, there would be *no impact*.

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 lands use plan?	☐	☐	☐	☑

DISCUSSION:

a,b) **No Impact:** There are no known mineral resources of value to the region and the project site is not designated under the City's General Plan as an important mineral resource recovery site. Therefore, the proposed project would not result in the loss or impede the mining of regionally or locally important mineral resources. There is *no impact*.

XIII. NOISE

Would the project:	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 ground-borne vibration or ground-borne 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 public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Environmental Setting

Noise is often described as unwanted or excessive sound. Sound is a variation in air pressure that the human ear can detect. This pressure is measured within the human hearing range as decibels on the A scale (dBA). The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz). If the pressure variations occur at least 20 times per second, they can be detected by the human ear. As the pressure of sound waves increases, the sound appears louder and the dBA level increases logarithmically. A noise level of 120 dB represents a million fold increases in sound pressure above the 0 dB level.

Regulatory Setting

The Noise Element of the City of Tulare General Plan is responsible for establishing noise standards within the City and includes the following goals and policies related to noise that may be applicable to the project.

<u>Goal NOI-1: Protect the citizens of Tulare County from the harmful effects of exposure to excessive noise.</u>

- **NOI-P1.5 Construction Noise**. Reduce noise associated with construction activities by requiring properly maintained mufflers on construction vehicles, requiring the placement of stationary construction equipment as far as possible from developed areas, and requiring temporary acoustical barriers/shielding to minimize construction noise impacts at adjacent receptors. Special attention should be paid to noise-sensitive receptors (including residential, hospital, school, and religious land uses).

- **NOI-P1.6 Limiting Construction Activities.** The City shall limit construction activities to the hours of 6 am to 10 pm, Monday through Saturday.
- **NOI-P1.18 Construction-related Vibration.** Evaluate individual projects that use vibration-intensive construction activities, such as pile drivers, jack hammers, and vibratory rollers, near sensitive receptors for potential vibration impacts. If construction-related vibration is determined to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, should be implemented during construction (e.g., drilled piles to eliminate use of vibration-intensive pile driver).

DISCUSSION:

a) **<u>Less Than Significant Impact:</u>** Project construction is anticipated to last several months and will involve temporary noise sources. The average noise levels generated by construction equipment that will be used in the proposed project are shown below in Table 7.

<u>Table 7: Noise Levels of Noise-Generating Construction Equipment.</u>

Type of Equipment	dBA (A-weighted decibel) at 50 feet
Air Compressors	81
Excavators	81
Concrete/Industrial Saws	76
Cranes	83
Forklifts	75
Generators	81
Pavers	89
Rollers	74
Dozers	85
Tractors	84
Loaders	85
Backhoes	80
Graders	85
Scrapers	89
Welders	74

Source: Federal Highway Administration Construction Noise Handbook.

The City of Tulare General Plan and Noise Ordinance does not identify noise thresholds for noise sources related to construction, however the General Plan does require the implementation of noise reduction measures for all construction equipment and limits noise generating activities related to construction to daytime hours Monday through Saturday. The project will comply with these regulations and construction will only occur Monday through Saturday between the hours of 6:00 a.m. and 10:00 p.m.

Long term noise levels resulting from the project would include high-density residential homes, which are not normally associated with high operational noise levels. There would be additional vehicle trips that would generate noise on local roadways as well. However, these noise levels would be intermittent and short term, and would be considered *less than significant*.

b) **Less Than Significant Impact:** Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 8, below, shows the typical vibration levels produced by construction equipment.

Table 8: Vibration Levels for Various Construction Equipment

Type of Equipment	Peak Particle Velocity @ 25 feet (inches/second)	Peak Particle Velocity @ 100 feet (inches/second)
Large Bulldozer	0.089	0.011
Loaded Trucks	0.076	0.010
Pile Driving (Impact)	1.518	0.190
Pile Driving (Sonic)	0.734	0.092
Small Bulldozer	0.003	0.000
Auger/drill Rigs	0.089	0.011
Jackhammer	0.035	0.004
Vibratory Hammer	0.070	0.009
Vibratory Compactor/roller	0.210	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2017

The primary vibration-generating activities associated with the proposed project would occur when the infrastructure such as grading, utilities, and foundations are constructed. Operating cycles for the types of construction equipment used during construction may involve one or two minutes of full power operation followed by three or four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These estimations of noise levels take into account the distance to the receptor, attenuation from molecular absorption and anomalous excess attenuation.

The most significant source of groundborne vibrations during the project's construction would occur from the use of vibratory compactors. Table 8, above, indicates that vibratory compactors would generate typical vibration levels of 0.210 inches per second at a distance of 25 feet. The threshold for architectural damage to buildings is 0.20 inches per second. The closest residential buildings to the project site are located east of the project site at a distance of approximately 95 feet. Table 8 data indicates vibratory compactors would not generate vibration levels exceeding safe levels at these distances; therefore, this would be considered a *less than significant impact*.

c) **<u>No Impact</u>:** The project site is not located in an airport land use plan. Mefford Field is the nearest public airport and is located approximately five miles away from the proposed project site. Therefore, there would be *no impact*.

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 new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☑	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

DISCUSSION:

a) **<u>Less Than Significant Impact:</u>** The United States Census Bureau estimated the population in the City of Tulare to be 65,496. The project proposes to construct 216 residential units. The City of Tulare General Plan states that the City's average household size is 3.35 persons. Based on this average household size, the anticipated population increase as a result of the proposed project is 724 persons. This would be a 1.1% population increase beyond existing conditions.

The Project site is currently designated for retail commercial development, so residential development would result in a net population increase at this site. Although implementation of the proposed project would result in a population increase, this increase is not entirely unplanned. The City of Tulare General Plan states that the City expects to witness an additional 42,020 residents during the General Plan's planning horizon at an average annual growth rate of 2.7 percent. The project would be consistent with the City's planned population growth projections and would not induce substantial unplanned population growth. Therefore, there *impacts would be less than significant.*

b) **<u>No Impact:</u>** The proposed project would be developed on vacant land within the City limits. There are no existing residences that would be removed and no individuals would be displaced because of the project. Therefore, there would be *no impact*.

XV. PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact

a) 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:				
a. Fire protection?	☐	☐	☑	☐
b. Police protection?	☐	☐	☑	☐
c. Schools?	☐	☐	☑	☐
d. Parks?	☐	☐	☑	☐
e. Other public facilities?	☐	☐	☑	☐

DISCUSSION:

a. **<u>Less Than Significant Impact:</u>** The City of Tulare Fire Department already provides fire protection services to the project site and will provide services for the proposed development. The closest fire station is Tulare Fire Department Station 61, located at 800 S. Blackstone Street, approximately 2.4 miles south from the project site. The addition of 216 residential units will increase the demand for fire protection services. However, as analyzed in the City's General Plan EIR, the need for new fire service facilities is assessed as the City continues to grow and develop within the growth boundary in the City's latest General Plan. The development of 216 residential units alone will not require the alteration of existing or construction of new fire services facilities, but would contribute to the cumulative need for increased fire protection services. The increase in service demand will be compensated by the development impact fee of $382 per dwelling unit. Therefore, the total development fee would be $82,512. The development impact fee of $382 per dwelling unit is the proposed project's fair share contribution towards cumulative increases in demand for fire protection services.

The timing of when new fire service facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As new or expanded fire service facilities become necessary, construction or expansion projects would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, impacts resulting from the proposed project would be *less than significant.*

b. **<u>Less Than Significant Impact:</u>** The City of Tulare Police Department already provides police protection services to the project site and will provide services for the proposed development. The Tulare Police Department is located at 260 South M Street, approximately 2 miles southwest from the project site. The addition of 216 residential units will increase the demand for police protection services. However, as analyzed in the

City's General Plan EIR, the need for new police service facilities is assessed as the City continues to grow and develop within the growth boundary in the City's latest General Plan. The development of 216 residential units alone will not require the alteration of existing or construction of new police service facilities, but would contribute to the cumulative need for increased police protection services. The increase in service demand will be compensated by the development impact fee of $156 per dwelling unit. Therefore, the total development fee would be $33,696. The development impact fee of $156 per dwelling unit is the proposed project's fair share contribution towards cumulative increases in demand for police protection services.

The timing of when new police service facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As new or expanded police service facilities become necessary, construction or expansion projects would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, impacts resulting from the proposed project would be *less than significant*.

c. **<u>Less Than Significant Impact:</u>** The proposed project is within the Tulare City School District and Tulare Joint Union High School District. Students from the development would be able to attend neighboring schools, including Cherry Avenue Middle School, Mission Valley Elementary School, Garden School and Live Oak Middle School. Since the proposed project includes the addition of 216 residential units, the number of students in the school district will increase. Development is required by state law to pay development impact fees to the school districts at the time of building permit issuance. These impact fees are used by the school districts to maintain existing and develop new facilities, as needed.

While development of 216 residential units alone will not require the alteration of existing or construction of new school facilities, the development will contribute to the cumulative need for increased school facilities. The timing of when new school facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As the future new school facilities are further planned and developed, they would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, the *impact is less than significant*.

d. **<u>Less Than Significant Impact:</u>** The proposed Project includes the development of 216 multi-family residential units. The City of Tulare Municipal Code section 10.36 states that the development will be required to install a children's play yard with play equipment on-site which would help offset the demand at parks within a one-mile radius (Del Lago Park and the facilities provided by nearby schools). The City's 2035 General Plan Policy states that new residential development may be required to provide additional parkland or in-lieu fees. Policy COS P4.6 of the City of Tulare General Plan states, "the City shall continue its practice of requiring the dedication of community and neighborhood park lands as a condition of approval for large residential development projects (50 or more lots)." The proposed development consists of a 216-unit multi-family residential development.

Policy COS-P4.7 states, "the City shall allow the payment of fees in lieu of parkland dedication." The increase in service demand on park facilities will be compensated by the payment of development impact fees for park facilities. The development will be required to pay $2,095 per dwelling unit for parks facilities. Therefore, the total development fee would be $452,520. The development impact fee of $2,095 is the project's fair share contribution towards cumulative increases in demand on park facilities. As such, potential impacts are less than significant.

e. **<u>Less Than Significant Impact:</u>** Water and wastewater services for the proposed development would be provided by existing infrastructure beneath neighboring streets. The proposed project would increase the demand for water and wastewater service. However, according to Tulare's 2035 General Plan Land Use Element, new development must be responsible for expanding existing water and sewage systems. Therefore, the project applicant shall pay the required development impact fees to accommodate the expansion of existing systems. The increase in service demand on water infrastructure will be compensated by the development impact fee of $2,614 per dwelling unit. Therefore, the total development fee would be $564,624. The development impact fee of $2,614 per dwelling unit is the proposed project's fair share contribution towards cumulative increases in demand for water infrastructure.

   The increase in service demand on wastewater infrastructure will be compensated by the development impact fee of $1,637 per dwelling unit. Therefore, the total development fee would be $353,592. The development impact fee of $1,637 per dwelling unit is the proposed project's fair share contribution towards cumulative increases in demand for wastewater infrastructure. Therefore, the impact on other public facilities would be *less than significant*.

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?	☐	☐	☑	☐

City of Tulare General Plan: The Conservation and Open Space Element of the City of Tulare General
Plan contains the following recreational resource goals and policies potentially applicable to the project.

Goal COS-4 To provide parks and recreation facilities and services that adequately meet the existing and future needs of all Tulare residents.

- **COS-P4.1 Parkland/Open Space Standards**. The City's goal is to provide 4 acres of developed parkland per 1,000 residents. New residential or mixed-use developments containing a residential component may be required to provide parkland, or pay in-lieu fees, in this ratio as directed by the City.

- **COS-P4.5 Fair Share Responsibilities**. The City shall ensure all future residential development is responsible for its fair share of the City's cumulative park and recreational service and facilities maintenance needs.

- **COS-P4.6 Land Dedication**. The City shall continue its practice of requiring the dedication of community and neighborhood park lands as a condition of approval for large residential
development projects (50 or more lots), if applicable.

- **COS-P4.7 Fees In Lieu of Parkland Dedication**. The City shall allow the payment of fees in lieu of parkland dedication, especially in areas where dedication is not feasible, as provided under the Quimby Act.

DISCUSSION:

a) **<u>Less Than Significant Impact:</u>** Implementation of the proposed project would result in increased use of existing parks and other recreational facilities; however, the project would be required to install a children's play area with play equipment and pay its fair share fees in-lieu of parkland dedication, which will be used to support the maintenance of existing parks and other recreational facilities. The impact is *less than significant*.

b) **<u>Less Than Significant Impact:</u>** There are no public recreational facilities associated with the project. Because the project involves residential development, the project would be required to pay fees in-lieu of parkland dedication, which will be used to support the maintenance of existing parks and other recreational facilities. The project also includes the installation of a children's play yard with play equipment and potential impacts resulting from the play yard is the subject of this document. Therefore, the impact is *less than significant.*

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) Would the project 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?	☐	☐	☑	☐

Environmental Setting

Vehicular Access: The development will be accessed by two new commercial driveways; one located on Corvina Avenue and one located on Glass Avenue. The project will include the completion of the full-width build-out of Glass Avenue. The City of Tulare is the primary authority for major arterial and local streets.

Parking: During construction, workers will utilize existing facility parking areas and/or temporary construction staging areas for parking of vehicles and equipment. During project operations, there will be no permanent personnel on-site and no additional parking facilities will be required. The proposed development will require two spaces for each 3- bedroom unit, plus one guest space per five spaces (28 spaces), two spaces for each 2-bedroom unit, plus one guest space per five units (343 spaces), and 1.5 spaces for each 1-bedroom unit, plus one guest space per five units (82 spaces), for a total of 453 spaces. However, the development exceeds the parking requirements and will have a total of 476 spaces (262 garaged and 214 open).

Pedestrian and Cyclist Connectivity: The project will install sidewalks along the east end of Corvina Avenue. These features will provide connectivity for pedestrians within the project area and offsite, connecting to existing adjacent sidewalks.

Regulatory Setting

City of Tulare Improvement Standards: The City of Tulare's Improvement Standards are developed and enforced by the City of Tulare's Engineering Division to guide the development and maintenance of City roads. The cross-section drawings contained in the City Improvement Standards dictate the development of roads within the City.

Tulare City General Plan: The Transportation and Circulation Element of the City of Tulare General Plan addresses various transportation issues, including automobile travel and parking, transit, pedestrian and bicycle travel, goods movement, and air transportation. The following policies are relevant to the proposed project.

- **TR-P2.3 Level of Service Standard.** The City shall maintain Level of Service "D," as defined in the Highway Capacity Manual (published by the Transportation Research Board of the National Research Council), as the minimum desirable service level at which freeways, arterial streets, collector streets, and their intersections should operate.
- **TR-P2.27 Orientation of Subdivision Away from Arterials.** The City shall require residential development to be oriented away (side-on or rear-on) from major arterials and arterials, and properly buffered from these roadway types to preserve the carrying capacity on the street and protect the residential environment. No single-family residence driveways are allowed on collector streets.
- **TR-P5.2 Adequate Parking throughout City.** The City shall ensure that adequate and convenient parking is provided in all residential neighborhoods, and industrial, office, and commercial areas.
- **TR-P6.2 Provision of Sidewalks for new Development.** The City shall require all new development to provide sidewalks or other suitable pedestrian facilities. Whenever feasible, pedestrian paths should be developed to allow for unobstructed pedestrian flow to major destinations such as bus stops, schools, parks, and shopping centers.

DISCUSSION:

a) **No Impact:** The project consists of the construction of 216 residential units, as well as on-site circulation and related frontage improvements. The proposed frontage improvements would include installation of sidewalks, which would be an improvement to pedestrian accessibility over existing conditions.

Additionally, the Traffic Impact Study (TIS) performed on behalf of the project indicates that none of the study intersections fall below acceptable levels of service through the year 2042, and none of the study roadway segments fall below acceptable levels of service through the year 2042. Results of the queuing analysis show that two turning movements (southbound left and westbound left) at the intersection of Corvina Avenue and Hillman Street exceed the existing queue lane storage lengths. It is impracticable to lengthen the southbound left turn storage pocket given the adjacent northbound left turn pocket that gives access to the commercial development at the northwest corner of the intersection. The existing storage pocket length at the westbound left approach is 125 feet as noted in Table 3-3 in the TIS. The projected 95th percentile queue at the westbound approach is 135 feet in the Cumulative Year 2042 scenario, which is just 10 feet beyond the existing storage length. Given the insignificant increase in storage, lengthening the westbound storage pocket is not recommended.

All improvements, including those related to roadway and pedestrian facilities, are subject to City review and approval to ensure compliance with all plans, ordinances, and policies related to circulation. The proposed project will not conflict with the City's circulation plan and standards. *Therefore, there is no impact.*

b) **Less Than Significant Impact:** VMT analysis was conducted using the City of Tulare's Process and Thresholds for Assessing Vehicle Miles Traveled for Development dated June 26, 2020. The project is located on the east side of Retherford Street north of Corvina Avenue. It is in the southwest quadrant of the area bounded by Cartmill Avenue, Hillman Street, Corvina Avenue, and Retherford Street. Based on Figure 1 of the City's VMT analysis guidelines, the project site is in a low VMT area compared to the regional average, with an average trip length of 9.08 miles. Since it is in a low VMT area, with VMT at least 15 percent below the regional average, the project generated VMT is presumed to be a *less than significant* impact under CEQA and no further detailed VMT analysis is necessary.

c) **No Impact:** No geometric design feature associated with the project would pose a hazard to the public and there would be no incompatible uses. There would be *no impact*.

d) **Less Than Significant Impact:** Site access is via Glass Ave. and Corvina Street and that access would be in compliance with City standards. A network of local roads within the proposed project property provides full access onto and off of the project site. As such, this project would not result in inadequate emergency access. Any impacts related to emergency access would be *less than significant.*

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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:				
i) 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), or	☐	☐	☐	☑

ii) 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, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☑	☐	☐

DISCUSSION:

a)

(i) **No Impact:** The proposed project is located on a site that has been previously disturbed and most recently used for row crop agriculture. The Project site is within the limits of the City of Tulare and is not 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). Therefore, there is *no impact*.

(ii) **Less Than Significant with Mitigation Incorporated:** The proposed project site has been previously disturbed during agricultural cultivation of the property. The project site has no record of listing it in any register of historical resources, and is located entirely within the City of Tulare limits.

A Sacred Lands File search has been conducted multiple times recently by the Native American Heritage Commission on behalf of the City of Tulare for the Tulare quadrangle. No tribal cultural resources were identified through the Sacred Lands File searches conducted by the Native American Heritage Commission.

The City of Tulare as lead agency has not determined there to be any known tribal cultural resources located within the project area. Additionally, there are not believed to be any human remains buried within the project area's vicinity. However, if resources were found to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resources to a California Native American Tribe.

The Santa Rosa Rancheria Tachi-Yokut Tribe contacted the City on January 20, 2022 and requested that a cultural survey be conducted and to provide a cultural presentation for all construction staff prior to earth-moving activities, which is included in Mitigation Measures TCR-4 and 5, respectively. Implementation of Mitigation Measures TCR-1, TCR -2, TCR -3 and TCR -4 will ensure that any impacts resulting from unanticipated discoveries due to project implementation remain *less than significant with mitigation incorporation*.

Mitigation Measure TCR-1: If cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (NPS 1983) shall be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation and Native American consultation may be warranted to mitigate any adverse effects.

Mitigation Measure TCR-2: The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Mitigation Measure TCR-3: Upon coordination with the Tulare County Resource Management Agency, any archaeological artifacts recovered shall be donated to an appropriate Tribal custodian or a qualified scientific institution where they would be afforded long-term preservation. Documentation for the work shall be provided in accordance with applicable cultural resource laws and guidelines.

Mitigation Measure TCR-4: A cultural resources survey shall be performed on-site by a qualified archaeologist prior to earth-moving activities.

Mitigation Measure TCR-5: The Santa Rosa Rancheria Tachi-Yokut Tribe shall be retained by the Project Applicant prior to earth-moving activities to give a cultural presentation for all construction staff.

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?	☐	☐	☐	☑

Environmental Setting

According to the Tulare Municipal Service Review (2013), the City would be able to provide the necessary infrastructure services and utility systems required for new development. Utilities and service systems include wastewater treatment, storm water drainage facilities, water supply, landfill capacity, and solid waste disposal.

Wastewater: Wastewater will be collected and treated at the City's wastewater treatment facility, which is located at the intersection of Paige Ave. and West St.

Solid Waste: Solid waste collection service is provided by the City of Tulare Solid Waste Division. Solid waste disposal will be provided by the Tulare County Solid Waste Department, which operates two landfills and six transfer stations within the county. Combined, these landfills receive approximately 300,000 tons of solid waste per day.

Water: Water for the proposed development will be provided by the City of Tulare. The City's primary water source is groundwater. Existing water entitlements currently provide water to the proposed project site. Implementation of the proposed project will not require additional water entitlements.

Storm Drainage: Storm water is also disposed and detained in storm drainage detention and retention basins throughout the City. Tulare actively improves its storm drainage system to accommodate new urban development.

Regulatory Setting

CalRecycle: California Code of Regulations, Title 14, Natural Resources – Division 7 contains all current CalRecycle regulations regarding nonhazardous waste management in the state. These regulations include standards for the handling of solid waste, standards for the handling of compostable materials, design standards for disposal facilities, and disposal standards for specific types of waste.

Central Valley RWQCB: The Central Valley RWQCB requires a Stormwater Pollution Prevention Plan
(SWPPP) for projects disturbing more than one acre of total land area. Because the project is greater than one acre, a SWPPP to manage stormwater generated during project construction will be required.

The Central Valley RWQCB regulates Wastewater Discharges to Land by establishing thresholds for discharged pollutants and implementing monitoring programs to evaluate program compliance. This program regulates approximately 1500 dischargers in the region.

The Central Valley RWQCB is also responsible for implementing the federal program, the National Pollutant Discharge Elimination System (NPDES). The NPDES Program is the federal permitting program that regulates discharges of pollutants to surface waters of the U.S. Under this program, a NPDES permit is required to discharge pollutants into Waters of the U.S. There are 350 permitted facilities within the Central Valley Region.

DISCUSSION:

a) **Less Than Significant Impact:** The proposed project will require connection to existing utility services that are currently provided within Retherford Street and Corvina Avenue, adjacent to the project site. This is not anticipated to cause a significant environmental effect because the required connection would occur within the existing right-of-way.

The City's wastewater treatment facility (WWTF) has two wastewater treatment trains, domestic and industrial WWTT. Both operate in accordance to the Central Valley Regional Water Quality Control Board *Waste Discharge Requirements (WDR) Order NO. R5-2002-0186*. The City's Municipal Service Review (2013) indicates that Tulare's WWTF is at sufficient capacity to accommodate new development, including the proposed residential subdivision, which would tie into existing City sewage lines in the project vicinity. Based on calculations from the City of Tulare Sewer System Master Plan Table 3.7, a total of 41,076 gallons per day (gpd) of wastewater is estimated to be generated by the proposed project. This equates to approximately 0.041 million gallons per day (mgd). The Tulare Water Pollution Control Facility (TWPCF) has an estimated capacity of 6.0 mgd. The proposed project would contribute approximately 0.68% of the total remaining capacity of the TWPCF. Furthermore, the proposed project site was analyzed for service to be provided in the City's Sewer System Master Plan and development here has been accounted for in this document.

The proposed project would increase the amount of paved and impervious surface coverage, contributing to additional stormwater runoff. Site design will incorporate appropriate drainage to existing stormwater basins and infrastructure. Water, electric, natural gas, and telecommunications infrastructure would also be installed as part of the project and tie into the existing systems surrounding the property. The extension of utility infrastructure onto the project site is not anticipated to cause a significant environmental effect because utilities exists within the existing right-of-way and will only require connection to the project site. The construction of these facilities has been planned as part of the various utility system master plans in the City, as well as in the City's General Plana and General Plan EIR. Therefore, the impact would be *less than significant*.

b) **<u>Less Than Significant Impact:</u>** The City's urban water supply is comprised entirely of groundwater pumped from the underground aquifer by wells located throughout the City. Future water demand has been planned for through the City's General Plan and Urban Water Management Plan for growth within the city limits. Water will be brought in using water trucks during construction. After construction, operation of the residential subdivision would generate demand for water that would not exceed the City's water supply sources, and the project would tie into the existing water lines adjacent to the property.

The projected water demand for the proposed project is based on the City's standard water demand factors, which were applied in the City's Water System Master Plan to calculate projected water demands summarized in Table 3.7 of the Water System Master Plan (2009). The projected water demand for the proposed project is shown in Table 9.

As shown in the table, the total projected annual water demand for the proposed Project is 65.77 AFY. The proposed use is consistent with the High-Density Residential land use and therefore, the High-Density Residential demand coefficient (4,000 gpd/acre) has been utilized to calculate the projected annual and daily water demand for the Project. The City continues to examine supply enhancement options, including surface water supply, urban recycled water use, etc., and additional supplies from Tulare Irrigation District (TID).

Table 9: Projected Water Demand for the Retherford-Corvina Apartments Project

Land Use Type	Units	Quantity	Water Demand Factor$^{(A)}$	Average Day Demand, GPD	Annual Water Demand, AFY$^{(B)}$
High Density Residential	Acres	14.67	4,000 gpd/AC$^{(c)}$	58,680	65.77
Note: (A) Water Demand Factors are Provided from Table 3.8 of the City of Tulare Water System Master Plan, July 2009. (B) AFY=Acre-feet Per Year (C) GPD/AC = Gallons Per Day Per Acre					

Source: City of Tulare Water System Master Plan, 2009.

A comparison of the City's projected water supply and demand is shown in Table 10 for Normal, Single-Dry, and Multiple-Dry Years. The water supply and demand projections are based on the City's projected drought supply conditions as described in the City's 2015 UWMP. The supply-demand comparison in Table 10 indicates that the City will have sufficient water to meet its customers' needs through 2040. Current and ongoing management of these supplies is achieved through both voluntary and state-mandated consumption conservation efforts, and the Sustainable Groundwater Management Act (SGMA). The City has adopted outdoor water use conservation strategies as outlined in the UWMP and Chapter 7.32 of the Tulare Municipal Code.

Tulare General Plan Policy LU-P11.5 requires developers to assure that there is sufficient available water supply to meet projected demand for all new development. The proposed Project is planned to be consistent with the 2015 UWMP, which demonstrates adequate water supply to serve development in the City. Additionally, Tulare General Plan Policy LU-P11.3 requires all new development to be responsible for expansion of existing facilities, such as water systems, made necessary to serve the new development.

As described above, the proposed project would be expected to generate an annual water demand of 65.77 AFY. The City of Tulare 2015 UWMP describes that the City would have available water supply for normal year, single-year, and multi-dry year scenarios. The proposed project would generate an annual water demand that would be well within the limits of water demand, as described in the UWMP.

However, as noted previously, the Kaweah Sub basin is one of many in the San Joaquin Valley that is critically over-drafted. The City has developed strategies to assure that this source of supply remains available and viable in future years. For example, the City maintains the Water Conservation Ordinance to eliminate waste of water and will continue to periodically drill new supply wells in the future. Additionally, the City has joined the City of Visalia and the Tulare Irrigation District (TID) to form the Mid-Kaweah Joint Powers Authority (MKJPA) in an attempt to create a coordinated plan for the Sub basin. The City has also invested significantly in detention basins to increase their recharge capacity.

Table 10: Actual and Projected Water Supply (2020-2040)

Water Supply Source	2020	2025	2030	2035	2040
	RAV[1]	RAV[1]	RAV[1]	RAV[1]	RAV[1]
Groundwater	5,519	6,255	6,421	6,910	7,436
Surface Water	--	--	--	--	--
Recycled Water	4,236	4,299	4,364	4,429	4,496
Total	9,755	10,554	10,785	11,339	11,932
Notes: Unit of measurement is million gallons [1] RAV=Reasonably Available Volume					

Source: City of Tulare Urban Water Management Plan, Table 6-9, 2021.

The project would change uses on the site from vacant land to 216 residential units, and would result in a reduction in percolation to the groundwater basin, because the project would create an increase in the amount of paved and impervious surfaces. However, this impact would be greatly reduced by directing stormwater flows to appropriate stormwater basins nearby. The Project has been reviewed by the City of Tulare Engineer who has determined that the Project will not have a significant impact on the existing water system, and would tie in to the existing water infrastructure for this part of the City. Therefore, the Project would have a *less than significant impact* on groundwater resources.

c) **Less Than Significant Impact:** The City of Tulare's existing sewer pipes and lines extend along the proposed project site's frontage within Retherford Street and Corvina Avenue. The project will be required to extend sewer laterals to connect to the existing sewer infrastructure. The wastewater generated from the proposed development would not exceed the City's wastewater treatment facility of 6.0 MGD, and would not require the construction of new or expansion of existing facilities to treat wastewater. The impact would *be less than significant*.

d) **Less Than Significant Impact:** The proposed project is a residential project. Based on CalRecycle waste generation estimates, the proposed project is estimated to generate up to 12.23 pounds of solid waste per household feet per day. The proposed project would include the development of 216 residential units on a 14.67-acre site. Based on the generation estimate rate of 12.23 pounds of solid waste per household per day, the project would generate a maximum of 2,641.68 pounds per day or 1.32 tons per day. The project would be required to comply with state and local requirements including those pertaining to solid waste, construction waste diversion, and recycling. For example, a minimum of 50% diversion of construction waste materials is required to be diverted from landfills. The City of Tulare disposes of its solid waste at the Visalia and Teapot Dome landfills within the County. These landfills have sufficient permitted capacity to accommodate the project's solid waste disposal needs. Any impacts would be *less than significant*.

e) **No Impact:** During construction, all solid waste generated by the project would be disposed of at the Visalia landfill or the Teapot Dome landfill. These facilities conform to all applicable statutes and regulations related to solid waste disposal. The proposed project would comply with the adopted policies related to solid waste, including recycling. Therefore, the proposed project would have *no impact* with regard to solid waste regulations.

XX. WILDFIRE

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
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, b, c, d) **No Impact:** The proposed project site is not within or near a state responsibility area or area classified as very high fire hazard severity zone. The proposed project would not impair an adopted emergency response plan or evacuation plan. The proposed project site would not exacerbate wildfire risks, and expose occupants to pollutant concentrations from wildfire. The proposed project would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk. The proposed project site is generally flat and is not near any streams or waterways and would not 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. Therefore, there would be *no impacts* related to wildfire.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	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) **<u>Less Than Significant Impact with Mitigation Incorporated</u>:** This Initial Study/ Mitigated Negative Declaration found the project would not have the potential to degrade the quality of the environment or have significant adverse impacts to fish, wildlife, or plant species, including special status species, and would not reduce the number or restrict the range of a rare or endangered plant or animal species. There are no known historical resources located within the project area and the soils in the project area have been previously disturbed and were most recently disturbed in the cultivation of agricultural row crops. There would be no excavation in undisturbed soils or in areas with known historical resources. However, the presence of remains or unanticipated cultural resources under the ground surface is possible. Implementation of Mitigation Measure CUL-1 would ensure that impacts due to discovery of cultural resources during excavation would be *less than significant with mitigation incorporated*.

b) **<u>Less Than Significant Impact with Mitigation Incorporated</u>:** CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the project and consistency with environmental policies and regulations, contributions to impacts are considered less than cumulatively considerable. The proposed project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increased need for housing, increase in traffic, air pollutants, etc). Impacts would be *less than significant with mitigation incorporated*.

c) **Less Than Significant Impact:** The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have a substantial impact on human beings, either directly or indirectly. All potential impacts of the project have been found to be *less than significant*.

SECTION 4:
Supporting Information and Sources

1) *Tulare General Plan, Land Use Element (2014)*
2) *City of Tulare Zoning Ordinance*
3) *Final Program EIR Land Use and Circulation Element Update (SCH 89062606)*
4) *SJVAPCD Regulations and Guidelines*
5) *Tulare General Plan, Housing Element (April 2016)*
6) *Tulare General Plan Seismic-Safety Element*
7) *Tulare County Seismic Element, Volume I and II*
8) FEMA National *Flood Hazard Layers & Mapping Tool*
9) *Tulare General Plan, Circulation Element*
10) *Tulare General Plan, Noise Element*
11) *City of Tulare Sewer Systems Master Plan (July 1991)*
12) *City of Tulare Sewer Systems Master Plan (2009)*
13) *Engineering Standards, City of Tulare*
14) *City of Tulare's Municipal Code*
15) *Tulare Heritage Tree Ordinance*
16) *Tulare County Environmental Resources Management Element*
17) *Source Reduction and Recycling Element*
18) *City of Tulare Urban Water Management Plan (2015)*
19) *City of Tulare Water System Master Plan) (2008)*
20) *City of Tulare Emergency Response Plan*
21) *Tulare Municipal Airport-Mefford Field Master Plan, (February 2005)*
22) *Tulare County Airport Land Use Compatibility Plan*
23) *California Air Resources Board's (CARB's) Air Quality and Land Use Handbook*
24) *2019 California Environmental Quality Act CEQA Guidelines*
25) *The Five County Seismic Safety Element*
26) *California Building Code*
27) *California Stormwater Pollution Prevention Program (SWPPP)*
28) *Government Code Section 65962.5*
29) *California Environmental Protection Agency (CEPA)*
30) *California Department of Conservation*
31) *Tulare County Multi-Jurisdictional Local Hazard Mitigation Plan (2017)*
32) *California Natural Diversity Database Search Tool*
33) *Natural Resource Conservation Service SoilWeb Tool*

City of Tulare

Planning and Building Department
411 East Kern Avenue
Tulare, CA 93274

SECTON 5
List of Preparers

Project Title: Retherford-Corvina Apartments Project

City of Tulare

Steven Sopp, Senior Planner

Mario A. Anaya, Principal Planner

Crawford & Bowen Planning

Emily Bowen, Principal Planner

Appendix A

California Emissions Estimator Model (CalEEMod) Input and Output Sheets for the Retherford-Corvina Apartments Project

Retherford-Corvina Apartments
San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	216.00	Dwelling Unit	14.50	216,000.00	685
Health Club	4.50	1000sqft	0.10	4,500.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.7 **Precipitation Freq (Days)** 45

Climate Zone 7 **Operational Year** 2023

Utility Company

CO2 Intensity (lb/MWhr) 0 **CH4 Intensity (lb/MWhr)** 0 **N2O Intensity (lb/MWhr)** 0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - site is on approximately 14.5 acres of land

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	5.68	14.50
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1212	1.2552	0.8413	1.6400e-003	0.2276	0.0575	0.2851	0.1055	0.0531	0.1586	0.0000	144.2959	144.2959	0.0428	0.0000	145.3656
2022	0.3048	2.4024	2.6770	5.8800e-003	0.1839	0.1071	0.2910	0.0494	0.1008	0.1501	0.0000	520.3128	520.3128	0.0817	0.0000	522.3540
2023	2.1111	0.4154	0.5351	1.0900e-003	0.0291	0.0186	0.0477	7.8100e-003	0.0174	0.0253	0.0000	96.6143	96.6143	0.0176	0.0000	97.0548
Maximum	**2.1111**	**2.4024**	**2.6770**	**5.8800e-003**	**0.2276**	**0.1071**	**0.2910**	**0.1055**	**0.1008**	**0.1586**	**0.0000**	**520.3128**	**520.3128**	**0.0817**	**0.0000**	**522.3540**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1212	1.2552	0.8413	1.6400e-003	0.2276	0.0575	0.2851	0.1055	0.0531	0.1586	0.0000	144.2958	144.2958	0.0428	0.0000	145.3654
2022	0.3048	2.4024	2.6770	5.8800e-003	0.1839	0.1071	0.2910	0.0494	0.1008	0.1501	0.0000	520.3124	520.3124	0.0817	0.0000	522.3536
2023	2.1111	0.4154	0.5351	1.0900e-003	0.0291	0.0186	0.0477	7.8100e-003	0.0174	0.0253	0.0000	96.6142	96.6142	0.0176	0.0000	97.0547
Maximum	**2.1111**	**2.4024**	**2.6770**	**5.8800e-003**	**0.2276**	**0.1071**	**0.2910**	**0.1055**	**0.1008**	**0.1586**	**0.0000**	**520.3124**	**520.3124**	**0.0817**	**0.0000**	**522.3536**

	ROG	NOx	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	10-5-2021	1-4-2022	1.3935	1.3935
2	1-5-2022	4-4-2022	0.6714	0.6714
3	4-5-2022	7-4-2022	0.6774	0.6774
4	7-5-2022	10-4-2022	0.6849	0.6849
5	10-5-2022	1-4-2023	0.6835	0.6835
6	1-5-2023	4-4-2023	1.5413	1.5413
7	4-5-2023	7-4-2023	0.9636	0.9636
		Highest	1.5413	1.5413

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1248	0.0993	1.6386	6.0000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	96.1927	96.1927	4.3100e-003	1.7200e-003	96.8117
Energy	0.0186	0.1592	0.0693	1.0100e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.0679	184.0679	3.5300e-003	3.3700e-003	185.1617
Mobile	0.4570	4.4656	4.8613	0.0260	1.6408	0.0152	1.6560	0.4412	0.0143	0.4555	0.0000	2,419.0998	2,419.0998	0.1249	0.0000	2,422.2211
Waste						0.0000	0.0000		0.0000	0.0000	25.3759	0.0000	25.3759	1.4997	0.0000	62.8677
Water						0.0000	0.0000		0.0000	0.0000	4.5492	0.0000	4.5492	0.4673	0.0110	19.5183
Total	**1.6004**	**4.7240**	**6.5692**	**0.0276**	**1.6408**	**0.0435**	**1.6843**	**0.4412**	**0.0425**	**0.4837**	**29.9251**	**2,699.3604**	**2,729.2855**	**2.0996**	**0.0161**	**2,786.5806**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1248	0.0993	1.6386	6.0000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	96.1927	96.1927	4.3100e-003	1.7200e-003	96.8117
Energy	0.0186	0.1592	0.0693	1.0100e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.0679	184.0679	3.5300e-003	3.3700e-003	185.1617
Mobile	0.4570	4.4656	4.8613	0.0260	1.6408	0.0152	1.6560	0.4412	0.0143	0.4555	0.0000	2,419.0998	2,419.0998	0.1249	0.0000	2,422.2211
Waste						0.0000	0.0000		0.0000	0.0000	25.3759	0.0000	25.3759	1.4997	0.0000	62.8677
Water						0.0000	0.0000		0.0000	0.0000	4.5492	0.0000	4.5492	0.4673	0.0110	19.5183
Total	**1.6004**	**4.7240**	**6.5692**	**0.0276**	**1.6408**	**0.0435**	**1.6843**	**0.4412**	**0.0425**	**0.4837**	**29.9251**	**2,699.3604**	**2,729.2855**	**2.0996**	**0.0161**	**2,786.5806**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/5/2021	11/1/2021	5	20	
2	Site Preparation	Site Preparation	11/2/2021	11/15/2021	5	10	
3	Grading	Grading	11/16/2021	12/27/2021	5	30	
4	Building Construction	Building Construction	12/28/2021	2/20/2023	5	300	
5	Paving	Paving	2/21/2023	3/20/2023	5	20	
6	Architectural Coating	Architectural Coating	3/21/2023	4/17/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 437,400; Residential Outdoor: 145,800; Non-Residential Indoor: 6,750; Non-Residential Outdoor: 2,250; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	157.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**		**0.0155**	**0.0155**		**0.0144**	**0.0144**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 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	5.8000e-004	3.8000e-004	3.9700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0395	1.0395	3.0000e-005	0.0000	1.0402
Total	**5.8000e-004**	**3.8000e-004**	**3.9700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0395**	**1.0395**	**3.0000e-005**	**0.0000**	**1.0402**

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	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**		**0.0155**	**0.0155**		**0.0144**	**0.0144**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 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	5.8000e-004	3.8000e-004	3.9700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0395	1.0395	3.0000e-005	0.0000	1.0402
Total	**5.8000e-004**	**3.8000e-004**	**3.9700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0395**	**1.0395**	**3.0000e-005**	**0.0000**	**1.0402**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.3 Site Preparation - 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	3.5000e-004	2.3000e-004	2.3800e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6237	0.6237	2.0000e-005	0.0000	0.6241
Total	**3.5000e-004**	**2.3000e-004**	**2.3800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6237**	**0.6237**	**2.0000e-005**	**0.0000**	**0.6241**

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.3 Site Preparation - 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	3.5000e-004	2.3000e-004	2.3800e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6237	0.6237	2.0000e-005	0.0000	0.6241
Total	**3.5000e-004**	**2.3000e-004**	**2.3800e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6237**	**0.6237**	**2.0000e-005**	**0.0000**	**0.6241**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7425**	**81.7425**	**0.0264**	**0.0000**	**82.4034**

3.4 Grading - 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	1.1700e-003	7.7000e-004	7.9300e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.0789	2.0789	5.0000e-005	0.0000	2.0803
Total	**1.1700e-003**	**7.7000e-004**	**7.9300e-003**	**2.0000e-005**	**2.4000e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.0789**	**2.0789**	**5.0000e-005**	**0.0000**	**2.0803**

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					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7424**	**81.7424**	**0.0264**	**0.0000**	**82.4033**

3.4 Grading - 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	1.1700e-003	7.7000e-004	7.9300e-003	2.0000e-005	2.4000e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.0789	2.0789	5.0000e-005	0.0000	2.0803
Total	**1.1700e-003**	**7.7000e-004**	**7.9300e-003**	**2.0000e-005**	**2.4000e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.0789**	**2.0789**	**5.0000e-005**	**0.0000**	**2.0803**

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	3.8000e-003	0.0349	0.0332	5.0000e-005		1.9200e-003	1.9200e-003		1.8000e-003	1.8000e-003	0.0000	4.6328	4.6328	1.1200e-003	0.0000	4.6607
Total	**3.8000e-003**	**0.0349**	**0.0332**	**5.0000e-005**		**1.9200e-003**	**1.9200e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**4.6328**	**4.6328**	**1.1200e-003**	**0.0000**	**4.6607**

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	1.5000e-004	5.2900e-003	9.7000e-004	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	9.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.2841	1.2841	1.0000e-004	0.0000	1.2865
Worker	1.2200e-003	8.0000e-004	8.3100e-003	2.0000e-005	2.5100e-003	2.0000e-005	2.5300e-003	6.7000e-004	2.0000e-005	6.8000e-004	0.0000	2.1759	2.1759	6.0000e-005	0.0000	2.1774
Total	**1.3700e-003**	**6.0900e-003**	**9.2800e-003**	**3.0000e-005**	**2.8300e-003**	**3.0000e-005**	**2.8600e-003**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**0.0000**	**3.4600**	**3.4600**	**1.6000e-004**	**0.0000**	**3.4639**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8000e-003	0.0349	0.0332	5.0000e-005		1.9200e-003	1.9200e-003		1.8000e-003	1.8000e-003	0.0000	4.6327	4.6327	1.1200e-003	0.0000	4.6607
Total	**3.8000e-003**	**0.0349**	**0.0332**	**5.0000e-005**		**1.9200e-003**	**1.9200e-003**		**1.8000e-003**	**1.8000e-003**	**0.0000**	**4.6327**	**4.6327**	**1.1200e-003**	**0.0000**	**4.6607**

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	1.5000e-004	5.2900e-003	9.7000e-004	1.0000e-005	3.2000e-004	1.0000e-005	3.3000e-004	9.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.2841	1.2841	1.0000e-004	0.0000	1.2865
Worker	1.2200e-003	8.0000e-004	8.3100e-003	2.0000e-005	2.5100e-003	2.0000e-005	2.5300e-003	6.7000e-004	2.0000e-005	6.8000e-004	0.0000	2.1759	2.1759	6.0000e-005	0.0000	2.1774
Total	**1.3700e-003**	**6.0900e-003**	**9.2800e-003**	**3.0000e-005**	**2.8300e-003**	**3.0000e-005**	**2.8600e-003**	**7.6000e-004**	**3.0000e-005**	**7.9000e-004**	**0.0000**	**3.4600**	**3.4600**	**1.6000e-004**	**0.0000**	**3.4639**

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

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	9.3500e-003	0.3259	0.0579	8.7000e-004	0.0207	8.4000e-004	0.0215	5.9800e-003	8.0000e-004	6.7800e-003	0.0000	82.6884	82.6884	6.1400e-003	0.0000	82.8420
Worker	0.0736	0.0465	0.4919	1.5100e-003	0.1632	1.0900e-003	0.1643	0.0434	1.0000e-003	0.0444	0.0000	136.3815	136.3815	3.3300e-003	0.0000	136.4649
Total	**0.0830**	**0.3724**	**0.5498**	**2.3800e-003**	**0.1839**	**1.9300e-003**	**0.1858**	**0.0494**	**1.8000e-003**	**0.0512**	**0.0000**	**219.0699**	**219.0699**	**9.4700e-003**	**0.0000**	**219.3069**

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	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

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	9.3500e-003	0.3259	0.0579	8.7000e-004	0.0207	8.4000e-004	0.0215	5.9800e-003	8.0000e-004	6.7800e-003	0.0000	82.6884	82.6884	6.1400e-003	0.0000	82.8420
Worker	0.0736	0.0465	0.4919	1.5100e-003	0.1632	1.0900e-003	0.1643	0.0434	1.0000e-003	0.0444	0.0000	136.3815	136.3815	3.3300e-003	0.0000	136.4649
Total	**0.0830**	**0.3724**	**0.5498**	**2.3800e-003**	**0.1839**	**1.9300e-003**	**0.1858**	**0.0494**	**1.8000e-003**	**0.0512**	**0.0000**	**219.0699**	**219.0699**	**9.4700e-003**	**0.0000**	**219.3069**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0283	0.2589	0.2924	4.9000e-004		0.0126	0.0126		0.0119	0.0119	0.0000	41.7249	41.7249	9.9300e-003	0.0000	41.9730
Total	**0.0283**	**0.2589**	**0.2924**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0119**	**0.0119**	**0.0000**	**41.7249**	**41.7249**	**9.9300e-003**	**0.0000**	**41.9730**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-004	0.0349	6.6200e-003	1.2000e-004	2.8600e-003	3.0000e-005	2.9000e-003	8.3000e-004	3.0000e-005	8.6000e-004	0.0000	11.1708	11.1708	5.8000e-004	0.0000	11.1854
Worker	9.4700e-003	5.7600e-003	0.0621	2.0000e-004	0.0226	1.5000e-004	0.0227	6.0100e-003	1.3000e-004	6.1400e-003	0.0000	18.1794	18.1794	4.1000e-004	0.0000	18.1897
Total	**0.0104**	**0.0406**	**0.0687**	**3.2000e-004**	**0.0255**	**1.8000e-004**	**0.0256**	**6.8400e-003**	**1.6000e-004**	**7.0000e-003**	**0.0000**	**29.3502**	**29.3502**	**9.9000e-004**	**0.0000**	**29.3751**

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	0.0283	0.2589	0.2924	4.9000e-004		0.0126	0.0126		0.0119	0.0119	0.0000	41.7248	41.7248	9.9300e-003	0.0000	41.9730
Total	**0.0283**	**0.2589**	**0.2924**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0119**	**0.0119**	**0.0000**	**41.7248**	**41.7248**	**9.9300e-003**	**0.0000**	**41.9730**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-004	0.0349	6.6200e-003	1.2000e-004	2.8600e-003	3.0000e-005	2.9000e-003	8.3000e-004	3.0000e-005	8.6000e-004	0.0000	11.1708	11.1708	5.8000e-004	0.0000	11.1854
Worker	9.4700e-003	5.7600e-003	0.0621	2.0000e-004	0.0226	1.5000e-004	0.0227	6.0100e-003	1.3000e-004	6.1400e-003	0.0000	18.1794	18.1794	4.1000e-004	0.0000	18.1897
Total	**0.0104**	**0.0406**	**0.0687**	**3.2000e-004**	**0.0255**	**1.8000e-004**	**0.0256**	**6.8400e-003**	**1.6000e-004**	**7.0000e-003**	**0.0000**	**29.3502**	**29.3502**	**9.9000e-004**	**0.0000**	**29.3751**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.1000e-004	3.2900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9655
Total	**5.0000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9655**

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.1000e-004	3.2900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9649	0.9649	2.0000e-005	0.0000	0.9655
Total	**5.0000e-004**	**3.1000e-004**	**3.2900e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9649**	**0.9649**	**2.0000e-005**	**0.0000**	**0.9655**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**2.0606**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	6.3000e-004	6.8100e-003	2.0000e-005	2.4800e-003	2.0000e-005	2.4900e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.9942	1.9942	5.0000e-005	0.0000	1.9953
Total	**1.0400e-003**	**6.3000e-004**	**6.8100e-003**	**2.0000e-005**	**2.4800e-003**	**2.0000e-005**	**2.4900e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.9942**	**1.9942**	**5.0000e-005**	**0.0000**	**1.9953**

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	2.0586					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**2.0606**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0400e-003	6.3000e-004	6.8100e-003	2.0000e-005	2.4800e-003	2.0000e-005	2.4900e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.9942	1.9942	5.0000e-005	0.0000	1.9953
Total	**1.0400e-003**	**6.3000e-004**	**6.8100e-003**	**2.0000e-005**	**2.4800e-003**	**2.0000e-005**	**2.4900e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.9942**	**1.9942**	**5.0000e-005**	**0.0000**	**1.9953**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4570	4.4656	4.8613	0.0260	1.6408	0.0152	1.6560	0.4412	0.0143	0.4555	0.0000	2,419.0998	2,419.0998	0.1249	0.0000	2,422.2211
Unmitigated	0.4570	4.4656	4.8613	0.0260	1.6408	0.0152	1.6560	0.4412	0.0143	0.4555	0.0000	2,419.0998	2,419.0998	0.1249	0.0000	2,422.2211

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,436.40	1,380.24	1265.76	4,068,535	4,068,535
Health Club	148.19	93.92	120.29	235,734	235,734
Total	1,584.59	1,474.16	1,386.05	4,304,269	4,304,269

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.517262	0.031316	0.171418	0.114437	0.017015	0.004840	0.021467	0.112166	0.001792	0.001507	0.005146	0.000939	0.000694
Health Club	0.517262	0.031316	0.171418	0.114437	0.017015	0.004840	0.021467	0.112166	0.001792	0.001507	0.005146	0.000939	0.000694

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0186	0.1592	0.0693	1.0100e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.0679	184.0679	3.5300e-003	3.3700e-003	185.1617
NaturalGas Unmitigated	0.0186	0.1592	0.0693	1.0100e-003		0.0129	0.0129		0.0129	0.0129	0.0000	184.0679	184.0679	3.5300e-003	3.3700e-003	185.1617

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.3737e+006	0.0182	0.1555	0.0662	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.0336	180.0336	3.4500e-003	3.3000e-003	181.1034
Health Club	75600	4.1000e-004	3.7100e-003	3.1100e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	4.0343	4.0343	8.0000e-005	7.0000e-005	4.0583
Total		**0.0186**	**0.1592**	**0.0693**	**1.0100e-003**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**184.0679**	**184.0679**	**3.5300e-003**	**3.3700e-003**	**185.1617**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.3737e+006	0.0182	0.1555	0.0662	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.0336	180.0336	3.4500e-003	3.3000e-003	181.1034
Health Club	75600	4.1000e-004	3.7100e-003	3.1100e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	4.0343	4.0343	8.0000e-005	7.0000e-005	4.0583
Total		**0.0186**	**0.1592**	**0.0693**	**1.0100e-003**		**0.0129**	**0.0129**		**0.0129**	**0.0129**	**0.0000**	**184.0679**	**184.0679**	**3.5300e-003**	**3.3700e-003**	**185.1617**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	996412	0.0000	0.0000	0.0000	0.0000
Health Club	10620	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	996412	0.0000	0.0000	0.0000	0.0000
Health Club	10620	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.1248	0.0993	1.6386	6.0000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	96.1927	96.1927	4.3100e-003	1.7200e-003	96.8117
Unmitigated	1.1248	0.0993	1.6386	6.0000e-004		0.0154	0.0154		0.0154	0.0154	0.0000	96.1927	96.1927	4.3100e-003	1.7200e-003	96.8117

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	0.2059					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8612					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.4600e-003	0.0808	0.0344	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003	0.0000	93.5728	93.5728	1.7900e-003	1.7200e-003	94.1289
Landscaping	0.0483	0.0185	1.6042	8.0000e-005		8.8800e-003	8.8800e-003		8.8800e-003	8.8800e-003	0.0000	2.6199	2.6199	2.5200e-003	0.0000	2.6829
Total	**1.1248**	**0.0993**	**1.6386**	**6.0000e-004**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**96.1927**	**96.1927**	**4.3100e-003**	**1.7200e-003**	**96.8117**

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	0.2059					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8612					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.4600e-003	0.0808	0.0344	5.2000e-004		6.5300e-003	6.5300e-003		6.5300e-003	6.5300e-003	0.0000	93.5728	93.5728	1.7900e-003	1.7200e-003	94.1289
Landscaping	0.0483	0.0185	1.6042	8.0000e-005		8.8800e-003	8.8800e-003		8.8800e-003	8.8800e-003	0.0000	2.6199	2.6199	2.5200e-003	0.0000	2.6829
Total	**1.1248**	**0.0993**	**1.6386**	**6.0000e-004**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**96.1927**	**96.1927**	**4.3100e-003**	**1.7200e-003**	**96.8117**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.5492	0.4673	0.0110	19.5183
Unmitigated	4.5492	0.4673	0.0110	19.5183

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0733 / 8.87228	4.4648	0.4586	0.0108	19.1560
Health Club	0.266144 / 0.163121	0.0844	8.6700e-003	2.0000e-004	0.3623
Total		**4.5492**	**0.4673**	**0.0110**	**19.5183**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.0733 / 8.87228	4.4648	0.4586	0.0108	19.1560
Health Club	0.266144 / 0.163121	0.0844	8.6700e-003	2.0000e-004	0.3623
Total		**4.5492**	**0.4673**	**0.0110**	**19.5183**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	25.3759	1.4997	0.0000	62.8677
Unmitigated	25.3759	1.4997	0.0000	62.8677

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	99.36	20.1692	1.1920	0.0000	49.9683
Health Club	25.65	5.2067	0.3077	0.0000	12.8994
Total		**25.3759**	**1.4997**	**0.0000**	**62.8677**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	99.36	20.1692	1.1920	0.0000	49.9683
Health Club	25.65	5.2067	0.3077	0.0000	12.8994
Total		**25.3759**	**1.4997**	**0.0000**	**62.8677**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resource Evaluation, Corvina Apartment Development

Prepared by Colibri Ecological Consulting, LLC. on September 2021

BIOLOGICAL RESOURCE EVALUATION

September 2021

CORVINA APARTMENTS DEVELOPMENT PROJECT
TULARE, TULARE COUNTY, CALIFORNIA

PREPARED FOR:
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Contents

Figures

Tables

Appendices

Executive Summary

The project applicant proposes to construct a multi-family apartment complex in northern Tulare, Tulare County, California. The proposed project (Project) will involve constructing the development on an approximately 15-acre parcel that currently supports fallowed agricultural land.

To evaluate whether the Project may affect biological resources under California Environmental Quality Act (CEQA) purview, we (1) obtained lists of special-status species from the United States Fish and Wildlife Service, the California Department of Fish and Wildlife, and the California Native Plant Society; (2) reviewed other relevant background information such as aerial images and topographic maps; and (3) conducted a field reconnaissance survey at the Project site.

This biological resource evaluation summarizes (1) existing biological conditions on the Project site, (2) the potential for special-status species and regulated habitats to occur on or near the Project site, (3) the potential impacts of the proposed Project on biological resources and regulated habitats, and (4) measures to reduce those potential impacts to less-than-significant levels under CEQA.

We concluded that the Project will not affect regulated habitats but could impact one special-status species, the state-listed as threatened Swainson's hawk (*Buteo swainsoni*). Nesting migratory birds could also be impacted. Impacts to all species can be reduced to less-than-significant levels with mitigation.

Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWC	California Water Code
FC	Federal Candidate for listing under the Federal Endangered Species Act
FE	Federally listed as Endangered
FESA	Federal Endangered Species Act
FP	State Fully Protected
FT	Federally listed as Threatened
HM	Habitat Management
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Association
NRCS	Natural Resources Conservation Science
SCE	State Candidate Endangered
SE	State listed as Endangered
SSSC	State Species of Special Concern
ST	State listed as Threatened
SWTAC	Swainson's Hawk Technical Advisory Committee
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Background

The project applicant proposes to construct a multi-family apartment complex in northern Tulare, Tulare County, California. The project (Project) will involve constructing the development on about 15 acres southeast of the intersection of Avenue 248 and Retherford Street.

The purpose of this biological resource evaluation is to assess whether the Project will affect protected biological resources pursuant to California Environmental Quality Act (CEQA) guidelines. Such resources include species of plants or animals listed or proposed for listing under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) as well as those covered under the Migratory Bird Treaty Act (MBTA), the California Native Plant Protection Act, and various other sections of California Fish and Game Code. This biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW).

1.2 Project Description

The Project will include constructing a multi-family apartment complex on a 15-acre parcel that currently supports fallowed agricultural fields.

1.3 Project Location

The approximately 15-acre Project site is east of State Route 99 within the City of Tulare, Tulare County, California (Figure 1). The Project site is north of Corvina Avenue, south of Avenue 248 east of Retherford Street, and west of N. Hillman Street, (Figure 2).

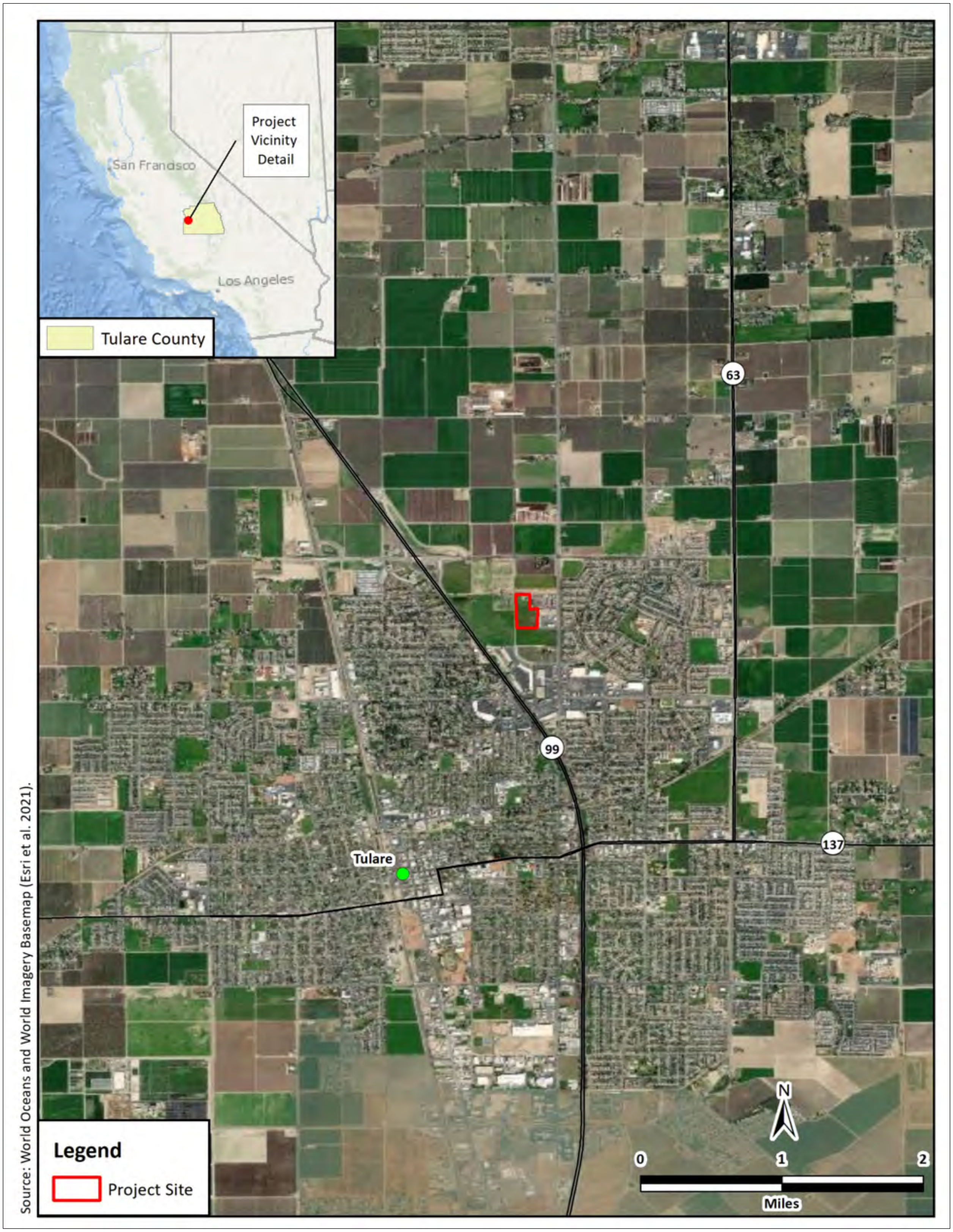

Figure 1. Project site vicinity map.

Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The purpose of the Project is to construct a complex of multi-family residential units. The Project is needed to meet increasing housing demands in the City of Tulare.

1.5 Regulatory Framework

The relevant state and federal regulatory requirements and policies that guide the impact analysis of the Project are summarized below.

1.5.1 State Requirements

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq., and California Code of Regulations [CCR] Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state listed species. During consultation, CDFW determines whether take would occur and identifies "reasonable and prudent alternatives" for the project and conservation of special-status species. CDFW can authorize take of state listed species under Sections 2080.1 and 2081(b) of the California Fish and Game Code in those cases where it is demonstrated that the impacts are minimized and mitigated. Take authorized under section 2081(b) must be minimized and fully mitigated. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Under CESA, CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (Fish and Game Code § 2070). CDFW also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern or fully protected species would be considered significant under certain circumstances.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) of 1970 (Subsections 21000–21178) requires that CDFW be consulted during the CEQA review process regarding impacts of proposed projects on special-status species. Special-status species are defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under these criteria or by the scientific community. Therefore, species considered rare or endangered are addressed in this biological resource evaluation regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity (CNPS 2021). Plants with Rare Plant Ranks 1A, 1B, 2A, or 2B are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare and endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the United States Fish and Wildlife Service or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

California Native Plant Protection Act. The California Native Plant Protection Act of 1977 (California Fish and Game Code §§ 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFW at least 10 days in advance of any change in land use, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Nesting birds. California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are "Fully Protected" as those that may not be taken or possessed except under specific permit.

California Department of Fish and Wildlife Jurisdiction. The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream; substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Lake and Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code Section 1602.

Porter-Cologne Water Quality Control Act**.** The Porter-Cologne Water Quality Control Act (CWC § 13000 et. sec.) was established in 1969 and entrusts the State Water Resources Control Board and nine Regional Water Quality Control Boards (collectively Water Boards) with the responsibility to preserve and enhance all beneficial uses of California's diverse waters. The Act grants the Water Boards authority to establish water quality objectives and regulate point- and nonpoint-source pollution discharge to the state's surface and ground waters. Under the auspices of the United States Environmental Protection Agency, the Water Boards are responsible for certifying, under Section 401 of the federal Clean Water Act, that activities affecting waters of the United States comply California water quality standards. The Porter-Cologne Water Quality Control Act addresses all "waters of the State," which are more broadly defined than waters of the Unites States. Waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the state. They include artificial as well as natural water bodies and federally jurisdictional and federally non-jurisdictional waters. The Water Boards may issue a Waste Discharge Requirement permit for projects that will affect only federally non-jurisdictional waters of the State.

1.5.2 Federal Requirements

Federal Endangered Species Act. The United States Fish and Wildlife Service (USFWS) and the National Oceanographic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) enforce the provisions stipulated in the Federal Endangered Species Act of 1973 (FESA, 16 United States Code [USC] § 1531 et seq.). Threatened and endangered species on the federal list (50 Code of Federal Regulations [CFR] 17.11 and 17.12) are protected from take unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. Pursuant to the requirements of the FESA, an agency reviewing a proposed action within its jurisdiction must determine whether any federally listed species may be present in the proposed action area and determine whether the proposed action may affect such species. Under the FESA, habitat loss is considered an effect to a species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA (16 USC § 1536[3], [4]). Therefore, proposed action-related effects to these species or their habitats would be considered significant and would require mitigation.

Migratory Bird Treaty Act. The federal Migratory Bird Treaty Act (MBTA) (16 USC § 703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young (16 USC § 703 and § 715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an "active nest." However, the "Migratory Bird Permit Memorandum" issued by the USFWS in 2003 and updated in 2018 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2018).

United States Army Corps of Engineers Jurisdiction. Areas meeting the regulatory definition of "waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States (33 CFR part 328.3). Ditches and drainage canals where water flows intermittently or ephemerally are not regulated as waters of the United States. Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

2.0 Methods

2.1 Desktop Review

We obtained a USFWS species list for the Project as a framework for the evaluation and reconnaissance survey (USFWS 2021a, Appendix A). In addition, we searched the California Natural Diversity Data Base (CDFW 2021, Appendix B) and the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2021, Appendix C) for records of special-status plant and animal species from the vicinity of the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Tulare 7.5-minute United States Geological Survey (USGS) topographic quadrangle, which encompasses the Project site, and the eight surrounding quadrangles (Goshen, Visalia, Exeter, Paige, Cairns Corner, Taylor Weir, Tipton, and Woodville). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a special-status designation by state or federal regulatory agencies or public interest groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2021) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2021), the National Wetlands Inventory (USFWS 2021b), and relevant literature.

2.2 Reconnaissance Survey

Colibri Senior Scientist Joshua Reece conducted a field reconnaissance survey of the Project site on 6 September 2021. The Project site and a 50-foot buffer surrounding the Project site were walked and thoroughly inspected to evaluate and document the potential for the area to support state- or federally protected resources. The survey area also included a 0.5-mile buffer around the Project site to evaluate the potential occurrence of nesting special-status raptors (Figure 3). The 0.5-mile buffer was surveyed by driving public roads and identifying the presence of large trees or other potentially suitable substrates for nesting raptors as well as open areas that could provide foraging habitat. The main survey area, including the Project site and surrounding 50-foot buffer, was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa) and under the Porter-Cologne Water Quality Control Act. All plants except those planted for cultivation or landscaping and all animals (vertebrate wildlife species) observed in the survey area were identified and documented.

2.3 Significance Criteria

CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment" (Pub. Res. Code § 21068). Under CEQA Guidelines Section

15065, a Project's effects on biological resources are deemed significant where the Project would do the following:

a) Substantially reduce the habitat of a fish or wildlife species,
b) Cause a fish or wildlife population to drop below self-sustaining levels,
c) Threaten to eliminate a plant or animal community, or
d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

e) 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 CDFW or USFWS;

f) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

g) 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;

h) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

j) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.

Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project included 10 species listed as threatened or endangered under the FESA (USFWS 2021a, Table 1, Appendix A). Of those 10 species, none are expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence (Table 1). As identified in the species list, the Project site does not occur in USFWS-designated or proposed critical habitat for any species (USFWS 2021a, Appendix A).

Searching the CNDDB for records of special-status species from the Tulare 7.5-minute USGS topographic quadrangle and the eight surrounding quadrangles produced 123 records of 34 species (Table 1, Appendix B). Of those 34 species, four were not considered further because state or federal regulatory agencies or public interest groups do not recognize them through special designation (Appendix B). Of the remaining 30 species, six are known from within 5 miles of the Project site (Table 1, Figure 4). Of those six species, five are not expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, (3) their absence during the reconnaissance survey, or (4) a combination thereof. The remaining species, Swainson's hawk (*Buteo swainsoni*), could occur on or near the Project site.

Searching the CNPS Inventory of Rare and Endangered Plants of California yielded 12 taxa (CNPS 2021, Appendix C), 11 of which have a CRPR of 1B (Table 1) and one of which has a CRPR of 2B. None of those species are expected to occur on or near the Project site due to the lack of habitat (Table 1).

The Project site is underlain by Nord fine sandy loam, 0 to 2 percent slopes (NCRS 2021). The Project site is at an elevation of 282–298 feet above mean sea level (Google 2021).

Table 1. Special-status species, their listing status, habitats, and potential to occur on or near the Project site.

Species	Status[1]	Habitat	Potential to Occur[2]
Federally and State-Listed Endangered or Threatened Species			
California jewelflower[3] (*Caulanthus californicus*)	FE, SE, 1B.1	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland at 150–3300 feet elevation.	**None.** Habitat lacking; the Project site supported routinely disturbed agricultural land cover.
San Joaquin adobe sunburst[3] (*Pseudobahia peirsonii*)	FE, SE, 1B.1	Cismontane woodland, valley and foothill grassland with bark, dark clay soils at 300–3000 feet elevation.	**None.** Habitat lacking; the Project site lacked clay soils.
Crotch bumble bee (*Bombus crotchii*)	SCE	Open grassland and scrub supporting open flowers with short petals.	**None.** Habitat lacking; the Project site consisted of agricultural land cover and lacked suitable flowering plants.
Monarch butterfly (*Danaus plexippus*)	FC	Groves of large trees for overwintering.	**None.** Habitat lacking; no groves within the survey area or known monarch overwintering sites within 5 miles of the Project site.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	Elderberry (*Sambucus* sp.) plants with stems > 1-inch diameter at ground level.	**None.** Habitat lacking; no elderberry plants were found in the survey area; the Project site is outside the current known range of this species.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools; some artificial depressions, stock ponds, vernal swales, ephemeral drainages, and seasonal wetlands.	**None.** Habitat lacking; no vernal pools or other potentially suitable aquatic features were found in the survey area.

Species	Status[1]	Habitat	Potential to Occur[2]
Delta smelt (*Hypomesus transpacificus*)	FT, SE	River channels and tidally influenced sloughs.	**None.** Habitat lacking; no connectivity to the aquatic habitat this species requires.
California red-legged frog (*Rana draytonii*)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	**None.** Habitat lacking; the Project site is outside the current known range of this species.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal pools or seasonal ponds for breeding; small mammal burrows for upland refugia in natural grasslands.	**None.** Habitat lacking; the Project site and surrounding lands consisted of agricultural land cover that has been intensively farmed at least since 1985 (Google 2021); no seasonal water bodies in the survey area; the Project site is outside the current known range of this species.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE, FP	Upland scrub and sparsely vegetated grassland with small mammal burrows.	**None.** Habitat lacking; the Project site consisted of agricultural land cover and is outside the current known range of this species.
Giant garter snake (*Thamnophis gigas*)	FT, ST	Marshes, sloughs, ponds, or other permanent sources of water with emergent vegetation, and grassy banks or open areas during active season; uplands with underground refuges or crevices during inactive season.	**None.** Habitat lacking; no suitable aquatic resources in the survey area; the Project site is outside the current known range of this species.

Species	Status[1]	Habitat	Potential to Occur[2]
Swainson's hawk[3] (*Buteo swainsoni*)	ST	Large trees for nesting with adjacent grasslands, alfalfa fields, grain fields, or other low-growing agricultural crops or open areas for foraging.	**Low.** The Project site lacked nesting habitat but provided potential foraging habitat; additionally, potential nest trees were within 0.5 miles of the Project site.
Tricolored blackbird (*Agelaius tricolor*)	ST, SSSC	Freshwater emergent wetlands, some agricultural fields, irrigated pastures, grassland, and silage fields near dairies.	**None.** Habitat lacking; no suitable aquatic resources or suitable agricultural land in the survey area.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FT, SE	Open woodlands with dense, low vegetation along waterways.	**None.** Habitat lacking; the Project site lacked woodlands or riparian habitat.
San Joaquin kit fox[3] (*Vulpes macrotis mutica*)	FE, ST	Grassland and upland scrub and fallowed agricultural lands adjacent to natural grasslands or upland scrub.	**None.** Habitat lacking; the survey area consisted of agricultural land cover, lacked adjacent natural lands, and the most recent record from within 5 miles is from 1992.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, SE	Grassland and upland scrub with sparse to moderate shrub cover and saline soils; also fallowed agricultural fields adjacent to natural grasslands or upland scrub.	**None.** Habitat lacking; the survey area consisted of agricultural land cover that lacked adjacency to natural land cover.

Species	Status[1]	Habitat	Potential to Occur[2]
State Species of Special Concern			
Western spadefoot (*Spea hammondii*)	SSSC	Open areas with sandy or gravelly soils in mixed woodland, grassland, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains with nearby rainpools for breeding.	**None.** Habitat lacking; the Project site supported routinely disturbed agricultural land cover.
Northern California legless lizard (*Anniella pulchra*)	SSSC	Moist warm loose soil with plant cover in beach dunes, chaparral, pine-oak woodlands, sandy areas and stream terraces.	**None.** Habitat lacking; the Project site supported routinely disturbed agricultural land cover.
Northwestern pond turtle (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation and woody debris for basking and adjacent natural upland areas for egg laying.	**None.** Habitat lacking; no suitable water bodies were found in the survey area.
Burrowing owl (*Athene cunicularia*)	SSSC	Grassland and upland scrub with friable soil; some agricultural or other developed and disturbed areas with ground squirrel burrows.	**None.** Habitat lacking; the Project site supported fallow fields but lacked ground squirrel burrows or burrow surrogates that could host burrowing owl.
Loggerhead shrike (*Lanius ludovicianus*)	SSSC	Open areas with short vegetation and well-spaced shrubs or low trees for nesting.	**None.** Habitat lacking; the Project site supported routinely disturbed agricultural land cover.

Species	Status[1]	Habitat	Potential to Occur[2]
Mountain plover (*Charadrius montanus*)	SSSC	Open, flat, and arid habitats with low, sparse vegetation.	**None.** Habitat lacking; the Project site supported routinely disturbed agricultural land cover.
American badger (*Taxidea taxus*)	SSSC	Open, dry areas with friable soils and small mammal populations in grassland, conifer forests, and desert.	**None.** Habitat lacking; the Project site and surrounding area are too fragmented and routinely disturbed to support this species.
Pallid bat (*Antrozous pallidus*)	SSSC	Arid or semi-arid locations in rocky areas and sparsely vegetated grassland near water. Rock crevices, caves, mine shafts, bridges, building, and tree hollows for roosting.	**None.** Habitat lacking; no rocky areas, caves, mines, bridges, buildings, or suitable trees in the survey area.
Western mastiff bat[3] (*Eumops perotis californicus*)	SSSC	Roosts in crevices in cliff faces, buildings, trees, and tunnels in open semi-arid and arid habitats such as conifer forest, oak woodland, coastal scrub, chaparral, grassland, desert scrub, and urban areas.	**None.** Habitat lacking; roosting habitat is not present in the survey area.
California Rare Plants			
Alkali-sink goldfields[3] (*Lasthenia chrysantha*)	1B.1	Vernal pools and wet saline flats below 320 feet elevation.	**None.** Habitat lacking; no vernal pools or wet saline flats were found in the survey area.

Species	Status[1]	Habitat	Potential to Occur[2]
Brittlescale (*Atriplex depressa*)	1B.2	Alkaline or clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools below 1000 feet elevation.	**None.** Habitat lacking; the survey area lacked clay soils and consisted of disturbed agricultural land cover.
California alkali grass (*Puccinellia simplex*)	1B.2	Scrub, meadows, seeps, grassland, vernal pools, saline flats, and mineral springs below 3000 feet elevation.	**None.** Habitat lacking; the Project site consisted of agricultural land cover.
California satintail (*Imperata brevifolia*)	2B.1	Moist to wet sites in arid desert canyons, or rocky slopes, near seeps, springs, and streams below 1700 feet elevation.	**None.** Habitat lacking; the survey area lacked clay soils and consisted of disturbed agricultural lands.
Earlimart orache (*Atriplex cordulata* var. *erecticaulis*)	1B.2	Saline or alkaline soils in Central Valley and foothill grassland below 230 feet elevation.	**None.** Habitat lacking; the survey area is above the elevational range of this species.
Heartscale (*Atriplex cordulata* var. *cordulata*)	1B.2	Saline or alkaline soils in grassland, meadows and seeps, and chenopod scrub communities below 230 feet elevation.	**None.** Habitat lacking; the survey area is above the elevational range of this species.
Lesser saltscale (*Atriplex minuscula*)	1B.1	Sandy alkaline soils in chenopod scrub, playa, and grassland in the San Joaquin Valley below 328 feet elevation.	**None.** Habitat lacking; the survey area consisted of disturbed agricultural lands.

Species	Status[1]	Habitat	Potential to Occur[2]
Recurved larkspur (*Delphinium recurvatum*)	1B.2	Poorly drained, fine, alkaline soils in chenopod scrub, cismontane woodland, and valley and foothill grassland at 10–2800 feet elevation.	**None.** Habitat lacking; the survey area consisted of disturbed agricultural lands.
Spiny-sepaled button-celery (*Eryngium spinosepalum*)	1B.2	Vernal pools and swales in valley and foothill grassland at 330–4200 feet elevation.	**None.** Habitat lacking; no vernal pools or swales were found in the survey area.
Subtle orache (*Atriplex subtilis*)	1B.2	Saline depressions below 230 feet elevation.	**None.** Habitat lacking; the survey area is above the elevational range of this species.

CDFW (2021), CNPS (2021), USFWS (2021).

Status[1]

FE = Federally listed Endangered

FT = Federally listed Threatened

FP = State Fully Protected

FC = Federal Candidate of listing under the FESA

SCE = State Candidate Endangered

SE = State listed Endangered

ST = State listed Threatened

SSSC = State Species of Special Concern

Potential to Occur[2]

None:	Species or sign not observed; conditions unsuitable for occurrence.
Low:	Neither species nor sign observed; conditions marginal for occurrence.
Moderate:	Neither species nor sign observed; conditions suitable for occurrence.
High:	Neither species nor sign observed; conditions highly suitable for occurrence.
Present:	Species or sign observed; conditions suitable for occurrence.

CNPS California Rare Plant Rank[1]:

1B – plants rare, threatened, or endangered in California and elsewhere.

Threat Ranks[1]:

0.1 – seriously threatened in California (> 80% of occurrences).

CNPS California Rare Plant Rank[1]:	**Threat Ranks[1]:**
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20-80% of occurrences).
3 – plants about which more information is needed.	0.3 – not very threatened in California (<20% of occurrences).
4 – plants have limited distribution in California.	

[3]Record from within 5 miles of the Project site.

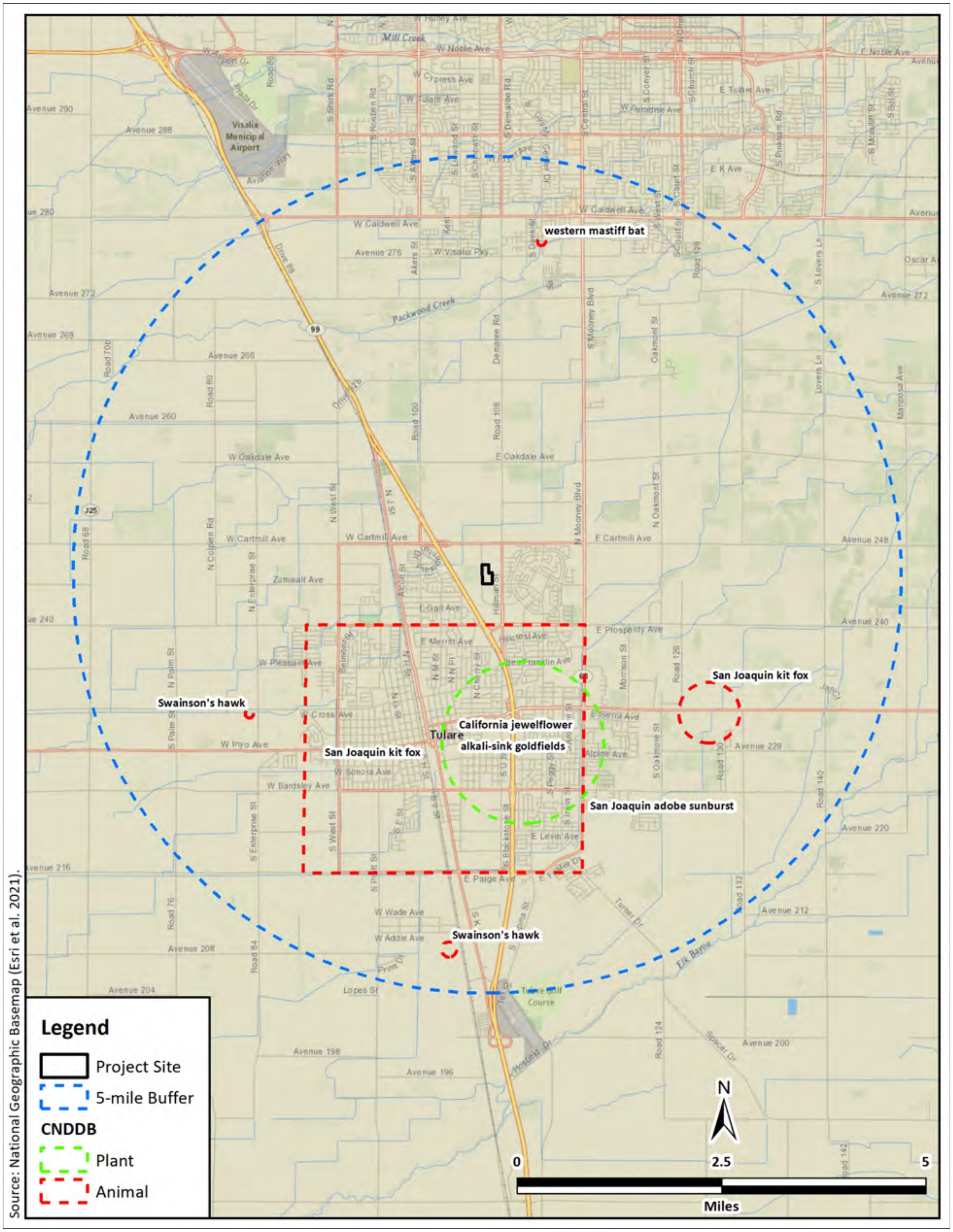

Figure 4. CNDDB occurrence map.

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site supported fields that had been under agricultural production from at least 1985 to 2005 but have been fallow and routinely disked since 2006 (Google 2021). The Project site was bordered by fallow agricultural fields to the north and south, dense residential development to the east, and plowed fields prepped for building construction to the west. The Project site was uniformly disked and levelled (Figure 5), except for a square-shaped raised area in the center (Figures 2 and 6), a fenced retention pond in the northeast corner (Figures 7 and 8), and another fenced retention pond in the southeast corner (Figure 9). Both retention ponds were dry at the time of the survey.

Figure 5. Photograph of the Project site, looking southwest, showing a uniformly disked and levelled field.

Figure 6. Photograph of Project site, looking north, showing a square-shaped, elevated area at the center.

Figure 7. Photograph of the Project site, looking south, showing the northernmost retention pond (left).

Figure 8. Photograph of the Project site, looking south, showing the northernmost of two fenced retention ponds.

Figure 9. Photograph of the Project site, looking south, showing the southernmost of two fenced retention ponds.

3.2.2 Plant and Animal Species Observed

A total of 13 plant species (four native and nine nonnative) and eight bird species were observed during the survey (Table 2).

Table 2. Plant and animal species observed during the reconnaissance survey.

Common Name	Scientific Name	Status
Plants		
Family Amaranthaceae		
Pigweed amaranth	*Amaranthus albus*	Nonnative
Family Asteraceae		
Common sunflower	*Helianthus annuus*	Native
Prickly lettuce	*Lactuca serriola*	Nonnative
Family Chenopodiaceae		
Russian thistle	*Salsola tragus*	Nonnative
White goosefoot	*Chenopodium album*	Nonnative
Family Poaceae		
Ripgut brome	*Bromus diandrus*	Nonnative
Salt grass	*Distichlis spicata*	Native
Wild oat	*Avena fatua*	Nonnative
Family Polygonaceae		
Prostrate knotweed	*Polygonum aviculare*	Nonnative
Family Salicaceae		
Willow	*Salix* spp.	Native
Family Solanaceae		
Jimsonweed	*Datura wrightii*	Native
Silverleaf nightshade	*Solanum elaeagnifolium*	Nonnative
Family Zygophyllaceae		
Puncture vine	*Tribulus terrestris*	Nonnative
Birds		
Family Cathartidae		
Turkey vulture	*Cathartes aura*	MBTA, CFGC
Family Charadriidae		
Killdeer	*Charadrius vociferus*	MBTA, CFGC
Family Columbidae		

Mourning dove	*Zenaida macroura*	MBTA, CFGC
Rock pigeon	*Columba livia*	--
Family Corvidae		
American crow	*Corvus brachyrhynchos*	MBTA, CFGC
Family Mimidae		
Northern mockingbird	*Mimus polyglottos*	MBTA, CFGC
Family Sturnidae		
European starling	*Sturnus vulgaris*	--
Family Trochilidae		
Anna's hummingbird	*Calypte anna*	MBTA, CFGC

MBTA = Protected under the Migratory Bird Treaty Act (16 USC § 703 et seq.); CFGC = Protected under the California Fish and Game Code (FGC §§ 3503 and 3513).

3.2.3 Nesting Birds

Migratory birds could nest on or near the Project site. Bird species that may nest on or near the property include, but are not limited to, mourning dove (*Zenaida macroura*) and northern mockingbird (*Mimus polyglottos*).

3.2.4 Regulated Habitats

Two potentially jurisdictional features, both fenced retention ponds, are within the Project site. No impacts to these features are anticipated. Neither of these features are identified in the National Wetlands Inventory (USFWS 2021b) but may be regulated by the SWRCB. If impacts to these two features are unavoidable, further delineation of their boundaries and consultation with the SWRCB may be required.

3.3 Special-Status Species

3.3.1 Swainson's hawk

Swainson's hawk is a state listed as threatened raptor in the family Accipitridae. It is a migratory breeding resident of Central California. It uses open areas including grassland, sparse shrubland, pasture, open woodland, and annual agricultural fields such as grain and alfalfa to forage on small mammals, birds, and reptiles. After breeding, it eats mainly insects, especially grasshoppers (Bechard et al. 2020). Swainson's hawks build small to medium-sized nests in medium to large trees near foraging habitat. The nesting season begins in March or April in Central California when this species returns to its breeding grounds from wintering areas in Mexico and Central and South America. Nest building commences within one to two weeks of arrival to the breeding area and lasts about one week (Bechard et al. 2020). One to four eggs are laid and incubated for about 35 days. Young typically fledge in about 38–46 days and tend to leave the nest territory within 10 days of fledging (Bechard et al. 2020). Swainson's hawks depart for the non-breeding grounds between August and September.

There are two CNDDB records, from 1994 and 2016, of Swainson's hawk from within 5 miles of the Project site (CDFW 2021). The fallow fields of the Project site provide potential foraging habitat for Swainson's hawk, and several potential nest trees were observed within 0.5 miles of the Project site. However, the mostly dense urban surroundings minimize the potential use of the Project site for foraging by Swainson's hawk. Therefore, the potential for this species to occur is low.

4.0 Environmental Impacts

4.1 Significance Determinations

This Project, which will result in temporary and permanent impacts to agricultural land cover, will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as no such habitat is present on the Project site; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b) as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (criterion f) as no riparian habitat or other sensitive natural community was present in the survey area; (6) 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 (criterion g) as no impacts to wetlands will occur; (7) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no trees or biologically sensitive areas will be impacted; or (8) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criteria provided the framework for Criterion BIO1 and Criterion BIO2 below. These criteria are used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: 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 CDFW or USFWS (significance criterion e).

- Criterion BIO2: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (significance criterion h).

4.1.1 Direct and Indirect Impacts

4.1.1.1 Potential Impact: Have a substantial Effect on any Special-Status Species (Criterion BIO1)

The Project could adversely affect one special-status animal species that could occur on or near the Project site. Construction activities such as excavating, trenching, or using other heavy equipment that disturbs or harms a special-status species could constitute a significant impact. We recommend that Mitigation Measures BIO1 and BIO2 (below) be included in the conditions of approval to reduce the potential impacts to a less-than-significant level.

Mitigation Measure BIO1. Protect nesting Swainson's hawks.

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.

2. If it is not possible to schedule construction between September and February, a qualified biologist shall conduct surveys for Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (SWTAC 2000, Appendix D). These methods require six surveys, three in each of the two survey periods, prior to project initiation. Surveys shall be conducted within a minimum 0.5-mile radius around the Project site.

3. If an active Swainson's hawk nest is found within 0.5 miles of the Project site, and the qualified biologist determines that Project activities would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

Mitigation Measure BIO2. Compensate for loss of Swainson's hawk foraging habitat.

1. Compensate for loss of Swainson's hawk foraging habitat (i.e., the fallow fields on the Project site) in accordance with the CDFW *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994, Appendix E). The CDFW requires that projects adversely affecting Swainson's hawk foraging habitat provide Habitat Management (HM) lands to the department. Projects within 1 mile of an active nest shall provide one acre of HM lands for each acre of development authorized (1:1 ratio). Projects within 5 miles of an active nest but greater than 1 mile from the nest shall provide 0.75 acres of HM lands for each acre of urban development authorized (0.75:1 ratio). And projects within 10 miles of an active nest but greater than 5 miles from an active nest shall provide 0.5 acres of HM lands for each acre of urban development authorized (0.5:1 ratio). No compensation is required if an active

nest is not found within 10 miles of the Project site. The nearest nest is determined using methods identified in Mitigation Measure BIO1 during the nesting season before or during construction.

4.1.1.2 Potential Impact: Interfere Substantially with Native Wildlife Movements, Corridors, or Nursery Sites (Criterion BIO2)

The Project could impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant impact. We recommend that Mitigation Measure BIO3 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure BIO3. Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.

2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

4.1.2 Cumulative Effects

The Project will involve developing a 15-acre parcel that currently supports fallowed agricultural fields into a multi-family apartment complex. The Project site could provide foraging habitat and is within 0.5 miles of nesting habitat for the state listed as threatened Swainson's hawk. Nesting habitat for migratory birds is also present on the Project site. However, implementing Mitigation

Measures BIO1 through BIO3 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level.

4.1.3 Unavoidable Significant Adverse Effects

No unavoidable significant adverse effects on biological resources would occur from implementing the Project.

5.0 Literature Cited

Bechard, M. J., C. S. Houston, J. H. Saransola, and A. S. England. 2020. Swainson's Hawk (*Buteo swainsoni*), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.swahaw.01

California Department of Fish and Wildlife (CDFW). 2021. California Natural Diversity Data Base (CNDDB) RareFind 5. https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed 6 September 2021.

California Department of Fish and Game (CDFG). 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawk (*Buteo swainsoni*) in the Central Valley of California. California Nongame Bird and Mammal Section Report #94.18.

California Native Plant Society, Rare Plant Program (CNPS). 2021. Inventory of Rare and Endangered Plants (online edition, v8-03 0.39). California Native Plant Society, Sacramento, CA. http://www.rareplants.cnps.org. Accessed 6 September 2021.

Google. 2021. Google Earth Pro. Version 7.3.2.5776 (https://www.google.com/earth/download/gep/agree.html). Accessed September 2021.

Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture. 2021. Web Soil Survey, National Cooperative Soil Survey: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed 6 September 2021.

Swainson's Hawk Technical Advisory Committee (SWTAC). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. 5 pages.

United States Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Wetland Research Program Technical Report Y-87-1.

________. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046489.pdf. Accessed September 2021.

United States Fish and Wildlife Service (USFWS). 2018. Migratory Bird Permit Memorandum: Destruction and Relocation of Migratory Bird Nest Contents. FWS/DMBM/AMB/068029, 4 pages.

________. 2021a. IPaC: Information for Planning and Conservation. https://ecos.fws.gov/ipac/. Accessed 6 September 2021.

_________. 2021b. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/. Accessed 6 September 2021.

Appendix A. USFWS list of threatened and endangered species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: September 06, 2021
Consultation Code: 08ESMF00-2021-SLI-2716
Event Code: 08ESMF00-2021-E-07858
Project Name: Corvina Apartments

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2021-SLI-2716
Event Code: Some(08ESMF00-2021-E-07858)
Project Name: Corvina Apartments
Project Type: DEVELOPMENT
Project Description: Colibri Ecological proposes to assist Crawford & Bowen Planning, Inc. by preparing a biological resource evaluation in support of a 15-acre multi-family apartment complex development (Corvina Apartments Project) east of Retherford Street, west of N. Hillman Street, north of Corvina Avenue, and south of Glass Street in Tulare, Tulare County, California.
Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.2348193499999995,-119.33433514687002,14z

Counties: Tulare County, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat *Dipodomys nitratoides nitratoides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7247	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
San Joaquin Adobe Sunburst *Pseudobahia peirsonii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2931	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Visalia (3611933) OR Goshen (3611934) OR Exeter (3611932) OR Paige (3611924) OR Tulare (3611923) OR Cairns Corner (3611922) OR Taylor Weir (3611914) OR Tipton (3611913) OR Woodville (3611912))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

				Elev.		Element Occ. Ranks						Population Status		Presence		
Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Range (ft.)	Total EO's	A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G1G2 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	205 271	955 S:9	0	0	0	0	1	8	5	4	8	1	0
Andrena macswaini An andrenid bee	G2 S2	None None		270 280	7 S:3	0	0	0	0	0	3	3	0	3	0	0
Anniella pulchra Northern California legless lizard	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	325 377	375 S:2	1	0	0	0	0	1	1	1	2	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	368 368	420 S:1	1	0	0	0	0	0	0	1	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	220 220	2011 S:1	0	0	1	0	0	0	0	1	1	0	0
Atriplex cordulata var. cordulata heartscale	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	285 285	66 S:1	0	0	0	0	0	1	1	0	1	0	0
Atriplex cordulata var. erecticaulis Earlimart orache	G3T1 S1	None None	Rare Plant Rank - 1B.2	308 308	23 S:1	0	1	0	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Atriplex depressa brittlescale	G2 S2	None None	Rare Plant Rank - 1B.2		60 S:1	0	0	0	0	0	1	1	0	1	0	0
Atriplex minuscula lesser saltscale	G2 S2	None None	Rare Plant Rank - 1B.1	290 300	52 S:2	0	1	1	0	0	0	0	2	2	0	0
Atriplex subtilis subtle orache	G1 S1	None None	Rare Plant Rank - 1B.2	285 305	24 S:2	1	0	0	0	1	0	2	0	1	1	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		350 350	437 S:1	0	0	0	0	0	1	1	0	1	0	0
Branchinecta lynchi vernal pool fairy shrimp	G3 S3	Threatened None	IUCN_VU-Vulnerable	218 290	795 S:3	0	2	0	0	0	1	3	0	3	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	200 331	2541 S:38	3	11	6	0	0	18	10	28	38	0	0
Caulanthus californicus California jewelflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	285 285	67 S:1	0	0	0	0	1	0	1	0	0	0	1
Charadrius montanus mountain plover	G3 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern		90 S:1	0	0	0	0	0	1	1	0	1	0	0

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Coccyzus americanus occidentalis western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	330 330	165 S:1	0	0	0	0	1	0	1	0	0	0	1
Delphinium recurvatum recurved larkspur	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	275 305	119 S:2	0	1	0	0	1	0	1	1	1	0	1
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S3	Threatened None		405 405	271 S:1	0	0	1	0	0	0	1	0	1	0	0
Dipodomys nitratoides nitratoides Tipton kangaroo rat	G3T1T2 S1S2	Endangered Endangered	IUCN_VU-Vulnerable	215 320	79 S:3	0	0	0	0	1	2	3	0	2	0	1
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	325 325	1398 S:1	0	0	0	0	0	1	1	0	1	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	390 390	108 S:1	0	0	0	0	1	0	1	0	0	1	0
Eumops perotis californicus western mastiff bat	G4G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	300 300	296 S:1	0	1	0	0	0	0	0	1	1	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	218 266	416 S:3	0	0	0	0	0	3	3	0	3	0	0
Imperata brevifolia California satintail	G4 S3	None None	Rare Plant Rank - 2B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	300 300	32 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks A	B	C	D	X	U	Population Status Historic > 20 yr	Recent <= 20 yr	Presence Extant	Poss. Extirp.	Extirp.
Lanius ludovicianus loggerhead shrike	G4 S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	266 266	110 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasthenia chrysantha alkali-sink goldfields	G2 S2	None None	Rare Plant Rank - 1B.1	215 380	55 S:5	0	0	0	0	1	4	5	0	4	1	0
Lytta hoppingi Hopping's blister beetle	G1G2 S1S2	None None		325 325	5 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta morrisoni Morrison's blister beetle	G1G2 S1S2	None None		275 275	10 S:1	0	0	0	0	0	1	1	0	0	1	0
Pseudobahia peirsonii San Joaquin adobe sunburst	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		51 S:1	0	0	0	0	1	0	1	0	0	0	1
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	220 305	80 S:3	0	0	0	0	1	2	3	0	2	1	0
Spea hammondii western spadefoot	G2G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	281 304	1422 S:3	0	1	1	0	0	1	1	2	3	0	0
Talanites moodyae Moody's gnaphosid spider	G1G2 S1S2	None None		700 700	6 S:1	0	0	0	0	0	1	1	0	1	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	370 370	594 S:1	0	0	1	0	0	0	1	0	1	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		220 720	1020 S:25	0	0	0	0	0	25	25	0	25	0	0

Appendix C. CNPS plant list.

Search Results

Back Export Results

12 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1B,2B], Quad is one of [3611934,3611933,3611932,3611924,3611923,3611922,3611914,3611913,3611912]

Scientific Name | Common Name | Family | Lifeform | Blooming Period | Fed List | State List | Global Rank | State Rank | CA Rare Plant Rank | General Habitats | Micro Habitats | Lowest Elevation | Highest Elevation | CA Endemic | Date Added | Photo

Search:

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Atriplex cordulata var. *cordulata*	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	No Photo Available
Atriplex cordulata var. *erecticaulis*	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	No Photo Available
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	No Photo Available
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	No Photo Available
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	No Photo Available
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	FE	CE	G1	S1	1B.1	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	No Photo Available
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual/perennial herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	Sep-May	None	None	G4	S3	2B.1	No Photo Available
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	No Photo Available
Pseudobahia peirsonii	San Joaquin adobe sunburst	Asteraceae	annual herb	Feb-Apr	FT	CE	G1	S1	1B.1	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G3	S2	1B.2	No Photo Available

Showing 1 to 12 of 12 entries

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Appendix D. Recommended timing and methodology for Swainson's hawk nesting surveys in California's Central Valley.

RECOMMENDED TIMING AND METHODOLOGY FOR SWAINSON'S HAWK NESTING SURVEYS IN CALIFORNIA'S CENTRAL VALLEY

Swainson's Hawk Technical Advisory Committee

May 31, 2000

This set of survey recommendations was developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus reducing the potential for nest failures as a result of project activities/disturbances. The combination of appropriate surveys, risk analysis, and monitoring has been determined to be very effective in reducing the potential for project-induced nest failures. As with most species, when the surveyor is in the right place at the right time, Swainson's hawks may be easy to observe; but some nest sites may be very difficult to locate, and even the most experienced surveyors have missed nests, nesting pairs, mis-identified a hawk in a nest, or believed incorrectly that a nest had failed. There is no substitute for specific Swainson's hawk survey experience and acquiring the correct search image.

METHODOLOGY

Surveys should be conducted in a manner that maximizes the potential to observe the adult Swainson's hawks, as well as the nest/chicks second. To meet the California Department of Fish and Game's (CDFG) recommendations for mitigation and protection of Swainson's hawks, surveys should be conducted for a ½ mile radius around all project activities, and if active nesting is identified within the ½ mile radius, consultation is required. In general, the TAC recommends this approach as well.

Minimum Equipment

Minimum survey equipment includes a high-quality pair of binoculars and a high quality spotting scope. Surveying even the smallest project area will take hours, and poor optics often result in eye-strain and difficulty distinguishing details in vegetation and subject birds. Other equipment includes good maps, GPS units, flagging, and notebooks.

Walking vs Driving

Driving (car or boat) or "windshield surveys" are usually preferred to walking if an adequate roadway is available through or around the project site. While driving, the observer can typically approach much closer to a hawk without causing it to fly. Although it might appear that a flying bird is more visible, they often fly away from the observer using trees as screens; and it is difficult to determine from where a flying bird came. Walking surveys are useful in locating a nest after a nest territory is identified, or when driving is not an option.

Angle and Distance to the Tree

Surveying subject trees from multiple angles will greatly increase the observer's chance of detecting a nest or hawk, especially after trees are fully leafed and when surveying multiple trees in close proximity. When surveying from an access road, survey in both directions. Maintaining a distance of 50 meters to 200 meters from subject trees is optimal for observing perched and flying hawks without greatly reducing the chance of detecting a nest/young: Once a nesting territory is identified, a closer inspection may be required to locate the nest.

Speed
Travel at a speed that allows for a thorough inspection of a potential nest site. Survey speeds should not exceed 5 miles per hour to the greatest extent possible. If the surveyor must travel faster than 5 miles per hour, stop frequently to scan subject trees.

Visual and Aural Ques
Surveys will be focused on both observations and vocalizations. Observations of nests, perched adults, displaying adults, and chicks during the nesting season are all indicators of nesting Swainson's hawks. In addition, vocalizations are extremely helpful in locating nesting territories. Vocal communication between. hawks is frequent during territorial displays; during courtship and mating; through the nesting period as mates notify each other that food is available or that a threat exists; and as older chicks and fledglings beg for food.

Distractions
Minimize distractions while surveying. Although two pairs of eyes may be better than one pair at times, conversation may limit focus. Radios should be off, not only are they distracting, they may cover a hawk's call.

Notes and Species Observed
Take thorough field notes. Detailed notes and maps of the location of observed Swainson's hawk nests are essential for filling gaps in the Natural Diversity Data Base; please report all observed nest sites. Also document the occurrence of nesting great homed owls, red-tailed hawks, red-shouldered hawks and other potentially competitive species. These species will infrequently nest within 100 yards of each other, so the presence of one species will not necessarily exclude another.

TIMING

To meet **the minimum level** of protection for the species, surveys should be completed for **at least** the two survey periods immediately prior to a project's initiation. For example, if a project is scheduled to begin on June 20, you should complete 3 surveys in Period III and 3 surveys in Period V. However, it is always recommended that surveys be completed in Periods II, III and V. **Surveys should not be conducted in Period IV.**

The survey periods are defined by the timing of migration, courtship, and nesting in a "typical" year for the majority of Swainson's hawks from San Joaquin County to Northern Yolo County. Dates should be adjusted in consideration of early and late nesting seasons, and geographic differences (northern nesters tend to nest slightly later, etc). If you are not sure, contact a TAC member or CDFG biologist.

Survey dates Justification and search image	Survey time	Number of Surveys
I. *January-March 20 (recommended optional)*	*All day*	*1*

Prior to Swainson's hawks returning, it may be helpful to survey the project site to determine potential nest locations. Most nests are easily observed from relatively long distances, giving the surveyor the opportunity to identify potential nest sites, as well as becoming familiar with the project area. It also gives the surveyor the opportunity to locate and map competing species nest sites such as great homed owls from February on, and red-tailed hawks from March on. After March 1, surveyors are likely to observe Swainson's hawks staging in traditional nest territories.

II. *March 20 to April 5*	*Sunrise to 1000* *1600 to sunset*	*3*

Most Central Valley Swainson's hawks return by April 1, and immediately begin occupying their traditional nest territories. For those few that do not return by April 1, there are often hawks ("floaters") that act as place-holders in traditional nest sites; they are birds that do not have mates, but temporarily attach themselves to traditional territories and/or one of the site's "owners." Floaters are usually displaced by the territories' owner(s) if the owner returns.

Most trees are leafless and are relatively transparent; it is easy to observe old nests, staging birds, and competing species. The hawks are usually in their territories during the survey hours, but typically soaring and foraging in the mid-day hours. Swainson's hawks may often be observed involved in territorial and courtship displays, and circling the nest territory. Potential nest sites identified by the observation of staging Swainson's hawks will usually be active territories during that season, although the pair may not successfully nest/reproduce that year.

III. *April 5 to April 20*	*Sunrise to 1200* *1630 to Sunset*	***3***

Although trees are much less transparent at this time, 'activity at the nest site increases significantly. Both males and females are actively nest building, visiting their selected site frequently. Territorial and courtship displays are increased, as is copulation. The birds tend to vocalize often, and nest locations are most easily identified. This period may require a great deal of "sit and watch" surveying.

IV. *April 21 to June 10*	*Monitoring known nest sites only* ***Initiating Surveys is not recommended***	

Nests are extremely difficult to locate this time of year, and even the most experienced surveyor will miss them, especially if the previous surveys have not been done. During this phase of nesting, the female Swainson's hawk is in brood position, very low in the nest, laying eggs, incubating, or protecting the newly hatched and vulnerable chicks; her head may or may not be visible. Nests are often well-hidden, built into heavily vegetated sections of trees or in clumps of mistletoe, making them all but invisible. Trees are usually not viewable from all angles, which may make nest observation impossible.

Following the male to the nest may be the only method to locate it, and the male will spend hours away from the nest foraging, soaring, and will generally avoid drawing attention to the nest site. Even if the observer is fortunate enough to see a male returning with food for the female, if the female determines it is not safe she will not call the male in, and he will not approach the nest; this may happen if the observer, or others, are too close to the nest or if other threats, such as rival hawks, are apparent to the female or male.

V. ***June 10 to JuIy 30 (post-fledging)***	***Sunrise to 1200*** ***1600 to sunset***	***3***

Young are active and visible, and relatively safe without parental protection. Both adults make numerous trips to the nest and are often soaring above, or perched near or on the nest tree. The location and construction of the nest may still limit visibility of the nest, young, ‘and adults.

DETERMINING A PROJECT’S POTENTIAL
FOR IMPACTING SWAINSON'S HAWKS

LEVEL OF RISK	REPRODUCTIVE SUCCESS (Individuals)	LONGTERM SURVIVABILITY (Population)	NORMAL SITE CHARACTERISTICS (Daily Average)	NEST MONI-TORING
HIGH	Direct physical contact with the nest tree while the birds are on eggs or protecting young. (Helicopters in close proximity)	Loss of available foraging area. Loss of nest trees.	Little human-created noise, little human use: nest is well away from dwellings, equipment yards, human access areas, etc. *Do not include general cultivation practices in evaluation.*	**MORE**
	Loss of nest tree after nest building is begun prior to laying eggs.	Loss of potential nest trees.		
	Personnel within 50 yards of nest tree (out of vehicles) for extended periods while birds are on eggs or protecting young that are < 10 days old.	Cumulative: Multi-year, multi-site projects with substantial noise/personnel disturbance.		
	Initiating construction activities (machinery and personnel) within 200 yards of the nest after eggs are laid and before young are > 10 days old.	Cumulative: Single-season projects with substantial noise/personnel disturbance that is greater than or significantly different from the daily norm.		
	Heavy machinery only working within 50 yards of nest.			
	Initiating construction activities within 200 yards of nest before nest building begins or after young > 10 days old.		Substantial human-created noise and occurrence: nest is near roadways, well-used waterways, active airstrips, areas that have high human use. *Do not include general cultivation practices in evaluation.*	
LOW	All project activities (personnel and machinery) greater than 200 yards from nest.	Cumulative: Single-season projects with activities that “blend” well with site’s “normal’ activities.		LESS

Appendix D. Staff report regarding mitigation for impacts to Swainson's hawk (*Buteo swainsoni*) in the Central Valley of California.

Nongame Bird and Mammal
Section Report # 94.18

State of California

Memorandum

To : Div. Chiefs - IFD, BDD, NHD, WMD
Reg. Mgrs. - Regions 1, 2, 3, 4

Date : November 8, 1994

From : Department of Fish and Game

Subject : Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California

I am hereby transmitting the Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California for your use in reviewing projects (California Environmental Quality Act [CEQA] and others) and in developing 2081 Management Authorizations and 2090 Biological Opinions which may affect Swainson's hawk habitat in the Central Valley. The staff report has been developed during the last 18 months by the Environmental Services Division (ESD) in cooperation with the Wildlife Management Division (WMD) and Regions 1, 2, and 4. It has been sent out for public review on several occasions and redrafted as appropriate.

Either the mitigation measures in the staff report may be used or project specific measures may be developed. Alternative project specific mitigation measures proposed by the Department Divisions/Regions or by project sponsors will also be considered. However, such mitigation measures must be submitted to ESD for review. The review process will focus on the consistency of the proposed measure with Department, Fish and Game Commission, and legislative policy and with laws regarding raptors and listed species. ESD will coordinate project specific mitigation measure review with WMD.

If you have any questions regarding the report, please contact Mr. Ron Rempel, Program Supervisor, Habitat Conservation Planning and Endangered Species Permitting, Environmental Services Division at (916) 654-9980.

COPY Original signed by
A. Petrovich, Jr.
For
Boyd Gibbons
Direction

Enclosure

cc: Mr. Ron Rempel
Department of Fish and Game
Sacramento

file; d, exfile, esd, chron
Vouchilas/seh/pdl SRPBUTEO.DS1

Staff Report regarding Mitigation
for Impacts to Swainson's Hawks (*Buteo swainsoni*)
in the Central Valley of California

INTRODUCTION

The Legislature and the Fish and Game Commission have developed the policies, standards and regulatory mandates which, if implemented, are intended to help stabilize and reverse dramatic population declines of threatened and endangered species. In order to determine how the Department of Fish and Game (Department) could judge the adequacy of mitigation measures designed to offset impacts to Swainson's hawks in the Central Valley, Staff (WMD, ESD and Regions) has prepared this report. To ensure compliance with legislative and Commission policy, mitigation requirements which are consistent with this report should be incorporated into: (1) Department comments to Lead Agencies and project sponsors pursuant to the California Environmental Quality Act (CEQA); (2) Fish and Game Code Section 2081 Management Authorizations (Management Authorizations); and (3) Fish and Game Code Section 2090 Consultations with State CEQA Lead Agencies.

The report is designed to provide the Department (including regional offices and divisions), CEQA Lead Agencies and project proponents the context in which the Environmental Services Division (ESD) will review proposed project specific mitigation measures. This report also includes "model" mitigation measures which have been judged to be consistent with policies, standards and legal mandates of the Legislature and Fish and Game Commission. Alternative mitigation measures, tailored to specific projects, may be developed if consistent with this report. Implementation of mitigation measures consistent with this report are intended to help achieve the conservation goals for the Swainson's hawk and should complement multi-species habitat conservation planning efforts currently underway.

The Department is preparing a recovery plan for the species and it is anticipated that this report will be revised to incorporate recovery plan goals. It is anticipated that the recovery plan will be completed by the end of 1995. The Swainson's hawk recovery plan will establish criteria for species recovery through preservation of existing habitat, population expansion into former habitat, recruitment of young into the population, and other specific recovery efforts.

During project review the Department should consider whether a proposed project will adversely affect suitable foraging habitat within a ten (10) mile radius of an active (used during one or more of the last 5 years) Swainson's hawk nest(s). Suitable Swainson's hawk foraging habitat will be those habitats and crops identified in Bechard (1983), Bloom (1980), and Estep (1989). The following vegetation types/agricultural crops are considered small mammal and insect foraging habitat for Swainson's hawks:

- alfalfa
- fallow fields
- beet, tomato, and other low-growing row or field crops
- dry-land and irrigated pasture

- rice land (when not flooded)
- cereal grain crops (including corn after harvest)

The ten mile radius standard is the flight distance between active (and successful) nest sites and suitable foraging habitats, as documented in telemetry studies (Estep 1989, Babcock 1993). Based on the ten mile radius, new development projects which adversely modify nesting and/or foraging habitat should mitigate the project's impacts to the species. The ten mile foraging radius recognizes a need to strike a balance between the biological needs of reproducing pairs (including eggs and nestlings) and the economic benefit of developments) consistent with Fish and Game Code Section 2053.

Since over 95% of Swainson's hawk nests occur on private land, the Department's mitigation program should include incentives that preserve agricultural lands used for the production of crops, which are compatible with Swainson's hawk foraging needs, while providing an opportunity for urban development and other changes in land use adjacent to existing urban areas.

LEGAL STATUS

Federal

The Swainson's hawk is a migratory bird species protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in Section 50 of the Code of Federal Regulations (C.F.R.) Part 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 C.F.R. 21).

State

The Swainson's hawk has been listed as a threatened species by the California Fish and Game Commission pursuant to the California Endangered Species Act (CESA), see Title 14, California Code of Regulations, Section 670.5(b)(5)(A).

LEGISLATIVE AND COMMISSION POLICIES,
LEGAL MANDATES AND STANDARDS

The FGC policy for threatened species is, in part, to: "Protect and preserve all native species ... and their habitats...." This policy also directs the Department to work with all interested persons to protect and preserve sensitive resources and their habitats. Consistent with this policy and direction, the Department is enjoined to implement measures that assure protection for the Swainson's hawk.

The California State Legislature, when enacting the provisions of CESA, made the following findings and declarations in Fish and Game Code Section 2051:

> a) "Certain species of fish, wildlife, and plants have been rendered extinct as a consequence of man's activities, untempered by adequate concern and conservation";
>
> b) "Other species of fish, wildlife, and plants are in danger of, or threatened with, extinction because their <u>habitats are threatened with destruction, adverse modification, or severe curtailment</u> because of overexploitation, disease, predation, or other factors (emphasis added)";and
>
> c) "These species of fish, wildlife, and plants are of ecological, educational, historical, recreational, esthetic, economic, and scientific value to the people of this state, and the <u>conservation, protection, and enhancement of these species and their habitat</u> is of statewide concern" (emphasis added).

The Legislature also proclaimed that it "is the policy of the state to <u>conserve, protect, restore, and enhance</u> any endangered or threatened species and its habitat and that it is the intent of the Legislature, consistent with conserving the species, to acquire lands for habitat for these species" (emphasis added).

Section 2053 of the Fish and Game Code states, in part, "it is the policy of the state that <u>state agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species</u>, if there are reasonable and prudent alternatives available consistent with conserving the species and or its habitat which would prevent jeopardy" (emphasis added).

Section 2054 states "The Legislature further finds and declares that, in the event specific economic, social, and or other conditions make infeasible such alternatives, individual projects may be approved <u>if appropriate mitigation and enhancement measures are provided</u>" (emphasis added).

Loss or alteration of foraging habitat or nest site disturbance which results in:

(1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates), may ultimately result in the take (killing) of nestling or fledgling Swainson's hawks incidental to otherwise lawful activities. The taking of Swainson's hawks in this manner can be, a violation of Section 2080 of the Fish and Game Code. This interpretation of take has been judicially affirmed by the landmark appellate court decision pertaining to CESA (DFG v. ACID, 8 CA App.4, 41554). The essence of the decision emphasized that the intent and purpose of CESA applies to all activities that take or kill endangered or threatened species, even when the taking is incidental to otherwise legal activities. To avoid potential violations of Fish and Game Code Section 2080, the Department recommends and encourages project sponsors to obtain 2081 Management Authorizations for their projects.

Although this report has been prepared to assist the Department in working with the development community, the prohibition against take (Fish and Game Code Section 2080) applies to all persons, including those engaged in agricultural activities and routine maintenance of facilities. In addition, sections 3503, 3503.5, and 3800 of the Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs.

To avoid potential violation of Fish and Game Code Section 2080 (i.e. killing of a listed species), project-related disturbance at active Swainson's hawk nesting sites should be reduced or eliminated during critical phases of the nesting cycle (March 1 - September 15 annually). Delineation of specific activities which could cause nest abandonment (take) of Swainson's hawk during the nesting period should be done on a case-by-case basis.

CEQA requires a mandatory findings of significance if a project's impacts to threatened or endangered species are likely to occur (Sections 21001 (c), 21083, Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports findings of Overriding Consideration. The CEQA Lead Agency's Findings of Overriding Consideration does not eliminate the project sponsor's obligation to comply with Fish and Game Code Section 2080.

NATURAL HISTORY

The Swainson's hawk (Buteo swainsoni) is a large, broad winged buteo which frequents open country. They are about the same size as a red-tailed hawk (Buteo jatnaicensis), but trimmer, weighing approximately 800-1100 grams (1.75 - 2 lbs). They have about a 125 cm. (4+foot) wingspan. The basic body plumage may be highly variable and is characterized by several color morphs - light, dark, and rufous. In dark phase birds, the entire body of the bird may be sooty black. Adult birds generally have dark backs. The ventral or underneath sections may be light with a characteristic dark, wide "bib" from the lower throat down to the upper breast, light colored wing linings and pointed wing tips. The tail is gray ventrally with a subterminal dusky band, and narrow, less conspicuous barring proximally. The sexes are similar in appearance; females however, are slightly larger and heavier than males, as is the case in most sexually dimorphic raptors. There are no recognized subspecies (Palmer 1988).

The Swainson's hawk is a long distance migrator. The nesting grounds occur in northwestern Canada, the western U.S., and Mexico and most populations migrate to wintering grounds in the open pampas and agricultural areas of South America (Argentina, Uruguay, southern Brazil). The species is included among the group of birds known as "neotropical migrants". Some individuals or small groups (20-30 birds) may winter in the U.S., including California (Delta Islands). This round trip journey may exceed 14,000 miles. The birds return to the nesting grounds and establish nesting territories in early March.

Swainson's hawks are monogamous and remain so until the loss of a mate (Palmer 1988). Nest construction and courtship continues through April. The clutch (commonly 3-4 eggs) is generally laid in early April to early May, but may occur later. Incubation lasts 34-35 days, with both parents participating in the brooding of eggs and young. The young fledge (leave the nest) approximately 42-44 days after hatching and remain with their parents until they depart in the fall. Large groups (up to 100+ birds) may congregate in holding areas in the fall and may exhibit a delayed migration depending upon forage availability. The specific purpose of these congregation areas is as yet unknown, but is likely related to: increasing energy reserves for migration; the timing of migration; aggregation into larger migratory groups (including assisting the young in learning migration routes); and providing a pairing and courtship opportunity for unattached adults.

Foraging Requirements

Swainson's hawk nests in the Central Valley of California are generally found in scattered trees or along riparian systems adjacent to agricultural fields or pastures. These open fields and pastures are the primary foraging areas. Major prey items for Central Valley birds include: California voles (*Microtus californicus*), valley pocket gophers (*Thomomys bottae*), deer mice (*Peromyscus maniculatus*), California ground squirrels (*Spermophilus beecheyi*), mourning doves (*Zenaida macroura*), ring-necked pheasants (*Phasianus colchicus*), meadowlarks (*Sturnella neglecta*), other passerines, grasshoppers (*Conocephalinae sp*.), crickets (*Gryllidae sp*.), and beetles (Estep 1989). Swainson's hawks generally search for prey by soaring in open country and agricultural fields similar to northern hariers (*Circus cyaneus*) and ferruginous hawks (*Buteo regalis*). Often several hawks may be seen foraging together following tractors or other farm equipment capturing prey escaping from farming operations. During the breeding season, Swainson's hawks eat mainly vertebrates (small rodents and reptiles), whereas during migration vast numbers of insects are consumed (Palmer 1988).

Department funded research has documented the importance of suitable foraging habitats (e.g., annual grasslands, pasture lands, alfalfa and other hay crops, and combinations of hay, grain and row crops) within an energetically efficient flight distance from active Swainson's hawk nests (Estep pers. comm.). Recent telemetry studies to determine foraging requirements have shown that birds may use in excess of 15,000 acres of habitat or range up to 18.0 miles from the nest in search of prey (Estep 1989, Babcock 1993). The prey base (availability and abundance) for the species is highly variable from year to year, with major prey population (small mammals and insects) fluctuations occurring based on rainfall patterns, natural cycles and agricultural cropping and harvesting patterns. Based on these variables, significant acreages of potential foraging habitat (primarily agricultural lands) should be preserved per nesting pair (or aggregation of nesting pairs) to avoid jeopardizing existing populations. Preserved foraging areas should be adequate to allow additional Swainson's hawk nesting pairs to successfully breed and use the foraging habitat during good prey production years.

Suitable foraging habitat is necessary to provide an adequate energy source for breeding adults, including support of nestlings and fledglings. Adults must achieve an energy balance between the needs of themselves and the demands of nestlings and fledglings, or the health and survival of both may be jeopardized. If prey resources are not sufficient, or if adults must hunt long distances from the nest site, the energetics of the foraging effort may result in reduced nestling vigor with an increased likelihood of disease and/or starvation. In more extreme cases, the breeding pair, in an effort to assure their own existence, may even abandon the nest and young (Woodbridge 1985).

Prey abundance and availability is determined by land and farming patterns including crop types, agricultural practices and harvesting regimes. Estep (1989) found that 73.4% of observed prey captures were in fields being harvested, disced, mowed, or irrigated. Preferred foraging habitats for Swainson's hawks include:

- alfalfa;
- fallow fields;
- beet, tomato, and other low-growing row or field crops;
- dry-land and irrigated pasture;
- rice land (during the non-flooded period); and
- cereal grain crops (including corn after harvest).

Unsuitable foraging habitat types include crops where prey species (even if present) are not available due to vegetation characteristics (e.g. vineyards, mature orchards, and cotton fields, dense vegetation).

Nesting Requirements

Although the Swainson's hawk's current nesting habitat is fragmented and unevenly distributed, Swainson's hawks nest throughout most of the Central Valley floor. More than 85% of the known nests in the Central Valley are within riparian systems in Sacramento, Sutter, Yolo, and San Joaquin counties. Much of the potential nesting habitat remaining in this area is in riparian forests, although isolated and roadside trees are also used. Nest sites are generally adjacent to or within easy flying distance to alfalfa or hay fields or other habitats or agricultural crops which provide an abundant and available prey source. Department research has shown that valley oaks (Quercus lobata), Fremont's cottonwood (Populus fremontii), willows (Salix spp.), sycamores (Platanus spp.), and walnuts (juglans spp.) are the preferred nest trees for Swainson's hawks (Bloom 1980, Schlorff and Bloom 1983, Estep 1989).

Fall and Winter Migration Habitats

During their annual fall and winter migration periods, Swainson's hawks may congregate in large groups (up to 100+ birds). Some of these sites may be used during delayed migration periods lasting up to three months. Such sites have been identified in Yolo, Tulare, Kern and San Joaquin counties and protection is needed for these critical foraging areas which support birds during their long migration.

Historical and Current Population Status

The Swainson's hawk was historically regarded as one of the most common and numerous raptor species in the state, so much so that they were often not given special mention in field notes. The breeding population has declined by an estimated 91% in California since the turn of the century (Bloom 1980). The historical Swainson's hawk population estimates are based on current densities and extrapolated based on the historical amount of available habitat. The historical population estimate is 4,284-17,136 pairs (Bloom 1980). In 1979, approximately 375 (± 50) breeding pairs of Swainson's hawks were estimated in California, and 280 (75%) of those pairs were estimated to be in the Central Valley (Bloom 1980). In 1988, 241 active breeding pairs were found in the Central Valley, with an additional 78 active pairs known in northeastern California. The 1989 population estimate was 430 pairs for the Central Valley and 550 pairs statewide (Estep, 1989). This difference in population estimates is probably a result of increased survey effort rather than an actual population increase.

Reasons for decline

The dramatic Swainson's hawk population decline has been attributed to loss of native nesting and foraging habitat, and more recently to the loss of suitable nesting trees and the conversion of agricultural lands. Agricultural lands have been converted to urban land uses and incompatible crops. In addition, pesticides, shooting, disturbance at the nest site, and impacts on wintering areas may have contributed to their decline. Although losses on the wintering areas in South America may occur, they are not considered significant since breeding populations outside of California are stable. The loss of nesting habitat within riparian areas has been accelerated by flood control practices and bank stabilization programs. Smith (1977) estimated that in 1850 over 770,000 acres of riparian habitat were present in the Sacramento Valley. By the mid-1980s, Warner and Hendrix (1984) estimated that there was only 120,000 acres of riparian habitat remaining in the Central Valley (Sacramento and San Joaquin Valleys combined). Based on Warner and Hendrix's estimates approximately 93% of the San Joaquin Valley and 73% of the Sacramento Valley riparian habitat has been eliminated since 1850.

MANAGEMENT STRATEGIES

Management and mitigation strategies for the Central Valley population of the Swainson's hawk should ensure that:

- suitable nesting habitat continues to be available (this can be accomplished by protecting existing nesting habitat from destruction or disturbance and by increasing the number of suitable nest trees); and

- foraging habitat is available during the period of the year when Swainson's hawks are present in the Central Valley (this should be accomplished by maintaining or creating adequate and suitable foraging habitat in areas of existing and potential nest sites and along migratory routes within the state).

A key to the ultimate success in meeting the Legislature's goal of maintaining habitat sufficient to preserve this species is the implementation of these management strategies in cooperation with project sponsors and local, state and federal agencies.

DEPARTMENT'S ROLES AND RESPONSIBILITIES IN PROJECT CONSULTATION AND ADMINISTRATION OF CEQA AND THE FISH AND GAME CODE

The Department, through its administration of the Fish and Game Code and its trust responsibilities, should continue its efforts to minimize further habitat destruction and should seek mitigation to offset unavoidable losses by (1) including the mitigation measures in this document in CEQA comment letters and/or as management conditions in Department issued Management Authorizations or (2) by developing project specific mitigation measures (consistent with the Commission's and the Legislature's mandates) and including them in CEQA comment letters and/or as management conditions in Fish and Game Code Section 2081 Management Authorizations issued by the Department and/or in Fish and Game Code Section 2090 Biological Opinions.

The Department should submit comments to CEQA Lead Agencies on all projects which adversely affect Swainson's hawks. CEQA requires a mandatory findings of significance if a project's impacts to threatened or endangered species are likely to occur (Sections 21001 fc), 21083. Guidelines 15380, 15064, 15065). Impacts must be: (1) avoided; or (2) appropriate mitigation must be provided to reduce impacts to less than significant levels; or (3) the lead agency must make and support findings of overriding consideration. If the CEQA Lead Agency makes a Finding of Overriding Consideration, it does not eliminate the project sponsor's obligation to comply with the take prohibitions of Fish and Game Code Section 2080. Activities which result in (1) nest abandonment; (2) starvation of young; and/or (3) reduced health and vigor of eggs and nestlings may result in the take (killing) of Swainson's hawks incidental to otherwise lawful activities (urban development, recreational activities, agricultural practices, levee maintenance and similar activities. The taking of Swainson's hawk in this manner may be a violation of Section 2080 of the Fish and Game Code. To avoid potential violations of Fish and Game Code Section 2080, the Department should recommend and encourage project sponsors to obtain 2081 Management Authorizations.

In aggregate, the mitigation measures incorporated into CEQA comment letters and/or 2081 Management Authorizations for a project should be consistent with Section 2053 and 2054 of the Fish and Game Code. Section 2053 states, in part, "it is the policy of the state that state agencies should not approve projects as proposed which would jeopardize the continued existence of'any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species and or its habitat which would prevent jeopardy" - Section 2054 states: "The Legislature further finds and declares that, in the event specific economic, social, and or other conditions make infeasible such alternatives, individual projects may be approved if appropriate mitigation and enhancement measures are provided."

State lead agencies are required to consult with the Department pursuant to Fish and Game Code Section 2090 to ensure that any action authorized, funded, or carried out by that state agency will not jeopardize the continued existence of any threatened or endangered species. Comment letters to State Lead Agencies should also include a reminder that the State Lead Agency has the responsibility to consult with the Department pursuant to Fish and Game Code Section 2090 and obtain a written findings (Biological Opinion). Mitigation measures included in Biological Opinions issued to State Lead Agencies must be consistent with Fish and Game Code Sections 2051-2054 and 2091-2092.

NEST SITE AND HABITAT LOCATION INFORMATION SOURCES

The Department's Natural Diversity Data Base (NDDB) is a continually updated, computerized inventory of location information on the State's rarest plants, animals, and natural communities. Department personnel should encourage project proponents and CEQA Lead Agencies, either directly or through CEQA comment letters, to purchase NDDB products for information on the locations of Swainson's hawk nesting areas as well as other sensitive species. The Department's Nongame Bird and Mammal Program also maintains information on Swainson's hawk nesting areas and may be contacted for additional information on the species.

Project applicants and CEQA Lead Agencies may also need to conduct site specific surveys (conducted by qualified biologists at the appropriate time of the year using approved protocols) to determine the status (location of nest sites, foraging areas, etc.) of listed species as part of the CEQA and 2081 Management Authorization process. Since these studies may require multiple years to complete, the Department shall identify any needed studies at the earliest possible time in the project review process. To facilitate project review and reduce the potential for costly project delays, the Department should make it a standard practice to advise developers or others planning projects that may impact one or more Swainson's hawk nesting or foraging areas to initiate communication with the Department as early as possible .

MANAGEMENT CONDITIONS

Staff believes the following mitigation measures (nos. 1-4) are adequate to meet the Commission's and Legislature's policy regarding listed species and are considered as preapproved for incorporation into any Management Authorizations for the Swainson's hawk issued by the Department. The incorporation of measures 1-4 into a CEQA document should reduce a project's impact to a Swainson's hawk(s) to less than significant levels. Since these measures are Staff recommendations, a project sponsor or CEQA Lead agency may choose to negotiate project specific mitigation measures which differ. In such cases, the negotiated Management Conditions must be consistent with Commission and Legislative policy and be submitted to the ESD for review and approval prior to reaching agreement with the project sponsor or CEQA Lead Agency.

Staff recommended Management Conditions are:

1. No intensive new disturbances (e.g. heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project related activities which may cause nest abandonment or forced fledging, should be initiated within 1/4 mile (buffer zone) of an active nest between March 1 - September 15 or until August 15 if a Management Authorization or Biological Opinion is obtained for the project. The buffer zone should be increased to ½ mile in nesting areas away from urban development (i.e. in areas where disturbance [e.g. heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities] is not a normal occurrence during the nesting season). Nest trees should not be removed unless there is no feasible way of avoiding it. If a nest tree must be removed, a Management Authorization (including conditions to off-set the loss of the nest tree) must be obtained with the tree removal period specified in the Management Authorization, generally between October 1- February 1. If construction or other project related activities which may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the project sponsor) by a qualified biologist (to determine if the nest is abandoned) should be required . If it is abandoned and if the nestlings are still alive, the project sponsor shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within 1/4 mile of an active nest should not be prohibited.

2. Hacking as a substitute for avoidance of impacts during the nesting period may be used in unusual circumstances after review and approval of a hacking plan by ESD and WMD. Proponents who propose using hacking will be required to fund the full costs of the effort, including any telemetry work specified by the

Department.

3. To mitigate for the loss of foraging habitat (as specified in this document), the Management Authorization holder/project sponsor shall provide Habitat Management (HM) lands to the Department based on the following ratios:

(a) Projects within I mile of an active nest tree shall provide:

- one acre of HM land (at least 10% of the HM land requirements shall be met by fee title acquisition or a conservation easement allowing for the active management of the habitat, with the remaining 90% of the HM lands protected by a conservation easement [acceptable to the Department] on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk) for each acre of development authorized (1:1 ratio); or

- One-half acre of HM land (all of the HM land requirements shall be met by fee title acquisition or a conservation easement [acceptable to the Department) which allows for the active management of the habitat for prey production on-the HM lands) for each acre of development authorized (0.5:1 ratio).

(b) Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall plovide 0.75 acres of HM land for each acre of urban development authorized (0-75:1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to the Department) on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk.

(c) Projects within 10 miles of an active nest tree but gleater than 5 miles from an active nest tree shall provide 0.5 acres of HM land for each acre of urban development authorized (0.5:1 ratio). All HM lands- protected under this requirement may be protected through fee title acquisition or a conservation easement (acceptable to the Department) on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk.

4. Management Authorization holders/project sponsors shall provide for the long-term management of the HM lands by funding a management endowment (the interest on which shall be used for managing the HM lands) at the rate of $400 per HM land acre (adjusted annually for inflation and varying interest rates).

Some project sponsors may desire to provide funds to the Department for HM land protection. This option is acceptable to the extent the proposal is consistent with Department policy regarding acceptance of funds for land acquisition. All HM lands should be located in areas which are consistent with a multi-species habitat conservation focus. Management

Authorization holders/project sponsors who are willing to establish a significant mitigation bank (> 900 acres) should be given special consideration such as 1.1 acres of mitigation credit for each acre preserved.

PROJECT SPECIFIC MITIGATION MEASURES

Although this report includes recommended Management Measures, the Department should encourage project proponents to propose alternative mitigation strategies that provide equal or greater protection of the species and which also expedite project environmental review or issuance of a CESA Management Authorization. The Department and sponsor may choose to conduct cooperative, multi-year field studies to assess the site's habitat value and determine its use by nesting and foraging Swainson's hawk. Study plans should include clearly defined criteria for judging the project's impacts on Swainson's hawks and the methodologies (days of monitoring, foraging effort/efficiency, etc.) that will be used.

The study plans should be submitted to the Wildlife Management Division and ESD for review. Mitigation measures developed as a result of the study.must be reviewed by ESD (for consistency with the policies of the Legislature and Fish and Game Commission) and approved by the Director.

EXCEPTIONS

Cities, counties and project sponsors should be encouraged to focus development on open lands within already urbanized areas. Since small disjunct parcels of habitat seldom provide foraging habitat needed to sustain the reproductive effort of a Swainson's hawk pair, Staff does not recommend requiring mitigation pursuant to CEQA nor a Management Authorization by the Department for infill (within an already urbanized area) projects in areas which have less than 5 acres of foraging habitat and are surrounded by existing urban development, unless the project area is within 1/4 mile of an active nest tree.

REVIEW

Staff should revise this report at least annually to determine if the proposed mitigation strategies should be retained, modified or if additional mitigation strategies should be included as a result of new scientific information.

LITERATURE CITED

Babcock, K.W. 1993. Home range and habitat analysis of Swainson's hawks in West Sacramento. Michael Brandman Associates report prepared for the Southport Property Owner's Group, City of West Sacramento, CA. 21pp.

Bechard, M.J. 1983. Food supply and the occurrence of brood reduction in Swainson's Hawk. Wilson Bull. 95(2):233-242.

Bloom, P.H. 1980. The status of the Swainson's Hawk in California, 1979. Federal Aid in Wildlife Restoration, Project W-54-R-12, Nongame Wildl. Invest. job Final Report 11-8-0. 24p + appendix.

Estep, J.A. 1989. Biology, movements, and habitat relationships of the Swainson's Hawk in the Central Valley of California, 1986-87. Calif. Dept. Fish and Game, Nongame Bird and Mammal Section Report, 53pp.

Palmer, R.S. 1988a. Handbook of North American birds. Vol. 4: diurnal raptors (part 1). Yale Univ. Press, New Haven, CT.

Palmer, R.S. 1988b. Handbook of North American birds. Vol. 5: diurnal raptors (part 2). Yale Univ. Press, New Haven, CT.

Schlorff, R.W. and P.H. Bloom. 1983. Importance of riparian systems to nesting Swainson's Hawks in the Central Valley of California. pp 612-618. In: R.E Warner and K.M. Hendrix, (Eds.). 1984. California Riparian Systems. University of California Press, Berkeley.

Smith, F. 1977. Short review of the status of riparian forests in California. In: Stet, A. (Ed.). Riparian forests in California: Their ecology and conservation. Inst. of Ecology Pubi. 15. Univ. of Calif., Davis.

Warner, R.E. and K. M. Hendrix, Eds. 1984. California riparian systems; ecology, conservation, and productive management. University of California Press, Berkeley.

Woodbridge, B. 1985. Biology and management of Swainson's Hawk in Butte Valley, California. U.S. Forest Service Report, 19pp.

Appendix C

CHRIS Records Search Letter

California
Historical
Resources
Information
System

Fresno
Kern
Kings
Madera
Tulare

Southern San Joaquin Valley Information Center
California State University, Bakersfield
Mail Stop: 72 DOB
9001 Stockdale Highway
Bakersfield, California 93311-1022
(661) 654-2289
E-mail: ssjvic@csub.edu
Website: www.csub.edu/ssjvic

Record Search 21-365

To: Emily Bowen
Crawford & Bowen Planning, Inc.
113 N. Church St., #302
Visalia, CA 93291

Date: September 29, 2021

Re: Tulare Retherford-Corvina Apartments

County: Tulare

Map(s): Tulare 7.5'

CULTURAL RESOURCES RECORDS SEARCH

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

The following are the results of a search of the cultural resource files at the Southern San Joaquin Valley Information Center. These files include known and recorded cultural resources sites, inventory and excavation reports filed with this office, and resources listed on the National Register of Historic Places, the OHP Built Environment Resources Directory, California State Historical Landmarks, California Register of Historical Resources, California Inventory of Historic Resources, and California Points of Historical Interest. Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the OHP are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area.

PRIOR CULTURAL RESOURCE STUDIES CONDUCTED WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

According to the information in our files, there has been a small portion of one cultural resource study in the project area, TU-01677. An additional three cultural resource studies fall in the one-half mile radius, TU-00102, 01311, 01776.

KNOWN/RECORDED CULTURAL RESOURCES WITHIN THE PROJECT AREA AND THE ONE-HALF MILE RADIUS

There are no recorded resources within the project area. There are three cultural resources within the one-half mile radius, P-54-005210, 54-005211, 54-005296. All of which are agricultural ditches and canals that are still in use.

There are no recorded cultural resources within the project area or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks.

COMMENTS AND RECOMMENDATIONS

We understand this project consists of on-site infrastructure improvements of a multi-family residential subdivision consisting of 216 dwelling units. These improvements include a new gate, sidewalks, curbs, gutters, and landscaping. Further, we understand this project area is agricultural land. Please note that agriculture does not constitute previous development, as it does not destroy cultural resources, but merely moves them around within the plow zone. Because only a small portion of this project area has been previously studied for cultural resources, it is unknown if any are present. As such, prior to ground disturbance activities, we recommend a qualified, professional consultant conduct a field survey to determine if cultural resources are present. A list of qualified consultants can be found at www.chrisinfo.org.

We also recommend that you contact the Native American Heritage Commission in Sacramento. They will provide you with a current list of Native American individuals/organizations that can assist you with information regarding cultural resources that may not be included in the CHRIS Inventory and that may be of concern to the Native groups in the area. The Commission can consult their "Sacred Lands Inventory" file to determine what sacred resources, if any, exist within this project area and the way in which these resources might be managed. Finally, please consult with the lead agency on this project to determine if any other cultural resource investigation is required. If you need any additional information or have any questions or concerns, please contact our office at (661) 654-2289.

By:

Jeremy E David, Assistant Coordinator **Date**: September 20, 2021

Please note that invoices for Information Center services will be sent under separate cover from the California State University, Bakersfield Accounting Office.

Appendix D

Traffic Impact Study (TIS), Corvina Apartment Development

Prepared by VRPA Technologies, Inc. on July 2021

DRAFT

Corvina Apartment Development

Traffic Impact Study
July 2021

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722
Project Manager: Georgiena Vivian

Corvina Apartment Development
Traffic Impact Study

Study Team

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Table of Contents

Appendices

List of Tables

List of Figures

1.0 Introduction

1.1 Description of the Region/Project

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Corvina Apartment Development (Project). The Project site is generally located along Retherford Street on the northside of Corvina Avenue in the City of Tulare. The Project seeks to develop 216 multi-family dwelling units. Figure 1-1 shows the site's regional context. Figure 1-2 shows the Project location within the City of Visalia.

1.1.1 *Project Access*

Vehicular access to the site would be provided by Cartmill Avenue, Retherford Street, Hillman Street, Glass Avenue, and Corvina Avenue.

1.1.2 *Study Area*

The study intersections and roadway segments included in this TIS are listed below and shown in Figure 1-2.

Intersections

- ✓ Cartmill Avenue / Retherford Street
- ✓ Corvina Avenue / Hillman Street

Segments

- ✓ Retherford Street
  - Cartmill Avenue to Leland Avenue

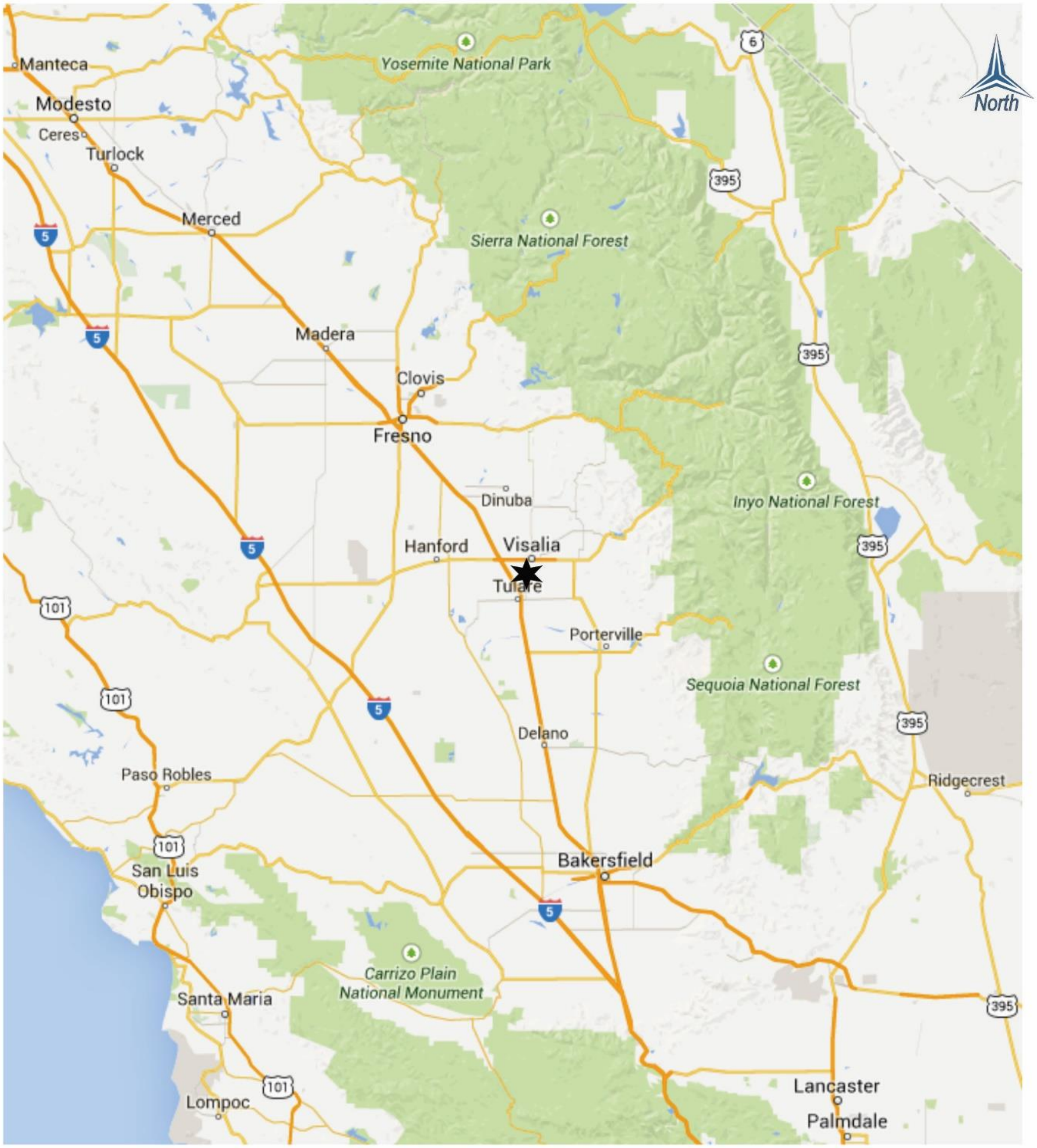
- ✓ Leland Avenue
  - Retherford Street to Hillman Street

1.1.3 *Study Scenarios*

The TIS completed for the Project includes level of service (LOS) analysis for the following traffic scenarios.

- ✓ Existing Conditions
- ✓ Existing Plus Project
- ✓ Near-Term Plus Project
- ✓ Cumulative Year 2042 Without Project
- ✓ Cumulative Year 2042 Plus Project

Corvina Apartment Development **Figure**
Regional Location **1-1**

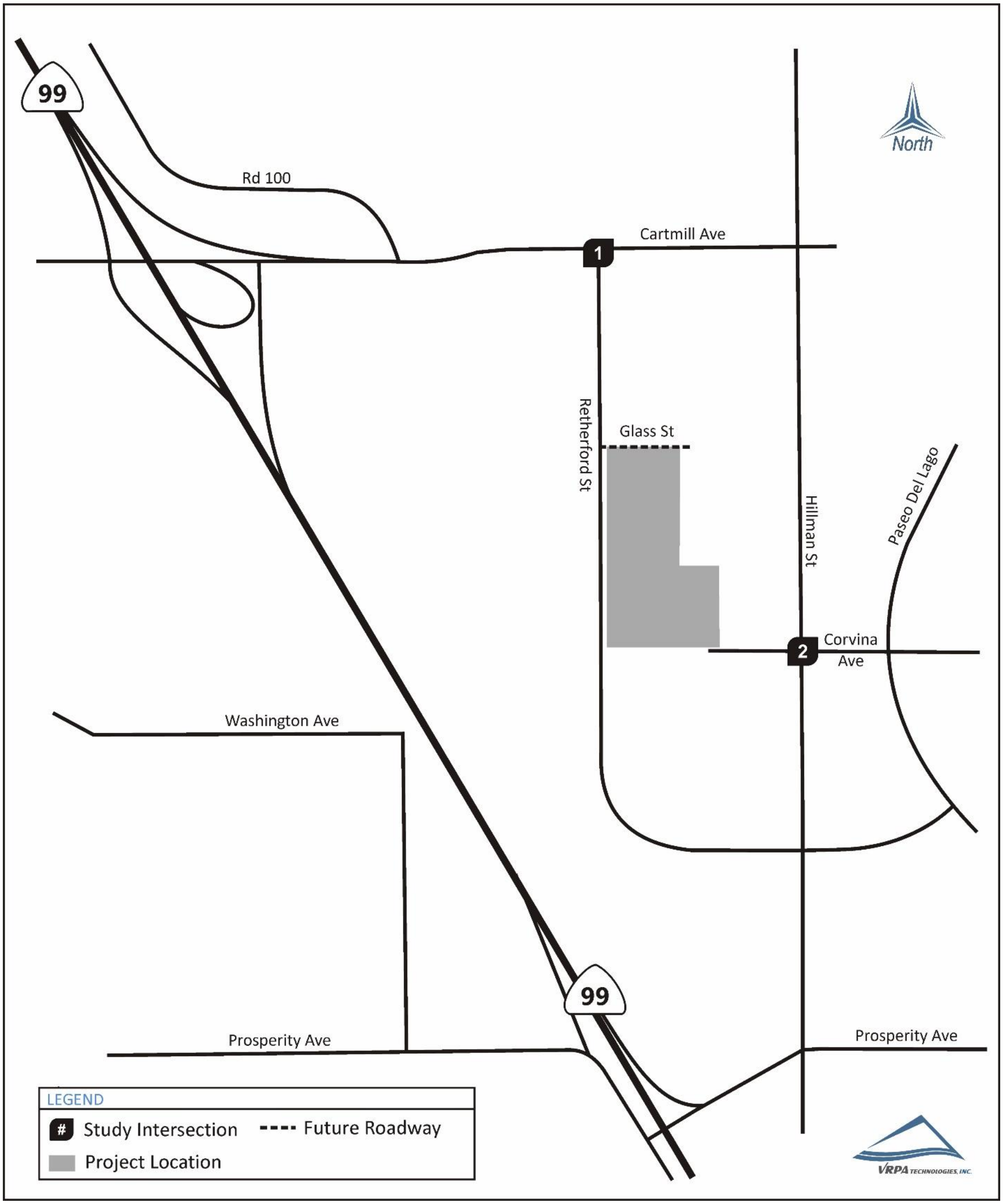


LEGEND

★ Project Location

Corvina Apartment Development
Project Location

Figure 1-2



1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the Level of Service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized intersections or other improvements. Guidelines incorporated in the Highway Capacity Manual (HCM), 6th Edition, published in 2016 were also used in the development of this TIS.

1.2.1 *Intersection Analysis*

Intersection LOS analysis was conducted using the Synchro software program. Synchro supports HCM methodologies and is deemed an acceptable program by City of Tulare staff for assessment of traffic impacts. Levels of Service can be determined for both signalized and unsignalized intersections.

Tables 1-1 and 1-2 indicate the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for the various levels of service ranging from LOS "A" to "F".

The signalized LOS standards applied to calculate intersection LOS are in accordance with the current edition of the HCM. Intersection turning movement counts and roadway geometrics used to develop LOS calculations were obtained from field review findings and count data provided from the traffic count sources identified in Section 2.1.

When an unsignalized intersection does not meet acceptable LOS standards, the investigation of the need for a traffic signal shall be evaluated. The latest edition of the California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) introduces standards for determining the need for traffic signals. The California MUTCD indicates that the satisfaction of one or more traffic signal warrants does not in itself require the installation of a traffic signal. In addition to the warrant analysis, an engineering study of the current or expected traffic conditions should be conducted to determine whether the installation of a traffic signal is justified.

1.2.2 *Roadway Segment Analysis*

According to the HCM, LOS is categorized by two parameters of traffic: uninterrupted and interrupted flow. Uninterrupted flow facilities do not have fixed elements such as traffic signals that cause interruptions in traffic flow. Interrupted flow facilities do have fixed elements that cause an interruption in the flow of traffic, such as stop signs and signalized intersections along arterial roads.

A roadway segment is defined as a stretch of roadway generally located between signalized or controlled intersections.

Segment LOS is important in order to understand whether the capacity of a roadway can accommodate future traffic volumes. Table 1-3 provides a definition of segment LOS. The performance criteria used for evaluating volumes and capacities on the road and highway system for this study were estimated using the Modified HCM-Based LOS Tables which are widely accepted throughout the central valley, including Tulare County. The tables consider the capacity of individual road and highway segments based on numerous roadway variables (design speed, passing opportunities, signalized intersections per mile, number of lanes, saturation flow, etc.). These variables were identified and applied to reflect segment LOS conditions. Street segment capacity was determined using information shown in Table 1-4 which comes from the Modified Arterial Level of Service Tables included in Appendix A.

1.3 Policies to Maintain Level of Service

1.3.1 *City of Tulare*

The City of Tulare General Plan states that the City will plan for LOS “D” for street segments and intersections.

1.3.2 *Tulare County*

The Tulare County General Plan states the minimum LOS is “D” for street segments and intersections.

1.4 VMT Analysis

Senate Bill 743 (SB 743) went into effect throughout California on July 1, 2020. This legislation changed the performance measure for CEQA transportation studies from level of service to vehicle miles traveled (VMT). An assessment of potential VMT impacts associated with the Project is provided in Chapter 3 to address changes in CEQA requirements.

Table 1-1
Signalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

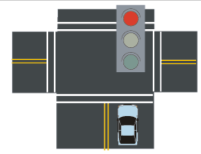
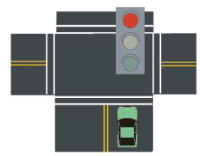
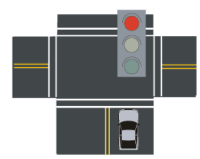
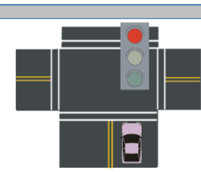
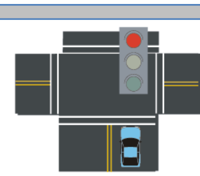
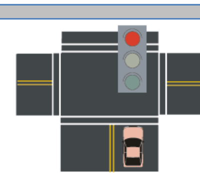
LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street. 	**≤ 10.0**
B	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay. 	**> 10.0 - 20.0**
C	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer. 	**> 20.0 - 35.0**
D	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing. 	**> 35.0 - 55.0**
E	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues. 	**> 55.0 - 80.0**
F	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely. 	**> 80.0**

Table 1-2
Unsignalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

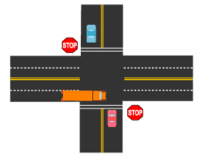
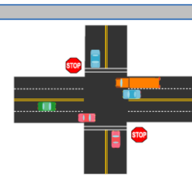
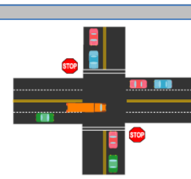
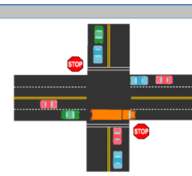
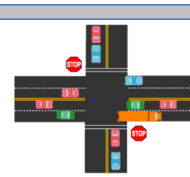
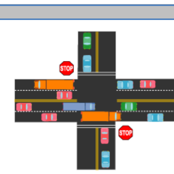
LEVEL OF SERVICE	DEFINITION		AVERAGE TOTAL DELAY (sec/veh)
A	No delay for stop-controlled approaches.		**0 - 10.0**
B	Describes operations with minor delay.		**> 10.0 - 15.0**
C	Describes operations with moderate delays.		**> 15.0 - 25.0**
D	Describes operations with some delays.		**> 25.0 - 35.0**
E	Describes operations with high delays and long queues.		**> 35.0 - 50.0**
F	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.		**> 50.0**

Table 1-3
Roadway Segment
Level of Service Definitions
(Highway Capacity Manual)

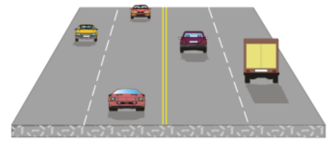
LEVEL OF SERVICE	DEFINITION
A	Represents free flow. Individual vehicles are virtually unaffected by the presence of others in the traffic stream. 
B	Is in the range of stable flow, but the presence of other vehicles in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver. 
C	Is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual vehicles becomes significantly affected by interactions with other vehicles in the traffic stream. 
D	Is a crowded segment of roadway with a large number of vehicles restricting mobility and a stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience. 
E	Represents operating conditions at or near the level capacity. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement. 
F	Is used to define forced or breakdown flow (stop-and-go gridlock). This condition exists when the amount of traffic approaches a point where the amount of traffic exceeds the amount that can travel to a destination. Operations within the queues are characterized by stop and go waves, and they are extremely unstable. 

Table 1-4
Peak Hour Two-Way Volumes

		Level of Service			
Lanes	Division	B	C	D	E
2	Undivided	*	324	1,125	1,521
2	Divided	*	340	1,181	1,597
4	Undivided	77	2,083	2,763	2,890
4	Divided	81	2,205	2,925	3,060
6	Divided	135	3,339	4,401	4,617

* Cannot be achieved using table input value defaults.

2.0 Existing Conditions

2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing traffic counts were estimated considering the Tulare County Association of Government (TCAG) travel model and historic traffic counts in the study area given the on-going COVID-19 pandemic. Following is the methodology used for the development of existing traffic counts:

- ✓ A 2.5% per year growth rate was applied to historical peak hour counts collected in the study area (SR 63-Mooney Boulevard) to estimate Year 2021 pre-COVID conditions.

- ✓ The estimated pre-COVID year 2021 peak hour values (obtained using the 2.5% per year growth rate) were compared to June 2021 values. Results of the comparison indicated that traffic counts taken in June 2021 (i.e., during COVID) should be increased by a factor of 1.23 to estimate 2021 pre-COVID levels.

Traffic count data worksheets are provided in Appendix B.

2.2 Existing Functional Roadway Classification System

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

The current hierarchical system of roadways within the study area consists of the following four (4) basic classifications:

- ✓ **State Freeways and Highways** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the City/County and link the City/County to other parts of the State.
- ✓ **Arterials** – provide for mobility within the City/County, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. Access to abutting private property and intersecting local streets shall generally be restricted.
- ✓ **Collectors** – provide for internal traffic movement within communities and connect local roads to arterials. Direct access to abutting private property shall generally be permitted.
- ✓ **Local Streets** – Roadways which provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane

undivided roadways. Access to abutting private property and intersecting streets shall be permitted.

2.3 Affected Streets and Highways

Street and highway intersections and segments near and adjacent to the Project site were analyzed to determine levels of service utilizing HCM-based methodologies described previously. The study intersections included in this TIS are listed below.

Intersections

- ✓ Cartmill Avenue / Retherford Street
- ✓ Corvina Avenue / Hillman Street

Segments

- ✓ Retherford Street
  - Cartmill Avenue to Leland Avenue

- ✓ Leland Avenue
  - Retherford Street to Hillman Street

The existing lane geometry at study area intersections is shown in Figure 2-1. Figures 2-2 and 2-3 show existing traffic volumes for the AM and PM peak hours in the study area.

2.4 Level of Service

2.4.1 *Intersection Capacity Analysis*

All intersection LOS analyses were estimated using Synchro 10 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc.) were input into the Synchro 10 Software program to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 6th Edition HCM outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

- ✓ **Lane Geometry**
  - Storage lengths for turn lanes for existing intersections were obtained from aerial photos and rounded to the nearest 25 feet
  - VRPA conducted a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data such as signal timing and phasing, where applicable.

- **Traffic Conditions**
  - Peak hour factors (PHF) for each intersection approach were obtained from traffic counts in the study area and were utilized for Existing Conditions, Existing Plus Project, and Near-term (Opening Year) Plus Project conditions. For all future scenarios, a PHF of 0.92 was applied
  - Heavy vehicle percentages were based on the HCM default
  - Roadway link speed limits were observed in the field and input into the Synchro network to determine roadway link speeds

Results of the analysis show that all of the study intersections currently operate at or below the City of Tulare's minimum level of service criteria. Table 2-1 shows the intersection LOS for the existing conditions. Synchro 10 (HCM 6th Edition) Worksheets are provided in Appendix C.

2.4.2 *Queuing Analysis*

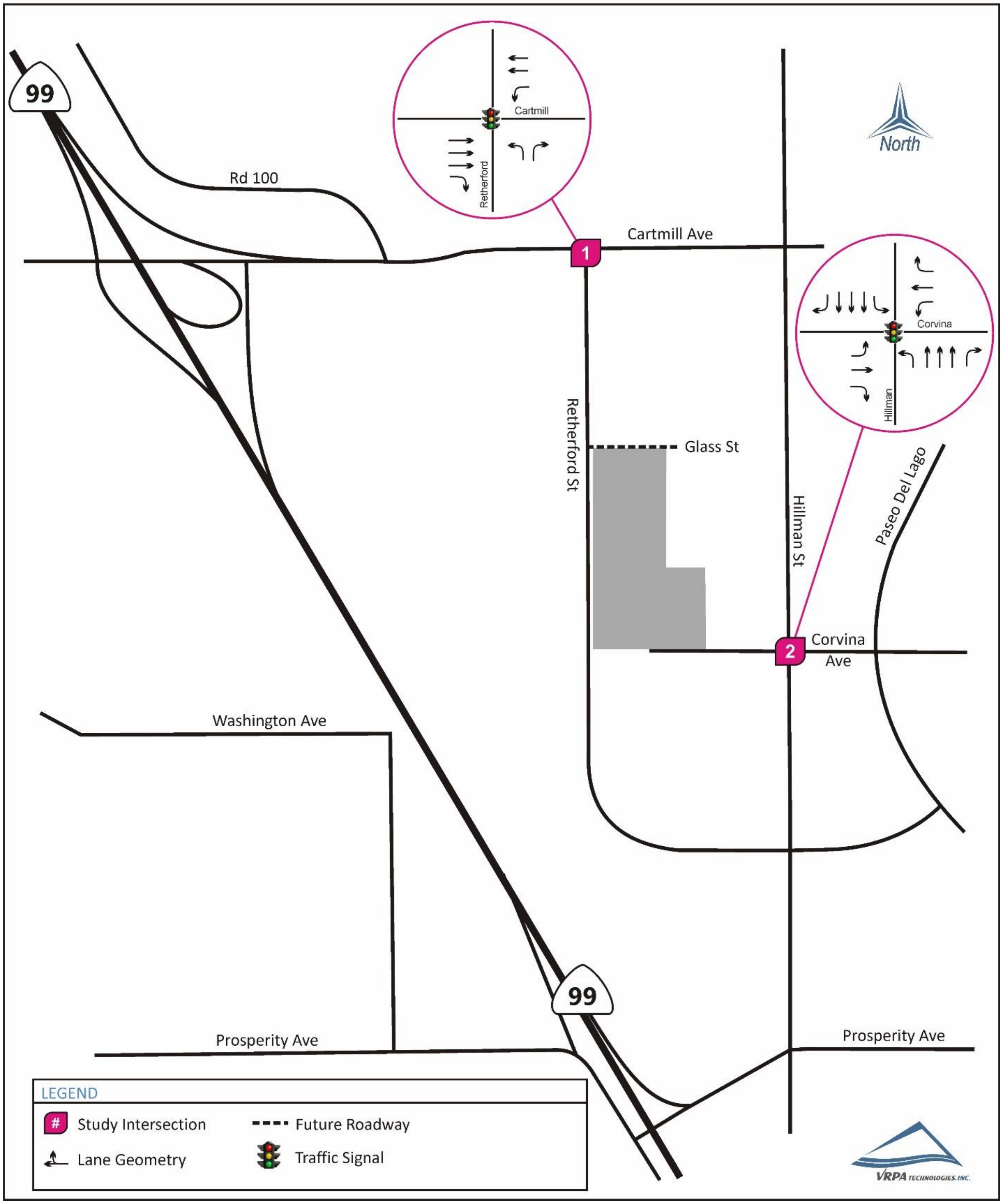
Table 2-2 provides a queue length summary for study intersections for the Existing scenario. Traffic queue lengths at an intersection or along a roadway segment assist in the determination of a roadway's overall performance. Excessive queuing at an intersection increases vehicle delay and reduces capacity. If a dedicated left turn lane doesn't provide adequate storage, vehicles will queue beyond the left turn storage pocket and into other travel lanes, thus increasing vehicle delay and reducing capacity. Queuing analysis was completed using the Synchro software program. Synchro provides 95th percentile maximum queue lengths in feet which represents the maximum back of queue with 95th percentile traffic volumes. The queue results shown in Table 2-2 represent the approximate queue lengths for the respective lane movements.

2.4.3 *Roadway Segment Capacity Analysis*

Results of the segment analysis along the existing street and highway system are reflected in Table 2-3. The performance criteria used for evaluating volumes and capacities on the road and highway system for this study were estimated using the Modified Arterial Level of Service Tables included in Table 1-4 and Appendix A. Results of the analysis show that study roadway segments are currently operating at acceptable levels of service.

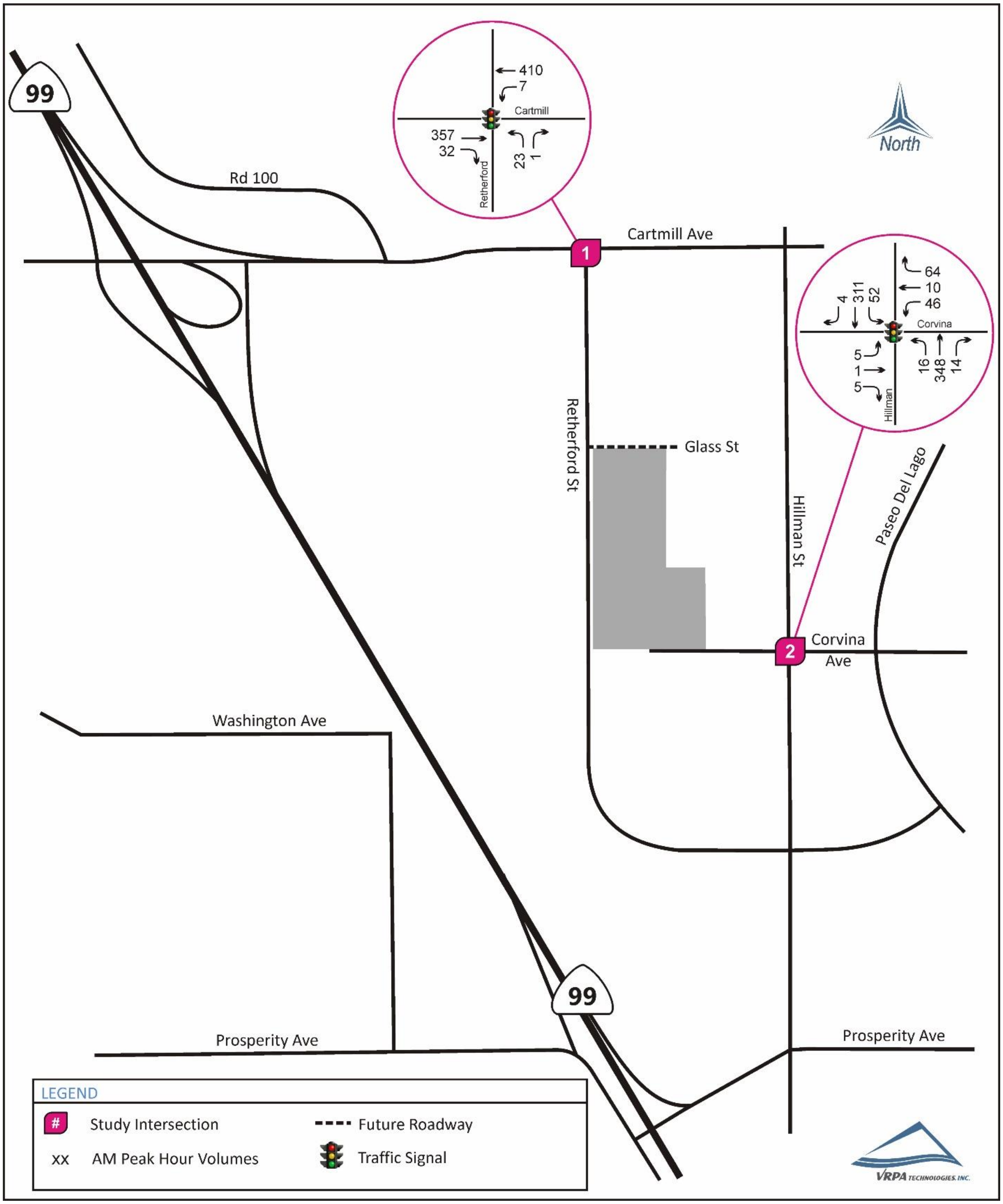
Corvina Apartment Development
Existing Lane Geometry

Figure 2-1



Corvina Apartment Development
Existing AM Peak Hour Traffic

Figure 2-2



Corvina Apartment Development
Existing PM Peak Hour Traffic

Figure 2-3

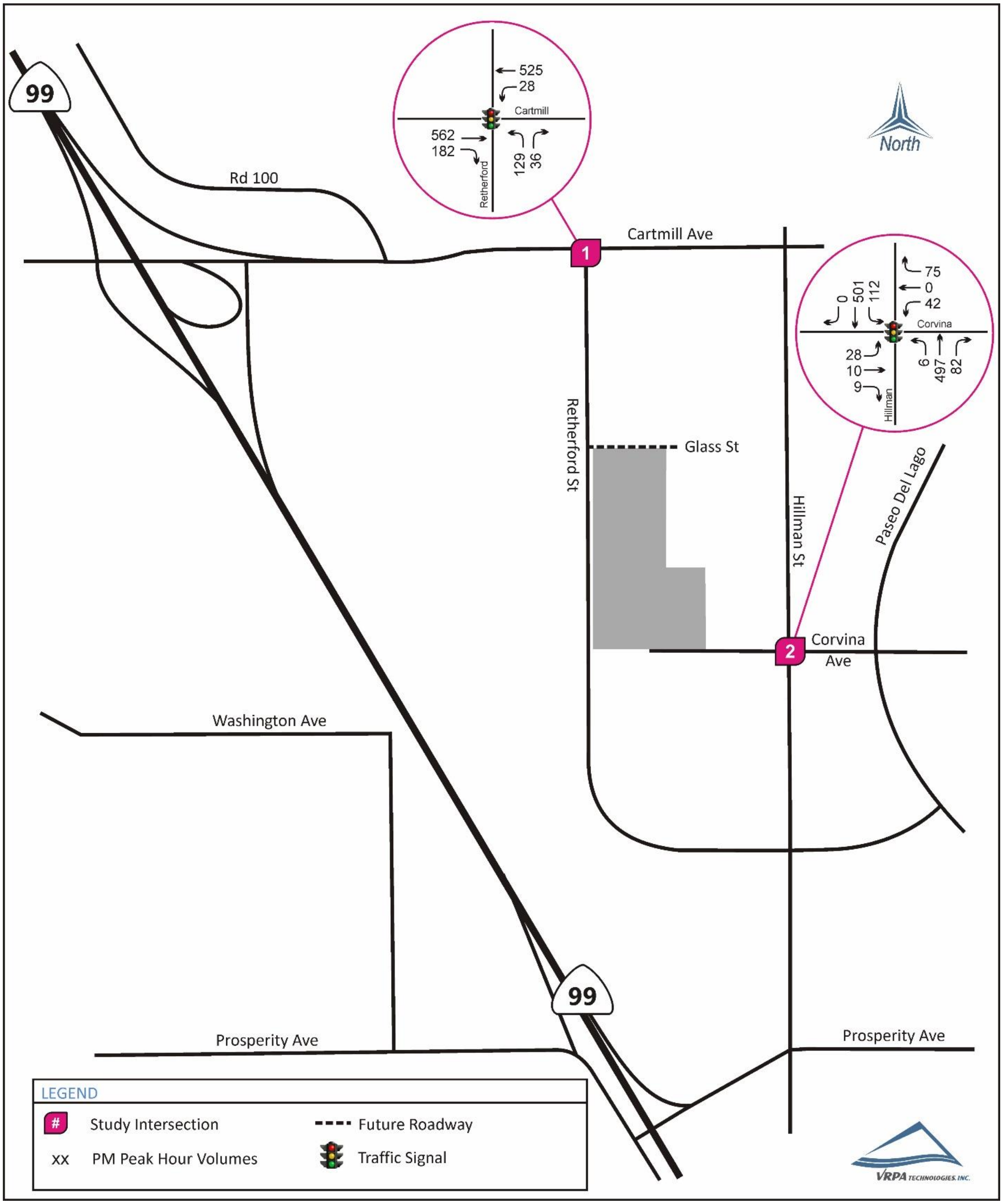


Table 2-1
Existing Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Cartmill Avenue / Retherford Street	Signalized	D	AM	17.3	B
			PM	18.9	B
2. Corvina Avenue / Hillman Street	Signalized	D	AM	15.5	B
			PM	16.2	B

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized, intersections, delay results show the average for the entire intersection.

Table 2-2
Existing Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING CONDITIONS	
			AM Queue	PM Queue
Cartmill Avenue / Retherford Street	NB Left	250	20	87
	EB Right	250	18	32
	WB Left	250	16	37
Corvina Avenue / Hillman Street	NB Left	250	34	18
	NB Right	150	0	0
	SB Left	200	80	185
	SB Right	150	0	0
	EB Left	150	14	47
	EB Right	150	0	0
	WB Left	125	71	67
	WB Right	125	0	0

Queue is measured in feet / **BOLD** denotes exceedance

Table 2-3
Existing Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	PEAK HOUR	EXISTING	
				VOLUME	LOS
Retherford Street					
Leland Avenue to Cartmill Avenue	2 Lanes Undivided	D	AM	63	C
			PM	375	D
Leland Avenue					
Hillman Street and Retherford Street	2 Lanes Undivided	D	AM	114	C
			PM	615	D

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

3.0 Traffic Impacts

This chapter provides an assessment of the traffic the Project is expected to generate and the impact of that traffic on the surrounding street system.

3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and the ITE Trip Generation Handbook (3rd Edition). The considerations described above led to the recommended trip generation for weekday AM (7:00-9:00am) and PM (4:00-6:00pm) peak hours shown in Table 3-1.

Table 3-1
Project Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Multi-Family Residential (220)	216 D.U.	7.37	1,592	0.46	23:77	23	76	99	0.56	63:37	76	45	121
TOTAL TRIP GENERATION			**1,592**			**23**	**76**	**99**			**76**	**45**	**121**

Source: Generation factors from ITE Trip Generation Manual, 10th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

3.2 Trip Distribution

Project trip distribution percentages for the Existing Plus Project, Near-Term Plus Project and Cumulative Year 2042 Plus Project scenarios are shown in Figure 3-1. These percentages are based upon knowledge of the study area, engineering judgement, prevailing traffic patterns in the study area, major routes, population centers, and other existing development.

3.3 Project Traffic

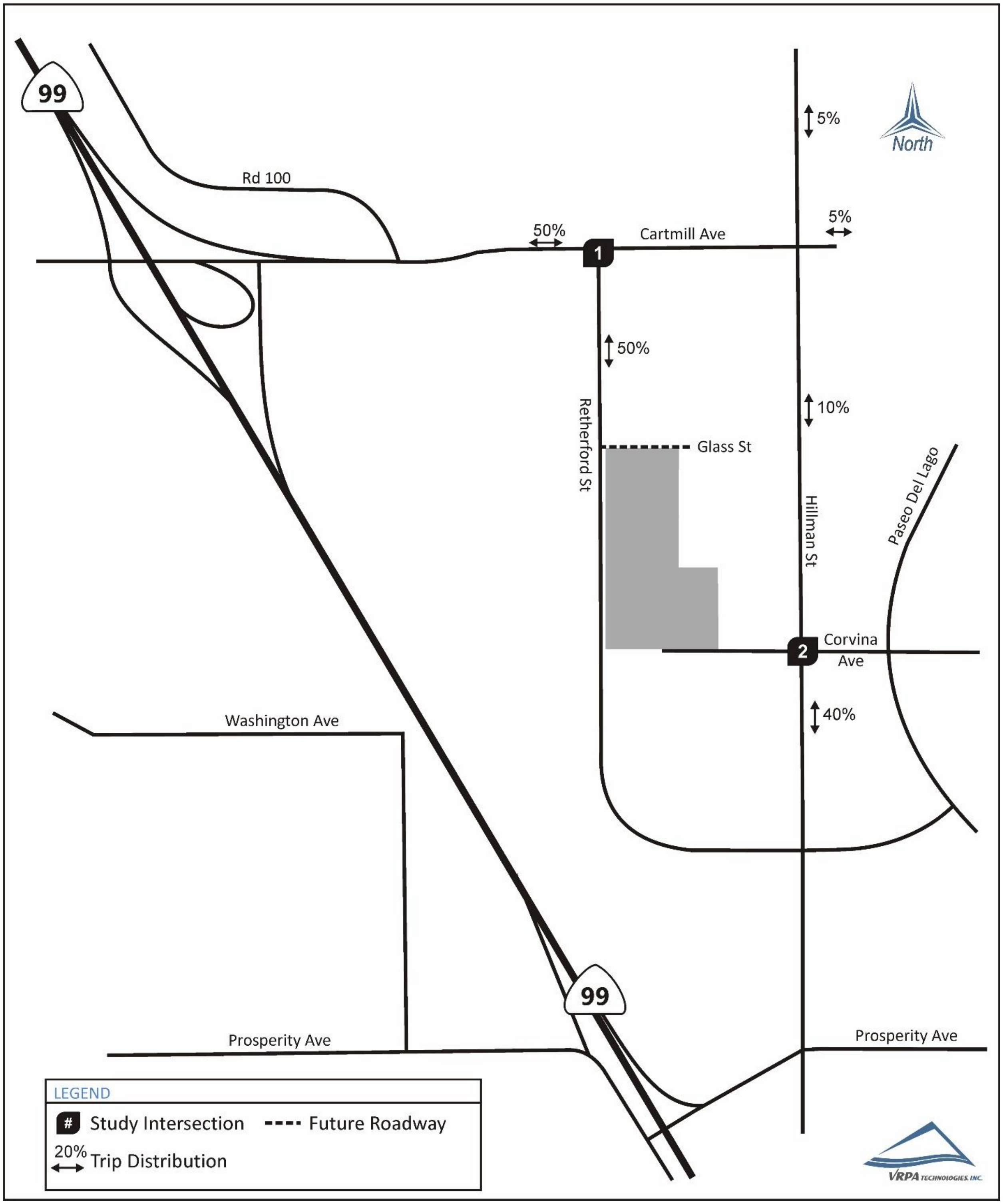
Project traffic as shown in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figure 3-1. A graphical representation of the resulting AM and PM peak hour Project trips used is shown in Figures 3-2 and 3-3.

3.4 Existing Plus Project Traffic Conditions

An Existing Plus Project Scenario was analyzed to include existing traffic plus traffic generated by the Project. The resulting traffic is shown in Figures 3-4 and 3-5.

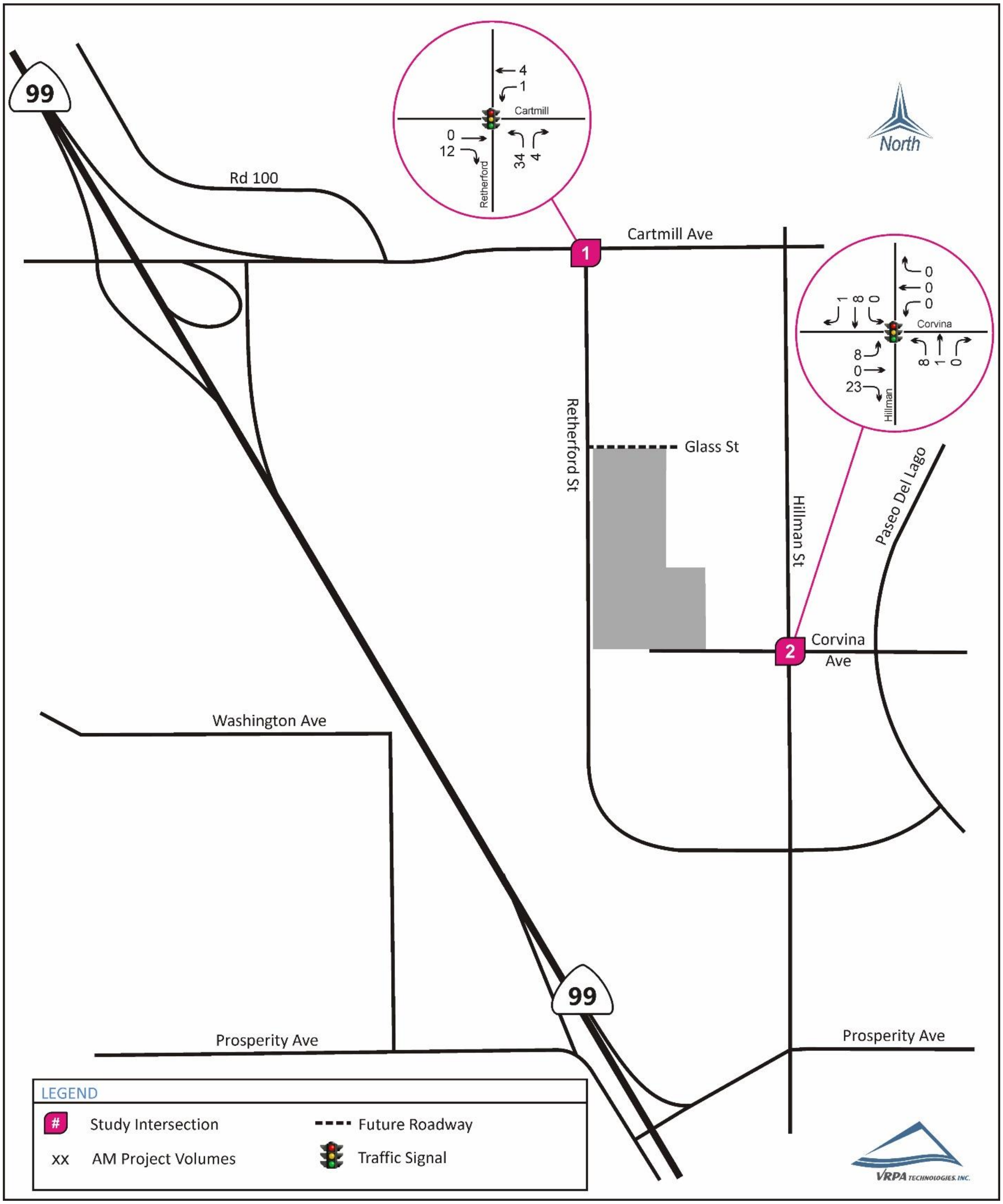
Corvina Apartment Development
Project Trip Distribution

Figure 3-1



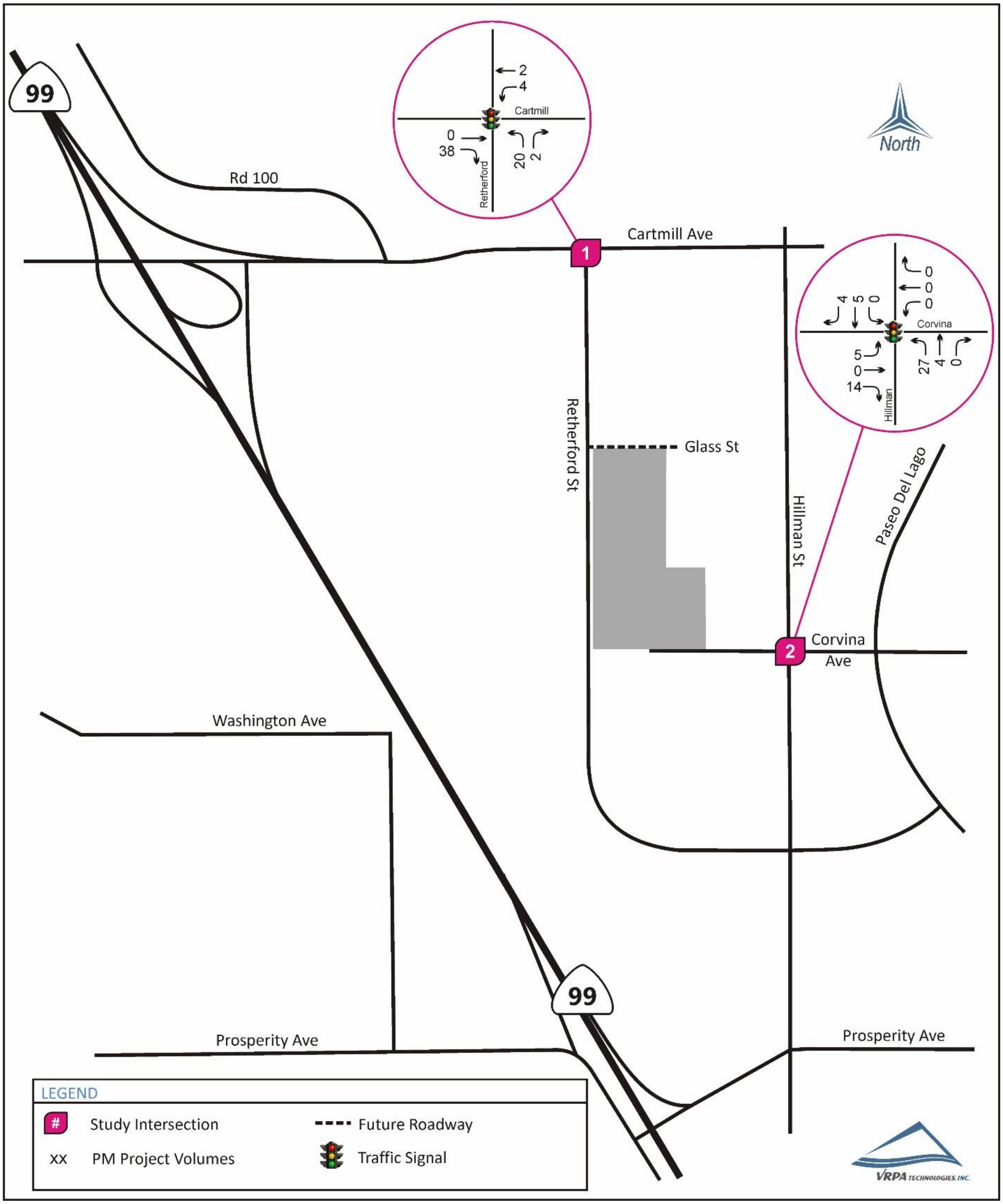
Corvina Apartment Development
Project AM Peak Hour Traffic

Figure 3-2



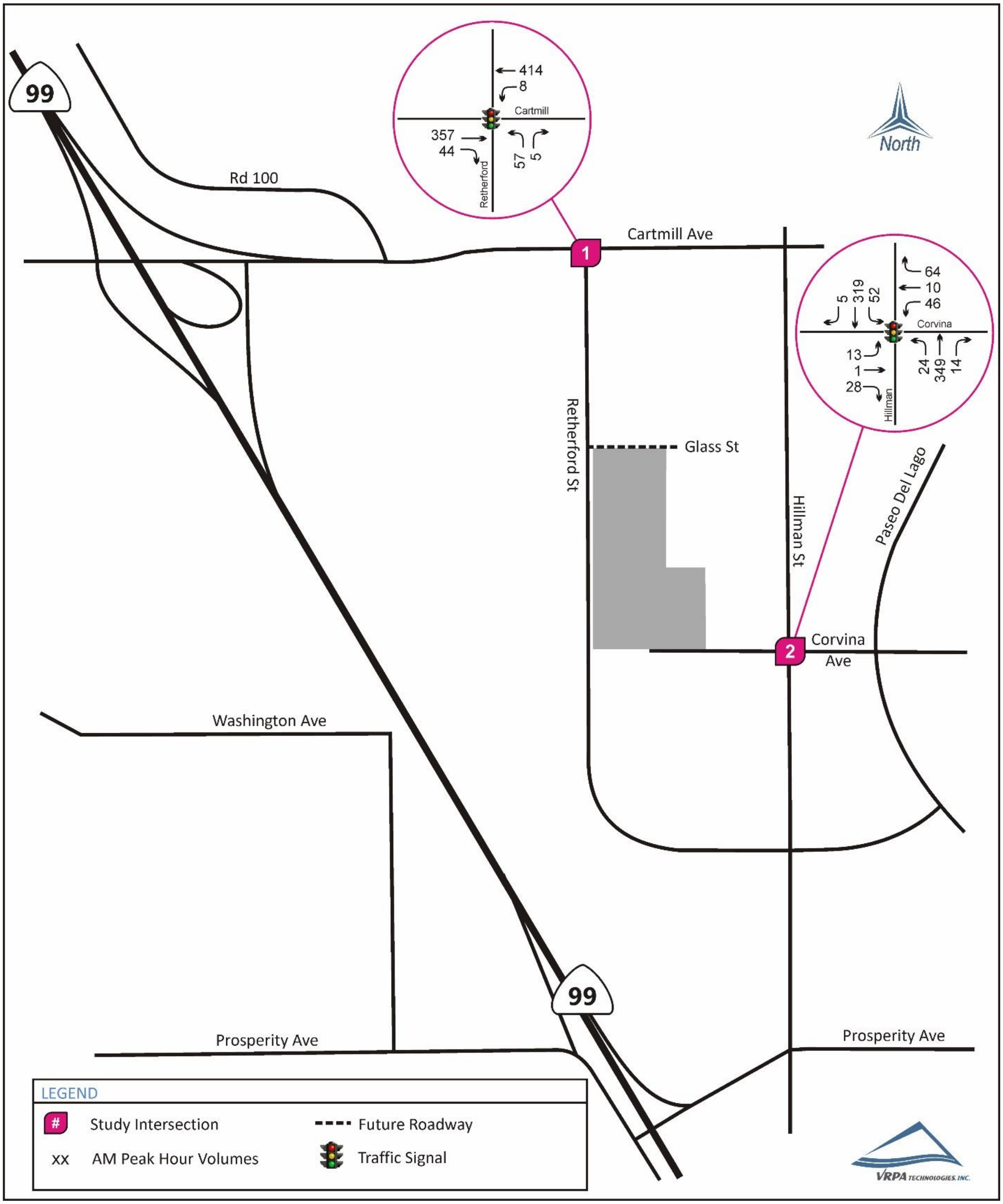
Corvina Apartment Development
Project PM Peak Hour Traffic

Figure 3-3



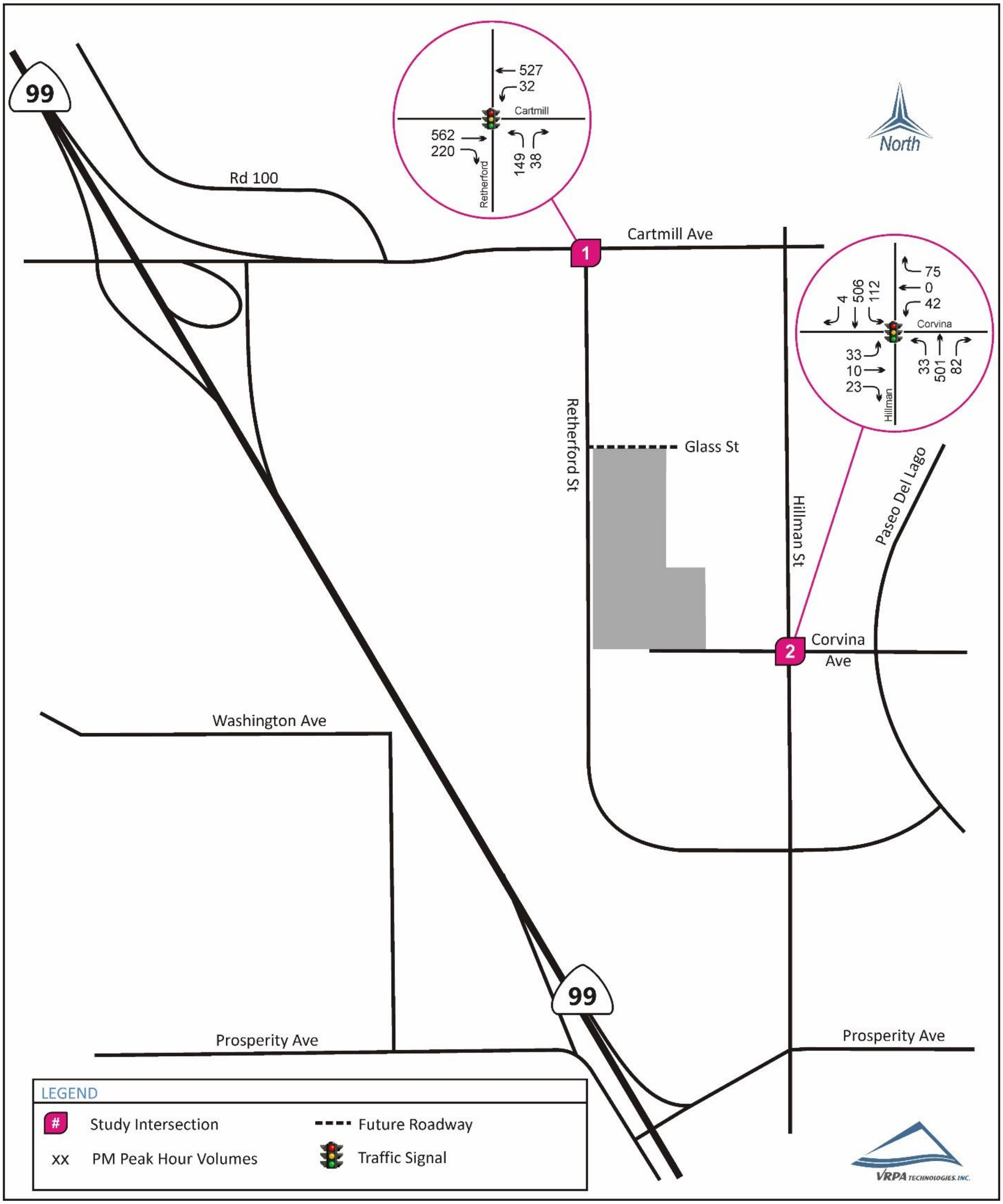
Corvina Apartment Development
Existing Plus Project AM Peak Hour Traffic

Figure 3-4



Corina Apartment Development
Existing Plus Project PM Peak Hour Traffic

Figure 3-5



3.5 Near-Term Traffic Conditions

Traffic conditions with the Project in the Year 2022 (Opening Day) were estimated by applying a growth rate of 2.5% per year to the existing traffic volumes. A comparison of the TCAG base year and future year travel model and review of the State Route 63 Transportation Concept Report showed that the growth in the study area is approximately 2.5% per year.

The resulting traffic for the Near-Term scenario is shown in Figures 3-6 and 3-7.

3.6 Cumulative Year 2042 Without Project Traffic Conditions

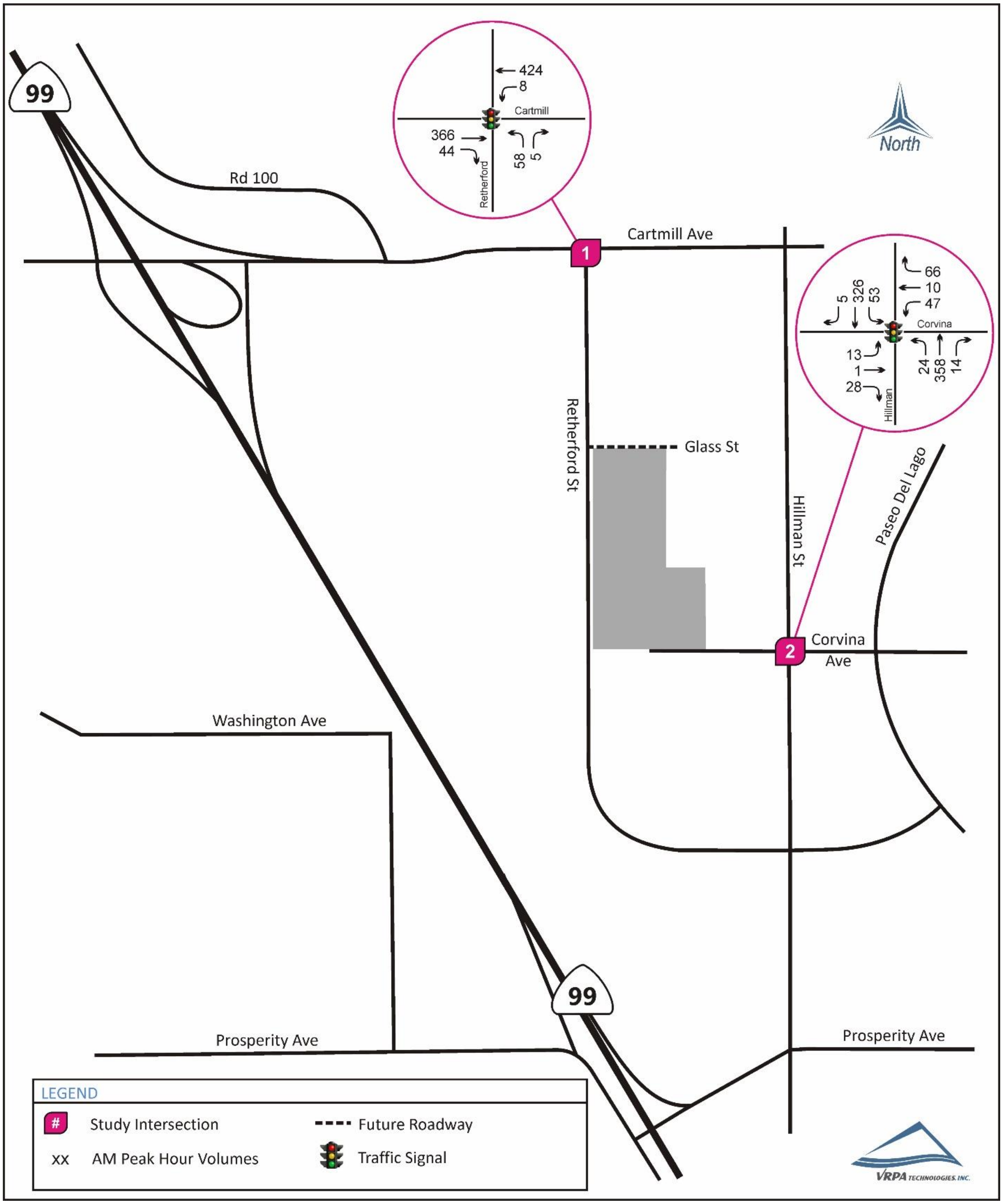
The impacts of the Project were analyzed considering future traffic conditions in the year 2042. The levels of traffic expected in 2042 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies, including the City of Tulare and Tulare County. Traffic conditions without the Project in the Year 2042 were estimated by applying a growth rate of 2.5% per year to the existing traffic volumes. A comparison of the TCAG base year and future year travel model and review of the State Route 63 Transportation Concept Report showed that the growth in the study area is approximately 2.5% per year. The resulting traffic is shown in Figures 3-8 and 3-9.

3.7 Cumulative Year 2042 Plus Project Traffic Conditions

The addition of Project trips, as shown in Figures 3-2 and 3-3 (Section 3.3), were added to Cumulative Year 2042 Without Project traffic volumes. This leads to the results shown in Figures 3-10 and 3-11.

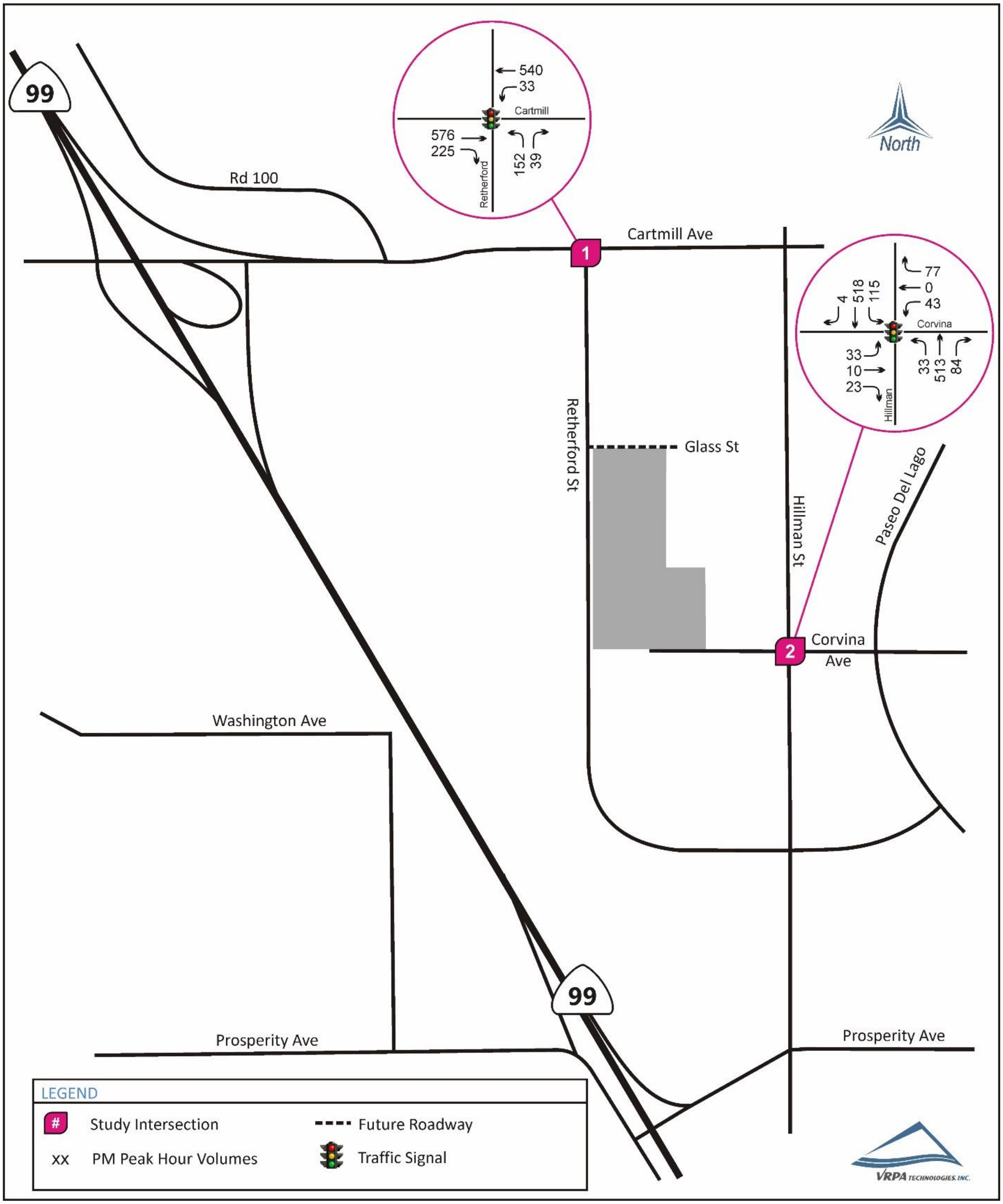
Corvina Apartment Development
Near-Term Plus Project AM Peak Hour Traffic

Figure 3-6



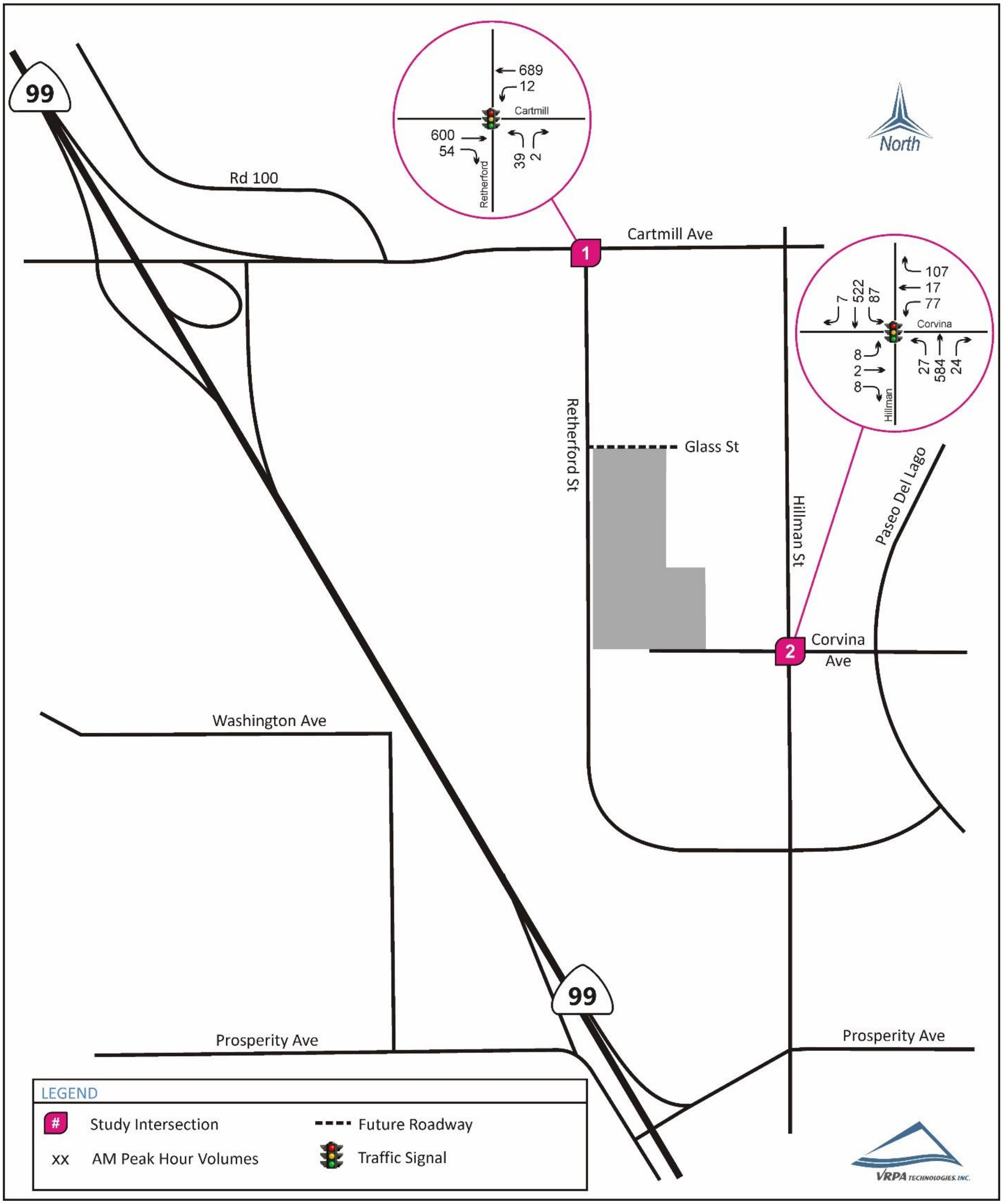
Corvina Apartment Development
Near-Term Plus Project PM Peak Hour Traffic

Figure 3-7



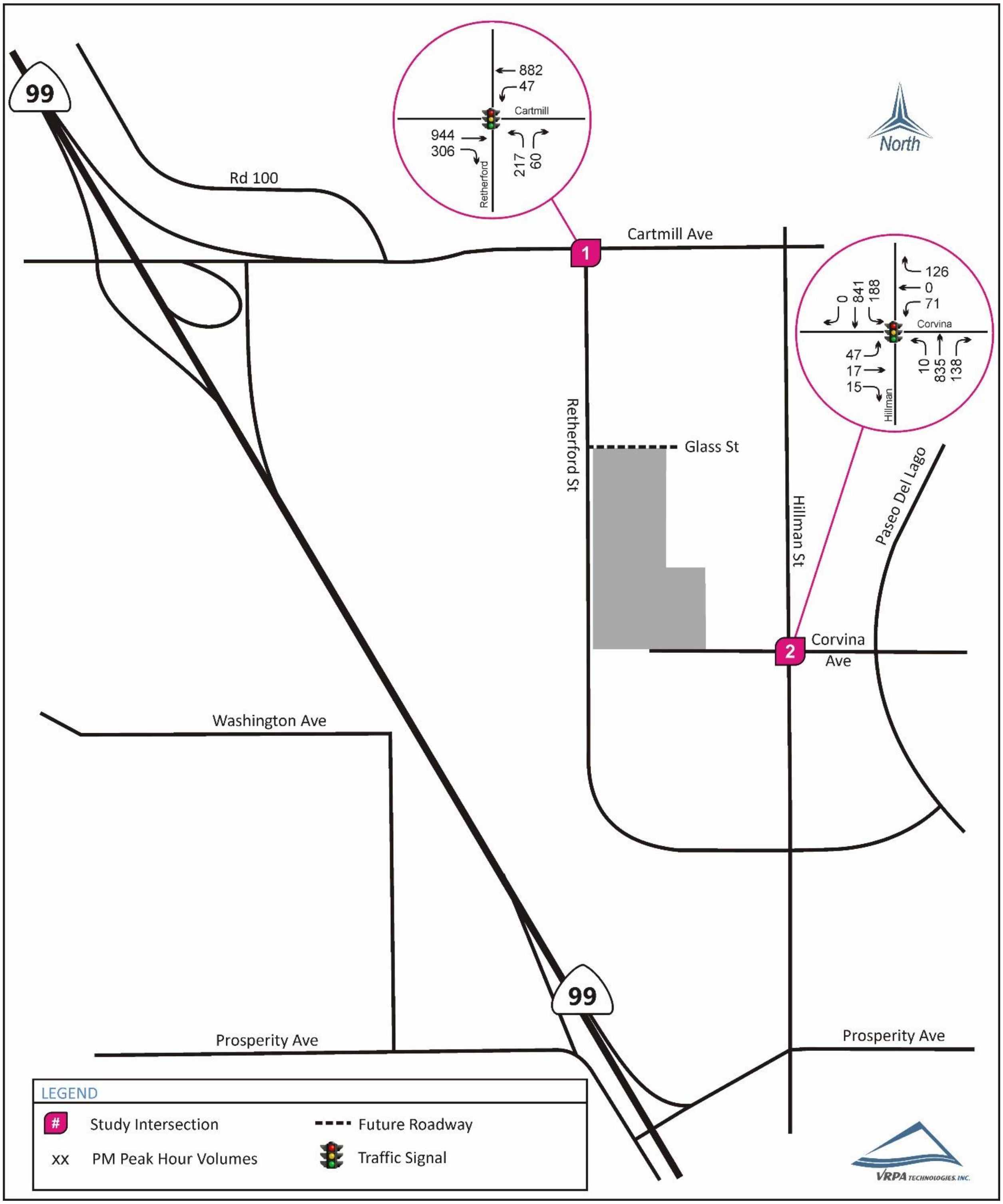
Corvina Apartment Development
Cumulative Year 2042 Without Project AM Peak Hour Traffic

Figure 3-8



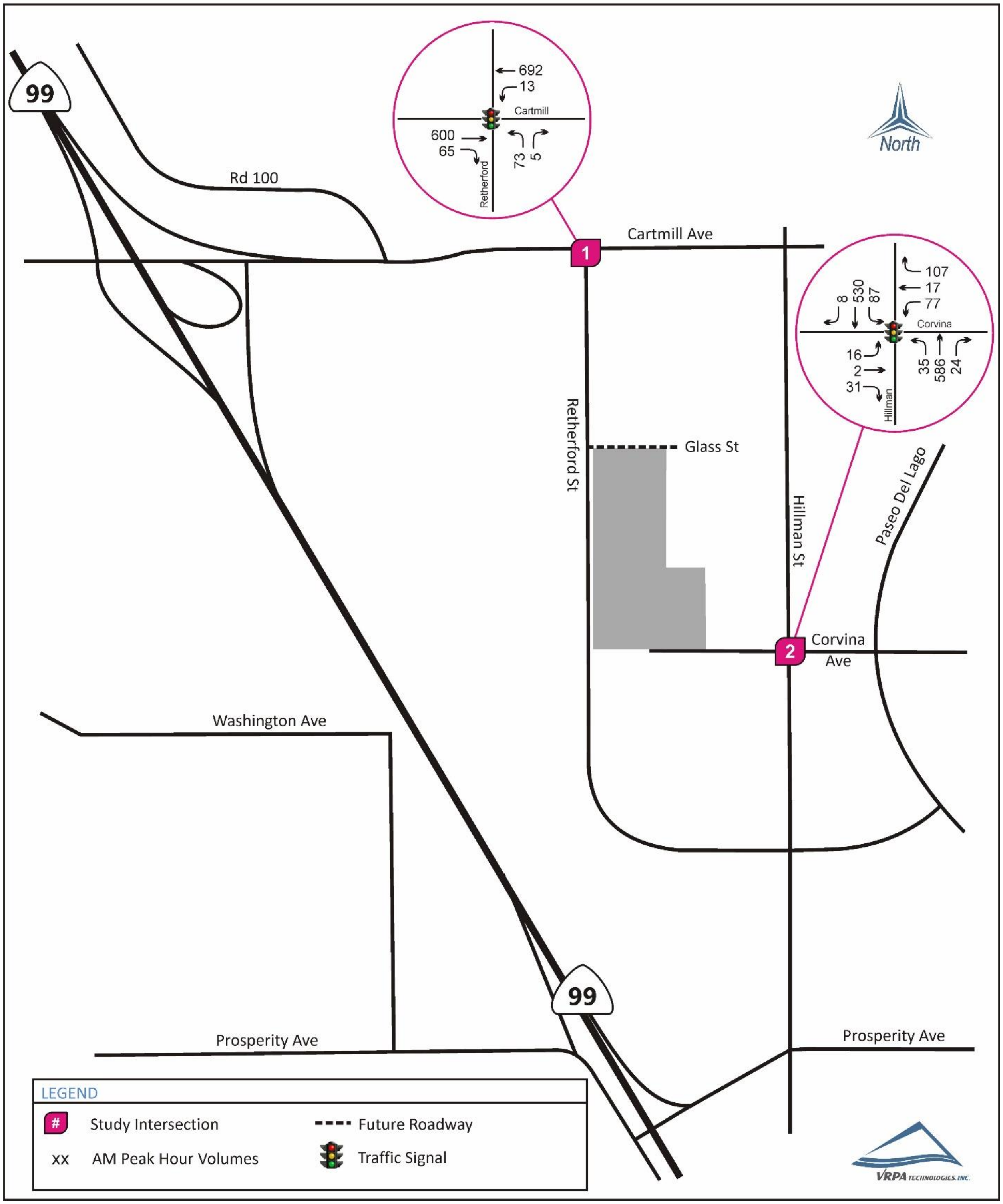
Corvina Apartment Development
Cumulative Year 2042 Without Project PM Peak Hour Traffic

Figure 3-9



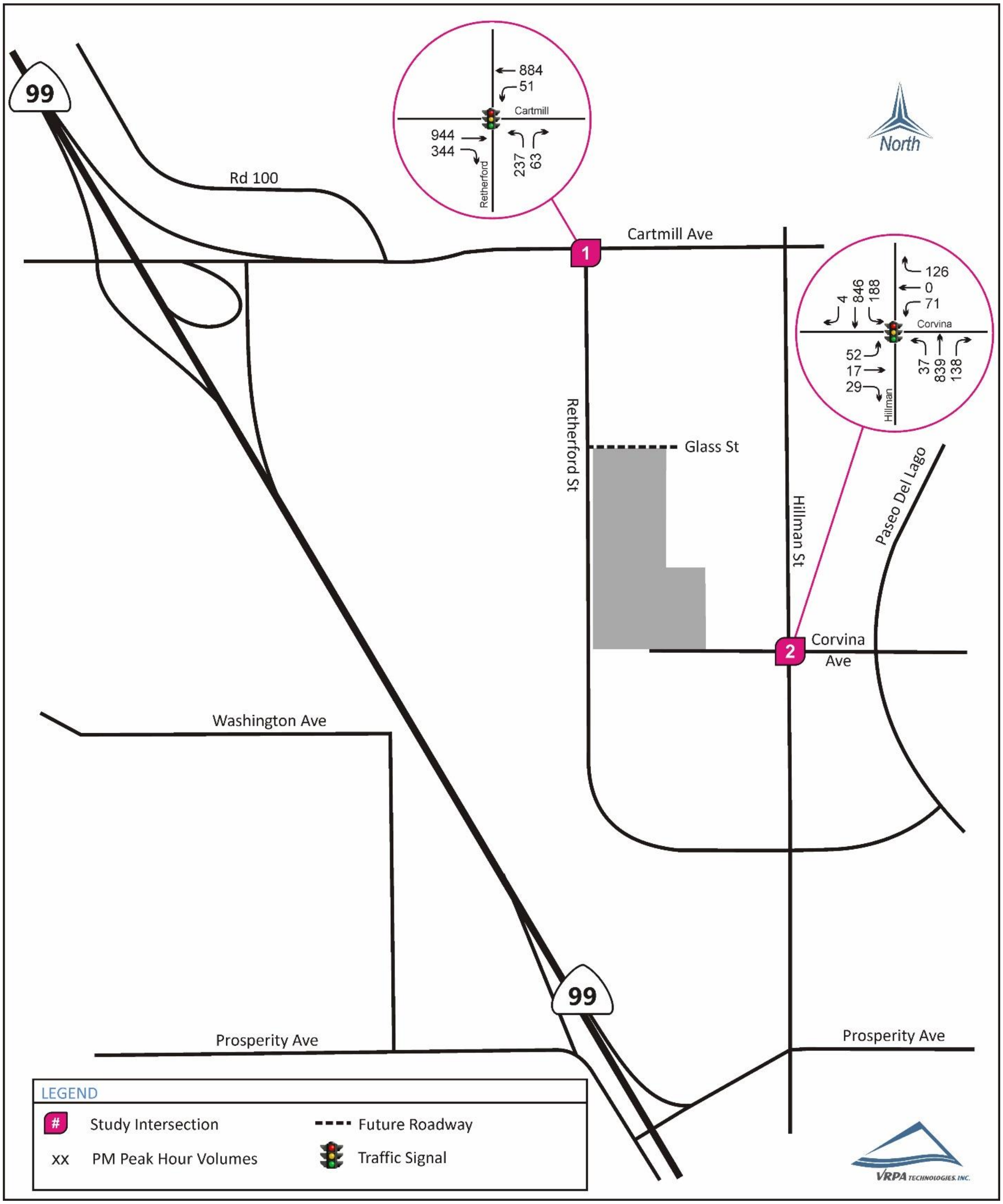
Corvina Apartment Development
Cumulative Year 2042 Plus Project AM Peak Hour Traffic

Figure 3-10



Corvina Apartment Development
Cumulative Year 2042 Plus Project PM Peak Hour Traffic

Figure 3-11



3.8 Impacts

3.8.1 *Intersection Capacity Analysis*

Table 3-2 provides the intersection level of service analysis for the study intersections considering the study scenarios discussed above. Results of the analysis show that none of the study intersections will fall below acceptable levels of service through the year 2042. Therefore, roadway improvements are not recommended at study intersections.

3.8.2 *Roadway Segment Capacity Analysis*

Table 3-4 provides the roadway segment level of service analysis for study roadway segments considering the study scenarios discussed above. Results of the analysis show that none of the study roadway segments will fall below acceptable levels of service through the year 2042. Therefore, roadway improvements are not recommended at study roadway segments.

3.8.3 *Queuing Analysis*

Table 3-3 provides a queue length summary for left and right turn lanes at study intersections. Queuing analysis was completed using the Synchro software program which provides 95th percentile maximum queue lengths in feet. The queue presented in Table 3-3 represents the approximate queue lengths for the respective lane movements. Results of the queuing analysis show that two turning movements (southbound left and westbound left) at the intersection of Corvina Avenue and Hillman Street exceed the existing queue lane storage lengths.

It is impracticable to lengthen the southbound left turn storage pocket given the adjacent northbound left turn pocket that gives access to the commercial development at the northwest corner of the intersection. The existing storage pocket length at the westbound left approach is 125 feet as noted in Table 3-3. The projected 95th percentile queue at the westbound approach is 135 feet in the Cumulative Year 2042 scenario which is just 10 feet beyond the existing storage length. Given the insignificant increase in storage, lengthening the westbound storage pocket is not recommended.

Table 3-2
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT		NEAR-TERM PLUS PROJECT		CUMULATIVE YEAR 2042 WITHOUT PROJECT		CUMULATIVE YEAR 2042 PLUS PROJECT	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Cartmill Avenue / Retherford Street	Signalized	D	AM	16.9	B	16.9	B	17.5	B	17.3	B
			PM	18.7	B	18.8	B	20.5	C	20.6	C
2. Corvina Avenue / Hillman Street	Signalized	D	AM	16.7	B	16.7	B	15.9	B	16.5	B
			PM	17.3	B	17.5	B	21.8	C	22.6	C

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized, intersections, delay results show the average for the entire intersection.

Table 3-3
Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING PLUS PROJECT		NEAR-TERM PLUS PROJECT		CUMULATIVE YEAR 2042 WITHOUT PROJECT		CUMULATIVE YEAR 2042 PLUS PROJECT	
			AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue
Cartmill Avenue / Retherford Street	NB Left	250	39	101	40	104	32	171	52	188
	EB Right	250	21	34	21	34	24	54	27	57
	WB Left	250	17	40	17	42	21	63	22	66
Corvina Avenue / Hillman Street	NB Left	250	46	57	46	57	49	26	59	62
	NB Right	150	0	0	0	0	0	30	0	30
	SB Left	200	80	185	82	192	147	**329**	147	**329**
	SB Right	150	0	0	0	0	0	0	0	0
	EB Left	150	25	53	25	53	22	81	34	94
	EB Right	150	0	0	0	0	0	0	0	0
	WB Left	125	71	67	72	68	**132**	**135**	**132**	**135**
	WB Right	125	0	0	0	0	0	0	0	0

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-4
Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT		NEAR-TERM PLUS PROJECT		CUMULATIVE YEAR 2042 WITHOUT PROJECT		CUMULATIVE YEAR 2042 PLUS PROJECT	
				VOLUME	LOS	VOLUME	LOS	VOLUME	LOS	VOLUME	LOS
Retherford Street											
Leland Avenue to Cartmill Avenue	2 Lanes Undivided	D	AM	114	C	115	C	106	C	156	C
			PM	439	D	449	D	630	D	694	D
Leland Avenue											
Hillman Street and Retherford Street	2 Lanes Undivided	D	AM	114	C	117	C	192	C	192	C
			PM	615	D	630	D	1,033	D	1,033	D

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

3.9 VMT Analysis

VMT analysis was conducted using the City of Tulare's Process and Thresholds for Assessing Vehicle Miles Traveled for Development dated June 26, 2020.

The Project is located on the east side of Retherford Street north of Corvina Avenue. It is in the southwest quadrant of the area bounded by Cartmill Avenue, Hillman Street, Corvina Avenue, and Retherford Street. Based on Figure 1 of the City's VMT analysis guidelines, the project site is in a low VMT area with an average trip length of 9.08 miles. Since it is in a low VMT area, project generated VMT is presumed to be a less than significant impact under CEQA and no further detailed VMT analysis is necessary.

APPENDIX A

Modified Arterial Level of Service Tables

TABLE 4

Generalized **Peak Hour Two-Way** Volumes for Florida's **Urbanized Areas**[1]

03/14/2018

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Principal (1 signal per half mile)

Lanes	Median	B	C	D	E
2	Undivided	*	360	1,250	1,690
4	Divided	90	2,450	3,250	3,400
6	Divided	150	3,710	4,890	5,130

Minor (1 signal per quarter mile)

Lanes	Median	B	C	D	E
2	Undivided	*	*	380	1,290
4	Divided	*	850	2,530	3,350
6	Divided	*	1,600	3,980	5,050

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	260	680	1,770
50-84%	190	600	1,770	>1,770
85-100%	830	1,770	>1,770	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	260	850
50-84%	*	150	780	1,420
85-100%	340	960	1,560	>1,770

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Lanes	B	C	D	E
4	4,560	6,200	7,690	7,870
6	6,650	9,150	11,350	11,820
8	8,760	12,130	15,110	15,760
10	11,960	16,800	19,710	**
12	14,820	19,980	23,640	**

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 1,800	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	1,110	1,690	2,290	3,070
4	Divided	3,350	4,840	6,090	6,840
6	Divided	5,040	7,250	9,130	10,250

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as peak hour directional volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

TABLE 4
(continued)

Generalized **Peak Hour Two-Way** Volumes for Florida's **Urbanized Areas**

03/14/2018

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities			Interrupted Flow Facilities					
	Freeways	Highways		Principal Arterials		Minor Arterials		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS									
Area type (urban, rural)	urban								
Number of through lanes (both dir.)	4-12	2	4-6	2-4	6	2-4	6	4	4
Posted speed (mph)	70	50	50	50	50	40	40	45	45
Free flow speed (mph)	75	55	55	55	55	45	45	50	50
Auxiliary Lanes (n, y)	n								
Median (d, u, twlt)			d						
Terrain (l,r)	l	l	l	l	l	l	l	l	l
% no passing zone		80							
Exclusive left turn lane impact (n, y)		[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)				n	y	n	y		
Facility length (mi)	3	5	5	2	2	2	2	2	2
Interchange Density (intch/mi)	1								
TRAFFIC CHARACTERISTICS									
Planning analysis hour factor (K)	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.565	0.565
Peak hour factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Base saturation flow rate (pcphpl)	2,400	1,700	2,100	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.0
Speed Adjustment Factor (SAF)	0.950		0.950						
Capacity Adjustment Factor (CAF)	0.939		0.939						
% left turns				12	12	12	12	12	12
% right turns				12	12	12	12	12	12
CONTROL CHARACTERISTICS									
Number of signals				5	5	9	9	4	6
Arrival type (1-6)				3	3	3	3	4	4
Signal type (a, c, p)				c	c	c	c	c	c
Cycle length (C)				150	150	120	120	120	120
Effective green ratio (g/C)				0.44	0.44	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS									
Paved shoulder/bicycle lane (n, y)								n, 50%, y	n
Outside lane width								t	t
Pavement condition								t	
On-street parking								n	n
Sidewalk (n, y)									n, 50%, y
Sidewalk/roadway separation (a, t, w)									t
Sidewalk protective barrier (n, y)									n

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways	Highways		Arterials	Bicycle	Ped	Bus
		Two-Lane	Multilane	Principal & Minor			
	Density pc/mi/ln	%ffs	Density pc/mi/ln	%bffs	Score	Score	Buses/hr.
B	≤ 18	> 83.3	≤ 18	> 67	≤ 2.75	≤ 2.75	≤ 6
C	≤ 26	> 75.0	≤ 26	> 50	≤ 3.50	≤ 3.50	≤ 4
D	≤ 35	> 66.7	≤ 35	> 40	≤ 4.25	≤ 4.25	< 3
E	≤ 45	≤ 66.7	≤ 45	> 30	≤ 5.00	≤ 5.00	< 2

pc/mi/ln = passenger cars per mile per lane %ffs = percent free flow speed %bffs = percent base free flow speed

APPENDIX B

Traffic Count Data Worksheets

National Data & Surveying Services Intersection Turning Movement Count

Location: Retherford St & E Cartmill Ave
City: Tulare
Control: Signalized

Project ID: 21-090049-001
Date: 6/30/2021

Data - Total

NS/EW Streets:	Retherford St				Retherford St				E Cartmill Ave				E Cartmill Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	0	0	0	1	3	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	0	0	0	0	0	0	0	0	50	7	0	0	58	0	0	119
7:15 AM	1	0	0	0	0	0	0	0	0	58	6	0	2	87	0	0	154
7:30 AM	8	0	0	0	0	0	0	0	0	77	5	0	0	91	0	0	181
7:45 AM	5	0	0	0	0	0	0	0	0	83	8	0	3	89	0	0	188
8:00 AM	5	0	1	0	0	0	0	0	0	72	7	0	1	66	0	0	152
8:15 AM	4	0	0	0	0	0	0	0	0	56	11	0	1	61	0	1	134
8:30 AM	7	0	0	0	0	0	0	0	0	62	12	0	1	64	0	1	147
8:45 AM	8	0	0	0	0	0	0	0	0	68	19	0	6	67	0	1	169
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	42	0	1	0	0	0	0	0	0	526	75	0	14	583	0	3	1244
APPROACH %'s :	97.67%	0.00%	2.33%	0.00%					0.00%	87.52%	12.48%	0.00%	2.33%	97.17%	0.00%	0.50%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	19	0	1	0	0	0	0	0	0	290	26	0	6	333	0	0	675
PEAK HR FACTOR :	0.594	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.873	0.813	0.000	0.500	0.915	0.000	0.000	0.898
	0.625								0.868				0.921				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	1	1	0	0	0	0	0	0	1	3	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	28	0	5	0	0	0	0	0	0	89	34	0	11	105	0	0	272
4:15 PM	27	0	3	0	0	0	0	0	0	106	37	0	4	104	0	0	281
4:30 PM	28	0	9	0	0	0	0	0	0	104	33	1	8	107	0	0	290
4:45 PM	27	0	4	0	0	0	0	0	0	102	30	0	5	102	0	0	270
5:00 PM	25	0	11	0	0	0	0	0	0	103	31	0	5	108	0	1	284
5:15 PM	24	0	11	0	0	0	0	0	0	140	51	0	9	108	0	0	343
5:30 PM	29	0	3	0	0	0	0	0	0	112	36	0	3	109	0	0	292
5:45 PM	22	0	8	0	0	0	0	0	0	102	25	0	8	89	0	0	254
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	210	0	54	0	0	0	0	0	0	858	277	1	53	832	0	1	2286
APPROACH %'s :	79.55%	0.00%	20.45%	0.00%					0.00%	75.53%	24.38%	0.09%	5.98%	93.91%	0.00%	0.11%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	105	0	29	0	0	0	0	0	0	457	148	0	22	427	0	1	1189
PEAK HR FACTOR :	0.905	0.000	0.659	0.000	0.000	0.000	0.000	0.000	0.000	0.816	0.725	0.000	0.611	0.979	0.000	0.250	0.867
	0.931								0.792				0.962				

AM Peak Adjusted	23	0	1	0	0	0	0	0	0	357	32	0	7	410	0	0
PM Peak Adjusted	129	0	36	0	0	0	0	0	0	562	182	0	27	525	0	1

National Data & Surveying Services Intersection Turning Movement Count

Location: N Hillman St & Corvina Ave
City: Tulare
Control: Signalized

Project ID: 21-090049-002
Date: 6/30/2021

Data - Total

NS/EW Streets:	N Hillman St				N Hillman St				Corvina Ave				Corvina Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	49	5	0	4	43	2	2	0	0	0	0	4	0	11	0	122
7:15 AM	1	71	4	0	5	42	0	5	0	0	0	0	11	3	10	0	152
7:30 AM	2	72	3	0	4	61	0	8	0	0	1	0	7	0	16	0	174
7:45 AM	4	76	3	0	9	71	1	2	1	0	1	0	14	1	15	0	198
8:00 AM	5	73	2	0	11	59	1	3	0	0	2	0	7	2	10	0	175
8:15 AM	2	62	3	0	4	62	1	2	3	1	0	0	9	5	11	0	165
8:30 AM	1	74	5	1	4	52	0	1	0	0	3	0	12	0	17	0	170
8:45 AM	1	55	5	0	4	69	2	1	1	0	2	0	11	1	13	0	165
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	18	532	30	1	45	459	7	24	5	1	9	0	75	12	103	0	1321
APPROACH %'s :	3.10%	91.57%	5.16%	0.17%	8.41%	85.79%	1.31%	4.49%	33.33%	6.67%	60.00%	0.00%	39.47%	6.32%	54.21%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	13	283	11	0	28	253	3	15	4	1	4	0	37	8	52	0	712
PEAK HR FACTOR :	0.650	0.931	0.917	0.000	0.636	0.891	0.750	0.469	0.333	0.250	0.500	0.000	0.661	0.400	0.813	0.000	0.899
	0.925				0.901				0.563				0.808				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	1	0	1	3	1	0	1	1	1	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	108	16	1	12	90	2	3	4	0	5	0	12	0	12	0	267
4:15 PM	0	109	7	1	9	96	0	0	2	2	1	0	6	2	12	0	247
4:30 PM	0	108	13	0	12	86	0	6	2	2	0	0	9	0	20	0	258
4:45 PM	3	88	18	1	13	105	0	7	7	1	5	0	7	0	19	0	274
5:00 PM	1	116	20	0	14	107	0	12	9	4	1	0	10	0	8	0	302
5:15 PM	0	92	16	0	23	109	0	4	5	1	1	0	8	0	14	0	273
5:30 PM	2	91	15	1	9	86	0	9	4	2	3	0	10	0	14	0	246
5:45 PM	0	90	10	1	13	104	0	2	0	1	0	0	13	0	10	0	244
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	802	115	5	105	783	2	43	33	13	16	0	75	2	109	0	2111
APPROACH %'s :	0.86%	86.24%	12.37%	0.54%	11.25%	83.92%	0.21%	4.61%	53.23%	20.97%	25.81%	0.00%	40.32%	1.08%	58.60%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	4	404	67	1	62	407	0	29	23	8	7	0	34	0	61	0	1107
PEAK HR FACTOR :	0.333	0.871	0.838	0.250	0.674	0.933	0.000	0.604	0.639	0.500	0.350	0.000	0.850	0.000	0.763	0.000	0.916
	0.869				0.915				0.679				0.819				

AM Peak Adjusted	16	348	14	0	34	311	4	18	5	1	5	0	46	10	64	0
PM Peak Adjusted	5	497	82	1	76	501	0	36	28	10	9	0	42	0	75	0

Prepared by National Data & Surveying Services

VOLUME

Leland Ave Bet. Hillman St & Retherford St

Day: Wednesday **City:** Tulare
Date: 6/30/2021 **Project #:** CA21_090050_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,003	2,748	5,751

AM Period	NB	SB	EB		WB		TOTAL	
00:00			15		1		16	
00:15			5		0		5	
00:30			13		1		14	
00:45			6	39	1	3	7	42
01:00			9		0		9	
01:15			2		1		3	
01:30			13		0		13	
01:45			1	25	0	1	1	26
02:00			2		0		2	
02:15			0		1		1	
02:30			1		1		2	
02:45			0	3	0	2	0	5
03:00			4		0		4	
03:15			0		0		0	
03:30			0		0		0	
03:45			3	7	2	2	5	9
04:00			1		2		3	
04:15			3		2		5	
04:30			0		3		3	
04:45			1	5	1	8	2	13
05:00			2		4		6	
05:15			1		1		2	
05:30			5		0		5	
05:45			2	10	6	11	8	21
06:00			1		5		6	
06:15			4		0		4	
06:30			4		4		8	
06:45			4	13	9	18	13	31
07:00			8		6		14	
07:15			7		3		10	
07:30			6		11		17	
07:45			7	28	12	32	19	60
08:00			10		7		17	
08:15			9		13		22	
08:30			13		14		27	
08:45			13	45	14	48	27	93
09:00			25		14		39	
09:15			17		16		33	
09:30			18		30		48	
09:45			18	78	36	96	54	174
10:00			15		41		56	
10:15			26		25		51	
10:30			25		40		65	
10:45			34	100	53	159	87	259
11:00			45		44		89	
11:15			48		52		100	
11:30			49		60		109	
11:45			57	199	66	222	123	421
TOTALS				552		602		**1154**
SPLIT %				47.8%		52.2%		**20.1%**

PM Period	NB	SB	EB		WB		TOTAL	
12:00			54		75		129	
12:15			65		61		126	
12:30			66		64		130	
12:45			49	234	73	273	122	507
13:00			56		48		104	
13:15			63		53		116	
13:30			69		61		130	
13:45			61	249	56	218	117	467
14:00			62		59		121	
14:15			60		55		115	
14:30			65		60		125	
14:45			57	244	70	244	127	488
15:00			73		55		128	
15:15			72		52		124	
15:30			60		72		132	
15:45			63	268	59	238	122	506
16:00			75		61		136	
16:15			64		52		116	
16:30			65		58		123	
16:45			61	265	50	221	111	486
17:00			67		55		122	
17:15			82		59		141	
17:30			73		50		123	
17:45			51	273	63	227	114	500
18:00			62		82		144	
18:15			63		61		124	
18:30			70		64		134	
18:45			71	266	62	269	133	535
19:00			46		65		111	
19:15			69		60		129	
19:30			59		54		113	
19:45			51	225	32	211	83	436
20:00			85		34		119	
20:15			59		25		84	
20:30			48		24		72	
20:45			37	229	25	108	62	337
21:00			38		23		61	
21:15			31		23		54	
21:30			25		20		45	
21:45			19	113	18	84	37	197
22:00			29		5		34	
22:15			5		10		15	
22:30			24		21		45	
22:45			9	67	9	45	18	112
23:00			7		3		10	
23:15			1		1		2	
23:30			9		3		12	
23:45			1	18	1	8	2	26
TOTALS				2451		2146		**4597**
SPLIT %				53.3%		46.7%		**79.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,003	2,748	5,751

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			11:45	11:45	**11:45**	**PM Peak Hour**			16:45	12:00	**18:00**
AM Pk Volume			242	266	**508**	**PM Pk Volume**			283	273	**535**
Pk Hr Factor			0.917	0.887	**0.977**	**Pk Hr Factor**			0.863	0.910	**0.929**
7 - 9 Volume	0	0	73	80	**153**	**4 - 6 Volume**	0	0	538	448	**986**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			16:45	17:00	**17:00**
7 - 9 Pk Volume	0	0	45	48	**93**	**4 - 6 Pk Volume**	0	0	283	227	**500**
Pk Hr Factor	0.000	0.000	0.865	0.857	**0.861**	**Pk Hr Factor**	0.000	0.000	0.863	0.901	**0.887**

Prepared by National Data & Surveying Services

VOLUME

Mooney Blvd N/O Cartmill Ave

Day: Wednesday
Date: 6/30/2021

City: Tulare
Project #: CA21_090050_002

DAILY TOTALS	NB	SB	EB	WB	Total
	9,344	9,947	0	0	19,291

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	21		22				43		12:00	154		158				312	
00:15	18		16				34		12:15	171		167				338	
00:30	12		12				24		12:30	153		170				323	
00:45	17	68	12	62			29	130	12:45	172	650	176	671			348	1321
01:00	8		10				18		13:00	197		171				368	
01:15	11		10				21		13:15	167		176				343	
01:30	10		5				15		13:30	168		197				365	
01:45	11	40	9	34			20	74	13:45	172	704	211	755			383	1459
02:00	2		6				8		14:00	146		166				312	
02:15	10		2				12		14:15	175		186				361	
02:30	8		6				14		14:30	187		198				385	
02:45	9	29	5	19			14	48	14:45	135	643	190	740			325	1383
03:00	1		5				6		15:00	162		178				340	
03:15	3		5				8		15:15	189		195				384	
03:30	6		13				19		15:30	174		175				349	
03:45	17	27	18	41			35	68	15:45	167	692	239	787			406	1479
04:00	14		12				26		16:00	151		195				346	
04:15	9		11				20		16:15	176		205				381	
04:30	24		26				50		16:30	167		181				348	
04:45	42	89	25	74			67	163	16:45	172	666	202	783			374	1449
05:00	36		20				56		17:00	175		223				398	
05:15	31		44				75		17:15	205		272				477	
05:30	61		47				108		17:30	188		243				431	
05:45	71	199	43	154			114	353	17:45	165	733	204	942			369	1675
06:00	43		46				89		18:00	142		193				335	
06:15	46		45				91		18:15	144		198				342	
06:30	79		69				148		18:30	115		162				277	
06:45	89	257	62	222			151	479	18:45	126	527	147	700			273	1227
07:00	110		59				169		19:00	128		155				283	
07:15	111		62				173		19:15	119		150				269	
07:30	156		96				252		19:30	104		151				255	
07:45	147	524	95	312			242	836	19:45	110	461	147	603			257	1064
08:00	111		70				181		20:00	71		141				212	
08:15	110		82				192		20:15	86		131				217	
08:30	136		108				244		20:30	63		135				198	
08:45	133	490	74	334			207	824	20:45	59	279	137	544			196	823
09:00	110		80				190		21:00	59		126				185	
09:15	135		87				222		21:15	75		105				180	
09:30	140		87				227		21:30	57		87				144	
09:45	148	533	106	360			254	893	21:45	59	250	75	393			134	643
10:00	142		112				254		22:00	50		84				134	
10:15	129		121				250		22:15	35		36				71	
10:30	157		119				276		22:30	46		63				109	
10:45	155	583	140	492			295	1075	22:45	29	160	55	238			84	398
11:00	161		133				294		23:00	41		45				86	
11:15	150		118				268		23:15	23		33				56	
11:30	154		151				305		23:30	20		36				56	
11:45	175	640	145	547			320	1187	23:45	16	100	26	140			42	240
TOTALS		3479		2651				**6130**	**TOTALS**		5865		7296				**13161**
SPLIT %		56.8%		43.2%				**31.8%**	**SPLIT %**		44.6%		55.4%				**68.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	9,344	9,947	0	0	19,291

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour	11:30	11:45			**11:45**	**PM Peak Hour**	16:45	17:00			**16:45**
AM Pk Volume	654	640			**1293**	**PM Pk Volume**	740	942			**1680**
Pk Hr Factor	0.934	0.941			**0.956**	**Pk Hr Factor**	0.902	0.866			**0.881**
7 - 9 Volume	1014	646	0	0	**1660**	**4 - 6 Volume**	1399	1725	0	0	**3124**
7 - 9 Peak Hour	07:15	07:45			**07:30**	**4 - 6 Peak Hour**	16:45	17:00			**16:45**
7 - 9 Pk Volume	525	355	0	0	**867**	**4 - 6 Pk Volume**	740	942	0	0	**1680**
Pk Hr Factor	0.841	0.822	0.000	0.000	**0.860**	**Pk Hr Factor**	0.902	0.866	0.000	0.000	**0.881**

APPENDIX C

SYNCHRO 10 (HCM 6th Edition) Worksheets

EXISTING WORKSHEETS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	357	32	7	410	23	1
Future Volume (veh/h)	357	32	7	410	23	1
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	410	37	8	446	37	2
Peak Hour Factor	0.87	0.87	0.92	0.92	0.63	0.63
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	926	288	22	1108	801	713
Arrive On Green	0.18	0.18	0.01	0.31	0.45	0.45
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	410	37	8	446	37	2
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	3.9	1.1	0.2	5.4	0.6	0.0
Cycle Q Clear(g_c), s	3.9	1.1	0.2	5.4	0.6	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	926	288	22	1108	801	713
V/C Ratio(X)	0.44	0.13	0.36	0.40	0.05	0.00
Avail Cap(c_a), veh/h	3103	963	404	2579	801	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	18.7	26.8	14.7	8.3	8.2
Incr Delay (d2), s/veh	0.3	0.2	9.6	0.2	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	1.3	0.3	0.1	1.7	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.2	18.9	36.3	15.0	8.4	8.2
LnGrp LOS	C	B	D	B	A	A
Approach Vol, veh/h	447			454	39	
Approach Delay, s/veh	20.1			15.3	8.4	
Approach LOS	C			B	A	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		31.0	7.2	16.5				23.7
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		24.8	12.5	33.5				40.0
Max Q Clear Time (g_c+I1), s		2.6	2.2	5.9				7.4
Green Ext Time (p_c), s		0.1	0.0	2.5				2.6

Intersection Summary			
HCM 6th Ctrl Delay			17.3
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1	5	46	10	64	16	348	14	52	311	4
Future Volume (veh/h)	5	1	5	46	10	64	16	348	14	52	311	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	2	9	57	12	79	17	378	15	58	346	4
Peak Hour Factor	0.56	0.56	0.56	0.81	0.81	0.81	0.92	0.92	0.92	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	88	194	164	104	211	179	43	2315	719	105	2492	773
Arrive On Green	0.05	0.10	0.10	0.06	0.11	0.11	0.02	0.46	0.46	0.06	0.49	0.49
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	9	2	9	57	12	79	17	378	15	58	346	4
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	0.3	0.1	0.3	2.1	0.4	3.1	0.6	2.9	0.2	2.1	2.5	0.1
Cycle Q Clear(g_c), s	0.3	0.1	0.3	2.1	0.4	3.1	0.6	2.9	0.2	2.1	2.5	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	88	194	164	104	211	179	43	2315	719	105	2492	773
V/C Ratio(X)	0.10	0.01	0.05	0.55	0.06	0.44	0.40	0.16	0.02	0.55	0.14	0.01
Avail Cap(c_a), veh/h	159	1056	895	193	1093	926	159	2315	719	207	2492	773
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	30.3	26.8	26.9	30.6	26.4	27.6	32.1	10.6	3.6	30.5	9.2	2.9
Incr Delay (d2), s/veh	0.5	0.0	0.1	4.5	0.1	1.7	5.8	0.2	0.1	4.5	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	1.0	0.2	1.2	0.3	0.9	0.1	0.9	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	26.8	27.1	35.0	26.5	29.3	37.9	10.8	3.7	35.1	9.4	2.9
LnGrp LOS	C	C	C	D	C	C	D	B	A	D	A	A
Approach Vol, veh/h		20			148			410			408	
Approach Delay, s/veh		28.7			31.3			11.6			13.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	36.3	8.6	11.7	7.4	39.0	8.0	12.3
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	7.8	30.5	* 7.3	* 38	6.0	32.3	* 6	* 39
Max Q Clear Time (g_c+I1), s	4.1	4.9	4.1	2.3	2.6	4.5	2.3	5.1
Green Ext Time (p_c), s	0.0	2.4	0.0	0.0	0.0	2.1	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	562	182	28	525	129	36
Future Volume (veh/h)	562	182	28	525	129	36
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	702	228	29	547	139	39
Peak Hour Factor	0.80	0.80	0.96	0.96	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1210	376	67	1336	745	663
Arrive On Green	0.24	0.24	0.04	0.38	0.42	0.42
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	702	228	29	547	139	39
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	7.8	8.2	1.0	7.3	3.1	0.9
Cycle Q Clear(g_c), s	7.8	8.2	1.0	7.3	3.1	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1210	376	67	1336	745	663
V/C Ratio(X)	0.58	0.61	0.43	0.41	0.19	0.06
Avail Cap(c_a), veh/h	2589	804	320	2799	745	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	21.5	29.9	14.5	11.6	10.9
Incr Delay (d2), s/veh	0.4	1.6	4.4	0.2	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.7	0.5	2.3	1.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	23.1	34.3	14.7	12.1	11.1
LnGrp LOS	C	C	C	B	B	B
Approach Vol, veh/h	930			576	178	
Approach Delay, s/veh	22.1			15.7	11.9	
Approach LOS	C			B	B	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		33.0	8.9	21.7				30.6
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		26.8	11.5	32.5				50.5
Max Q Clear Time (g_c+I1), s		5.1	3.0	10.2				9.3
Green Ext Time (p_c), s		0.4	0.0	5.0				3.4

Intersection Summary			
HCM 6th Ctrl Delay			18.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	10	9	42	0	75	6	497	82	112	501	0
Future Volume (veh/h)	28	10	9	42	0	75	6	497	82	112	501	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	41	15	13	51	0	91	7	571	94	122	545	0
Peak Hour Factor	0.68	0.68	0.68	0.82	0.82	0.82	0.87	0.87	0.87	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	203	172	95	205	174	19	2237	695	155	2627	816
Arrive On Green	0.05	0.11	0.11	0.05	0.00	0.11	0.01	0.44	0.44	0.09	0.52	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	41	15	13	51	0	91	7	571	94	122	545	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	1.6	0.5	0.5	2.0	0.0	3.8	0.3	4.9	1.6	4.7	4.0	0.0
Cycle Q Clear(g_c), s	1.6	0.5	0.5	2.0	0.0	3.8	0.3	4.9	1.6	4.7	4.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	203	172	95	205	174	19	2237	695	155	2627	816
V/C Ratio(X)	0.44	0.07	0.08	0.53	0.00	0.52	0.36	0.26	0.14	0.79	0.21	0.00
Avail Cap(c_a), veh/h	152	1011	857	152	1011	857	152	2237	695	223	2627	816
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	27.9	27.9	32.1	0.0	29.3	34.2	12.2	4.6	31.2	9.1	0.0
Incr Delay (d2), s/veh	3.2	0.2	0.2	4.6	0.0	2.4	11.1	0.3	0.4	11.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	0.2	0.9	0.0	1.5	0.2	1.6	0.8	2.3	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	28.0	28.1	36.7	0.0	31.7	45.3	12.5	5.0	42.2	9.2	0.0
LnGrp LOS	D	C	C	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		69			142			672			667	
Approach Delay, s/veh		32.3			33.5			11.8			15.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	36.6	8.5	12.3	6.6	42.4	8.4	12.4				
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7				
Max Green Setting (Gmax), s	8.8	30.8	* 6	* 38	6.0	33.6	* 6	* 38				
Max Q Clear Time (g_c+I1), s	6.7	6.9	4.0	2.5	2.3	6.0	3.6	5.8				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.1	0.0	3.4	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			16.2									
HCM 6th LOS			B									

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	410	37	8	446	37	2
v/c Ratio	0.34	0.09	0.04	0.46	0.04	0.00
Control Delay	17.8	7.4	25.4	16.7	10.9	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	7.4	25.4	16.7	10.9	10.0
Queue Length 50th (ft)	35	0	2	58	5	0
Queue Length 95th (ft)	72	18	16	87	20	3
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	3254	1026	422	3317	837	751
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.04	0.02	0.13	0.04	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	9	2	9	57	12	79	17	378	15	58	346	4
v/c Ratio	0.05	0.01	0.02	0.31	0.03	0.16	0.11	0.13	0.02	0.31	0.11	0.00
Control Delay	39.2	24.0	0.0	40.5	21.8	0.7	40.2	14.5	0.0	40.3	11.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	24.0	0.0	40.5	21.8	0.7	40.2	14.5	0.0	40.3	11.1	0.0
Queue Length 50th (ft)	3	1	0	20	4	0	6	27	0	21	12	0
Queue Length 95th (ft)	14	4	0	71	16	0	34	98	0	80	88	0
Internal Link Dist (ft)		475			485			484			832	
Turn Bay Length (ft)	150		150	125		125	250		150	200		150
Base Capacity (vph)	164	1066	992	198	1103	1019	160	2861	968	208	3266	1078
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.01	0.29	0.01	0.08	0.11	0.13	0.02	0.28	0.11	0.00

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	703	228	29	547	139	39
v/c Ratio	0.55	0.40	0.15	0.47	0.18	0.05
Control Delay	22.0	5.7	30.5	16.4	14.3	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	5.7	30.5	16.4	14.3	6.2
Queue Length 50th (ft)	69	0	9	79	22	0
Queue Length 95th (ft)	117	32	37	112	87	19
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	2767	964	340	2993	793	731
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.24	0.09	0.18	0.18	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	41	15	13	51	91	7	571	94	122	545
v/c Ratio	0.29	0.05	0.03	0.26	0.16	0.05	0.25	0.12	0.60	0.17
Control Delay	44.4	26.4	0.1	40.3	0.6	40.8	17.1	0.3	50.2	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	26.4	0.1	40.3	0.6	40.8	17.1	0.3	50.2	11.2
Queue Length 50th (ft)	18	6	0	18	0	3	62	0	55	36
Queue Length 95th (ft)	47	15	0	67	0	18	140	0	#185	133
Internal Link Dist (ft)		475					484			832
Turn Bay Length (ft)	150		150	125	125	250		150	200	
Base Capacity (vph)	140	937	896	200	973	140	2304	815	206	3260
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.02	0.01	0.26	0.09	0.05	0.25	0.12	0.59	0.17

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

EXISTING PLUS PROJECT WORKSHEETS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	357	44	8	414	57	5
Future Volume (veh/h)	357	44	8	414	57	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	410	51	9	450	90	8
Peak Hour Factor	0.87	0.87	0.92	0.92	0.63	0.63
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	925	287	25	1112	800	712
Arrive On Green	0.18	0.18	0.01	0.32	0.45	0.45
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	410	51	9	450	90	8
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	3.9	1.5	0.3	5.5	1.6	0.2
Cycle Q Clear(g_c), s	3.9	1.5	0.3	5.5	1.6	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	925	287	25	1112	800	712
V/C Ratio(X)	0.44	0.18	0.36	0.40	0.11	0.01
Avail Cap(c_a), veh/h	3099	962	403	2575	800	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	18.9	26.8	14.7	8.6	8.2
Incr Delay (d2), s/veh	0.3	0.3	8.7	0.2	0.3	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	1.3	0.5	0.2	1.7	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.2	19.2	35.5	15.0	8.9	8.3
LnGrp LOS	C	B	D	B	A	A
Approach Vol, veh/h	461			459	98	
Approach Delay, s/veh	20.1			15.4	8.9	
Approach LOS	C			B	A	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	31.0	7.3	16.5	23.8
Change Period (Y+Rc), s	6.2	6.5	6.5	6.5
Max Green Setting (Gmax), s	24.8	12.5	33.5	40.0
Max Q Clear Time (g_c+I1), s	3.6	2.3	5.9	7.5
Green Ext Time (p_c), s	0.2	0.0	2.6	2.7

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1	28	46	10	64	24	349	14	52	319	5
Future Volume (veh/h)	13	1	28	46	10	64	24	349	14	52	319	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	2	50	57	12	79	26	379	15	58	354	6
Peak Hour Factor	0.56	0.56	0.56	0.81	0.81	0.81	0.92	0.92	0.92	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	99	210	178	103	214	182	61	2285	709	108	2420	751
Arrive On Green	0.06	0.11	0.11	0.06	0.12	0.12	0.03	0.45	0.45	0.06	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	23	2	50	57	12	79	26	379	15	58	354	6
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	0.8	0.1	2.0	2.1	0.4	3.2	1.0	3.0	0.2	2.2	2.7	0.1
Cycle Q Clear(g_c), s	0.8	0.1	2.0	2.1	0.4	3.2	1.0	3.0	0.2	2.2	2.7	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	210	178	103	214	182	61	2285	709	108	2420	751
V/C Ratio(X)	0.23	0.01	0.28	0.55	0.06	0.43	0.43	0.17	0.02	0.54	0.15	0.01
Avail Cap(c_a), veh/h	157	1043	884	191	1079	914	157	2285	709	204	2420	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	26.6	27.5	31.0	26.6	27.8	32.0	11.0	3.8	30.8	9.9	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.9	4.6	0.1	1.6	4.7	0.2	0.1	4.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.8	1.0	0.2	1.2	0.5	1.0	0.1	1.0	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	26.6	28.3	35.5	26.7	29.5	36.7	11.2	3.9	35.0	10.0	3.2
LnGrp LOS	C	C	C	D	C	C	D	B	A	C	B	A
Approach Vol, veh/h		75			148			420			418	
Approach Delay, s/veh		29.3			31.6			12.5			13.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	36.3	8.6	12.3	8.1	38.5	8.5	12.5
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	7.8	30.5	* 7.3	* 38	6.0	32.3	* 6	* 39
Max Q Clear Time (g_c+I1), s	4.2	5.0	4.1	4.0	3.0	4.7	2.8	5.2
Green Ext Time (p_c), s	0.0	2.4	0.0	0.1	0.0	2.1	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	562	220	32	527	149	38
Future Volume (veh/h)	562	220	32	527	149	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	702	275	33	549	160	41
Peak Hour Factor	0.80	0.80	0.96	0.96	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1330	413	73	1418	717	638
Arrive On Green	0.26	0.26	0.04	0.40	0.41	0.41
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	702	275	33	549	160	41
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	7.8	10.3	1.2	7.3	3.9	1.1
Cycle Q Clear(g_c), s	7.8	10.3	1.2	7.3	3.9	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1330	413	73	1418	717	638
V/C Ratio(X)	0.53	0.67	0.45	0.39	0.22	0.06
Avail Cap(c_a), veh/h	2492	773	308	2694	717	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	21.8	30.9	14.0	12.8	12.0
Incr Delay (d2), s/veh	0.3	1.9	4.3	0.2	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.4	0.5	2.3	1.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.2	23.6	35.3	14.2	13.6	12.2
LnGrp LOS	C	C	D	B	B	B
Approach Vol, veh/h	977			582	201	
Approach Delay, s/veh	21.9			15.4	13.3	
Approach LOS	C			B	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	33.0	9.2	23.9	33.1
Change Period (Y+Rc), s	6.2	6.5	6.5	6.5
Max Green Setting (Gmax), s	26.8	11.5	32.5	50.5
Max Q Clear Time (g_c+I1), s	5.9	3.2	12.3	9.3
Green Ext Time (p_c), s	0.5	0.0	5.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	10	23	42	0	75	33	501	82	112	506	4
Future Volume (veh/h)	33	10	23	42	0	75	33	501	82	112	506	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	49	15	34	51	0	91	38	576	94	122	550	4
Peak Hour Factor	0.68	0.68	0.68	0.82	0.82	0.82	0.87	0.87	0.87	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	95	207	175	95	207	176	79	2232	693	155	2450	761
Arrive On Green	0.05	0.11	0.11	0.05	0.00	0.11	0.04	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	49	15	34	51	0	91	38	576	94	122	550	4
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	1.9	0.5	1.4	2.0	0.0	3.8	1.5	5.0	1.6	4.7	4.4	0.1
Cycle Q Clear(g_c), s	1.9	0.5	1.4	2.0	0.0	3.8	1.5	5.0	1.6	4.7	4.4	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	207	175	95	207	176	79	2232	693	155	2450	761
V/C Ratio(X)	0.52	0.07	0.19	0.53	0.00	0.52	0.48	0.26	0.14	0.79	0.22	0.01
Avail Cap(c_a), veh/h	152	1009	855	152	1009	855	152	2232	693	222	2450	761
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	27.8	28.2	32.2	0.0	29.3	32.6	12.3	4.7	31.2	10.5	3.3
Incr Delay (d2), s/veh	4.3	0.1	0.5	4.6	0.0	2.4	4.5	0.3	0.4	11.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.5	0.9	0.0	1.5	0.7	1.6	0.9	2.3	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	28.0	28.7	36.8	0.0	31.6	37.0	12.6	5.1	42.4	10.7	3.3
LnGrp LOS	D	C	C	D	A	C	D	B	A	D	B	A
Approach Vol, veh/h		98			142			708			676	
Approach Delay, s/veh		32.5			33.5			12.9			16.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	36.6	8.5	12.5	8.9	40.0	8.5	12.5				
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7				
Max Green Setting (Gmax), s	8.8	30.8	* 6	* 38	6.0	33.6	* 6	* 38				
Max Q Clear Time (g_c+I1), s	6.7	7.0	4.0	3.4	3.5	6.4	3.9	5.8				
Green Ext Time (p_c), s	0.0	3.9	0.0	0.2	0.0	3.4	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									
Notes												

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	410	51	9	450	90	8
v/c Ratio	0.34	0.12	0.04	0.46	0.11	0.01
Control Delay	17.8	6.9	25.5	16.7	10.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.9	25.5	16.7	10.9	7.8
Queue Length 50th (ft)	35	0	2	59	12	0
Queue Length 95th (ft)	72	21	17	87	39	5
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	3254	1031	422	3317	837	754
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.05	0.02	0.14	0.11	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	2	50	57	12	79	26	379	15	58	354	6
v/c Ratio	0.14	0.01	0.11	0.32	0.03	0.16	0.17	0.14	0.02	0.32	0.12	0.01
Control Delay	40.5	25.0	0.5	42.4	24.6	0.7	41.7	15.7	0.0	41.7	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	25.0	0.5	42.4	24.6	0.7	41.7	15.7	0.0	41.7	13.5	0.0
Queue Length 50th (ft)	10	1	0	25	4	0	12	40	0	26	24	0
Queue Length 95th (ft)	25	4	0	71	16	0	46	98	0	80	90	0
Internal Link Dist (ft)		475			485			484			832	
Turn Bay Length (ft)	150		150	125		125	250		150	200		150
Base Capacity (vph)	166	1043	975	190	1079	1001	156	2762	941	203	2978	999
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.00	0.05	0.30	0.01	0.08	0.17	0.14	0.02	0.29	0.12	0.01

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	703	275	33	549	160	41
v/c Ratio	0.53	0.45	0.17	0.46	0.20	0.06
Control Delay	21.6	5.6	31.0	16.0	14.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	5.6	31.0	16.0	14.9	6.3
Queue Length 50th (ft)	69	0	10	80	28	0
Queue Length 95th (ft)	118	34	40	113	101	20
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	2722	974	334	2944	781	721
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.28	0.10	0.19	0.20	0.06

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	15	34	51	91	38	576	94	122	550	4
v/c Ratio	0.35	0.05	0.08	0.36	0.17	0.27	0.25	0.12	0.60	0.19	0.00
Control Delay	46.0	26.4	0.3	46.5	0.7	43.9	17.1	0.3	50.2	14.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	26.4	0.3	46.5	0.7	43.9	17.1	0.3	50.2	14.0	0.0
Queue Length 50th (ft)	22	6	0	23	0	17	63	0	55	55	0
Queue Length 95th (ft)	53	15	0	67	0	57	141	0	#185	134	0
Internal Link Dist (ft)		475					484			832	
Turn Bay Length (ft)	150		150	125	125	250		150	200		150
Base Capacity (vph)	140	937	896	140	967	140	2304	815	206	2943	989
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.02	0.04	0.36	0.09	0.27	0.25	0.12	0.59	0.19	0.00

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

NEAR-TERM WORKSHEETS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	366	44	8	424	58	5
Future Volume (veh/h)	366	44	8	424	58	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	421	51	9	461	92	8
Peak Hour Factor	0.87	0.87	0.92	0.92	0.63	0.63
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	925	287	25	1112	800	712
Arrive On Green	0.18	0.18	0.01	0.32	0.45	0.45
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	421	51	9	461	92	8
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	4.1	1.5	0.3	5.6	1.6	0.2
Cycle Q Clear(g_c), s	4.1	1.5	0.3	5.6	1.6	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	925	287	25	1112	800	712
V/C Ratio(X)	0.46	0.18	0.36	0.41	0.11	0.01
Avail Cap(c_a), veh/h	3099	962	403	2575	800	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	18.9	26.8	14.8	8.6	8.2
Incr Delay (d2), s/veh	0.4	0.3	8.7	0.2	0.3	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	1.3	0.5	0.2	1.7	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.3	19.2	35.5	15.0	8.9	8.3
LnGrp LOS	C	B	D	B	A	A
Approach Vol, veh/h	472			470	100	
Approach Delay, s/veh	20.2			15.4	8.9	
Approach LOS	C			B	A	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		31.0	7.3	16.5				23.8
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		24.8	12.5	33.5				40.0
Max Q Clear Time (g_c+I1), s		3.6	2.3	6.1				7.6
Green Ext Time (p_c), s		0.2	0.0	2.6				2.7

Intersection Summary			
HCM 6th Ctrl Delay			16.9
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	1	28	47	10	66	24	358	14	53	326	5
Future Volume (veh/h)	13	1	28	47	10	66	24	358	14	53	326	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	23	2	50	58	12	81	26	389	15	59	362	6
Peak Hour Factor	0.56	0.56	0.56	0.81	0.81	0.81	0.92	0.92	0.92	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	100	210	178	104	215	182	61	2283	709	108	2418	751
Arrive On Green	0.06	0.11	0.11	0.06	0.12	0.12	0.03	0.45	0.45	0.06	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	23	2	50	58	12	81	26	389	15	59	362	6
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	0.8	0.1	2.0	2.2	0.4	3.2	1.0	3.1	0.2	2.2	2.7	0.1
Cycle Q Clear(g_c), s	0.8	0.1	2.0	2.2	0.4	3.2	1.0	3.1	0.2	2.2	2.7	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	100	210	178	104	215	182	61	2283	709	108	2418	751
V/C Ratio(X)	0.23	0.01	0.28	0.56	0.06	0.45	0.43	0.17	0.02	0.55	0.15	0.01
Avail Cap(c_a), veh/h	157	1042	883	191	1078	913	157	2283	709	204	2418	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	26.6	27.5	31.0	26.6	27.9	32.0	11.1	3.8	30.9	10.0	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.9	4.6	0.1	1.7	4.7	0.2	0.1	4.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.8	1.0	0.2	1.3	0.5	1.0	0.1	1.0	0.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	26.7	28.3	35.6	26.7	29.6	36.8	11.2	3.9	35.2	10.1	3.2
LnGrp LOS	C	C	C	D	C	C	D	B	A	D	B	A
Approach Vol, veh/h		75			151			430			427	
Approach Delay, s/veh		29.3			31.7			12.5			13.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	36.3	8.7	12.4	8.1	38.5	8.5	12.5
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	7.8	30.5	* 7.3	* 38	6.0	32.3	* 6	* 39
Max Q Clear Time (g_c+I1), s	4.2	5.1	4.2	4.0	3.0	4.7	2.8	5.2
Green Ext Time (p_c), s	0.0	2.4	0.0	0.1	0.0	2.2	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	421	51	9	461	92	8
v/c Ratio	0.35	0.12	0.04	0.47	0.11	0.01
Control Delay	17.8	6.8	25.5	16.8	10.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.8	25.5	16.8	10.9	7.8
Queue Length 50th (ft)	36	0	2	61	12	0
Queue Length 95th (ft)	73	21	17	90	40	5
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	3245	1028	421	3317	835	752
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.05	0.02	0.14	0.11	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	2	50	58	12	81	26	389	15	59	362	6
v/c Ratio	0.14	0.01	0.11	0.33	0.03	0.17	0.17	0.14	0.02	0.32	0.12	0.01
Control Delay	40.5	25.0	0.5	42.6	24.6	0.7	41.7	15.7	0.0	41.8	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	25.0	0.5	42.6	24.6	0.7	41.7	15.7	0.0	41.8	13.5	0.0
Queue Length 50th (ft)	10	1	0	26	4	0	12	41	0	26	24	0
Queue Length 95th (ft)	25	4	0	72	16	0	46	101	0	82	92	0
Internal Link Dist (ft)		475			485			484			832	
Turn Bay Length (ft)	150		150	125		125	250		150	200		150
Base Capacity (vph)	166	1043	975	190	1079	1001	156	2762	941	203	2978	999
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.00	0.05	0.31	0.01	0.08	0.17	0.14	0.02	0.29	0.12	0.01

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	576	225	33	540	152	39
Future Volume (veh/h)	576	225	33	540	152	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	720	281	34	562	163	42
Peak Hour Factor	0.80	0.80	0.96	0.96	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1352	420	74	1433	712	633
Arrive On Green	0.27	0.27	0.04	0.41	0.40	0.40
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	720	281	34	562	163	42
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	8.1	10.6	1.3	7.5	4.0	1.1
Cycle Q Clear(g_c), s	8.1	10.6	1.3	7.5	4.0	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1352	420	74	1433	712	633
V/C Ratio(X)	0.53	0.67	0.46	0.39	0.23	0.07
Avail Cap(c_a), veh/h	2473	768	305	2675	712	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	21.8	31.1	13.9	13.1	12.2
Incr Delay (d2), s/veh	0.3	1.9	4.3	0.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.5	0.6	2.4	1.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.2	23.6	35.5	14.1	13.8	12.4
LnGrp LOS	C	C	D	B	B	B
Approach Vol, veh/h	1001			596	205	
Approach Delay, s/veh	21.9			15.3	13.5	
Approach LOS	C			B	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	33.0	9.3	24.3	33.6
Change Period (Y+Rc), s	6.2	6.5	6.5	6.5
Max Green Setting (Gmax), s	26.8	11.5	32.5	50.5
Max Q Clear Time (g_c+I1), s	6.0	3.3	12.6	9.5
Green Ext Time (p_c), s	0.5	0.0	5.1	3.5

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	10	23	43	0	77	33	513	84	115	518	4
Future Volume (veh/h)	33	10	23	43	0	77	33	513	84	115	518	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	49	15	34	52	0	94	38	590	97	125	563	4
Peak Hour Factor	0.68	0.68	0.68	0.82	0.82	0.82	0.87	0.87	0.87	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	96	207	175	96	207	175	79	2225	691	159	2453	762
Arrive On Green	0.05	0.11	0.11	0.05	0.00	0.11	0.04	0.44	0.44	0.09	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	49	15	34	52	0	94	38	590	97	125	563	4
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	1.9	0.5	1.4	2.0	0.0	4.0	1.5	5.2	1.6	4.9	4.5	0.1
Cycle Q Clear(g_c), s	1.9	0.5	1.4	2.0	0.0	4.0	1.5	5.2	1.6	4.9	4.5	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	207	175	96	207	175	79	2225	691	159	2453	762
V/C Ratio(X)	0.51	0.07	0.19	0.54	0.00	0.54	0.48	0.27	0.14	0.79	0.23	0.01
Avail Cap(c_a), veh/h	151	1005	852	151	1005	852	151	2225	691	222	2453	762
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	27.9	28.3	32.3	0.0	29.4	32.7	12.5	4.8	31.3	10.5	3.3
Incr Delay (d2), s/veh	4.1	0.1	0.5	4.6	0.0	2.5	4.5	0.3	0.4	11.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.5	1.0	0.0	1.6	0.7	1.7	0.9	2.4	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	28.1	28.8	36.9	0.0	32.0	37.2	12.8	5.2	43.1	10.7	3.3
LnGrp LOS	D	C	C	D	A	C	D	B	A	D	B	A
Approach Vol, veh/h		98			146			725			692	
Approach Delay, s/veh		32.5			33.7			13.0			16.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	36.6	8.5	12.5	8.9	40.2	8.5	12.5
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	8.8	30.8	* 6	* 38	6.0	33.6	* 6	* 38
Max Q Clear Time (g_c+I1), s	6.9	7.2	4.0	3.4	3.5	6.5	3.9	6.0
Green Ext Time (p_c), s	0.0	4.1	0.0	0.2	0.0	3.5	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	720	281	34	563	163	42
v/c Ratio	0.53	0.45	0.17	0.46	0.21	0.06
Control Delay	21.5	5.6	31.2	16.0	15.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	5.6	31.2	16.0	15.2	6.3
Queue Length 50th (ft)	71	0	11	82	31	0
Queue Length 95th (ft)	121	34	42	115	104	20
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	2701	971	332	2922	774	716
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.29	0.10	0.19	0.21	0.06

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	15	34	52	94	38	590	97	125	563	4
v/c Ratio	0.35	0.05	0.08	0.37	0.17	0.27	0.26	0.12	0.61	0.19	0.00
Control Delay	46.0	26.4	0.3	46.8	0.7	43.9	17.1	0.3	50.6	14.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	26.4	0.3	46.8	0.7	43.9	17.1	0.3	50.6	14.0	0.0
Queue Length 50th (ft)	22	6	0	24	0	17	64	0	56	57	0
Queue Length 95th (ft)	53	15	0	68	0	57	145	0	#192	138	0
Internal Link Dist (ft)		475					484			832	
Turn Bay Length (ft)	150		150	125	125	250		150	200		150
Base Capacity (vph)	140	936	896	140	964	140	2300	814	205	2943	989
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.02	0.04	0.37	0.10	0.27	0.26	0.12	0.61	0.19	0.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

CUMULATIVE YEAR 2042
WORKSHEETS

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	600	54	12	689	39	2
Future Volume (veh/h)	600	54	12	689	39	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	652	59	13	749	42	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1134	352	35	1261	740	658
Arrive On Green	0.22	0.22	0.02	0.36	0.42	0.42
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	652	59	13	749	42	2
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	6.5	1.7	0.4	9.8	0.8	0.0
Cycle Q Clear(g_c), s	6.5	1.7	0.4	9.8	0.8	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1134	352	35	1261	740	658
V/C Ratio(X)	0.57	0.17	0.38	0.59	0.06	0.00
Avail Cap(c_a), veh/h	3164	982	358	3319	740	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	17.8	27.5	14.9	9.8	9.6
Incr Delay (d2), s/veh	0.5	0.2	6.6	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	2.1	0.5	0.2	3.0	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.1	18.0	34.1	15.3	10.0	9.6
LnGrp LOS	C	B	C	B	A	A
Approach Vol, veh/h	711			762	44	
Approach Delay, s/veh	19.9			15.7	10.0	
Approach LOS	B			B	A	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		30.0	7.6	19.2				26.8
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		23.8	11.5	35.5				53.5
Max Q Clear Time (g_c+I1), s		2.8	2.4	8.5				11.8
Green Ext Time (p_c), s		0.1	0.0	4.2				5.0

Intersection Summary		
HCM 6th Ctrl Delay		17.5
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	8	77	17	107	27	584	24	87	522	7
Future Volume (veh/h)	8	2	8	77	17	107	27	584	24	87	522	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	9	2	9	84	18	116	29	635	26	95	567	8
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	24	203	172	123	306	260	65	2228	692	128	2409	748
Arrive On Green	0.01	0.11	0.11	0.07	0.17	0.17	0.04	0.44	0.44	0.07	0.48	0.48
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	9	2	9	84	18	116	29	635	26	95	567	8
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	0.4	0.1	0.4	3.2	0.6	3.3	1.1	5.6	0.4	3.7	4.6	0.2
Cycle Q Clear(g_c), s	0.4	0.1	0.4	3.2	0.6	3.3	1.1	5.6	0.4	3.7	4.6	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	24	203	172	123	306	260	65	2228	692	128	2409	748
V/C Ratio(X)	0.37	0.01	0.05	0.69	0.06	0.45	0.44	0.28	0.04	0.74	0.24	0.01
Avail Cap(c_a), veh/h	153	1017	862	186	1052	891	153	2228	692	199	2409	748
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	33.9	27.5	27.7	31.5	24.4	13.7	32.7	12.4	4.1	31.5	10.7	9.6
Incr Delay (d2), s/veh	9.1	0.0	0.1	6.6	0.1	1.2	4.6	0.3	0.1	8.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	1.6	0.2	1.7	0.5	1.8	0.2	1.7	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	27.5	27.8	38.1	24.5	14.9	37.3	12.8	4.2	39.6	11.0	9.6
LnGrp LOS	D	C	C	D	C	B	D	B	A	D	B	A
Approach Vol, veh/h		20			218			690			670	
Approach Delay, s/veh		34.6			24.6			13.5			15.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	36.3	9.5	12.3	8.4	39.2	5.7	16.1
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	7.8	30.5	* 7.3	* 38	6.0	32.3	* 6	* 39
Max Q Clear Time (g_c+I1), s	5.7	7.6	5.2	2.4	3.1	6.6	2.4	5.3
Green Ext Time (p_c), s	0.0	4.1	0.0	0.0	0.0	3.5	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	944	306	47	882	217	60
Future Volume (veh/h)	944	306	47	882	217	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1026	333	51	959	236	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1547	480	93	1568	681	606
Arrive On Green	0.31	0.31	0.05	0.44	0.39	0.39
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	1026	333	51	959	236	65
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	13.2	13.9	2.1	15.5	7.1	2.0
Cycle Q Clear(g_c), s	13.2	13.9	2.1	15.5	7.1	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1547	480	93	1568	681	606
V/C Ratio(X)	0.66	0.69	0.55	0.61	0.35	0.11
Avail Cap(c_a), veh/h	2203	684	225	2288	681	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	22.9	34.5	15.8	16.3	14.7
Incr Delay (d2), s/veh	0.5	1.8	5.0	0.4	1.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	4.6	1.0	5.0	2.7	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.1	24.7	39.6	16.2	17.7	15.1
LnGrp LOS	C	C	D	B	B	B
Approach Vol, veh/h	1359			1010	301	
Approach Delay, s/veh	23.5			17.4	17.1	
Approach LOS	C			B	B	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		35.0	10.4	29.3				39.7
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		28.8	9.5	32.5				48.5
Max Q Clear Time (g_c+I1), s		9.1	4.1	15.9				17.5
Green Ext Time (p_c), s		0.8	0.0	6.9				6.6

Intersection Summary			
HCM 6th Ctrl Delay			20.5
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	14	15	71	0	126	10	835	138	188	841	0
Future Volume (veh/h)	47	14	15	71	0	126	10	835	138	188	841	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	51	15	16	77	0	137	11	908	150	204	914	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	98	199	169	114	216	183	29	2118	657	211	2640	819
Arrive On Green	0.06	0.11	0.11	0.06	0.00	0.12	0.02	0.42	0.42	0.12	0.52	0.00
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	51	15	16	77	0	137	11	908	150	204	914	0
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	2.1	0.5	0.7	3.1	0.0	6.2	0.5	9.4	2.9	8.5	7.8	0.0
Cycle Q Clear(g_c), s	2.1	0.5	0.7	3.1	0.0	6.2	0.5	9.4	2.9	8.5	7.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	199	169	114	216	183	29	2118	657	211	2640	819
V/C Ratio(X)	0.52	0.08	0.09	0.67	0.00	0.75	0.38	0.43	0.23	0.97	0.35	0.00
Avail Cap(c_a), veh/h	144	957	811	144	957	811	144	2118	657	211	2640	819
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.8	29.6	29.7	33.7	0.0	31.5	35.9	15.2	5.7	32.3	10.3	0.0
Incr Delay (d2), s/veh	4.2	0.2	0.2	8.4	0.0	6.0	8.0	0.6	0.8	52.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	0.3	1.6	0.0	0.3	0.2	3.2	1.6	6.3	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	29.7	29.9	42.1	0.0	37.5	43.8	15.8	6.5	84.5	10.7	0.0
LnGrp LOS	D	C	C	D	A	D	D	B	A	F	B	A
Approach Vol, veh/h		82			214			1069			1118	
Approach Delay, s/veh		34.9			39.1			14.8			24.1	
Approach LOS		C			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	36.6	9.5	12.6	7.0	44.6	8.8	13.3
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	8.8	30.8	* 6	* 38	6.0	33.6	* 6	* 38
Max Q Clear Time (g_c+I1), s	10.5	11.4	5.1	2.7	2.5	9.8	4.1	8.2
Green Ext Time (p_c), s	0.0	6.2	0.0	0.1	0.0	6.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	652	59	13	749	42	2
v/c Ratio	0.43	0.11	0.07	0.63	0.06	0.00
Control Delay	17.1	6.0	26.8	17.5	12.6	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	6.0	26.8	17.5	12.6	10.5
Queue Length 50th (ft)	58	0	4	106	7	0
Queue Length 95th (ft)	115	24	21	148	32	4
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	3226	1025	363	3298	752	674
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.06	0.04	0.23	0.06	0.00

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	9	2	9	84	18	116	29	635	26	95	567	8
v/c Ratio	0.06	0.01	0.02	0.44	0.05	0.24	0.19	0.24	0.03	0.49	0.18	0.01
Control Delay	40.0	24.5	0.1	44.6	21.8	1.1	40.9	15.8	0.0	45.7	12.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	24.5	0.1	44.6	21.8	1.1	40.9	15.8	0.0	45.7	12.6	0.0
Queue Length 50th (ft)	3	1	0	30	6	0	10	49	0	34	20	0
Queue Length 95th (ft)	22	6	0	#132	23	0	49	163	0	#147	141	0
Internal Link Dist (ft)		475			485			484			832	
Turn Bay Length (ft)	150		150	125		125	250		150	200		150
Base Capacity (vph)	154	1027	963	195	1062	989	154	2684	897	200	3161	1031
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.00	0.01	0.43	0.02	0.12	0.19	0.24	0.03	0.47	0.18	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1026	333	51	959	236	65
v/c Ratio	0.61	0.45	0.29	0.62	0.35	0.10
Control Delay	23.6	4.6	39.9	17.5	21.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	4.6	39.9	17.5	21.7	6.4
Queue Length 50th (ft)	163	0	25	171	88	0
Queue Length 95th (ft)	211	54	63	223	171	28
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	2216	876	225	2301	683	650
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.38	0.23	0.42	0.35	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	15	16	77	137	11	908	150	204	914
v/c Ratio	0.36	0.05	0.04	0.51	0.27	0.08	0.44	0.20	0.99	0.31
Control Delay	46.4	26.4	0.1	51.5	1.3	41.1	19.4	3.2	98.8	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	26.4	0.1	51.5	1.3	41.1	19.4	3.2	98.8	12.4
Queue Length 50th (ft)	23	6	0	35	0	5	107	0	97	67
Queue Length 95th (ft)	#81	20	0	#135	0	26	238	30	#329	230
Internal Link Dist (ft)		475					484			832
Turn Bay Length (ft)	150		150	125	125	250		150	200	
Base Capacity (vph)	141	943	901	152	949	141	2087	755	207	2963
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.02	0.02	0.51	0.14	0.08	0.44	0.20	0.99	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	600	65	13	692	73	5
Future Volume (veh/h)	600	65	13	692	73	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	652	71	14	752	79	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1136	353	37	1267	738	657
Arrive On Green	0.22	0.22	0.02	0.36	0.42	0.42
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	652	71	14	752	79	5
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	6.5	2.1	0.4	9.9	1.6	0.1
Cycle Q Clear(g_c), s	6.5	2.1	0.4	9.9	1.6	0.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1136	353	37	1267	738	657
V/C Ratio(X)	0.57	0.20	0.38	0.59	0.11	0.01
Avail Cap(c_a), veh/h	3157	980	357	3311	738	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	18.0	27.5	14.9	10.1	9.7
Incr Delay (d2), s/veh	0.5	0.3	6.3	0.4	0.3	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	2.1	0.6	0.2	3.0	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.1	18.2	33.8	15.3	10.4	9.7
LnGrp LOS	C	B	C	B	B	A
Approach Vol, veh/h	723			766	84	
Approach Delay, s/veh	19.9			15.6	10.4	
Approach LOS	B			B	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	30.0	7.7	19.3	27.0
Change Period (Y+Rc), s	6.2	6.5	6.5	6.5
Max Green Setting (Gmax), s	23.8	11.5	35.5	53.5
Max Q Clear Time (g_c+I1), s	3.6	2.4	8.5	11.9
Green Ext Time (p_c), s	0.2	0.0	4.2	5.0

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	2	31	77	17	107	35	586	24	87	530	8
Future Volume (veh/h)	16	2	31	77	17	107	35	586	24	87	530	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	17	2	34	84	18	116	38	637	26	95	576	9
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	43	208	176	122	291	247	79	2222	690	128	2362	733
Arrive On Green	0.02	0.11	0.11	0.07	0.16	0.16	0.04	0.44	0.44	0.07	0.47	0.47
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	17	2	34	84	18	116	38	637	26	95	576	9
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	0.7	0.1	1.4	3.2	0.6	3.4	1.5	5.6	0.4	3.7	4.8	0.2
Cycle Q Clear(g_c), s	0.7	0.1	1.4	3.2	0.6	3.4	1.5	5.6	0.4	3.7	4.8	0.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	208	176	122	291	247	79	2222	690	128	2362	733
V/C Ratio(X)	0.40	0.01	0.19	0.69	0.06	0.47	0.48	0.29	0.04	0.74	0.24	0.01
Avail Cap(c_a), veh/h	152	1014	859	186	1049	889	152	2222	690	198	2362	733
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	33.4	27.5	28.0	31.6	25.0	14.1	32.4	12.5	4.1	31.6	11.2	10.0
Incr Delay (d2), s/veh	5.9	0.0	0.5	6.6	0.1	1.4	4.4	0.3	0.1	8.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	1.6	0.3	1.7	0.7	1.8	0.2	1.7	1.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	27.5	28.6	38.3	25.0	15.5	36.8	12.9	4.2	39.7	11.4	10.0
LnGrp LOS	D	C	C	D	C	B	D	B	A	D	B	A
Approach Vol, veh/h		53			218			701			680	
Approach Delay, s/veh		32.0			25.1			13.8			15.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	36.3	9.5	12.5	8.9	38.6	6.4	15.6
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	7.8	30.5	* 7.3	* 38	6.0	32.3	* 6	* 39
Max Q Clear Time (g_c+I1), s	5.7	7.6	5.2	3.4	3.5	6.8	2.7	5.4
Green Ext Time (p_c), s	0.0	4.1	0.0	0.1	0.0	3.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	944	344	51	884	237	63
Future Volume (veh/h)	944	344	51	884	237	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	1026	374	55	961	258	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1631	506	95	1623	662	589
Arrive On Green	0.32	0.32	0.05	0.46	0.37	0.37
Sat Flow, veh/h	5233	1572	1767	3618	1767	1572
Grp Volume(v), veh/h	1026	374	55	961	258	68
Grp Sat Flow(s),veh/h/ln	1689	1572	1767	1763	1767	1572
Q Serve(g_s), s	13.2	16.3	2.3	15.6	8.2	2.2
Cycle Q Clear(g_c), s	13.2	16.3	2.3	15.6	8.2	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1631	506	95	1623	662	589
V/C Ratio(X)	0.63	0.74	0.58	0.59	0.39	0.12
Avail Cap(c_a), veh/h	2141	665	218	2223	662	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	23.2	35.5	15.4	17.6	15.7
Incr Delay (d2), s/veh	0.4	3.1	5.4	0.3	1.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	5.6	1.1	5.0	3.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.6	26.3	40.9	15.7	19.3	16.1
LnGrp LOS	C	C	D	B	B	B
Approach Vol, veh/h	1400			1016	326	
Approach Delay, s/veh	23.6			17.1	18.7	
Approach LOS	C			B	B	

Timer - Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		35.0	10.6	31.3				41.9
Change Period (Y+Rc), s		6.2	6.5	6.5				6.5
Max Green Setting (Gmax), s		28.8	9.5	32.5				48.5
Max Q Clear Time (g_c+I1), s		10.2	4.3	18.3				17.6
Green Ext Time (p_c), s		0.9	0.0	6.5				6.6

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	17	29	71	0	126	37	839	138	188	846	4
Future Volume (veh/h)	52	17	29	71	0	126	37	839	138	188	846	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	57	18	32	77	0	137	40	912	150	204	920	4
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	99	201	170	114	217	184	80	2116	657	211	2490	773
Arrive On Green	0.06	0.11	0.11	0.06	0.00	0.12	0.05	0.42	0.42	0.12	0.49	0.49
Sat Flow, veh/h	1767	1856	1572	1767	1856	1572	1767	5066	1572	1767	5066	1572
Grp Volume(v), veh/h	57	18	32	77	0	137	40	912	150	204	920	4
Grp Sat Flow(s),veh/h/ln	1767	1856	1572	1767	1856	1572	1767	1689	1572	1767	1689	1572
Q Serve(g_s), s	2.3	0.6	1.4	3.1	0.0	6.2	1.6	9.4	2.9	8.5	8.3	0.1
Cycle Q Clear(g_c), s	2.3	0.6	1.4	3.1	0.0	6.2	1.6	9.4	2.9	8.5	8.3	0.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	201	170	114	217	184	80	2116	657	211	2490	773
V/C Ratio(X)	0.58	0.09	0.19	0.67	0.00	0.75	0.50	0.43	0.23	0.97	0.37	0.01
Avail Cap(c_a), veh/h	144	956	810	144	956	810	144	2116	657	211	2490	773
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	29.6	29.9	33.7	0.0	31.5	34.4	15.2	5.7	32.3	11.6	3.4
Incr Delay (d2), s/veh	5.2	0.2	0.5	8.4	0.0	5.9	4.7	0.6	0.8	52.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.3	0.5	1.6	0.0	0.3	0.8	3.2	1.6	6.4	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1	29.8	30.5	42.1	0.0	37.4	39.1	15.9	6.6	84.8	12.1	3.4
LnGrp LOS	D	C	C	D	A	D	D	B	A	F	B	A
Approach Vol, veh/h		107			214			1102			1128	
Approach Delay, s/veh		35.0			39.1			15.5			25.2	
Approach LOS		C			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	36.6	9.5	12.7	9.2	42.4	8.8	13.3
Change Period (Y+Rc), s	6.2	5.8	* 4.7	* 4.7	5.8	6.2	* 4.7	* 4.7
Max Green Setting (Gmax), s	8.8	30.8	* 6	* 38	6.0	33.6	* 6	* 38
Max Q Clear Time (g_c+I1), s	10.5	11.4	5.1	3.4	3.6	10.3	4.3	8.2
Green Ext Time (p_c), s	0.0	6.2	0.0	0.2	0.0	6.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	652	71	14	752	79	5
v/c Ratio	0.43	0.14	0.07	0.63	0.11	0.01
Control Delay	17.1	5.7	26.8	17.5	12.8	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	5.7	26.8	17.5	12.8	9.2
Queue Length 50th (ft)	58	0	4	106	14	0
Queue Length 95th (ft)	116	27	22	148	52	7
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	3223	1028	363	3294	751	675
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.07	0.04	0.23	0.11	0.01

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	2	34	84	18	116	38	637	26	95	576	9
v/c Ratio	0.11	0.01	0.08	0.47	0.04	0.22	0.26	0.24	0.03	0.51	0.20	0.01
Control Delay	41.4	25.0	0.4	47.2	21.0	1.0	43.3	17.0	0.1	47.9	14.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.4	25.0	0.4	47.2	21.0	1.0	43.3	17.0	0.1	47.9	14.8	0.0
Queue Length 50th (ft)	8	1	0	38	6	0	17	71	0	43	60	0
Queue Length 95th (ft)	34	6	0	#132	23	0	59	163	0	#147	143	0
Internal Link Dist (ft)		475			485			484			832	
Turn Bay Length (ft)	150		150	125		125	250		150	200		150
Base Capacity (vph)	148	991	937	184	1025	962	148	2606	874	193	2889	953
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.00	0.04	0.46	0.02	0.12	0.26	0.24	0.03	0.49	0.20	0.01

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1026	374	55	961	258	68
v/c Ratio	0.62	0.49	0.31	0.63	0.38	0.10
Control Delay	23.7	4.7	40.2	17.5	22.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	4.7	40.2	17.5	22.2	6.3
Queue Length 50th (ft)	163	0	27	172	98	0
Queue Length 95th (ft)	211	57	66	224	188	29
Internal Link Dist (ft)	2119			2173	2236	
Turn Bay Length (ft)		250	250		250	
Base Capacity (vph)	2214	899	225	2299	682	652
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.42	0.24	0.42	0.38	0.10

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	18	32	77	137	40	912	150	204	920	4
v/c Ratio	0.42	0.06	0.08	0.39	0.27	0.29	0.45	0.20	1.02	0.36	0.00
Control Delay	49.2	26.7	0.3	45.2	1.3	44.9	20.4	3.2	108.6	16.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	26.7	0.3	45.2	1.3	44.9	20.4	3.2	108.6	16.1	0.0
Queue Length 50th (ft)	26	8	0	35	0	18	108	0	97	101	0
Queue Length 95th (ft)	#94	23	0	#135	0	62	239	30	#329	231	0
Internal Link Dist (ft)		475					484			832	
Turn Bay Length (ft)	150		150	125	125	250		150	200		150
Base Capacity (vph)	137	912	878	196	925	137	2019	736	200	2545	879
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.02	0.04	0.39	0.15	0.29	0.45	0.20	1.02	0.36	0.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.