INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

FOR THE

WILLOW PETROLEUM, INC. COMMERCIAL AND MULTI-FAMILY RESIDENTIAL PROJECT

Northeast Corner of Alluvial Avenue and North Willow Avenue
Clovis, CA

October 23, 2017

Prepared for:

City of Clovis
Planning Division
1033 Fifth Street
Clovis CA 93612
(559) 324-2340

Prepared by:

BaseCamp Environmental, Inc.
115 S. School Street, Suite 14
Lodi, CA 95240
209-224-8213

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USED IN THIS DOCUMENT

AB	Assembly Bill
ALUCP	Airport Land Use Compatibility Plan
APN	Assessor's Parcel Number
ARB	California Air Resources Board
BMP	Best Management Practice
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAP	Climate Action Plan (Stockton)
CCAP	Climate Change Action Plan (SJVAPCD)
CDD	City of Clovis Community Development Department
CEQA	California Environmental Quality Act
CISP	Climate Protection Impact Study Process
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CUPA	Certified Unified Program Agency
dB	decibel
dBA	A-weighted decibel
DRP	Development Review Process
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EPA	U. S. Environmental Protection Agency
EPAP	Existing Plus Approved Projects
FEMA	Federal Emergency Management Agency
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
IS/MND	Initial Study/Mitigated Negative Declaration
ISR	Indirect Source Rule
ITMM	Incidental Take Minimization Measure
L_{dn}	Day-Night Average Sound Level
LOS	Level of Service
mgd	million gallons per day
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
NAHC	Native American Heritage Commission
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System

ODS	owners, developers and successors in interest
PM_{10}	particulate matter 10 micrometers or less in diameter
$PM_{2.5}$	particulate matter 2.5 micrometers or less in diameter
ROG	reactive organic gases
RWCF	Regional Wastewater Control Facility
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
SWQCCP	Storm Water Quality Control Criteria Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
UST	Underground Storage Tank
WDID	Waste Discharger's Identification Number

NEGATIVE DECLARATION

A. General Project Information

Project Title:	Willow Petroleum, Inc. Commercial and Multi-Family Residential Project
Lead Agency Name and Address:	City of Clovis Planning Division 1055 Fifth Street Clovis, CA 93612
Contact Person and Phone Number:	Lily Cha, Assistant Planner (559) 324-2335
Project Location:	Northeast corner of the intersection of North Willow Avenue and Alluvial Avenue, in the northwestern portion of the City of Clovis
Project Sponsor Name and Address:	Willow Petroleum, Inc. 2190 Meridian Park Boulevard Suite G Concord, CA 94520
General Plan Designation:	Commercial, Medium Density Residential (applied for)
Zoning:	Commercial, Medium Density Residential (applied for)
Description of Project:	The project is the construction of a commercial center and multi-family development in the City of Clovis.
Surrounding Land Uses and Setting:	The immediate project vicinity is primarily a residential area with some commercial development. The project site is bounded on the north by a self-storage facility, on the south and east by senior living facilities, and on the west by a multifamily residential development, a gas station, and two restaurants.
Other Public Agencies Whose Approval is Required:	Fresno County Environmental Health Department, San Joaquin Valley Air Pollution Control District, Clovis City Council?

B. Environmental Factors Potentially Affected

The environmental factors checked below may be significantly affected by this project, involving at least one impact that is a "Potentially Significant Impact" prior to mitigation. Mitigation measures that would avoid potentially significant effects or reduce them to a less-than-significant level have been prescribed for each of these effects, as described in the checklist and narrative on the following pages, and in the Summary Table at the end of Chapter 1.0.

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

C. Lead Agency Determination

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 and/or mitigation measures that would reduce potential effects to a less than significant level have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. All applicable mitigation measures are shown in the Summary Table (Table 1-1) at the end of Chapter 1.0.*

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

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" 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. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR 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 required.

Determination Signature:

	10-23-17
Clovis Planning Department	Date

Applicant's Concurrence:

In accordance with Section 15070(b)(1) of the CEQA guidelines, Willow Petroleum, Inc. hereby consents to the incorporation of the identified mitigation measures which are defined in Table 1-1, Summary Table, of this document.

Signature:

	10/23/17
Willow Petroleum, Inc.	Date

1.0 INTRODUCTION

1.1 Project Brief

The project applicant proposes to construct a commercial center as well as a multi-family residential development within the City of Clovis. The proposed project would be constructed on two adjoining parcels; Parcel A is proposed for commercial use and is approximately 3.67 acres in size; Parcel B is approximately 4.18 acres in size and is proposed for development as an apartment complex. Parcel A is located on the northeast corner of N. Willow Avenue and Alluvial Avenue. Parcel B is located immediately to the east of Parcel A, fronting on Alluvial Avenue.

Development of Parcel A would consist of an AM/PM convenience store and fueling station with 16 pumps for the dispensing of gasoline and diesel fuel for passenger vehicles and light-duty trucks. A building approximately 3,764 square feet in size would contain the convenience store; proposed fuel pumps would be covered by a canopy. A freestanding automated car wash structure would be constructed adjacent to the convenience store building. The project also proposes to construct a quick serve restaurant (QSR) building, approximately 3,462 square feet in size, north of the AM/PM and an additional QSR building, 2,500 square feet in size, south of the AM/PM at the corner of N. Willow and Alluvial. Each QSR would include a drive-through.

There would be approximately 105 parking spaces on the commercial project site. Access would be provided from both N. Willow Avenue and Alluvial Avenue. The project would connect to existing water and wastewater lines and electrical, gas and communication utilities in the adjacent streets.

To accommodate proposed commercial development, Parcel A would require a General Plan Amendment from Low Density Residential to Commercial as well as a rezoning from the current zone, R-1-7500 Low Density Residential, to C-2 Commercial. The proposed land uses would require approval of a Conditional Use Permit and a Site Plan Review Amendment.

Parcel B would be developed to accommodate a 60-unit two- and three-story apartment complex. There would be four buildings housing a total of 40 one-bedroom apartments and 20 two-bedroom apartments. A total of 120 parking spaces would be provided on-site. Access to the apartment complex would be located on Alluvial Avenue; a second point of ingress/egress would be provided by an emergency vehicle access at the northwest corner of the site.

Parcel B would require a General Plan Amendment from Low Density Residential to Medium High Density Residential as well as a rezoning from the current zone, R-1-7500 Low Density Residential, to R-2 Medium High Density Residential. The proposed land use would require approval of a Conditional Use Permit and a Site Plan Review Amendment.

1.2 Purpose of Initial Study

The California Environmental Quality Act (CEQA) requires that public agencies consider and document the potential environmental effects of the agency's actions that meet CEQA's definition of a "project." Briefly summarized, a "project" is an action that has the potential to

result in direct or indirect physical changes in the environment. A project includes the agency's direct activities as well as activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations).

Provided that a project is not exempt from CEQA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Initial Study. The purpose of an Initial Study is to determine whether the project would involve "significant" environmental effects as defined by CEQA and to describe feasible mitigation measures that would avoid significant effects or reduce them to a level that would be less than significant. If the Initial Study does not identify significant effects, or if it identifies mitigation measures that would reduce all of the significant effects of the project to a less-than-significant level, then the agency prepares a Negative Declaration or Mitigated Negative Declaration. If the project would involve significant effects that cannot be readily mitigated, then the agency must prepare an Environmental Impact Report (EIR). The agency may also decide to proceed directly with the preparation of an EIR without preparation of an Initial Study.

The proposed project is a "project" as defined by CEQA and is not exempt from CEQA consideration. The City has determined that the project involves the potential for significant environmental effects and requires preparation of this Initial Study. The Initial Study describes the proposed project and its environmental setting, it discusses the potentially significant environmental effects of the project, and it identifies feasible mitigation measures that would avoid the potentially significant environmental effects of the project or reduce them to a level that would be less than significant. The Initial Study considers the project's potential for significant environmental effects in the following subject areas:

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

The Initial Study concludes that the project would have significant environmental effects, but recommended mitigation measures would reduce all of these effects to a level that would be less than significant. As a result, the City has prepared a Mitigated Negative Declaration and notified the public of the City's intent to adopt the Initial Study/Mitigated Negative Declaration. As of the distribution of the IS/MND for public review, the applicant has accepted all of the recommended mitigation measures. The time available for comment on the IS/MND is shown in the Notice of Intent.

1.3 Project Background

The project site is located in the City of Clovis in an area known as the Herndon Shepard Specific Plan. The Herndon Shepard Specific Plan was approved in 1988 when the 5,800-acre specific plan area was incorporated into the City of Clovis. The Specific Plan established the pattern of residential and commercial neighborhoods as well as the location of schools and open space. The Specific Plan also provided for circulation, government services and utilities needed to accommodate planned development. The Specific Plan designated the proposed project site Low-Density Residential at this time; however, the plan also speaks to the need for affordable housing and neighborhood commercial areas. The plan was adopted June 27, 1988.

1.4 Environmental Evaluation Checklist Terminology

The Initial Study repeatedly uses a few terms and acronyms that are defined here for the reader's convenience. A complete list of acronyms used in the Initial Study is shown following the Table of Contents.

CDD — The Clovis Community Development Department. The CDD is responsible for processing of the project's permit applications and for independent review and acceptance of the IS/MND.

IS/MND — This Initial Study/Mitigated Negative Declaration.

ODS — The owners, developers and successors-in-interest, meaning the project applicant, property owners, future project owners and other parties with interest or responsibility for the project, now and in the future.

The project's potential environmental effects are described in the Environmental Evaluation Checklist shown in Chapter 3.0. The checklist includes a list of environmental considerations against which the project is evaluated. For each question, the City determines whether the project would involve: 1) a Potentially Significant Impact, 2) a Less Than Significant Impact With Mitigation Incorporated, 3) a Less Than Significant Impact, or 4) No Impact.

A Potentially Significant Impact occurs when there is substantial evidence that the project would involve a substantial adverse change to the physical environment, i.e., that the environmental effect may be significant, and mitigation measures have not yet been defined that would reduce the impact to a less than significant level. If there are one or more Potentially Significant Impact entries in the Initial Study, an EIR is required.

An environmental effect that is Less Than Significant With Mitigation Incorporated is a Potentially Significant Impact that can be avoided or reduced to a less than significant level with the application of mitigation measures identified in the Environmental Evaluation Checklist and accepted by the applicant.

A Less Than Significant Impact occurs when the project would involve effects on a particular resource, but the project would not involve a substantial adverse change to the physical environment, and no mitigation measures are required.

A determination of No Impact is self-explanatory.

This IS/MND prescribes mitigation measures for the potentially significant environmental effects of the project. Some existing regulatory requirements that have been established by the State, City and other agencies, and which are routinely implemented in conjunction with new development, also function as measures that mitigate environmental impacts. These are described in this IS/MND as a part of the existing setting. This Initial Study also describes additional non-regulatory mitigation measures that would address the project's potentially significant environmental impacts but that are not already established in law and practice.

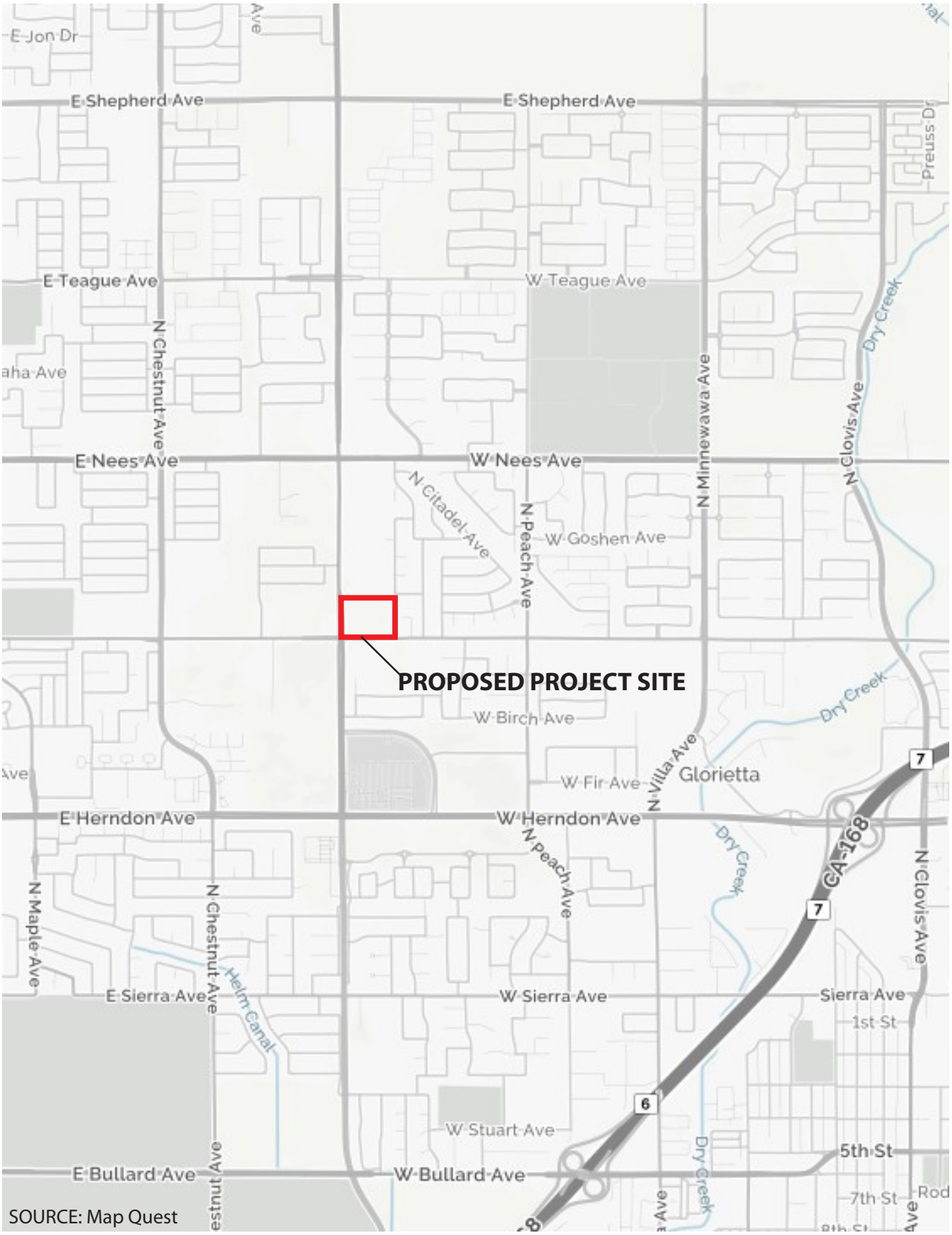
1.5 Summary of Environmental Effects and Mitigation Measures

The following pages contain several project location maps followed by Table 1-1, Summary of Impacts and Mitigation Measures. The table summarizes the results of the Environmental Evaluation Checklist and associated narrative discussion shown in Chapter 3.0. The potential environmental impacts of the proposed project are summarized in the left-most column of this table. The level of significance of each impact is indicated in the second column. Mitigation measures proposed to minimize the impacts are shown in the third column, and the significance of the impact, after mitigation measures are applied, is shown in the fourth column.

SOURCE: Yahoo.com

BaseCamp Environmental

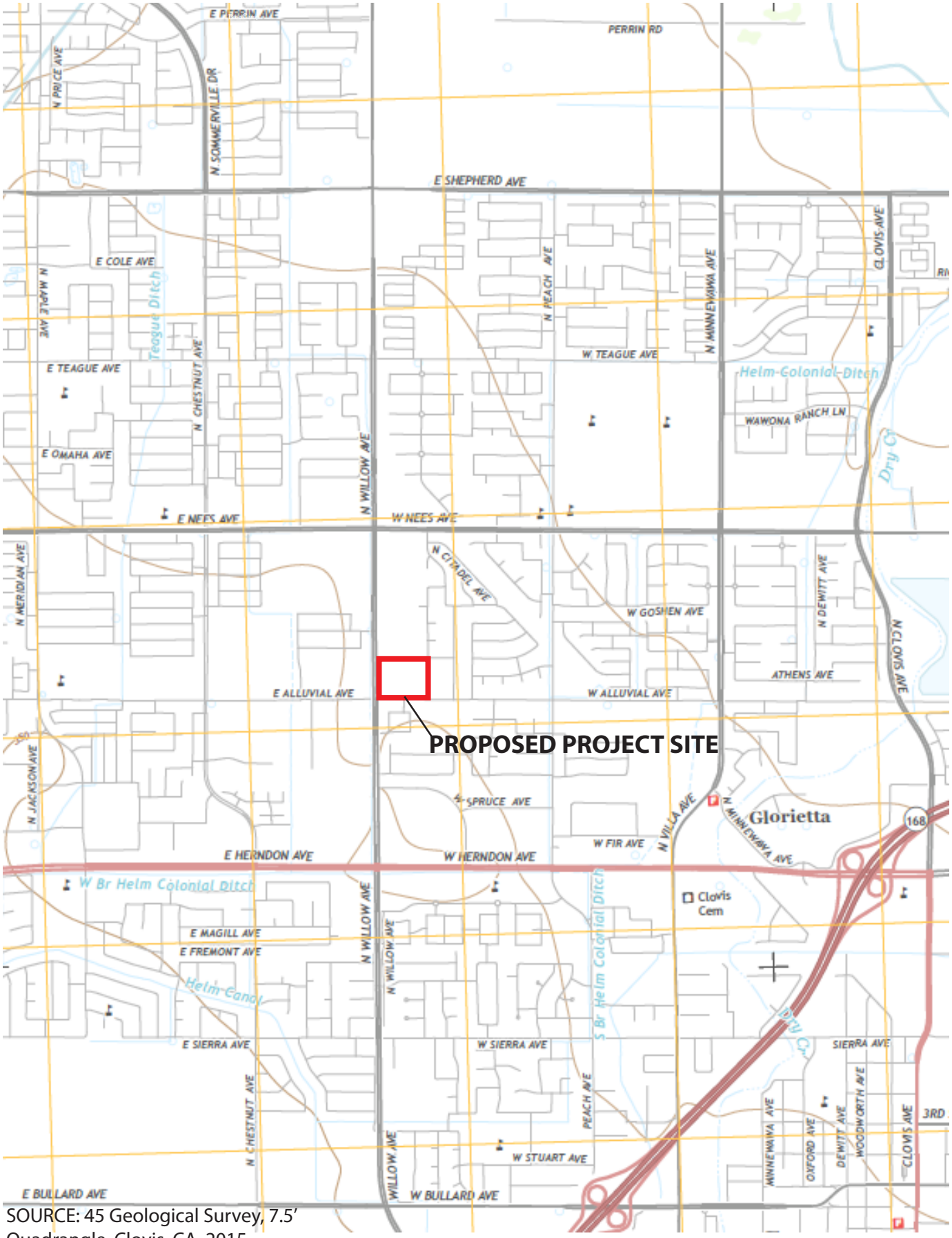
Figure 1-1
REGIONAL MAP



SOURCE: Map Quest

BaseCamp Environmental

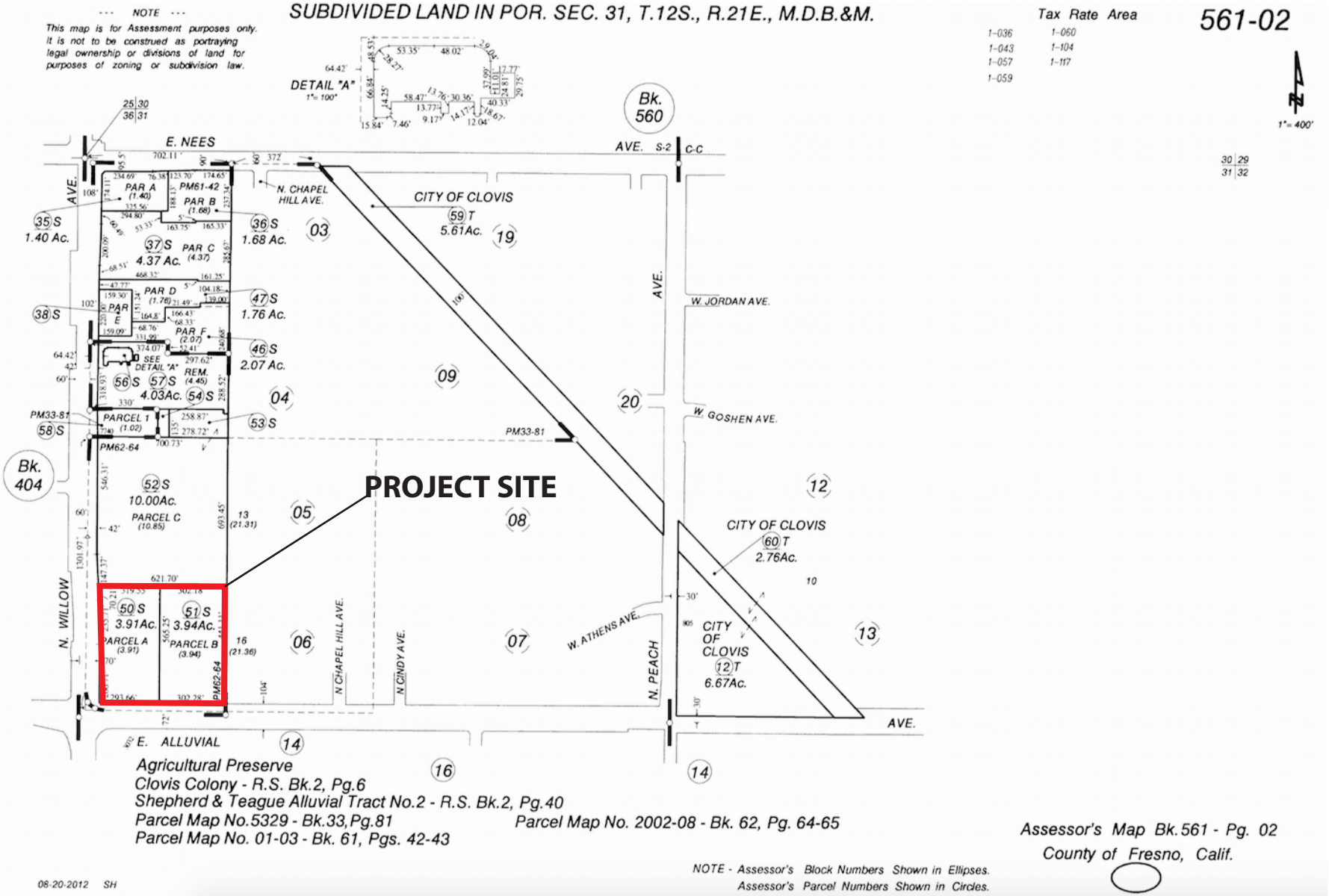
Figure 1-2
STREET MAP



SOURCE: 45 Geological Survey, 7.5' Quadrangle, Clovis, CA. 2015.

BaseCamp Environmental

Figure 1-3
USGS MAP



BaseCamp Environmental

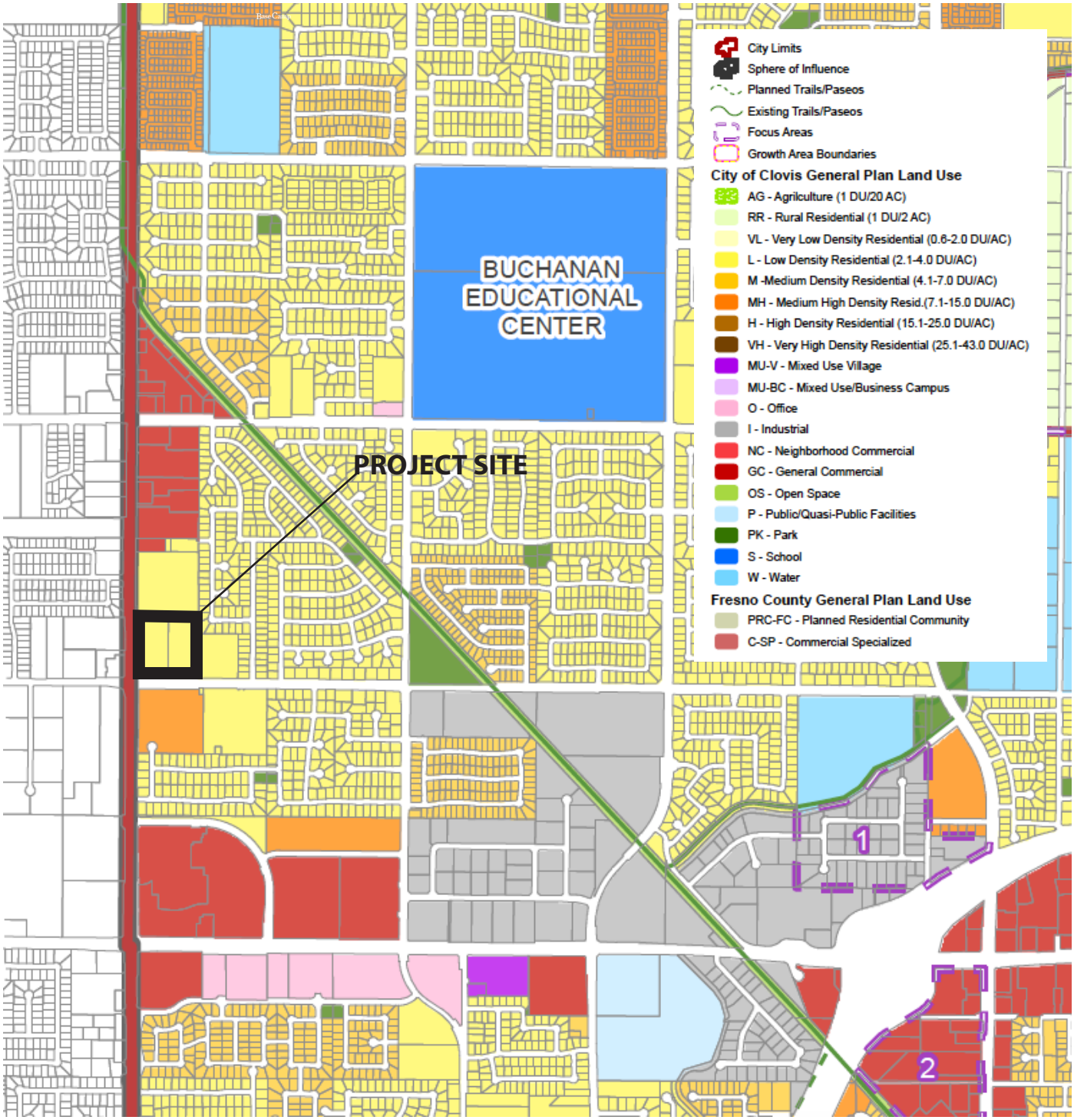
SOURCE: Fresno County Assessor Office

Figure 1-4
ASSESSOR PARCEL MAP

SOURCE: Google Earth

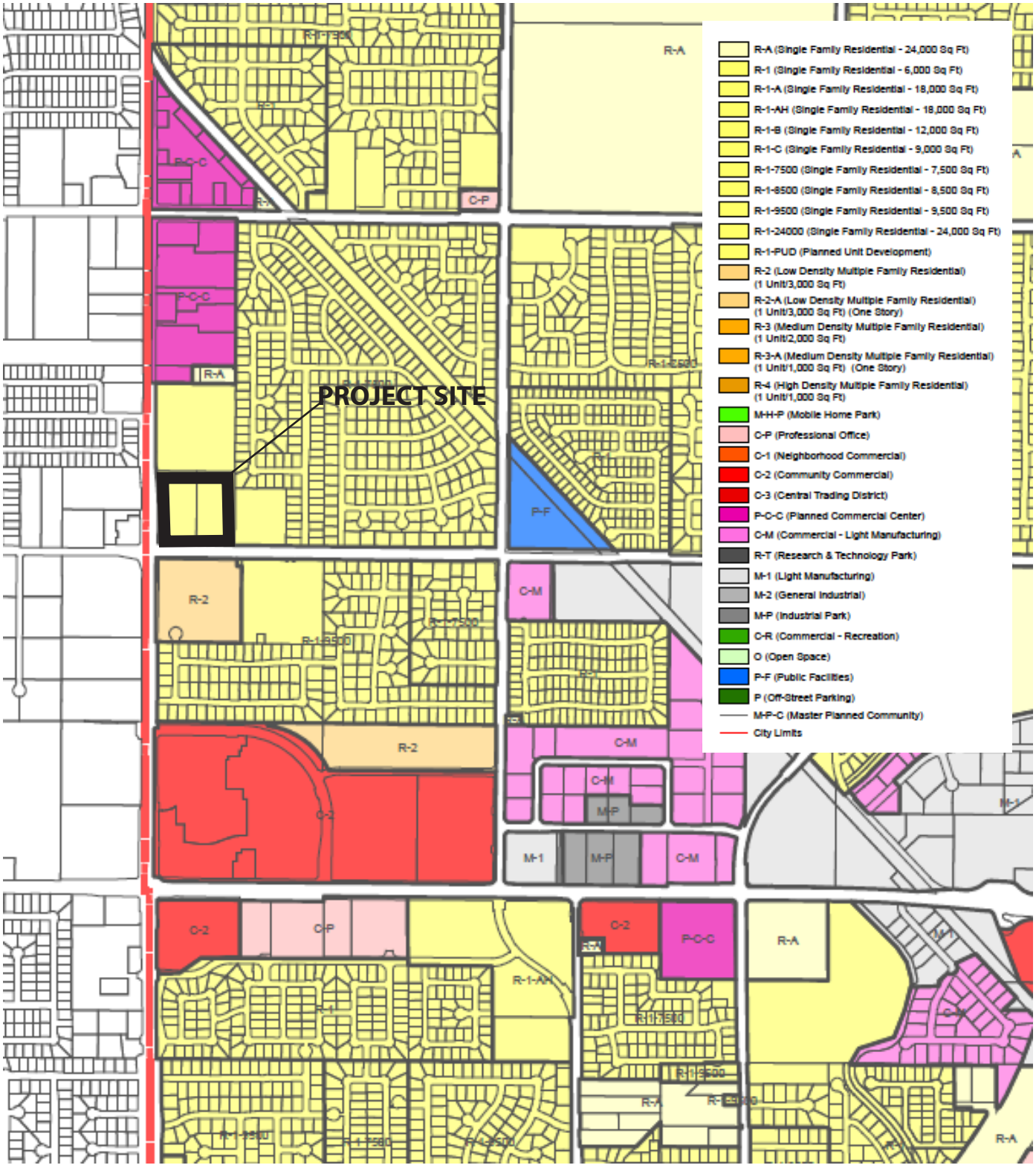
BaseCamp Environmental

Figure 1-5
AERIAL PHOTO



SOURCE: City of Clovis

Figure 1-6
GENERAL PLAN MAP



SOURCE: City of Clovis

Figure 1-7
ZONING MAP

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
3.1 AESTHETICS			
a) Scenic Vistas	LS	None required	
b) Scenic Resources	NI	None required	
c) Visual Character and Quality	LS	None required	
d) Light and Glare	LS	None required	
3.2 AGRICULTURE AND FORESTRY RESOURCES			
a) Agricultural Land Conversion	NI	None required	
b) Agricultural Zoning and Williamson Act	NI	None required	
c, d) Forest Land Conversion and Zoning	NI	None required	
e) Indirect Conversion of Farmland of Forest Land	NI	None required	
3.3 AIR QUALITY			
a) Air Quality Plan Consistency	LS	None required	
b) Violation of Air Quality Standards	LS	None required	
c) Cumulative Emissions	LS	None required	
d) Exposure of Sensitive Receptors	LS	None required	
e) Odors	LS	None required	
3.4 BIOLOGICAL RESOURCES			
a) Special-Status Species	LS	None required	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
b) Riparian and Other Sensitive Habitats	NI	None required	
c) Wetlands	NI	None required	
d) Fish and Wildlife Movement	NI	None required	
e) Local Biological Requirements	NI	None required	
f) Conflict with Habitat Conservation Plans	NI	None required	
3.5 CULTURAL RESOURCES			
a, b) Historical and Archaeological Resources	PS	CULT-1: If any subsurface cultural or paleontological resources are encountered during project construction, all construction activities in the vicinity of the encounter shall be halted until a qualified archaeologist or paleontologist, as appropriate, can examine these materials and make a determination of their significance. If the resource is determined to be significant, recommendations shall be made on further mitigation measures needed to reduce potential effects on the resource to a level that would be less than significant. Such measures could include 1) preservation in place or 2) excavation, recovery and curation by qualified professionals. The Clovis Planning Department shall be notified of any find, and the ODS shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the CDD, consistent with the requirements of the CEQA Guidelines.	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		CULT-2: The developer shall provide cultural resources monitor(s) approved by the consulting tribe(s) to monitor any ground-disturbing activities associated with the project development.	
c) Paleontological Resources and Unique Geological Features	PS	Mitigation Measure CULT-1.	LS
d) Human Burials	LS	None required	
3.6 GEOLOGY AND SOILS			
a-1) Fault Rupture Hazards	NI	None required	
a-2, 3) Seismic Hazards	LS	None required	
a-4) Landslides	LS	None required	
b) Soil Erosion	PS	GEO-1: The ODS shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project and file a Notice of Intent (NOI) with the State Water Resources Control Board prior to commencement of construction activity, in compliance with the Fresno Metropolitan Flood Control District (FMFCD) storm water requirements. The SWPPP shall be available on the construction site at all times. The ODS shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site development plans. The ODS shall submit the SWRCB Waste Discharger's Identification Number (WDID) to the City prior to approval of development or grading	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		plans.	
c) Geologic Instability	NI	None required	
d) Expansive Soils	LS	None required	
e) Adequacy of Soils for Wastewater Disposal	NI	None required	
3.7 GREENHOUSE GAS EMISSIONS			
a,b) Project GHG Emissions and Consistency with GHG Reduction Plans	LS	None required	
3.8 HAZARDS AND HAZARDOUS MATERIALS			
a) Hazardous Material Transport, Use, and Storage	LS	None required	
b, c) Hazardous Materials Releases	NI	None required	
d) Hazardous Materials Sites	NI	None required	
e) Public Airport Operations	NI	None required	
f) Private Airstrip Operations	NI	None required	
g) Emergency Response and Evacuations	LS	None required	
h) Wildland Fire Hazards	LS	None required	
3.9 HYDROLOGY AND WATER QUALITY			
a, f) Surface Waters and Water Quality	PS	HYDRO-1: The ODS shall submit a Storm Water Quality Control Criteria Plan that shall include post-construction Best Management Practices as required by Title 13 of the	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		SWQCCP. The Storm Water Quality Control Criteria Plan will be reviewed and approved by the Stockton Municipal Utilities Department prior to the Certificate of Occupancy. HYDRO-2: The ODS shall execute a Maintenance Agreement with the City for stormwater BMPs prior to receiving a Certificate of Occupancy. The ODS must remain the responsible party and provide funding for the operation, maintenance and replacement costs of the proposed treatment devices built for the subject property. HYDRO-3: The ODS shall comply with any and all requirements of, and pay all associated fees as required by, the City's Storm Water Pollution Prevention Program as set forth in its NPDES Storm Water Permit.	
b) Groundwater Supplies and Recharge	LS	None required	
c, d, e) Drainage Patterns and Runoff	LS	None required	
g, h) Residences and Other Structures in 100-Year Floodplain	NI	None required	
i) Dam and Levee Failure Hazards	NI	None required	
j) Seiche, Tsunami, and Mudflow Hazards	NI	None required	
3.10 LAND USE AND PLANNING			
a) Division of Established Community	LS	None required	
b) Conflicts with Plans, Policies and Regulations Mitigating Environmental Effects	LS	None required	

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
c) Conflict with Habitat Conservation Plans	NI	None required	
3.11 MINERAL RESOURCES			
a, b) Availability of Mineral Resources	NI	None required	
3.12 NOISE			
a) Exposure to Noise Exceeding Local Standards	LS	None required	
b) Groundborne Vibrations	NI	None required	
c) Permanent Increase in Ambient Noise	LS	None required	
d) Temporary or Periodic Increase in Ambient Noise	LS	None required	
e) Public Airport Operations Noise	NI	None required	
f) Private Airstrip Operations Noise	NI	None required	
3.13 POPULATION AND HOUSING			
a) Population Growth Inducement	LS	None required	
b, c) Displacement of Housing or People	NI	None required	
3.14 PUBLIC SERVICES			
a) Fire Protection	LS	None required	LS
b) Police Protection	LS	None required	LS
c) Schools	LS	None required	

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
d, e) Parks and Other Public Facilities	NI	None required	
3.15 RECREATION			
a, b) Recreational Facilities	NI	None required	
3.16 TRANSPORTATION/TRAFFIC			
a) Conflict with Transportation Plans, Ordinances and Policies	PS	TRANS-1: The ODS shall make a fair-share contribution to City traffic mitigation fees.	LS
b) Conflict With Congestion Management Program	PS	Mitigation Measure TRANS-1.	LS
c) Air Traffic Patterns	NI	None required	
d) Traffic Hazards	LS	None required	LS
e) Emergency Access	NI	None required	
f) Conflict with Non-vehicular Transportation Plans	LS	None required	
3.17 UTILITIES AND SERVICE SYSTEMS			
a, e) Wastewater Systems	PS	UTIL-1: The ODS shall contribute to City wastewater fees in the amount of its fair-share cost, as determined by the City.	LS
b, d) Water Systems and Supply	PS	UTIL-2: The ODS shall contribute water supply fees, to be determined by the City, to make up for the water supply shortfall created by rezoning the project site.	LS
c) Stormwater Systems	LS	None required	

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
f, g) Solid Waste Services	LS	None required	
3.18 MANDATORY FINDINGS OF SIGNIFICANCE			
a) Findings on Biological and Cultural Resources	PS	Mitigation measures in Sections 3.4 and 3.5 above.	LS
b) Findings on Individually Limited but Cumulatively Considerable Impacts	PS	.CUMUL-1: The project shall contribute its fair share cost, to be determined by the City, to the following intersection improvement: Addition of a northbound exclusive through lane and a southbound exclusive through lane at the intersection of N. Willow Avenue and Alluvial Avenue. CUMUL-2: The project shall contribute its fair-share cost, to be determined by the City, to the following intersection improvements: Lengthening the eastbound-to-northbound left-turn lane to accommodate a 213 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue. Lengthening the eastbound-to-southbound right-turn lane to accommodate a 227 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue. Lengthening the southbound-to-eastbound left-turn lane to accommodate a 423 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue. CUMUL-3: The project shall construct, or pay full cost to the City, for the following intersection improvement, to be constructed at a time determined by	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

TABLE 1-1
SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Potential Impact	Significance Before Mitigation Measures	Mitigation Measures	Significance After Mitigation Measures
		the City: Lengthening the southbound-to-eastbound left-turn lane to accommodate a 423 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue.	
c) Findings on Adverse Effects on Human Beings	PS	Mitigation measures in Sections 3.6 and 3.16 above.	LS

LEGEND: NI = No Impact; LS = Less Than Significant; PS = Potentially Significant

2.0 PROJECT DESCRIPTION

This chapter of the Initial Study provides a brief summary description of the project followed by information on the project setting and background and detailed descriptions of the location and physical elements of the project.

2.1 Project Brief

The project applicant proposes to construct a commercial center as well as a multi-family residential development within the City of Clovis. The proposed project would be constructed on two adjoining parcels; Parcel A is proposed for commercial use and is approximately 3.67 acres in size; Parcel B is approximately 4.18 acres in size and is proposed for development as an apartment complex. Parcel A is located on the northeast corner of N. Willow Avenue and Alluvial Avenue, Parcel B is located immediately to the east of Parcel A, fronting on Alluvial Avenue.

Development of Parcel A would consist of an AM/PM convenience store and fueling station with 16 pumps for the dispensing of gasoline and diesel fuel for passenger vehicles and light-duty trucks. A building approximately 3,764 square feet in size would contain the convenience store; proposed fuel pumps would be covered by a canopy. A freestanding automated car wash structure would be constructed adjacent to the convenience store building. The project also proposes to construct a quick serve restaurant (QSR) building, approximately 3,462 square feet in size, north of the AM/PM and an additional QSR building, 2,500 square feet in size, south of the AM/PM at the corner of N. Willow and Alluvial. Each QSR would include a drive-through..

There would be approximately 105 parking spaces on the commercial project site. Access would be provided from both N. Willow Avenue and Alluvial Avenue. The project would connect to existing water and wastewater lines and electrical, gas and communication utilities in the adjacent streets.

To accommodate proposed commercial development, Parcel A would require a General Plan Amendment from Low Density Residential to Commercial as well as a rezoning from the current zone, R-1-7500 Low Density Residential, to C-2 Commercial. The proposed land uses would require approval of a Conditional Use Permit and a Site Plan Review Amendment.

Parcel B would be developed to accommodate a 60-unit two- and three-story apartment complex. There would be four buildings that house a total of 40 one-bedroom apartments and 20 two-bedroom apartments. A total of 120 parking spaces would be provided on-site. Access to the apartment complex would be located on Alluvial Avenue; a second point of ingress/egress would be provided by an emergency vehicle access at the northwest corner of the site.

Parcel B would require a General Plan Amendment from Low Density Residential to Medium High Density Residential as well as a rezoning from the current zone, R-1-7500 Low Density Residential, to R-2 Medium High Density Residential. The proposed land use would require approval of a Conditional Use Permit and a Site Plan Review Amendment.

2.2 Project Location

The project site is located at the northeast corner of the intersection of N. Willow Avenue and Alluvial Avenue in the northeastern portion of the City of Clovis, (see Figures 1-1 to 1-5). It is approximately 2 miles west the SR 168 Sierra Freeway and approximately 2.54 miles east of the SR 41 Yosemite Freeway.

The parcels on which the project is proposed for construction are identified as Assessor's Parcel Number 561-020-50 (Parcel A) and Assessor's Parcel Number 561-020-51 (Parcel B). The project site is shown on the USGS Clovis, California-Fresno Co., 7.5-minute quadrangle map within Section 5, Township 13 South, Range 21 East. The approximate latitude of the project site is 36°50'44" North, and the approximate longitude is 119°43'42" West.

2.3 Project Objectives

There are two main objectives for the proposed project. The first objective of the project is the construction of a retail site that can provide a convenient place to procure fuel, food, drinks, and other products for residents and passersby. The second objective is to construct a 60-unit apartment complex that would create additional affordable housing in the City of Clovis.

2.4 Project Details

The proposed project would be constructed on two adjoining parcels. Parcel A is proposed for commercial development and Parcel B is proposed for development of an apartment complex. A six-foot masonry wall would separate the two parcels.

The Parcel A development site is 3.67 acres in size. Proposed development would consist of an ARCO AM/PM convenience store, car wash, 16 associated fueling stations, and two quick-serve restaurants (QSRs) with drive-through lanes (Figure 2-1). The ARCO AM/PM convenience store would be located centrally along the east boundary of Parcel A. The store would be approximately 3,764 square feet in size. Located immediately behind and to the east of ARCO AM/PM, a freestanding structure would be constructed that would contain an automated car wash, along with a drive-thru aisle. The automated car wash would have one wash bay and an equipment room. It also would have a reclaim system, which would allow the car wash to reclaim and reuse wash water. Wash water that is not otherwise reclaimed or lost to evaporation or vehicle carryout would be discharged into the City's wastewater system. Car wash operations are discussed in more detail in Section C(17), Utilities and Service Systems, in Chapter 3.0.

The 16 fueling pumps, which would dispense gasoline and diesel fuel, would also be centrally located toward the western side of the project site. There would be eight pump stations, each equipped with two dispensing pumps, so vehicles could access fuel on either side. A canopy would be constructed over the pump stations. The canopy would contain lighting that would illuminate the pump stations during nighttime operating hours. It is expected that the fueling station would operate 24 hours per day. Fuel pumping facilities would require permit approval from the San Joaquin Valley Air Pollution Control District.

The project includes two buildings that would accommodate QSRs; one would be located in the southern portion of the project site and one in the northern portions. The northern building would be approximately 3,462 square feet in size. The southern QSR would be approximately 2,500 square feet in size. The restaurants would be accessible to sit-down diners as well as drive-thru

guests. There may also be patio areas for outdoor dining. A drive-thru aisle for vehicle pick-up service would be included in both restaurants.

The commercial project site would contain a total of 105 parking spaces. Nineteen of these spaces, including one space for disabled persons, would be located in front of the convenience store, while the remaining spaces would be located between the AMPM and the QSRs and along the west boundary of the site.

Access to the Parcel A would be provided by one driveway in the northwest corner of the project site connecting to N. Willow Avenue and one driveway on the southern side of the project site connecting to Alluvial Avenue. A raised concrete median is present along the project site frontage on N. Willow Avenue, therefore, turn movements at the N. Willow Avenue access driveway would be limited to right-turns in and out; no left-turn movements would be allowed. Both left-turn and right-turn movements would be allowed at the Alluvial Avenue access point.

The Parcel B portion of the project would accommodate a 60-unit apartment complex on a site that is 4.18 acres in size. The site would consist of four buildings, two of which would be three stories in height and two of which would be two stories in height. These buildings would total 56,320 square feet in size. The 2 two-story buildings would include 8 one-bedroom units that would be 795 square feet in size and 4 two-bedroom units that would be 1,226 square feet in size. The 2 3-story buildings would include 12 one-bedroom units that would be 795 square feet in size and 6 two-bedroom units that would be 1,226 square feet in size.

The Parcel B development would provide a total of 120 parking spaces. There would be 55 standard spaces, 57 covered spaces, and 8 spaces for disabled persons. Covered parking would be located to the north of Buildings #1 and #3 and to the south of Buildings #2 and #4. Additional parking would be located on the south side of Building 3 and to the east side of Buildings 2, 3, and 4.

There would be one access driveway at the apartment complex on Alluvial Avenue. Both left-turn and right-turn movements would occur at the access point. An emergency access gate would be located in the northwest corner of the project site.

The project would connect to existing water and wastewater lines available along the project site frontages. Electrical, gas and communications lines can be extended to the project site from existing facilities in the area.

2.5 Permits and Approvals

The existing zoning and General Plan designations for the project are not consistent with the proposed uses.

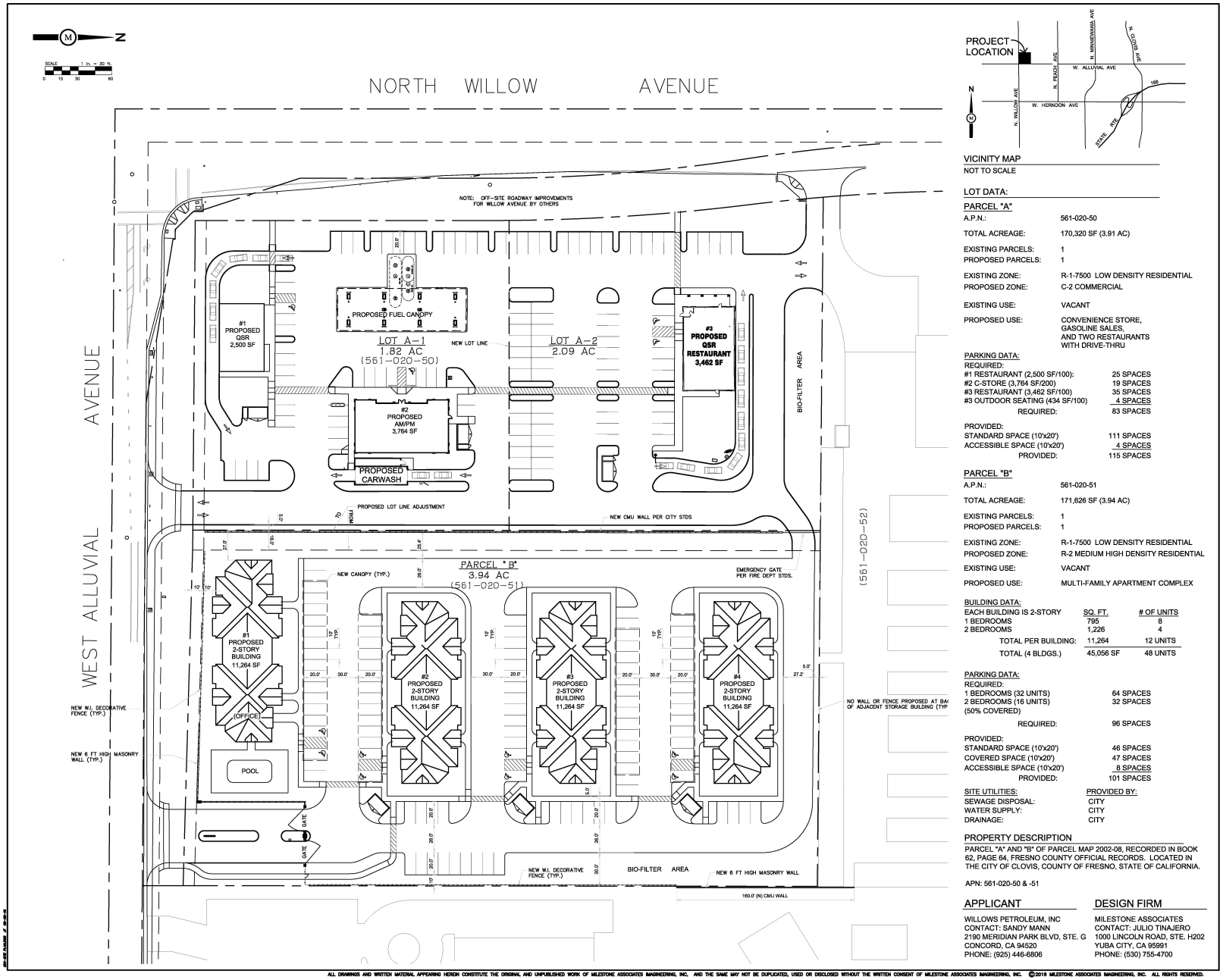
For Parcel A, the project applicant proposes a General Plan Amendment from Low Density Residential to Commercial as well as a rezoning from the current zone, R-1-7500 Low Density Residential, to C-2 Commercial.

For Parcel B, the project applicant proposes a General Plan Amendment from Low Density Residential to Medium High Denity Residential as well as rezoning from the current zone, R-1-7500 Low Density Residential, to R-2 Medium High Density Residential.

General Plan Amendments as well as rezoning are approved by the Clovis City Council on the recommendation of the Clovis Planning Commission.

In addition, the proposed land uses would require approval of a Conditional Use Permit for Parcel A to develop a gas station, a Conditional Use Permit for Parcel B to exceed height limits for a residential neighborhood, and a Site Plan Review Amendment.

Underground fuel tanks would require a Permit to Operate from the Fresno County Environmental Health Department. Proposed fueling facilities would require permits from the San Joaquin Valley Air Pollution Control District.



PROJECT LOCATION

VICINITY MAP
NOT TO SCALE

LOT DATA:

PARCEL "A"

A.P.N.:	561-020-50
TOTAL ACREAGE:	170,320 SF (3.91 AC)
EXISTING PARCELS:	1
PROPOSED PARCELS:	1
EXISTING ZONE:	R-1-7500 LOW DENSITY RESIDENTIAL
PROPOSED ZONE:	C-2 COMMERCIAL
EXISTING USE:	VACANT
PROPOSED USE:	CONVENIENCE STORE, GASOLINE SALES, AND TWO RESTAURANTS WITH DRIVE-THRU

PARKING DATA:
REQUIRED:

#1 RESTAURANT (2,500 SF/100):	25 SPACES
#2 C-STORE (3,764 SF/200)	19 SPACES
#3 RESTAURANT (3,462 SF/100)	35 SPACES
#3 OUTDOOR SEATING (434 SF/100)	4 SPACES
REQUIRED:	83 SPACES

PROVIDED:

STANDARD SPACE (10'x20')	111 SPACES
ACCESSIBLE SPACE (10'x20')	4 SPACES
PROVIDED:	115 SPACES

PARCEL "B"

A.P.N.:	561-020-51
TOTAL ACREAGE:	171,626 SF (3.94 AC)
EXISTING PARCELS:	1
PROPOSED PARCELS:	1
EXISTING ZONE:	R-1-7500 LOW DENSITY RESIDENTIAL
PROPOSED ZONE:	R-2 MEDIUM HIGH DENSITY RESIDENTIAL
EXISTING USE:	VACANT
PROPOSED USE:	MULTI-FAMILY APARTMENT COMPLEX

BUILDING DATA:

EACH BUILDING IS 2-STORY	SQ. FT.	# OF UNITS
1 BEDROOMS	795	8
2 BEDROOMS	1,226	4
TOTAL PER BUILDING:	11,264	12 UNITS
TOTAL (4 BLDGS.)	45,056 SF	48 UNITS

PARKING DATA:
REQUIRED:

1 BEDROOMS (32 UNITS)	64 SPACES
2 BEDROOMS (16 UNITS) (50% COVERED)	32 SPACES
REQUIRED:	96 SPACES

PROVIDED:

STANDARD SPACE (10'x20')	46 SPACES
COVERED SPACE (10'x20')	47 SPACES
ACCESSIBLE SPACE (10'x20')	8 SPACES
PROVIDED:	101 SPACES

SITE UTILITIES:	PROVIDED BY:
SEWAGE DISPOSAL:	CITY
WATER SUPPLY:	CITY
DRAINAGE:	CITY

PROPERTY DESCRIPTION

PARCEL "A" AND "B" OF PARCEL MAP 2002-08, RECORDED IN BOOK 62, PAGE 64, FRESNO COUNTY OFFICIAL RECORDS. LOCATED IN THE CITY OF CLOVIS, COUNTY OF FRESNO, STATE OF CALIFORNIA.

APN: 561-020-50 & -51

APPLICANT

WILLOWS PETROLEUM, INC
CONTACT: SANDY MANN
2190 MERIDIAN PARK BLVD, STE. G
CONCORD, CA 94520
PHONE: (925) 446-6806

DESIGN FIRM

MILESTONE ASSOCIATES
CONTACT: JULIO TINAJERO
1000 LINCOLN ROAD, STE. H202
YUBA CITY, CA 95991
PHONE: (530) 755-4700

Milestone Associates
Imagineering
A California Corporation
1000 LINCOLN ROAD, SUITE H202
YUBA CITY, CALIFORNIA 95991
TEL: 530-755-4700
FAX: 530-755-4567
JULIO J. TINAJERO
LEAD DESIGNER

STAMP:

SUBMITTAL DATE
PLANNING DEPT: .
BUILDING DEPT: .
ENGINEERING: .
SURVEY: .

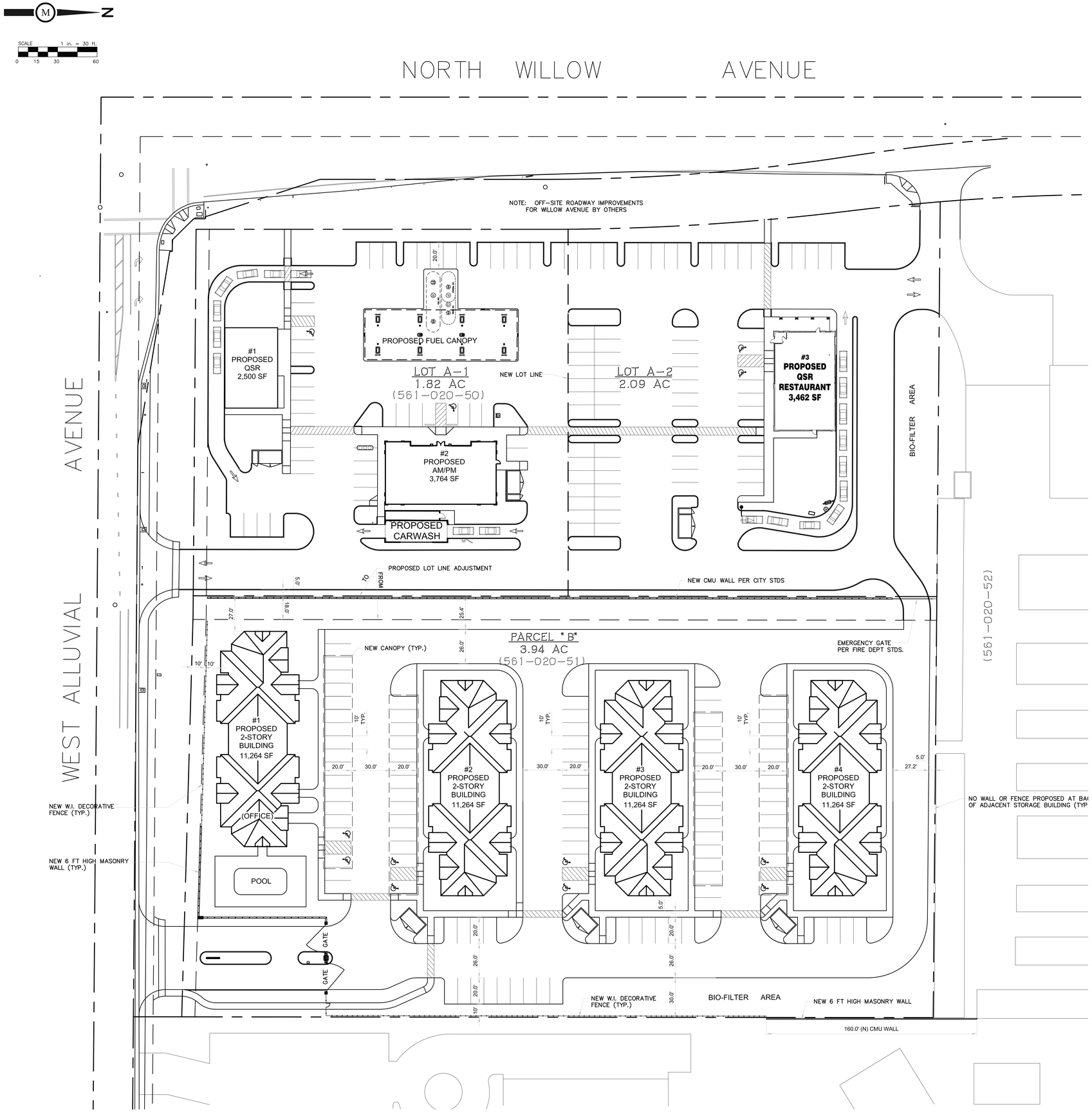
REVISIONS		
No.	Description	Date
1	REMOVED FREDDYS	6/9/17

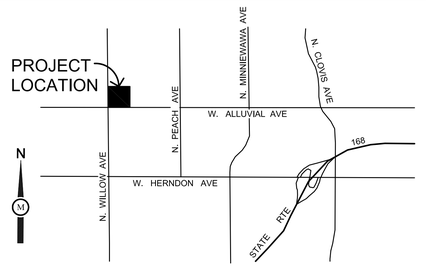
CONCEPTUAL SITE PLAN

CLOVIS COMMERCIAL CENTER
N. WILLOW AVE. at W. ALLUVIAL AVE.
CLOVIS, CALIFORNIA
(APN 561-020-50 & 561-020-51)

DATE: 10-06-16
SCALE: 1" = 30'
DRAWN BY: STAFF
JOB NUMBER:
SHEET: DD1

Figure 2-1
SITE PLAN





VICINITY MAP
NOT TO SCALE

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PARCEL "B"

A.P.N.:	561-020-51
TOTAL ACREAGE:	171,626 SF (3.94 AC)
EXISTING PARCELS:	1
PROPOSED PARCELS:	1
EXISTING ZONE:	R-1-7500 LOW DENSITY RESIDENTIAL
PROPOSED ZONE:	R-2 MEDIUM HIGH DENSITY RESIDENTIAL
EXISTING USE:	VACANT
PROPOSED USE:	MULTI-FAMILY APARTMENT COMPLEX

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WATER SUPPLY:	CITY
DRAINAGE:	CITY

PROPERTY DESCRIPTION

PARCEL "A" AND "B" OF PARCEL MAP 2002-08, RECORDED IN BOOK 62, PAGE 64, FRESNO COUNTY OFFICIAL RECORDS. LOCATED IN THE CITY OF CLOVIS, COUNTY OF FRESNO, STATE OF CALIFORNIA.

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JULIO J. TINAJERO
LEAD DESIGNER

STAMP:

SUBMITTAL DATE

PLANNING DEPT:	.
BUILDING DEPT:	.
ENGINEERING:	.
SURVEY:	.

REVISIONS		
No.	Description	Date
1	REMOVED FREDDYS	6/8/17

CONCEPTUAL SITE PLAN

CLOVIS COMMERCIAL CENTER
N. WILLOW AVE. at W. ALLUVIAL AVE.
CLOVIS, CALIFORNIA
(APN 561-020-50 & 561-020-51)

DATE: 10-06-16
SCALE: 1 " = 30'
DRAWN BY: STAFF
JOB NUMBER:

SHEET: DD1

DD1-SITE PLAN.DWG AT 10-06-16

3.0 ENVIRONMENTAL EVALUATION CHECKLIST

3.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			√	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				√
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			√	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			√	

NARRATIVE DISCUSSION

Environmental Setting

The project site consists of two vacant parcels of land, which are regularly disturbed for weed control and are vegetated mostly with non-native grasses and weeds. The site is within the City of Clovis in a developed portion of the Herndon Shepherd Specific Plan (1988). The site is surrounded by mixed urban uses including retail commercial development, mini-storage and multi-family development, including senior housing. Single-family homes are located immediately northwest of the site across N. Willow Avenue. The southwest corner of N. Willow and Alluvial, located kitty-corner to the site, is vacant.

The Sierra Nevada mountain range is located to the northeast of Clovis, and the City has historically been known as the "Gateway to the Sierras." Views of rolling hills and the mountain range are visible from the site and vicinity on clear days. The two-story senior assisted living center located to the east of the project site blocks the majority of views from the site in that direction.

No state scenic highways have been designated (Caltrans 2015), and no local scenic highways have been designated, in the project vicinity.

Sources of light and glare in the project vicinity include security lighting, sign illumination, commercial lighting from the Chevron to the west, and parking-area

lighting. Other sources of nighttime light and glare include street lights and vehicular traffic along Alluvial Avenue and N. Willow Avenue.

Environmental Impacts and Mitigation Measures

a) Scenic Vistas.

The project involves the development of a commercial project and a multi-family apartment complex. The commercial project would construct two single level restaurants, a fueling station, a car wash and a convenience store. Proposed structures would be equal to or lower in height than adjacent buildings, which already obstruct distance views to the north and east. The proposed multi-family apartment complex would consist of two three-story buildings and two two-story buildings, built adjacent to the east side of the proposed commercial project. Developed lands to the north, east and west are two stories in height, and the new complex would blend in with the existing skyline of the neighborhood. The project would have minor impact on scenic vistas and would be considered less than significant.

b) Scenic Resources.

There are no scenic resources on the project site, which are two vacant parcels. Both parcels are regularly disturbed for weed control and mostly covered with grasses and weeds. There are no scenic resources in the vicinity of the site. The project would have no impact on scenic resources.

c) Visual Character and Quality.

The project would be consistent with the substantially urban landscape in the vicinity. As noted in b) above, the project site is a vacant parcel mostly covered with grasses and weeds, with some trash and debris. Construction of new structures associated with the project as well as landscaping along the street frontages of the site would improve the aesthetics of the site. Proposed structures, signs, and site design would be subject to Commercial and Residential Design Standards, the City of Clovis Sign Ordinance and landscaping City design standards. As a result, project impacts on visual character and quality are considered less than significant.

d) Light and Glare.

The project would add commercial-level lighting and residential security lighting to a site that currently has no lighting. The commercial portion of the project would include high-intensity lighting of the canopy and immediate store area, parking lot lighting as well as new signage; new lighting facilities would involve the potential for spill light and glare effects on adjoining properties. Adjacent uses are largely commercial in nature, subject to substantial night lighting and not sensitive to light and glare effects originating off-site. All exterior lighting will be required per City of Clovis Planning Division Standards to be directed away from any residential properties and would not interfere with the existing

street lighting and vehicular safety of vehicular traffic. Street lighting along the adjacent streets already affects the area.

Proposed multi-family housing would involve parking area and security lighting, which would be consistent with lighting of the assisted living facility to the east and the mini-storage area to the north. This element of the project would not involve significant light or glare effects. The project would not use any materials that would produce substantial glare during daylight hours. Project impacts on light and glare would be less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

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

NARRATIVE DISCUSSION

Environmental Setting

The project site and surrounding area have historically been used for agriculture. However, the area is now developed with a wide range of urban uses including single and multi-family homes as well as a variety of commercial projects, a mini-storage facility and senior assisted living center. The Herndon Shepherd Specific Plan (1988) notes the

area had previously been used heavily for agriculture but does not designate any area for continuing or future agricultural use. The site has been annexed to the City and is designated and zoned for urban residential use.

The Important Farmland Maps, prepared by the California Department of Conservation as part of its Farmland Mapping and Monitoring Program, designate the viability of lands for farmland use, based on the physical and chemical properties of the soils. The maps categorize farmland, in decreasing order of soil quality, as "Prime Farmland," "Farmland of Statewide Importance," "Unique Farmland," and "Farmland of Local Importance." Collectively, these categories are referred to as "Important Farmland." There are also designations for grazing land and for urban/built-up areas, among others. According to the 2014 Important Farmland Map of Fresno County, the project site is designated as "Urban and Built-Up Land."

The Williamson Act is California state legislation that seeks to preserve farmland by providing relief of property tax to owners of farmland and open-space land in exchange for a ten-year agreement that the land will not be developed or otherwise converted to another use. Neither the site nor any of the surrounding lands are subject to Williamson Act contracts.

There are no forest lands in the project vicinity. Because of this, forestry resources will not be discussed further in this document.

Environmental Impacts and Mitigation Measures

a) Agricultural Land Conversion.

As noted above, the project site is not in agricultural use and is designated as Urban and Built-Up Land by the Farmland Mapping and Monitoring Program. The project would not convert Important Farmland, as defined by CEQA, to non-agricultural land. The project would have no impact on agricultural land conversion.

b) Agricultural Zoning and Williamson Act.

The project site is not zoned for agricultural use, and it is not under a Williamson Act contract. The project would have no impact related to these issues.

c, d) Forest Land Conversion and Zoning.

As noted above, there are no forest lands on the project site or in the vicinity. The project would have no impact on forest lands.

e) Indirect Conversion of Farmland and Forest Land.

The project is in an area designated for urban development and largely developed; urban infrastructure has been extended to the site and vicinity. In addition, there are no

agricultural operations on the project site or on adjacent parcels. The project would not involve any activity that would indirectly convert farmland to non-agricultural uses. As previously noted, there are no forest lands in the vicinity. The project would have no impact on indirect conversion of farmland or forest land.

3.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable Air Quality Attainment Plan?			√	
b) Violate any air quality standard or contribute to an existing or projected air quality violation?			√	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			√	
d) Expose sensitive receptors to substantial pollutant concentrations?			√	
e) Create objectionable odors affecting a substantial number of people?			√	

NARRATIVE DISCUSSION

Environmental Setting

Air Quality Conditions

The project site is located within the San Joaquin Valley Air Basin. The San Joaquin Valley Air Pollution Control District (SJVAPCD) has jurisdiction over most air quality matters in the Air Basin. The SJVAPCD is tasked with implementing programs and regulations required by the federal and California Clean Air Acts.

Under their respective Clean Air Acts, both the federal government and the State of California have established ambient air quality standards for six criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. California has four additional pollutants for which it has established standards. Table 3-1 shows the status of the Fresno County portion of the San Joaquin Valley Air Basin in attaining these ambient air quality standards. As shown in Table 3-1 above, the Air Basin is considered a non-attainment area for ozone and particulate matter under both State and

federal standards, except for the federal standard for particulate matter less than 10 micrometers in diameter (PM_{10}). The Air Basin is in attainment of, or unclassified for, all other federal and state criteria pollutant standards.

TABLE 3-1
SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS,
FRESNO COUNTY

	Designation/Classification	
Criteria Pollutant	**Federal Primary Standards**	**State Standards**
Ozone - One hour	No Federal Standard	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment
Nitrogen Dioxide (NO_x)	Attainment/Unclassified	Attainment
Sulfur Dioxide (SO_x)	Unclassified	Attainment
Lead	Attainment/Unclassified	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2015a.

Air Pollutants of Concern

The San Joaquin Valley Air Basin is designated a non-attainment area for ozone. Ozone is not emitted directly into the air, but is formed when reactive organic gases (ROG) and nitrogen oxides (NO_x) react in the atmosphere in the presence of sunlight. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. The SJVAPCD currently has a 2007 Ozone Plan and a 2013 Plan for the Revoked 1-Hour Ozone Standard for the Air Basin to attain federal ambient air quality standards for ozone.

The Air Basin is also designated a non-attainment area for respirable particulate matter, a mixture of solid and liquid particles suspended in air, including dust, pollen, soot, smoke, and liquid droplets. In Fresno County, particulate matter is generated by a mix of rural and urban sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. Health concerns associated with suspended particulate matter focus on those particles small

enough to reach the lungs when inhaled; consequently, both the federal and state air quality standards for particulate matter apply to particulates 10 micrometers or less in diameter (PM_{10}) as well as to particulates less than 2.5 micrometers in diameter ($PM_{2.5}$), which are carried deeper into the lungs. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis, and respiratory illnesses in children. The SJVAPCD currently has a 2007 PM_{10} Maintenance Plan to maintain the Air Basin's attainment status for federal PM_{10} ambient air quality standards, and a 2008 $PM_{2.5}$ Plan for the Air Basin to attain federal $PM_{2.5}$ ambient air quality standards.

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air, unlike ozone. The main source of CO in the San Joaquin Valley is on-road motor vehicles (SJVAPCD 2015b). The San Joaquin Valley Air Basin is in attainment/unclassified status for CO; as such, the SJVAPCD has no CO attainment plans. A State Implementation Plan for carbon monoxide has been adopted by the California Air Resources Board (ARB) for the entire state. High CO concentrations may occur in areas of limited geographic size, sometimes referred to as "hot spots," which are ordinarily associated with areas of highly congested traffic.

In addition to the criteria pollutants, the California Air Resources Board (ARB) has identified a class of air pollutants known as toxic air contaminants (TACs) - pollutants that even at low levels may cause acute serious, long-term health effects, such as cancer. Diesel particulate matter is the most common TAC, generated mainly as a product of combustion in diesel engines. Other TACs are less common and are typically associated with industrial activities.

Air Quality Rules and Regulations

As previously noted, the SJVAPCD has jurisdiction over most air quality matters in the Air Basin. It implements the federal and California Clean Air Acts, and the applicable attainment and maintenance plans, through local regulations. The SJVAPCD has developed plans to attain State and federal standards for ozone and particulate matter, which include emissions inventories to measure the sources of air pollutants and the use of computer modeling to estimate future levels of pollution and make sure that the Valley will meet air quality goals (SJVAPCD 2015b). The SJVAPCD regulations that would be applicable to the project are summarized below.

Regulation VIII (Fugitive Dust PM10 Prohibitions)

Rules 8011-8081 are designed to reduce PM_{10} 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, landfill operations, etc.

Rule 4101 (Visible Emissions)

This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

Rule 9510 (Indirect Source Review)

Rule 9510, also known as the Indirect Source Rule (ISR), is intended to reduce or mitigate emissions of NO_x and PM_{10} from new development in the SJVAPCD including construction and operational emissions. This rule requires specific percentage reductions in estimated on-site construction and operation emissions, and/or payment of off-site mitigation fees for required reductions that cannot be met on the project site. Construction emissions of NO_x and PM_{10} exhaust must be reduced by 20% and 45%, respectively. Operational emissions of NO_x and PM_{10} must be reduced by 33.3% and 50%, respectively. The ISR applies to commercial development projects of 2,000 square feet and larger. Based on this criteria, the commercial development would be subject to the ISR. The ISR also applies to residential projects with at least 50 residential units; proposed residential development may also be subject to this rule.

In addition, the SJVAPCD regulates the construction and improvement of facilities with potential air toxic emissions, including fueling stations. Toxic substances in gasoline include benzene, toluene and naphthalene, among others. SJVAPCD rules applicable to fueling stations include:

Rule 2201 (New and Modified Stationary Source Review Rule)

New stationary sources and modifications of existing stationary sources that may emit criteria pollutants must obtain an Authority to Construct and Permit to Operate the proposed facility. Emissions that exceed impact thresholds must include emission controls and may require additional mitigation.

Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels and Bulk Plants)

Rule 4621 prohibits the transfer of gasoline from a delivery vessel into a stationary storage container unless the container is equipped with an ARB-certified permanent submerged fill pipe and ARB certified pressure-vacuum relief valve, and utilizes an ARB-certified Phase I vapor recovery system.

Rule 4622 (Transfer of Gasoline into Vehicle Fuel Tanks)

Rule 4622 prohibits the transfer of gasoline from a stationary storage container into a motor vehicle fuel tank with a capacity greater than 5 gallons, unless the gasoline

dispensing unit used to transfer the gasoline is equipped with and has in operation an ARB-certified Phase II vapor recovery system.

Fueling station applications are reviewed under Rule 2201 for compliance with SJVAPCD rules. SJVAPCD review of these applications includes consideration of proposed vapor recovery equipment and whether the controlled volatile organic compound emissions require offsets or trigger public notice requirements.

Environmental Impacts and Mitigation Measures

Emissions modeling was based on four two-story apartment buildings. Since modeling, the project has been modified such that the four two-story apartment buildings have been changed to two apartment buildings that are two stories in height and two apartment buildings that are three stories in height. This is a total addition of two floors of apartments (12 apartments in all). The estimated construction and operational emissions would thus be slightly greater than shown in the tables below.

In 2015, the SJVAPCD adopted a revised Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI). The GAMAQI defines methodology and thresholds of significance for the assessment of air quality impacts for projects within SJVAPCD's jurisdiction, along with mitigation measures for identified impacts. Table 3-2 shows the CEQA thresholds for significance for pollutant emissions within the SJVAPCD.

Construction of the project would involve the use of heavy equipment powered by diesel or other internal combustion engines. Emissions from project operations would primarily be from vehicle trips to and from the project site. The California Emissions Estimator Model (CalEEMod) was used to estimate total project construction emissions from the proposed commercial and residential developments. Detailed CalEEMod results are shown in Appendix A of this document, while a summary of the results for construction emissions and operational emissions is presented in Tables 3-2 and 3-3, respectively, along with the CEQA thresholds of significance set forth in the GAMAQI.

TABLE 3-2
ESTIMATED PROJECT CONSTRUCTION AIR POLLUTANT EMISSIONS

Pollutant	SJVAPCD Significance Threshold[1]	Unmitigated Emissions[2]		Mitigated Emissions[2]	
		Commercial	Residential	Commercial	Residential
ROG	10	0.30	0.50	0.30	0.50
NO_x	10	2.42	2.79	2.42	2.79
CO	100	1.77	2.29	1.77	2.29
SOx	27	<0.01	<0.01	<0.01	<0.01
PM_{10}	15	0.23	0.27	0.19	0.23
$PM_{2.5}$	15	0.18	0.20	0.16	0.18

[1] Tons per year.
[2] Tons per construction period.
Sources: California Emissions Estimator Model v. 2016.1.1; SJVAPCD 2015b

"Mitigated emissions" for construction emissions are those that occur with implementation of SJVAPCD Regulation VIII, which is designed to reduce fugitive dust emissions during construction activities. These measures include the following:

- Air emissions related to the project shall be limited to 20% opacity (opaqueness, lack of transparency) or less, as defined in SJVAPCD Rule 8011. The dust control measures specified below shall be applied as required to maintain the Visible Dust Emissions standard.
- The contractor shall pre-water all land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and phase earthmoving.
- The contractor shall apply water, chemical/organic stabilizer/suppressant, or vegetative ground cover to all disturbed areas, including unpaved roads, throughout the period of soil disturbance.
- The contractor shall restrict vehicular access to the disturbance area during periods of inactivity.
- The contractor shall apply water or chemical/organic stabilizers/suppressants, construct wind barriers and/or cover exposed potentially dust-generating materials.
- When materials are transported off-site, the contractor shall stabilize and cover all materials to be transported and maintain six inches of freeboard space from the top of the container.
- The contractor shall remove carryout and trackout of soil materials on a daily basis unless it extends more than 50 feet from site; carryout and trackout extending more than 50 feet from the site shall be removed immediately. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden. If the project would involve more than 150 construction vehicle trips per day onto the public street, additional restrictions specified in Section 5.8 of SJVAPCD Rule 8041 would apply.

TABLE 3-3
ESTIMATED AIR POLLUTANT EMISSIONS FROM PROJECT OPERATIONS

Pollutant	SJVAPCD Significance Threshold	Unmitigated Emissions		Mitigated Emissions	
		Commercial	Residential	Commercial	Residential
ROG	10	1.71	0.44	1.57	0.40
NO_x	10	6.60	1.75	5.42	1.20
CO	100	11.12	2.49	7.70	1.78
SO_x	27	0.03	<0.01	0.01	<0.01
PM_{10}	15	1.72	0.47	0.60	0.24
$PM_{2.5}$	15	0.48	0.22	0.17	0.15

Note: All figures are in tons per year.

Sources: California Emissions Estimator Model v. 2016.1.1; SJVAPCD 2015b

"Mitigated emissions" for operational emissions are the result of the following conditions applicable to the project, incorporated in CalEEMod:

- Increase in density of residential development in area.
- Increase in diversity of land uses in the area.
- Improvement in accessibility to town center.
- Increase in transit availability.
- Improvement in local pedestrian network.
- SB X7-7 in 2009 sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The California Green Building Code also mandates a 20% reduction in indoor water use.
- AB 341 establishes the goal of diverting 75% of California's waste stream from landfills by 2020.

a, b) Air Quality Plan Consistency and Violation of Air Quality Standards.

SJVAPCD has attainment plans for ozone and particulate matter, while the State has an attainment plan for carbon monoxide. As indicated in Tables 3-2 and 3-3, project construction and operational emissions would not exceed SJVAPCD significance thresholds for criteria pollutants, either in their separate phases or in total. Although the figures in Table 3-3 are drawn from modeling of an earlier version of the project, they are so far below significance thresholds that the addition of 12 apartments would not increase the predicted emissions to a significant level.

Project construction may generate localized dust emissions at levels above existing ambient conditions, which is of concern given the proximity of residences to the project area. Implementation of the emission reduction measures specified in SJVAPCD Regulation VIII, described above, would further reduce dust emissions generated by the project, which are estimated to be below SJVAPCD significance thresholds even without Regulation VIII implementation.

As previously noted, both commercial and residential development would be subject to the ISR, which requires a reduction in NO_x and PM_{10} construction and operational emissions. ISR reductions would further reduce emissions that are already considered less than significant. The project would be consistent with existing SJVAPCD air quality plans. Impacts on air quality plans and standards would be less than significant.

c) Cumulative Emissions.

As described above, total project operational emissions would be below significance thresholds for all criteria pollutants. While the project would contribute emissions of ozone precursors and particulate matter to an existing nonattainment conditions, most of the emissions would be well below the significance thresholds, which were developed in part with the goal of ensuring that the Air Basin achieve compliance with federal and state ambient air quality standards. Therefore, these emissions would not make a cumulatively considerable contribution to air quality impacts, and impacts would be less than significant.

d) Exposure of Sensitive Receptors.

Sensitive receptors include single-family residences adjacent to the project site. Project operations would not generate any emissions that would affect these sensitive receptors. A carbon monoxide (CO) hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hotspots have the potential to expose receptors to emissions that violate state and/or federal CO standard even if the broader Basin is in attainment for federal and state levels. The GAMAQI indicates that a project would create no violations of the carbon monoxide standards if neither of the following criteria are met (SJVAPCD 2015b):

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity (See Section 3.16, Transportation/Traffic, for an explanation of LOS).

As noted in Section 3.16, the intersection of N. Willow Avenue and Alluvial Avenue is expected to maintain at least the minimum acceptable LOS of D, as set by the City, with implementation of mitigation measures. Therefore, the project would have no adverse impact on carbon monoxide emissions.

Fueling station operations would involve the dispensing of gasoline, which can emit vapors that are considered TACs. Although such emissions would generally dissipate within a relatively short distance, this could have a potential impact on residents in the proposed adjacent residential development. SJVAPCD Rules 4621 and 4622 would require the installation of vapor recovery systems, which would reduce the potential exposure of people using fuel pumps to potentially toxic emissions. The SJVAPCD may impose other conditions as warranted as part of its review conducted under SJVAPCD Rule 2201. With implementation of these rules, the potential exposure of residents to TACs emissions is considered less than significant.

Project construction emissions, including diesel particulate matter that is classified as a TAC, could affect single-family residences and apartments near the project site. Diesel particulate matter emissions would only have adverse effects on residents if they experienced long-term exposure, and these emissions would cease once construction

work is completed. Therefore, impacts of diesel construction emissions on these residences are considered less than significant. It is recommended that vehicle and equipment idling time on the construction site be limited to no more than five minutes so that diesel particulate matter emissions are not unnecessarily generated.

e) Odors.

Fueling station and fast-food operations may include the emissions of odors associated with the dispensing of fuel and the cooking of food. These odors would be localized and are not expected to spread beyond the fuel dispensing area, particularly since the project would be required to comply with SJVAPCD Rules 4621 and 4622. No substantial odors are expected to be emitted from residential development. Project impacts related to odors are considered less than significant.

3.4 BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Adversely impact, either directly or through habitat modifications, any endangered, rare, or threatened species, as listed in Title 14 of the California Code of Regulations (Sections 670.2 or 670.5) or in Title 50, Code of Federal Regulations (Sections 17.11 or 17.12)?			√	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?				√
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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 Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?			√

NARRATIVE DISCUSSION

Environmental Setting

Information for much of this section is provided by a biological resources evaluation for the project conducted by Bole and Associates (2017). Appendix B contains the biological resources evaluation.

The project site lies within the southern San Joaquin Valley sub-region of the Central Valley. It consists of relatively flat, undeveloped land that has historically been used for agricultural purposes including row crops. The farming ceased in approximately 2005 and the site has since remained fallow as ruderal grassland. At this time, the project site is essentially devoid of natural habitat, ruderal vegetation having effectively excluded the growth of native perennial grass species.

The site is located in a predominantly commercial and residential area of the City of Clovis. It is adjoined to the north by a self-storage facility, to the east and south by senior living facilities, and to the west by a gasoline station, a strip mall, and a multi-family residential development.

Biological Habitats

The majority of the natural habitats in the project vicinity have been replaced by commercial and residential development and City streets. The project site is a vacant disked field consisting of ruderal grassland. There are no trees or shrubs located on the project site. There are no vernal pools or wetlands of any type within or near the project site (Bole 2017).

Plant and Wildlife Species

Site vegetation consists of non-native grasses and forbs, with ornamental trees and shrubs located along the eastern perimeter of the property. The project site does not contain suitable habitat for special-status plant or wildlife species. No burrowing owls or Swainson's hawks were observed during the February 2017 site visits (Bole 2017).

Biological Resource Plans

The project site is not subject to any habitat conservation plan.

Environmental Impacts and Mitigation Measures

a) Effects on Special-Status Species.

No special-status species were observed during the biological survey. There are no trees or shrubs in the project vicinity that could be potential nesting habitat in the future for special-status species. There is a potential for marginal foraging habitat within the project vicinity (Bole 2017). The project would have a less than significant impact on special-status species.

b) Riparian and Other Sensitive Habitats.

The project site consists of a vacant site vegetated with non-native annual grassland. There are no riparian or other sensitive habitats on the project site (Bole 2017). The project would have no impact on riparian and other sensitive habitats.

c) Wetlands.

There are no wetlands or other Waters of the United States either on or adjacent to the project site (Bole 2017). The project would have no impact on wetlands.

d) Fish and Wildlife Movement.

There are no streams either on or adjacent to the project site, so no fish or wildlife movements utilizing such streams would be disturbed. There are no large trees on or near the project site that could be used by migratory or resident bird species for nesting (Bole 2017). The project would have no impact on fish and wildlife movement.

e) Local Biological Requirements.

There are no City policies or ordinances applicable to this project. Thus, the project would have no impact on local biological requirements.

f) Conflict with Habitat Conservation Plans.

As discussed in Biological Resource Plans above, the project site is not subject to any habitat conservation plan. Thus the project would have no impact on habitat conservation plans.

3.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in		√		

Section 15064.5?			
b) Cause a substantial adverse change in the significance of a unique archaeological resource (i.e., an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it contains information needed to answer important scientific research questions, has a special and particular quality such as being the oldest or best available example of its type, or is directly associated with a scientifically recognized important prehistoric or historic event or person)?	√		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	√		
d) Disturb any human remains, including those interred outside of formal cemeteries?		√	

NARRATIVE DISCUSSION

Environmental Setting

Background information for this section comes primarily from the Clovis General Plan Update Environmental Impact Report (June 2014). The project site was surveyed for archaeological and historical resources by Applied Earthworks. The survey report is available in Appendix C of this document. A more comprehensive report meeting the applicable requirements of CEQA was prepared by Solano Archaeological Services and submitted to the City; this report is also shown in Appendix C.

Prehistoric Background

The project site lies in what generally is described as the San Joaquin Valley subregion of the Central Valley Archaeological Region. This archaeological subregion extends southward from the Sacramento–San Joaquin Delta into today's Kern County, and encompasses the southern half of the great Central Valley. The subregion includes most of Kings, Merced, and Stanislaus Counties, as well as the western portions of Fresno, Kern, Madera, and Tulare Counties.

The Yokuts comprised a language family with as many as 50 separate hunter/gatherer tribes and numerous dialects. These tribes occupied the entire San Joaquin Valley of central California from the mouth of the San Joaquin River to the foot of the Tehachapis, and the adjacent lower slopes or foothills of the Sierra Nevada, from the Fresno River south. Yokut villages typically consisted of a scattering of small structures, numbering from four or five to several dozen in larger villages, and were often located on elevated

features adjoining streams. These villages were inhabited mainly in the winter; the Yokuts established temporary camps in the hills and higher elevations during food-gathering seasons. Economic life revolved around hunting, fishing, and plant collection. Their omnivorous diet included deer, quail, acorns, berries, seeds, and fish. The Yokuts used local resources to manufacture an array of primary and secondary tools and implements, including a wide variety of wooden, bone, and stone artifacts to collect and process food. Only fragmentary evidence of their material culture remains, due to perishability and to impacts on archaeological sites resulting from later land uses.

In 2014, the California Legislature enacted Assembly Bill (AB) 52, which focuses on consultation with Native American tribes on land use issues potentially affecting the tribes. The intent of this consultation is to avoid or mitigate potential impacts on "tribal cultural resources," which are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe." Under AB 52, when a tribe requests consultation with a CEQA lead agency on projects within its traditionally and culturally affiliated geographical area, the lead agency must provide the tribe with notice of a proposed project. The tribe has up to 30 days to respond to the notice and request consultation; if consultation is requested, then the local agency has up to 30 days to initiate consultation.

City staff met with representatives from the Dumna Wo Wah Tribal Government on August 3, 2017. The Tribe requested that cultural monitors be in place prior to any earth-disturbing activities. This request has been incorporated into the mitigation measures listed below.

Historic-Era Background

Post-contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins in 1769.

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to integrate the Native American population into Christianity and communal enterprise. Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population.

New Spain (Mexico and the California territory) won independence from Spain in 1821. Extensive land grants were established in the interior during the Mexican period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. However, little settlement of the Central Valley appears to have taken place during the Mexican Period.

The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period. California officially became a state with the

Compromise of 1850. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were desired as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. The area's population increased and towns were established near supply posts along rivers and overland routes.

Fresno County was organized in 1856, and the City of Fresno became the county seat in 1874. Fresno County's agricultural potential was recognized when the otherwise arid land was transformed by early irrigation efforts.

Clovis was founded following the construction of a freight stop along the recently completed San Joaquin Valley Railroad in 1891. As the agricultural potential of Fresno County began to be realized in the late nineteenth century, the railway was further developed to transport the region's grain, cattle and timber longer distances. Located in close proximity to agriculture and the nearby Sierras, the new stop had an ideal location and was named after local farmer Clovis M. Cole. A number of businesses, churches, and schools soon developed in response to the increasing population. Clovis incorporated in 1912 and grew modestly into the twentieth century, with its economy continuing to rely primarily on agriculture.

An unprecedented demand for canned food occurred with the onset of World War I, stimulating the local economy and growth within the city. Increased agricultural production required additional water, and the Central Valley Project (CVP) was undertaken in the early 1930s to provide irrigation and water management to the San Joaquin Valley. An original component of the project is the Friant-Kern Canal, which flows immediately northeast of Clovis. The city experienced a modest building boom in the years following World War II as a number of housing developments expanded away from the city center. Although residential growth has continued since that time, the city continues to maintain the small-town character from which it developed.

Paleontological Resources

The most important indicators of paleontological resources are based on the presence of known resources and the geologic sediments in the region. While there are paleontological sites in portions of Fresno County, the Geological Map of California, Fresno Sheet, and the Custom Soil Resource Report prepared for the project site, indicate that the site is located on recent alluvium. Recent alluvium is a coarse-grained unconsolidated sediment, in this case alluvial fan deposits, typically too young to contain any fossil resources. Thus, it is considered a formation of low paleontological sensitivity.

Environmental Impacts and Mitigation Measures

a, b) Historical and Archaeological Resources.

A field survey of the project site indicated no evidence of historical or surface archaeological resources on the site. Results of a search of the Southern San Joaquin

Information Center records, and of the Native American Heritage Commission sacred lands records, are pending but not expect to indicate that the site is culturally sensitive. Representatives of the Dumna Wo Wah Tribal Government have requested that cultural monitors be in place prior to any earth-disturbing activities. This request is reflected in the mitigation measures below.

Although no evidence of cultural resources was found during a survey of the site, it remains a possibility that subsurface resources could be uncovered by project construction work, and provisions for the discovery of previously unknown cultural resources should be incorporated into the project. Mitigations CULT-1 and CULT -2 establish procedures to recognize and protect cultural resources should any be uncovered during project construction. Implementation of this mitigation measure would reduce potential impacts on these resources to a less than significant level.

Level of Significance: Potentially significant

Mitigation Measures:

CULT-1: If any subsurface cultural or paleontological resources are encountered during project construction, all construction activities in the vicinity of the encounter shall be halted until a qualified archaeologist or paleontologist, as appropriate, can examine these materials and make a determination of their significance. If the resource is determined to be significant, recommendations shall be made on further mitigation measures needed to reduce potential effects on the resource to a level that would be less than significant. Such measures could include 1) preservation in place or 2) excavation, recovery and curation by qualified professionals. The Clovis CDD shall be notified of any find, and the ODS shall be responsible for retaining qualified professionals, implementing recommended mitigation measures, and documenting mitigation efforts in a written report to the CDD, consistent with the requirements of the CEQA Guidelines.

CULT-2 The developer shall provide cultural resources monitor(s) approved by the consulting tribe(s) to monitor any ground-disturbing activities associated with the project development.

Significance After Mitigation: Less than significant

c) Paleontological Resources and Unique Geological Features.

The project site is flat and contains no geological features that may be considered unique, and it is unlikely that any paleontological resources would be found during site grading. However, general provisions for the discovery of previously unknown paleontological resources are considered appropriate. Mitigation Measure CULT-1 sets forth procedures to be implemented to protect paleontological resources should any be uncovered during

project construction. Implementation of this mitigation measure would reduce potential impacts on these resources to a level that would be less than significant.

d) Human Burials.

Generally speaking, it is unlikely that any human burials would be found on the project site. Disturbance of any burials, particularly Native American burials, would be a potentially significant impact, so general provisions for the discovery of previously unknown burials are considered appropriate.

The California Public Resources Code as applied in CEQA Guidelines Section 15064.5(e) describes the procedure to be followed when human remains are uncovered in a location outside a dedicated cemetery. All work in the vicinity of the find shall be halted and the County Coroner shall be notified to determine if an investigation of the death is required. If the County Coroner determines that the remains are Native American in origin, then the County Coroner must contact the NAHC within 24 hours. The NAHC shall identify the most likely descendants of the deceased Native American, and the most likely descendants may make recommendations on the disposition of the remains and any associated grave goods with appropriate dignity. If a most likely descendant cannot be identified, the descendant fails to make a recommendation, or the landowner rejects the recommendations of the most likely descendant, then the landowner shall rebury the remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.

Compliance with the provisions of CEQA Guidelines Section 15064.5(e) would ensure that impacts on any human remains encountered during project construction would be less than significant.

3.6 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to 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 strata 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, creating substantial risks to life or property?			√	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				√

NARRATIVE DISCUSSION

Environmental Setting

Geology and Soils

The project site lies in the San Joaquin Valley in central California. The San Joaquin Valley is the southern portion of the Great Valley geomorphic province. The Great Valley, also known as the Central Valley, is a topographically flat, elongated, northwest trending, structural basin about 450 miles long and 50 miles wide. It is bounded by the Tehachapi Mountains to the south, the Klamath Mountains to the north, the Sierra Nevada mountains to the east and the Coast Ranges to the west. The province is generally divided into two segments: the Sacramento Valley in the north and the San Joaquin Valley in the south. The northern boundary of the San Joaquin Valley is considered to be the Stockton Arch; the southern termination of the valley is at the Tehachapi Mountains. Elevation in the valley is generally several hundred feet above sea level, but ranges from below sea level to approximately 1,000 feet above sea level.

The San Joaquin Valley floor consists of thick sedimentary deposits. The valley is characterized by gently-undulating alluvial fans originating from the bordering Coast Ranges and Sierra Nevada Mountains. In the general project area, Fresno Slough forms a low northwest to southeast trough, which separates the valley floor into distinct western and eastern halves. The City of Clovis is located in the eastern half, which extends to the foothills of the Sierra Nevada. The original basin underlying the Central Valley gradually

filled with waterborne sediments that were largely derived from erosion of land areas located to the east. As a result, the alluvial fans on the east side are gentler than those on the west, which derive from the lower and drier foothills of the Coast Ranges. Most of the soils in the San Joaquin Valley consist of sand, silt, loamy clay alluvium, peat, and other organic sediments (DEIS 1995).

The City of Clovis is underlain by Quaternary alluvial fan deposits and Pleistocene nonmarine sedimentary deposits (City of Clovis 2014); underlying deposits in the project area consist of alluvial fan deposits. According to the United States Department of Agriculture Custom Soil Resource Report for Eastern Fresno Area, California (2017), the soil on the project site is of three types: Hanford fine sandy loam with clay loam substratum, Ramona sandy loam with hard substratum, and Visalia sandy loam with clay loam substratum. These are prime, well-drained soils with low runoff volume, moderate erodibility, and low shrink-swell potential (United States Department of Agriculture 2017).

Seismic and Geologic Hazards

The project site is not in an area included in mapped Alquist-Priolo Earthquake Fault Zones (California Geological Survey 2015). The only identified significant fault near the project site is the Clovis Fault, which runs northwest to southeast and comes as close as four miles northeast of project site. (California Department of Conservation Fault Activity Map of California 2010). The Clovis Fault is not mapped as active, but is rather mapped as having no recognized displacement in the Quaternary Period, that is, within the last 1.6 million years (Clovis PEIR 2014). Consequently, this fault is classified as "potentially active." No other faults within 50 miles of the Plan Area are mapped on the 2010 Fault Activity Map of California (CGS 2013).

Soil types in Fresno County are not considered conducive to liquefaction due to soil types that are generally too coarse, or alternatively high in clay content. Soils in the Clovis area are not subject to seismic ground settlement (Fresno County 2000). Due to very slight grades, Clovis is not susceptible to earthquake-induced landslides (Clovis PEIR 2014).

Environmental Impacts and Mitigation Measures

a-1) Fault Rupture Hazards.

As noted above, the project site is not within an Alquist-Priolo Earthquake Fault Zone and there are no active faults within or near the project site. The project would have no impact on this issue.

a-2) Seismic Ground Shaking.

Groundshaking is the primary seismic hazard in Fresno County, because of the County's seismic setting and record of historical activity. The project site, along with the rest of the County, is subject to seismic shaking from fault features east and west of the County.

Clovis and most of the other already urbanized locations in the East and West Valleys and Sierra Nevada Foothills areas are subject to less intense seismic effects than locations in the Coast Range Foothills and Sierra Nevada Mountain areas. Individual improvements would incorporate engineering design features that would be in accordance with the California Building Code, which contains design criteria that would enable structures to withstand projected seismic shaking. The project would have a less than significant impact on this issue.

a-3) Liquefaction.

As noted in Seismic and Geologic Hazards above, soil types in Fresno County are not considered conducive to liquefaction due to soil types that are coarse or high in clay content (Fresno County 2000). In addition, the depth to groundwater in the vicinity of the project site is approximately 175 feet below ground surface, which minimizes liquefaction potential (California Department of Water Resources 2016 Groundwater Basin Contour Map). Liquefaction on the project site is considered unlikely. The project would have a less than significant impact on this issue.

a-4) Landslides.

The project site is in a topographically flat area. According to the Clovis Fire Department Standards of Cover (2013-2017), landslides are unlikely in the City of Clovis, and any damage from a landslide would have a limited spatial extent and a negligible potential magnitude. The project would have a less than significant impact on this issue.

b) Soil Erosion.

The sandy loam soil on the project site has a moderate potential for erosion. Project construction activities would loosen the soil, leaving it exposed to potential water and wind erosion. The eroded soils, in turn, could be transported off the project site. Compliance with SJVAPCD Regulation VIII, which is discussed in Section 3.3 Air Quality, would reduce potential erosion impacts.

In addition, the project would be required to comply with the provisions of the Clovis-Fresno Storm Water Quality Management Program (CFSWQMP), which incorporates the Construction General Permit, issued by the State Water Resources Control Board (SWRCB). These requirements are discussed in more detail in Section 3.9. The Construction General Permit is required for all projects that disturb one acre of land or more. The permit requirements include preparation of a Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer to address potential water quality issues. The SWPPP includes implementation of Best Management Practices to avoid or minimize adverse water quality impacts. Best Management Practices fall within the categories of Temporary Soil Stabilization, Temporary Sediment Control, Wind Erosion Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control. Only Best Management Practices applicable to the project would become part of the SWPPP. Mitigation Measure GEO-1

would require preparation of the SWPPP, in compliance with the Construction General Permit.

In short, the project has potentially significant impacts related to erosion, but compliance with SJVAPCD Regulation VIII and implementation of Mitigation Measure GEO-1 would minimize the amount of soil erosion that leaves the construction site. Soil erosion impacts would be less than significant with mitigation.

Level of Significance: Potentially Significant

Mitigation Measures

GEO-1: The ODS shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) for the project and file a Notice of Intent (NOI) with the State Water Resources Control Board prior to commencement of construction activity, in compliance with Fresno Metropolitan Flood Control District (FMFCD) storm water requirements. The SWPPP shall be available on the construction site at all times. The ODS shall incorporate an Erosion Control Plan consistent with all applicable provisions of the SWPPP within the site development plans. The ODS shall submit the SWRCB Waste Discharger's Identification Number (WDID) to the City prior to approval of development or grading plans.

Significance After Mitigation: Less than significant

c) Geologic Instability.

The soils underlying the sites where the facilities would be constructed have not been identified as inherently unstable or prone to failure. The soils are not conducive to liquefaction and landslides are unlikely on this topographically flat project site. The project would not change existing stability conditions. Appropriate engineering design would avoid potential adverse effects. The project would have no impact on the stability of soils.

d) Expansive Soils.

As noted above, the shrink-swell potential of the sandy loam soil on the project site has been classified as low. The project is unlikely to create substantial risks to life or property due to soil expansion; thus the project will have a less than significant impact on this issue.

e) Adequacy of Soils for Sewage Disposal.

The project does not propose to install or use any septic systems. The project would have no impact related to soil adequacy for sewage disposal.

3.7 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?			√	

NARRATIVE DISCUSSION

Environmental Setting

Existing Conditions

Greenhouse gases (GHGs) are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. GHGs are both naturally occurring and are emitted by human activity. GHGs include carbon dioxide (CO_2), the most abundant GHG, as well as methane, nitrous oxide and other gases. GHG emissions in California in 2014 were estimated at 441.5 million metric tons carbon dioxide equivalent (CO_2e) – a decrease of 9.4% from the peak level in 2004. Major GHG sources in California include transportation (36%), industrial (21%), electric power (20%), commercial and residential (9%), and agriculture (8%) (ARB 2016). In 2012, it was estimated that the city of Clovis generated 590,935 metric tons CO_2e of GHGs per year, excluding permitted sources such as natural gas. Of the 590,935 metric tons CO_2e generated, approximately 63% percent came from the transportation sector and 14% came from residential energy use (City of Clovis 2014).

Increased atmospheric concentrations of GHGs are considered a main contributor to global climate change, which is a subject of concern for the State of California. Potential impacts of global climate change in California include reduced Sierra Nevada snowpack, increased wildfire hazards, greater number of hot days with associated decreases in air quality, and potential decreases in agricultural production (Climate Action Team 2010).

Unlike the criteria air pollutants described in Section 3.3, Air Quality, GHGs have no "attainment" standards established by the federal or State government. In fact, GHGs are not generally thought of as traditional air pollutants because their impacts are global in nature, while air pollutants mainly affect the general region of their release to the atmosphere (SJVAPCD 2015b). Nevertheless, the U.S. Environmental Protection Agency (EPA) has found that GHG emissions endanger both the public health and public

welfare under Section 202(a) of the Clean Air Act due to their impacts associated with climate change (EPA 2009).

GHG Plans and Policies

The State of California is identifying strategies and implementing GHG emission reduction programs through AB 32, the Global Warming Solutions Act of 2006, which requires total statewide GHG emissions to reach 1990 levels by 2020, or an approximately 29% reduction from 2004 levels. In compliance with AB 32, the State adopted the Climate Change Scoping Plan in 2008, and updated the plan in 2014. Primary strategies addressed in the original Scoping Plan included new industrial and emission control technologies; alternative energy generation technologies; advanced energy conservation in lighting, heating, cooling and ventilation; fuels with reduced carbon content; hybrid and electric vehicles; and methods for improving vehicle mileage (ARB 2008). The 2014 update highlighted California's progress toward meeting the 2020 GHG emission reduction goal and established a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050 (ARB 2014).

In 2016, the State Legislature passed and the Governor signed Senate Bill (SB) 32. SB 32 extends the GHG reduction objectives of AB 32 by mandating statewide reductions in GHG emissions to levels that are 40% below 1990 levels by the year 2030. The State is currently in the process of preparing a Climate Change Scoping Plan that incorporates the SB 32 target.

The SJVAPCD adopted a Climate Change Action Plan in 2008 and issued guidance for development project compliance with the plan in 2009. The guidance adopted an approach that relies on the use of Best Performance Standards to reduce GHG emissions. Projects implementing Best Performance Standards would be determined to have a less than cumulatively significant impact. For projects not implementing Best Performance Standards, demonstration of a 29% reduction in project-specific (i.e., operational) GHG emissions from business-as-usual conditions is required to determine that a project would have a less than cumulatively significant impact (SJVAPCD 2009).

The City of Clovis adopted an Air Quality Element as part of its General Plan update in 2014. One of the goals set forth in the Air Quality Element is to lower GHG emissions. Policies designed to achieve this goal include supporting regional efforts to reduce GHG emissions and encouraging innovative mitigation measures to reduce emissions by coordinating with the SJVAPCD, project applicants, and other interested parties. The City has no Climate Action Plan or similar plan that specifically addresses GHG emissions.

a,b) Project GHG Emissions and Consistency with GHG Reduction Plans.

The CalEEMod model estimated the total GHG construction and operational emissions associated with the commercial and residential development (see Appendix A). Table 3-4 presents the results of the CalEEMod run. "Mitigated emissions" for construction and operational emissions are defined in Section 3.3, Air Quality. Emissions modeling was based on four two-story apartment buildings. Since modeling, the project has been modified such that the four two-story apartment buildings have been changed to two apartment buildings that are two stories in height and two apartment buildings that are three stories in height. This is a total addition of two floors of apartments (12 apartments in all). The estimated GHG emissions would thus be slightly greater than shown in the tables below.

TABLE 3-4
ESTIMATED GHG EMISSIONS FROM PROJECT

GHG Emission Type	Unmitigated Emissions		Mitigated Emissions	
	Commercial	**Residential**	**Commercial**	**Residential**
Construction[1]	249.33	343.90	249.33	343.90
Operational[2]	2,572.93	773.61	1,372.91	432.90

[1] Total GHG emissions for construction period in metric tons carbon dioxide equivalent (CO_2e).
[2] Annual emissions in metric tons CO2e.
Source: California Emissions Estimator Model v. 2016.1.1.

Based on results from the CalEEMod run, total project construction GHG emissions would be 343.90 metric tons CO_2e for the assumed construction period. Neither the State nor SJVAPCD has established significance thresholds for GHG emissions from construction activities or from project operations. However, construction emissions would be limited to a short time period and would cease once work is completed. In addition, implementation of Mitigation Measure AIR-1 would reduce the amount of GHGs generated by project construction.

Project operational emissions would be more substantial – a total of approximately 3,347 metric tons CO_2e under "unmitigated" conditions (i.e., without implementation of any reduction measures). However, with implementation of the reduction measures described in Section 3.3, Air Quality, operational emissions would be approximately 1,806 metric tons CO_2e, resulting in an approximately 46% reduction in GHG emissions from unmitigated levels. This exceeds the 29% reduction in operational GHG emissions from business-as-usual conditions that SJVAPCD requires to determine that a project would have a less than cumulatively significant impact. It also exceeds the 29% reduction called out in the State's Scoping Plan. Based on this, project impacts related to GHG emissions and applicable GHG emission reduction plans are considered less than significant.

3.8 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 for people residing or working in the project area?				√
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				√
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			√	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			√	

NARRATIVE DISCUSSION

Environmental Setting

This section focuses on hazards associated with hazardous materials, proximity to schools and airports, and wildfires. Geologic and soil hazards are addressed in Section 3.6, Geology and Soils, and potential flooding hazards are addressed in Section 3.9, Hydrology and Water Quality.

Data on hazardous material sites in the State of California are kept in the GeoTracker database, maintained by the SWRCB, and in the EnviroStor database, maintained by the California Department of Toxic Substances Control (DTSC). Both GeoTracker and EnviroStor provide the names and addresses of hazardous material sites, along with their cleanup status. A search of both databases indicated no record of active hazardous material sites within 5,000 feet of the project site (DTSC 2016, SWRCB 2016).

The project site is a currently undeveloped lot in an area that has been developed for urban uses, primarily residential and commercial in the immediate vicinity. The project site is more than 10 miles distant from any zones of wildfire hazard (CalFire 2007). The project site is not within three miles of a public use airport. No private airstrips have been identified in the vicinity. There are no railroads in the vicinity of the site.

Environmental Impacts and Mitigation Measures

a) Hazardous Materials Transportation, Use and Storage

The project would involve the transportation and storage of relatively large quantities of gasoline and diesel fuel for sale to the public. Fuel transportation would be subject to federal tank, placard, shipment documentation and reporting requirements. Fuel storage on-site would be subject to State underground tank standards described in the California Code of Regulations. Proposed fuel dispensing equipment would be subject to vapor recovery and other requirements of the San Joaquin Valley Air Pollution Control District. Operation of the proposed convenience store would involve the storage and sale of consumer products that would include hazardous materials.

The proposed project would not require other any substantial transportation, use, or storage of hazardous materials. Construction activities may involve the use of hazardous materials such as fuels and solvents, and thus create a potential for hazardous material spills. Construction and maintenance vehicles would transport and use fuels in ordinary quantities. Fuel spills, if any occur, would be minimal and would not have significant adverse effects. Contractors typically have absorbent materials at construction sites to clean up minor spills. Other substances used in the construction process would be stored in approved containers and used in relatively small quantities, in accordance with the manufacturers' recommendations and/or applicable regulations. Project impacts are considered less than significant in this issue area.

b, c) Release of Hazardous Materials.

As noted, the project would involve the transportation, storage and sale of quantities of gasoline and diesel fuel, and dispensing would involve potential for release of fuel vapors to the air. Fuel dispensing equipment would be subject to vapor recovery and other related requirements of the San Joaquin Valley Air Pollution Control District as needed to protect public health.

Operation of the proposed convenience store would involve the storage and sale of consumer products that would include hazardous materials. The project would not involve the use of hazardous materials after project completion; thus, there would be no known potential for releases of hazardous materials. There are no schools within one-quarter mile of the project site. The nearest school is Valley Crescent School, approximately 0.5 miles to the northeast.

d) Hazardous Materials Sites.

None of the lists of hazardous materials sites compiled pursuant to Government Code Section 65962.5 contains records associated with the project site. As previously noted, a search of the GeoTracker and EnviroStor databases did not identify any hazardous material sites within one mile of the project site. Hazardous materials transportation and storage on the project site would be subject to regulations that would result in the creation of new hazardous material sites. The project would have a less than significant impact related to hazardous material sites.

e, f) Airport and Airstrip Operations.

A review of aerial photographs in Google Earth revealed no public use airports or private airstrips within two miles of the project area. The project would have no impact on airports or airstrips.

g) Emergency Response and Evacuations.

Project construction work would mostly occur on the parcel, with work on adjacent roads limited to roadway frontage improvements and connection to utility lines. Such work is not expected to require closure of the roads, so project construction is not expected to substantially obstruct emergency vehicles or any evacuations that may occur in the area. Project operations would not obstruct any roadways. Project impacts on emergency response or emergency evacuation plans would be less than significant.

h) Wildland Fire Hazards.

The project site is in an urbanized area and is surrounded by existing urban development, which has a low wildfire hazard. The project would reduce any existing fire hazard on the parcel by replacing the existing grasses and weeds with a paved and developed area. Project impacts related to wildfires would be less than significant.

3.9 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?		√		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			√	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			√	
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			√	
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems?			√	
f) Otherwise substantially degrade water quality?		√		
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				√
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				√
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a levee or dam?				√
j) Inundation by seiche, tsunami, or mudflow?				√

NARRATIVE DISCUSSION

Environmental Setting

Surface Waters

There are no streams or other surface waters on or adjacent to the project site. The nearest stream to the project site is Dry Creek, approximately 1.52 miles to the east. Dry Creek flows part of the year, in the event of a major flood or when water is released from the Enterprise Canal for groundwater recharge. The San Joaquin River is approximately 3.85 miles northeast of the project site (Google Earth, pers. comm. Rob Rush 2017).

Groundwater

The project site is within the San Joaquin Valley Groundwater Basin, Kings Subbasin. According to the California Department of Water Resources 2016 Groundwater Basin Contour Map, groundwater levels at the project site are approximately 175 feet below ground surface.

Water Quality

Surface water quality in the Central Valley is managed by the Regional Water Quality Control Board, Central Valley Region (RWQCB) by means of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan), revised in June 2015. Water quality in Clovis is generally good (pers. comm. Rob Rush 2017).

Storm water quality is federally regulated under the federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES). The California State Water Resources Control Board (SWRCB) bears primary responsibility for the control of storm water quality in the state. Additional storm water regulation is established in the NPDES area-wide municipal separate storm sewer system (MS4) permit system administered by the SWRCB, which requires affected jurisdictions, including the City of Clovis, to adopt and implement a Storm Water Management Program (SWMP).

In compliance with the conditions of this permit, the City of Clovis has adopted the Fresno–Clovis Storm Water Quality Management Program (FCSWQMCP), which is intended to minimize, reduce, eliminate, or prohibit the discharge of pollutants with the goal of improving water quality; thus, a municipal NPDES MS4 Permit was issued by the SWRCB. The FCSWQMCP contains control measures to minimize the potential storm water quality impacts of development, including both construction and post-construction activity. Program elements most applicable to land development include construction storm water discharge requirements, residential and commercial discharge requirements and the incorporation of post-construction Best Management Practices (BMPs) in new development.

Flood Hazards

According to a Flood Insurance Rate Map prepared by the Federal Emergency Management Agency (FEMA), the project site lies within an area classified as Zone X (FEMA 2009). Zone X indicates an area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Environmental Impacts and Mitigation Measures

a, f) Surface Waters and Water Quality.

The project would not directly affect surface waters in the vicinity; however, construction activities could loosen soils, which could be transported off site by runoff and could eventually enter surface waters. Project operations would likely lead to deposits of fuels, oils, metals, and other substances associated with motor vehicles. These deposits also could be transported off site by runoff and could eventually enter surface waters. This is considered a potentially significant impact.

As outlined in Section 2 of the FCSWQMCP, the District has established, and developers must follow, a range of BMPs during and after construction to prevent discharges of sediment and other pollutants from construction sites to MS4s. These BMPs include vehicle washing, equipment maintenance, and waste handling. For example, non-storm water runoff and construction-related materials must be retained on the project site and avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff (FCSWQMCP). Implementation of Measure HYDRO-1 would minimize impact from construction activities.

A range of post-construction BMPs must be incorporated into development plans. Clovis's post-construction BMPs are governed by the Fresno Metropolitan Flood Control District (FMFCD), and are detailed in the Fresno-Clovis Storm Water Quality Management Program Post-Construction Storm Water Quality Management Guidelines. Relevant BMPs include berming, vegetated swales, secondary containment, litter and debris control and signage to minimize runoff and potential pollutants (FMFCD).

Project operations have a potentially significant impact on surface water quality. Compliance with the applicable permits, programs and regulations, which are specified in the mitigation measures below (HYDRO-1, HYDRO-2, HYDRO-3), would reduce impacts to a level that would be less than significant. In addition, implementation of Mitigation Measure GEO-1, described in Section C(6), Geology and Soils, would minimize impacts from construction activities.

Level of Significance: Potentially significant

Mitigation Measures:

HYDRO-1: The ODS shall submit an SWPPP for the project that shall include post-construction Best Management Practices as required by the FCSWQMCP. The Storm Water Quality Plan will be reviewed and approved by the Fresno Metropolitan Flood Control District prior to receiving construction permits.

HYDRO-2: The ODS shall execute a Maintenance Agreement with the City of Clovis for storm water BMPs prior to receiving construction permits. The ODS must remain the responsible party and provide funding for the operation, maintenance and replacement costs of the proposed treatment devices built for the subject property.

HYDRO-3: The ODS shall comply with any and all requirements of, and pay all associated fees as required by, the FCSWQMCP Program as set forth in its NPDES Storm Water Permit, including construction and maintenance of outdoor storage areas so as to prevent the conveyance of contaminants in runoff to the storm drain system.

Significance After Mitigation: Less than significant

b) Groundwater Supplies.

The project would not draw directly from groundwater but would be connected to the City's water system, which is in part supplied from groundwater wells. The project would replace an existing vacant parcel of grasses and weeds with urban development, including pavement. This would reduce the amount of precipitation that would percolate into the ground, thereby reducing groundwater recharge. Given the small acreage of the project site, the project is not expected to interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Project impacts on groundwater are considered less than significant.

c, d, e) Drainage Patterns and Runoff.

The project would alter existing storm drainage patterns. Proposed improvements on the project site, such as grading and pavement installation, would result in the generation of additional runoff due to the introduction of impervious surfaces. On-site drainage would collect all runoff generated on the project site and deliver it to the City's drainage system in accordance with City standards and specifications. Outdoor storage of waste may generate contaminants that could be conveyed in runoff into the storm drain system. Implementation of Mitigation Measures HYDRO-1 through HYDRO-3 would minimize impacts on storm drainage. As a result of the proposed rezone, site runoff will be greater than the runoff generated by the land use contemplated in the Clovis General Plan. Mitigation measure HYDRO-4 would reduce runoff to a rate that would be expected if the site were developed to a low-density residential land use.

Level of Significance: Potentially Significant

Mitigation Measures

HYDRO-4: The ODS shall prepare and implement a peak reducing facility to to reduce the runoff volume from the planned commercial and medium-high density uses, storing the equivalent of a 10-year storm event and releasing it at a rate no higher than the water of a 2-year storm event from a medium density residential land use.

Significance After Mitigation: Less than significant

g, h) Residences and Other Structures in 100-Year Floodplain.

The project would not introduce housing into the identified 100-year floodplain. Thus, the project would have no impact on this issue.

The project site is not in an area that would be flooded by a 200-year flood at a depth of 3 feet or greater.

i) Dam and Levee Failure Hazards.

The project site is not subject to potential inundation from dam failure. There are no levees in the project vicinity, and the project site is not near any streams that have levees. Because of this, the project site is unlikely to be subject to inundation from levee failure. The project would have no impact related to dam or levee failure.

j) Seiche, Tsunami, and Mudflow Hazards.

The project site is in a topographically flat area away from large bodies of water. Because of this, the project would not be subject to seiche, tsunami or mudflow hazards. The project would have no impact related to this issue.

3.10 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) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or			√	

mitigating an environmental effect?			
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?			√

NARRATIVE DISCUSSION

Environmental Setting

As previously described, the project site is a vacant parcel at the intersection of two arterial streets. The intersection and other lands and N. Willow Avenue are developed with commercial uses; the immediate project vicinity is a primarily residential area. The current General Plan designation for the parcel is Low Density Residential, and the current City zoning is R-1-7500, (Single Family Residential 7,500 sq. ft. minimum). The project site is bounded on the north by a self-storage facility, on the south and east by senior living facilities, and on the west by a gas station, two restaurants and a multi-family residential development. Lands to the north and south, along the east side of N. Willow Avenue, from Nees Avenue to Herndon Avenue, are primarily in commercial use.

Environmental Impacts and Mitigation Measures

a) Division of Established Community.

The project site is in a primarily residential area, with existing uses arranged along Alluvial Avenue and N. Willow Avenue. The project would increase the number of residents in the area and add a gas station, a car wash and two fast food restaurants, expanding the range of commercial services in the area. Proposed commercial uses would not divide existing community elements from one another. The project would have a less than significant impact on established communities.

b) Conflicts with Plans, Policies and Regulations Mitigating Environmental Effects.

The project site is currently designated and zoned for Low Density Residential use. The existing designation and zoning do not allow for the proposed multi-family residential and commercial uses proposed by the project.

For Parcel A, the project applicant is requesting a General Plan Amendment from Low Density Residential to Commercial. The project would also require rezoning of Parcel A to a Commercial Zone District. In addition, a Conditional Use Permit (CUP) would be required for Parcel A to develop a gas station. The General Plan Amendment, Rezoning, and CUP would allow for the proposed land use and eliminate any land use conflict caused by the project.

For Parcel B, the project applicant is requesting a General Plan Amendment from Low Density Residential to Medium High Density Residential. The project would also require

rezoning of Parcel B to a Medium High Density Residential Zone District. In addition, a Conditional Use Permit (CUP) would be required for Parcel B to exceed the height restrictions for a residential neighborhood. The General Plan Amendment, Rezoning, and CUP would allow for the proposed land use and eliminate any land use conflict caused by the project.

The proposed project is generally compliant with the City of Clovis Herndon-Shepherd Specific Plan. For example, the project would provide "affordable housing element to promote a harmonious neighborhood," which is an objective of the Specific Plan. Although the existing specific plan designations for the site are not consistent with the project's proposed land uses, inconsistencies would be resolved by the proposed general plan amendments. The project would be consistent with adopted plans, policies and regulations that seek to avoid or mitigate environmental effects on the Clovis community. Project impacts would be less than significant.

c) Conflict with Habitat Conservation Plans.

As noted in Section 4(f), Biological Resources, the project site is not subject to any habitat conservation plans. The project would have no impact related to habitat conservation plans or similar plans.

11. MINERAL RESOURCES

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

NARRATIVE DISCUSSION

Environmental Setting

The City of Clovis is mapped as MRZ-3 by the California Geological Survey, which means the significance of mineral deposits cannot be determined from available data. The project site is within 3.5 miles of a zone mapped as MRZ-1, which indicates no significant mineral resources are present or there is little likelihood that significant mineral resources are present. It is also within 3.5 miles of a zone designated MRZ-2, which means significant mineral resources are known or very likely. The project site is

small in size and surrounded by existing urban development, and therefore generally unsuitable for mineral resource development.

Environmental Impacts and Mitigation Measures

a, b) Availability of Mineral Resources.

There are no identified mineral resources areas on the project site. The project would have no effect on the availability of or access to locally designated or known mineral resources. The project would have no impact on mineral resources.

12. NOISE

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			√	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				√
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			√	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			√	
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 expose people residing or working in the project area to excessive noise levels?				√
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				√

NARRATIVE DISCUSSION

Environmental Setting

Noise Background

Noise is often described as unwanted sound. Noise levels are defined in terms of decibels (dB), which are typically adjusted for perception of loudness by the A-weighting network (dBA). Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state, dBA sound level containing the same total energy as a time-varying signal over a given time period (usually one hour).

The L_{eq} shows very good correlation with community response to noise, and it is the basis for other noise descriptors such as the Day-Night Average Sound Level (L_{dn}). The L_{dn} represents an average sound exposure over a 24-hour period, with noise occurring during the nighttime (10:00 p.m.-7:00 a.m.) weighted more heavily to account for the greater sensitivity of people to noise during this time period. Another noise descriptor is L_{max}, which gives the highest sound level value measured by the sound level meter over a given period of time.

Existing Noise Conditions

The noise environment on the project site is defined primarily by traffic noise from Alluvial Avenue and N. Willow Avenue. To generally quantify background noise levels in the project vicinity, Bollard Acoustical Consultants, Inc. conducted long-term (24-hour) ambient noise level measurements on the project site November 28-29, 2016.

TABLE 3-5

AVERAGE MEASURED HOURLY NOISE LEVELS (DBA)

	Daytime (7 am to 10 pm)		Nighttime (10 pm to 7 am)	
L_{dn} (dBA)	L_{eq}	L_{max}	L_{eq}	L_{max}
59	58	74	48	65

The background noise level data provided in Table 3-5 indicate that existing ambient noise levels measured at the project site are in close agreement with the City of Clovis Municipal Code daytime and nighttime exterior noise level standards for noise-sensitive uses. As a result, compliance with the City of Clovis noise standards would ensure that the project does not result in a significant noise level increase at the nearest residential uses.

Noise Regulations

The City's zoning ordinance, in Section 9.22.080 (Noise) of the Clovis Municipal Code, contains criteria for noise as shown in Table 3-6 below. In addition, Section 9.22.080(D)(2) identifies a maximum (L_{max}) impulsive noise level equal to the value of any applicable noise standard plus 20 dB for any period of time.

TABLE 3-6
CITY OF CLOVIS MAXIMUM EXTERIOR NOISE STANDARDS

		Allowable Exterior Noise Level (15-Minute L_{eq})	
Noise Zone	**Type of Land Use**	**7 a.m. to 10 p.m.**	**10 p.m. to 7 a.m.**
I	Single-, two- or multiple-family residential	55 dBA	50 dBA
II	Commercial	65 dBA	60 dBA
III	Residential portions of mixed use properties	60 dBA	50 dBA
IV	Industrial or manufacturing	70 dBA	70 dBA

The project parcel is located adjacent to planned multi-family residences to the east. Because the project shares a property line with a planned noise-sensitive land use, the noise standards for Noise Zone I above were applied at this property line. Specifically, the following exterior noise level standards were applied:

55 dB L_{25} during daytime hours
50 dB L_{25} during nighttime hours
75 dB L_{max} during daytime hours
70 dB L_{max} during nighttime hours

Environmental Impacts and Mitigation Measures

a) Exposure to Noise Exceeding Local Standards.

Evaluation of Car Wash Noise Levels

Noise levels generated by car wash facilities are primarily due to the drying portion of the operation. When the car wash is at its maximum capacity, the dryers are anticipated to operate for no more than 15 minutes per hour. Based on manufacturer's specifications

and the proposed position and direction of car wash tunnels, car wash noise level would be 63 dB L_{max} at the nearest residential property line to the east. This would satisfy the City of Clovis daytime and nighttime L_{max} noise level standards. However, the predicted car wash noise level of 57 dB L_{25} would exceed the City's daytime and nighttime L_{25} standards. As a result, this element of the project would involve potential for significant noise effects. Noise mitigation measures are warranted for this aspect of the project and are discussed later in this report.

To mitigate these identified exceedances, the effectiveness of the inclusion of car wash entrance and exit doors was considered. The manufacturer has indicated that closed entrance and exit doors during the car wash cycle provides approximately 10-20 dB of noise reduction. Provided the project incorporates the recommended car wash entrance and exit doors, car wash noise exposure at the nearest residential property line to the east would satisfy the City's daytime and nighttime L25 noise level standards.

Evaluation of Drive-Through Noise Levels

The project proposes two restaurants that would each contain a single-lane drive-through. The proposed restaurants are located on the northern and southern ends of the project site, as shown on Figure 2-1. The distance from the drive-through lane on the southern end of the site to the nearest residential property line to the east is approximately 195 feet, while the drive-through lane Predicted average drive-through noise levels of 38-45 dB L_{25} at the nearest residential property line to the east would satisfy the City of Clovis daytime and nighttime L_{25} noise level standards. In addition, predicted drive-through noise levels of 43-45 dB L_{max} would also satisfy the City's daytime and nighttime L_{max} standards. As a result, this element of the project would not involve a significant noise effect, and no mitigation measures are warranted.

Level of Significance: Potentially significant

Mitigation Measures:

NOISE-1. To mitigate car wash noise exposure, the car wash shall include car wash entrance and exit doors. With the inclusion of car wash entrance and exit doors, car wash noise exposure at the nearest residential property line to the east would satisfy the City's daytime and nighttime L25 noise level standards.

Significance After Mitigation: Less than significant

b) Exposure to Groundborne Noise.

Groundborne vibration is not a common environmental problem. It is typically associated with transportation facilities, although it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

The project would involve none of these potential noise sources, so it is anticipated that the project would not be exposed to groundborne vibrations nor would it generate substantial vibrations. The project would have no impact related to groundborne vibrations.

c) Permanent Increase in Ambient Noise.

The project would result in a permanent increase in ambient noise levels over existing conditions, as the site is currently vacant. As noted in a) above, after applying mitigation measures to the car wash, noise levels are not expected to exceed City standards. Project impacts on permanent noise levels are considered less than significant.

d) Temporary or Periodic Increase in Ambient Noise.

Project construction would involve temporary increases in ambient noise levels, due to the use of construction equipment and vehicle traffic to and from the construction site. Temporary noise increases from project construction are considered less than significant. Project construction noise would cease once construction work is completed.

e, f) Public Airport and Private Airstrip Operations Noise.

As noted in Section 3.8 Hazards and Hazardous Materials, there are no public airports or private airstrips in the project vicinity. The project would have no impact related to noise from private airstrips.

3.13 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			√	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				√
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				√

NARRATIVE DISCUSSION

Environmental Setting

As of 2016, the population of Clovis was estimated at 108,039. The City had an estimated 38,931 housing units, with a vacancy rate of 4.3% (California Department of Finance 2016).

Environmental Impacts and Mitigation Measures

a) Population Growth Inducement.

The project would construct 60 1- and 2-bedroom housing units resulting in a potential population increase of 180 persons at an average occupancy rate of 3.0 persons per unit. The project would have a less than significant impact on population growth. The project site would be served by existing infrastructure in the vicinity. No substantial extension of infrastructure that could serve other development in the area would be required.

b, c) Displacement of Housing or People.

The project site is vacant, so the project would not displace any housing units or persons. The project would provide 60 multi-family units. The project would have no adverse effect on housing issues.

3.14 PUBLIC SERVICES

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

NARRATIVE DISCUSSION

Environmental Setting

The project is located within the City of Clovis. Public services are provided to the project area by the Clovis Fire Department, the Clovis Police Department and the Clovis Unified School District. The City also provides park and recreation services. Detailed information on each of these services is provided in the City of Clovis General Plan Program Environmental Impact Report (PEIR).

Environmental Impacts and Mitigation Measures

a) Fire Protection

Fire protection services are provided by the Clovis Fire Department (CFD), which operates five stations and supplements protection through an automatic aid agreement the with Fresno Fire Department and the Fresno County Fire Protection District.

The closest fire station to the project site is Station No. 3, located one mile from the site at 555 N. Villa Avenue, Clovis, CA 93612. It houses an engine and a reserve engine, and is staffed by three full time firefighters (PEIR 2014 page 5.14-4). The response time to the project site is under four minutes.

Development of the proposed project would involve a minor addition to the responsibilities to the CFD. It would not degrade the existing service ratio, response time, or other performance objectives (pers. comm. Deputy Fire Marshal Gary Sawhill 2/21/17). The proposed project would comply with standard mitigation measures, and would not require the construction of new facilities or physically alter existing governmental facilities. The proposed project would thus have less than significant environmental impact associated with its demand on fire services.

b) Police Protection

Within the City limits, police protection is provided by the Clovis Police Department (CPD), which is based at 1233 5th Street, Clovis, CA 93612, 2.37 miles southeast of the project site (PEIR 2014 5.14-21). The CPD has an average response time under five minutes for emergency service calls. The CPD is currently staffed to provide 1.3 officers per 1000 residents, with at least eight officers on patrol per shift. The CPD states no specific concerns about this project other than noting that the addition of city residents would naturally increase the number of service calls. As this project is anticipated to add less than 150 residents to the city, the increase in service calls would not be significant (pers. comm. Sergeant James Boldt 2/22/17).

The proposed project would be served by existing police protection resources and would not require the construction of new facilities or physically alter existing facilities. Therefore, the Proposed Project would have a less than significant impact associated with

its demand on police services.

Project construction would, through the location of construction materials and equipment on the unoccupied site, involve new crime opportunities during the construction period. Crime opportunities within areas of new development can be minimized by proper project design.

c) Schools

The project site is within the Clovis Unified School District (CUSD). The nearest public schools to the site are as follows:

> Elementary: Garfield Elementary School, 1315 N. Peach Avenue, Clovis, CA
> Intermediate: Alta Sierra Intermediate 380 W. Teague Avenue, Clovis, CA
> High: Buchanan High School 1560 N. Minnewawa Avenue, Clovis, CA

Development of the project site would lead to the generation of additional student population. Student generation associated with the project, based on the 60 proposed multi-family residential units, would amount to ten Grades K-6 students at a rate of 0.169355 students per residence, four Grades 7-8 students at a rate of 0.064516 students per residence, and five Grades 9-12 students at a rate of 0.080645 students per residence. CUSD has confirmed that sufficient capacity exists within the school system to accommodate project-related student generation at the nearest public schools (pers. comm. Jon Tenorio 2/22/17).

The proposed project would be served by existing CUSD resources and would not require the construction of new facilities or physically alter existing facilities. Therefore, the Proposed Project would have a less than significant impact associated with its demand on school services.

d) Parks

Parks and recreation services are provided by the City of Clovis. Railroad Park, covering approximately 3.8 acres, is located 1/2 mile east of the project site. It houses two playgrounds, picnic facilities and restrooms.

The City of Clovis maintains more than 285 acres of City parks and landscaping. The City's current population is approximately 103,000 people. The City's existing parklands therefore provide approximately 2.8 acres of land per 1000 persons, which falls within state and national guidelines (City of Clovis, Parks 2017).

The Parks Department expressed no concerns about the project, stating that existing facilities are sufficient to accommodate the small number of additional residents contemplated by this project (pers. comm. Park Manager Eric Aller 2/22/17).

Project development is not expected to result in physical deterioration of existing or planned recreational facilities. As the proposed project would not require the construction

of new facilities or physically alter existing facilities, it would have no environmental impacts associated with demand on parks.

e) Other Public Facilities

The proposed project would not affect any other public facilities, as it would not require the construction of new facilities or physically alter existing facilities; therefore, the Project would have no environmental impacts associated with demand on public services.

15. RECREATION

	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?				√

NARRATIVE DISCUSSION

Environmental Setting

Parks and recreation services are provided by the City of Clovis. As mentioned in Section C(14), Public Services, Railroad Park, covering approximately 3.8 acres, is located 1/2 mile east of the project site. It houses two playgrounds, picnic facilities and restrooms.

Environmental Impacts and Mitigation Measures

a, b) Recreational Facilities.

The proposed project would not require the construction of new recreational facilities or physically alter existing facilities; therefore, the project would have no environmental impacts associated with demand on recreational services.

16. TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?		√		
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?		√		
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				√
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			√	
e) Result in inadequate emergency access?				√
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			√	

NARRATIVE DISCUSSION

Environmental Setting

Information for much of this section is provided by a traffic impact study for the project conducted by KD Anderson and Associates (2017). Appendix D contains the traffic impact study, which includes a description of the methodology used to analyze project traffic impacts.

Streets and Traffic Volumes

The following is a description of existing traffic operating conditions at the study intersections.

N. Willow Avenue is a north-south roadway that forms the western boundary of the project site. Adjacent to the project site, N. Willow Avenue is a divided roadway with two northbound lanes and three southbound lanes. In the vicinity of the project site, the roadway is designated an arterial in the City of Clovis General Plan (City of Clovis 2014b), and designated a Super Arterial in the Fresno General Plan (City of Fresno 2014). The speed limit on N. Willow Avenue is 50 miles per hour (mph). The daily traffic volume on N. Willow Avenue between E. Decatur Avenue and Herndon Avenue is approximately 23,000.

Alluvial Avenue is and east-west roadway that forms the southern boundary of the project site. Adjacent to the project site, Alluvial Avenue is two lanes wide (i.e., one lane in each direction) with a center-two-way left-turn lane (CTWLTL). In the vicinity of the project site, Alluvial Avenue is designated a collector roadway in both the City of Clovis General Plan and the Fresno General Plan. The speed limit on Alluvial Avenue adjacent to the project site is 40 mph. The daily traffic volume on Alluvial Avenue between N. Chapel Hill Avenue and N. Paula Avenue is approximately 10,000.

Level of Service

Traffic conditions on streets and roads and at intersections are commonly described as a Level of Service (LOS). LOS is a qualitative measure of traffic conditions represented by letter designations A through F, with A representing the best conditions and F the worst. LOS A through D are considered acceptable, while LOS E and F are considered unacceptable, in the City of Clovis.

The traffic impact study evaluated existing and near-term baseline existing plus approved project (EPAP) traffic conditions on the segments of N. Willow Avenue and Alluvial Avenue adjacent to the project site. The existing LOS at the intersection of N. Willow Avenue and Alluvial Avenue is C during AM and PM peak hours, which is an acceptable LOS. The EPAP LOS at this intersection is also C during AM and PM peak hours.

The traffic impact study also evaluated existing and EPAP conditions at three additional intersections near the project site, during both the morning and the evening peak hour for traffic. Conditions at intersections are also described as LOS. Table 3-7 presents existing and EPAP LOS conditions at the four study intersections. Most intersections are operating at acceptable LOS under EPAP conditions, but existing conditions at the intersection of North Chestnut and Alluvial Avenue are at LOS E. This is considered unacceptable, but could be brought to an acceptable LOS though a development-related improvement assumed at this intersection under EPAP conditions. (see Appendix D).

TABLE 3-7
EXISTING AND EPAP TRAFFIC CONDITIONS AT INTERSECTIONS

Intersection	**Intersection Control**	**Existing LOS**		**EPAP LOS**	
		AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
N. Chestnut Ave & Alluvial Ave *With Recommended Improvement*	Signal	**E** *D*	D *D*	C	C
N. Willow Ave and Alluvial Ave	Signal	C	C	C	C
N. Willow Ave & Spruce Ave	Signal	A	A	B	B
N. Willow Ave & Herndon Ave	Signal	D	D	D	D

Bold indicates unacceptable LOS.
EPAP – Existing Conditions plus Approved Projects
Source: KD Anderson and Associates 2016.

Vehicle Queuing

The *City of Clovis Traffic Impact Study Guidelines* requires a queuing analysis of the study intersections and recommendations for queues that are projected to exceed the available storage capacity. A queuing deficiency is identified in No Project scenarios if the calculated 95th percentile queue length exceeds the existing storage length at a signalized intersection by more than 25 feet (the average storage length for one additional vehicle), since the turn lane bay taper can typically store at least one vehicle. The study of existing turn lane queue lengths determined that at the intersection of N. Willow Avenue and Alluvial Avenue eastbound to northbound left turn exceeds the existing storage length by 46 feet during the PM peak hour. As vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue under EPAP No Project conditions would exceed the existing length of the eastbound-to-northbound left-turn lane by more than 25 feet, said lane should be lengthened to accommodate a vehicle queue of 141 feet. This improvement would provide adequate vehicle storage under EPAP No Project conditions.

Other Transportation

Clovis Transit Service provides public transportation to the Clovis area. Clovis Transit Service Stageline Route 10 operates on N. Willow Avenue along the western edge of the project site. During weekdays, service is provided with 30-minute frequency in each direction.

The City of Clovis and City of Fresno have extensive existing and planned networks of bicycle facilities, including off-street trails and paths, as well as on-street bicycle lanes and routes. The City of Clovis General Plan (City of Clovis 2014b) presents a Bicycle and Trails System map. In the vicinity of the project site, the map shows bike paths and lanes in the project area along Herndon Avenue, Alluvial Avenue, and N. Willow

Avenue. The City of Fresno Bicycle, Pedestrian, and Trails Master Plan (City of Fresno 2010) presents existing and recommended bicycle facilities in the project area along Herndon Avenue, N. Willow Avenue, Alluvial Avenue, and Chestnut Avenue.

Transportation Policies

The City of Clovis Traffic Impact Study Guidelines (City of Clovis 2014a) sets forth policies and implementation measures related to transportation in the City. It states that all City intersections and roadway segments shall operate at a LOS D or better, with limited exceptions that do not apply to this project.

Similarly, the Fresno General Plan (City of Fresno 2014a) sets forth a peak-hour vehicle LOS standard of D or better for most roadway areas, including the roadways surrounding the project site. Therefore, for both the City of Clovis and the City of Fresno, LOS A through D are considered acceptable, while LOS E and F are considered unacceptable.

Environmental Impacts and Mitigation Measures

a) Consistency with Applicable Plans, Ordinances and Policies.

The project is expected to generate traffic resulting from the development and operation of the fueling station, convenience store, fast-food restaurants, and housing units. Adjusting for pass-by trips, it is estimated that the project would generate 3,234 vehicle trips per day, including 254 trips during the a.m. peak hour and 241 trips during the p.m. peak hour. Consistency of the project with adopted LOS standards is evaluated below.

Existing Plus Project Condition Levels of Service

Traffic volumes under Existing Plus Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections would also be higher. Under Existing Plus Project conditions, LOS at six of the seven study intersections would be at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. The impact at these six intersections is considered to be less than significant. No mitigation measures are required.

Mitigation is required at the intersection of North Chestnut Avenue and Alluvial Avenue. This intersection would operate at LOS E during the a.m. and p.m. peak hours under Existing Plus Project Conditions, which is considered unacceptable and a significant effect. Implementation of the following mitigation measure would reduce this impact to a less than significant level: split the southbound combination through/right-turn lane into an exclusive southbound through and an exclusive southbound-to-westbound right-turn lane.

Implementing this mitigation measure would improve operations to LOS D during both the a.m. and p.m. peak hours, and LOS D is considered acceptable. It should be noted, however, that the need for this mitigation measure is the same as the recommended

improvement under Existing conditions and is a part of improvements assumed at this intersection under EPAP conditions, which are described in more detail in the *Existing Plus Approved Projects No Project Conditions* section of Appendix D. The need for this mitigation is not the result of the project. The project would not involve a significant LOS effect.

As shown in Appendix D (Table 5, Table 6, Table 7, and Table 8) project-related changes in vehicle queues would be less than significant. Thus, no mitigation measures are required.

EPAP Plus Project

Traffic volumes under EPAP Plus Project conditions would be generally higher than under EPAP No Project conditions and, as a result, vehicle delay at study intersections under EPAP Plus Project conditions would be higher than under EPAP No Project conditions.

Under EPAP Plus Project conditions, LOS at six of the seven study intersections would be at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. The impact at these six intersections is considered to be less than significant. No mitigation measures are required at these locations.

Mitigation is required at the intersection of N. Willow Avenue and Alluvial Avenue. As shown in Table 3-8, this intersection would operate at LOS D during the a.m. peak hour and LOS E during the p.m. peak hour under EPAP Plus Project Conditions. LOS E is considered unacceptable, and this impact is considered to be significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level: optimize the timing of the signal.

As shown in Table 3-8, implementing this mitigation measure would improve operations to LOS D with during the p.m. peak hour. LOS D is considered acceptable; thus the impact would be less than significant with mitigation.

Vehicle Queuing

As shown in Appendix D (Table 5, Table 6, Table 7, and Table 8), most project-related changes in vehicles queues would be less than significant. The one exception is that under EPAP Plus Project conditions, at the intersection of N. Willow Avenue and Herndon Avenue, the project would have a significant impact on the northbound-to-westbound left-turn lane. To reduce this impact to a less-than-significant level, the following mitigation measure would be required: lengthen the northbound-to-westbound left-turn lane to accommodate a 305-foot vehicle queue.

TABLE 3-8
PROJECTED WITH-PROJECT TRAFFIC CONDITIONS AT INTERSECTIONS

Intersection	**Intersection Control**	**Existing LOS**		**Existing Plus Project LOS**	
		AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
N. Chestnut Ave. & Alluvial Ave. *With Recommended Improvement*	Signal	**E** *D*	D *D*	**E** *D*	**E** *D*
N. Willow Ave. & Alluvial Ave.	Signal	C	C	C	D
N. Willow Ave. & Spruce Ave.	Signal	A	A	A	A
N. Willow Ave. & Herndon Ave.	Signal	D	D	D	D
N. Willow Ave. & W. Parcel A Access	Unsignalized	N/A	N/A	A	A
Alluvial Ave. & S. Parcel A Access	Unsignalized	N/A	N/A	A	A
Allluvial Ave. & Parcel B Access	Unsignalized	N/A	N/A	A	A
Intersection	**Intersection Control**	**EPAP No Project LOS**		**EPAP Plus Project LOS**	
		AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
N. Chestnut Ave. & Alluvial Ave.	Signal	C	C	C	C
N. Willow Ave. & Alluvial Ave. *With Mitigation Measure*	Signal	C	C	D	**E** *D*
N. Willow Ave. & Spruce Ave.	Signal	B	B	B	B
N. Willow Ave. & Herndon Ave.	Signal	D	D	D	D
N. Willow Ave. & W. Parcel A Access	Unsignalized	N/A	N/A	A	A
Alluvial Ave. & S. Parcel A Access	Unsignalized	N/A	N/A	A	A
Alluvial Ave. & Parcel B Access	Unsignalized	N/A	N/A	A	A

Bold indicates unacceptable LOS.
EPAP – Existing Conditions plus Approved Projects
Source: KD Anderson and Associates 2016.

Implementing this mitigation measure would provide adequate vehicle storage under EPAP Plus Project conditions; thus the project's impact would be less than significant.

In order to mitigate the impacts of new developments and reduce the project's traffic effects to a less than significant level, the ODS will need to provide the funds necessary to finance the street improvements identified above.

Level of Significance: Potentially significant

Mitigation Measures:

TRANS-1: The ODS shall make a fair-share contribution to City traffic mitigation fees.

Significance After Mitigation: Less than significant

b) Conflict with Congestion Management Program.

As described above, the project would adversely affect LOS at the N. Willow Avenue and Alluvial Avenue intersection, which is part of the roadway and intersection network covered by the Fresno County Congestion Management Process. Implementation of Mitigation Measure TRANS-1 would improve LOS at the intersection to an acceptable level, which would make intersection operations more consistent with the objectives of the Regional Congestion Management Plan. Project impacts are considered less than significant with mitigation.

c) Air Traffic Patterns.

As a commercial project designed to serve primarily local residents, the project would not generate additional passengers for air service. The project would not adversely affect air traffic patterns. The project would have a less than significant effect on air traffic patterns.

d) Traffic Hazards.

As shown in the site plan, the western non-residential portion of the project site is referred to as "Parcel A", and the eastern residential portion of the project site is referred to as "Parcel B". Access to the western non-residential portions of the project site would be provided by one driveway in the northwest corner of the project site connecting to N. Willow Avenue (West Parcel A Access) and one driveway on the southern side of the project site connecting to Alluvial Avenue (South Parcel A Access).

Access to the apartment complex in the eastern portion of the project site would be provided by one driveway in the southeastern portion of the project site connecting to Alluvial Avenue (the Parcel B Access).

A raised concrete median is present along the project site frontage on N. Willow Avenue. Therefore turn movements at the West Parcel A Access driveway would be limited to right-turns; no left-turn movements would be allowed. Both left-turn and right-turn movements would occur at the South Parcel A Access driveway and the Parcel B Access driveway, with the existing center-two-way left-turn lane (CTWLTL) continuing to be present along Alluvial Avenue with implementation of the proposed project (Smith pers. comm.). The proposed project would have a less than significant impact on this issue.

e) Emergency Access.

General vehicle access to the western non-residential portions of the project site would be provided by one driveway in the northwest corner of the project site connecting to N. Willow Avenue, and one driveway on the southern side of the project site connecting to Alluvial Avenue. Access to the apartment complex in the eastern portion of the project site would be provided by one driveway in the southeastern portion of the project site connecting to Alluvial Avenue.

General vehicle access to the residential segment of the property would be accessible at the southeast corner of the apartment complex from Alluvial Avenue. There would also be an emergency gate connecting the commercial parking lot to the northwest corner of the apartment complex.

Subject to detailed technical review by the Clovis Fire Department, the proposed site plans appear to provide adequate access for emergency vehicles, and the project would have no significant adverse impact on emergency access.

f) Conflict with Non-Vehicular Transportation Plans.

Bicycle lanes, sidewalks and crosswalks are present along the majority of the approaches to the intersection of N. Willow Avenue & Alluvial Avenue, providing protected access to the project site. Implementation of the N. Willow Avenue and Alluvial Avenue Commercial and Apartments project would include construction of sidewalks along the project site frontage to both N. Willow Avenue and Alluvial Avenue. Therefore, bicycle and pedestrian access to the project site is considered adequate. This impact is considered less than significant and no mitigation measures are required.

17. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?		√		
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		√		
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			√	
		√		

d) Are sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				
e) Has the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		√		
f) Is the project served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			√	
g) Comply with federal, state and local statutes and regulations related to solid waste?			√	

NARRATIVE DISCUSSION

Environmental Setting

Wastewater treatment services for the project site are provided by the Fresno-Clovis Regional Wastewater Treatment Facility (FCRWTF), located at 5607 West Jensen Avenue, Fresno, California, 93706. A 21-inch sewer line runs along N. Willow Avenue, and an 8-inch sewer line runs along Alluvial Avenue. The wastewater system is sized to provide for buildout of the project site and surrounding areas under existing general plan designations.

Water service in the project vicinity is provided by the Clovis Public Utilities Department. The project would connect to existing 12-inch water mains along the frontages of Alluvial Avenue and Willow Avenue. The water system and water supply are sized to provide for buildout of the project site and surrounding areas under existing general plan designations.

Storm water drainage service in the area is managed by the Fresno Metropolitan Flood Control District (FMFCD). The project would tie into existing storm water drainage facilities. A 42-inch storm drain line runs along Alluvial and a 24-inch storm drain line runs along Willow. These lines join at the intersection and join into a 48-inch line which flows west to a detention basin.

The City's solid waste collection services are provided by Clovis Public Utilities Department, Solid Waste Division. Solid waste would be deposited at the City of Clovis Landfill, 15679 Auberry Road, Clovis CA, 93619.

a, e) Wastewater Systems.

All wastewater generated by the proposed project would be discharged into the local sewer main and conveyed for treatment at the FCRWTF. Wastewater flows generated by the project would consist of typical commercial and residential wastewater discharges and no modifications to any existing wastewater treatment systems or construction of any new ones would be needed to treat this project's wastewater.

According to the Clovis Wastewater Collection System Master Plan (CWCSMP, 2008), the planned medium high density residential development would generate wastewater at a rate of 0.008841 mgd. The commercial activities (gas station, convenience store, fast food restaurants) would generate approximately 0.005474 mgd.

The project also proposes to install an automated car wash. According to information from the automated car wash company, it is estimated that the proposed car wash would use approximately 40 gallons of water per vehicle. Assuming a total of 100 vehicles per day, daily water use would be 4,000 gallons. This is typical of car washes with reclaim systems (Brown 2002). Of this total, approximately 80% would be reclaimed for re-use by the car wash, so 9-10 gallons of fresh water per vehicle would be used for the reverse osmosis system to ensure "spot-free" car washing. About 3-4 gallons per vehicle would be discharged to the sewer system, which would be 300-400 gpd, or 0.0003-0.0004 mgd. The remaining water would be lost to evaporation and vehicle carryout.

If an assumption is made that the wastewater discharged by the car wash is in addition to the wastewater generated by the overall commercial and residential development, then estimated wastewater generated by the project's proposed amenities is approximately 0.014715 mgd.

The FCRWTF currently processes approximately 55.91 million gallons per day (mgd) of wastewater on average and has a treatment capacity of 80 mgd (pers. comm. Rob Rush). The FCRWTF currently has approximately 24 mgd of capacity to serve additional development.

The project's wastewater output is within the treatment plant's total treatment capacity. The project will be responsible for a fair-share contribution toward maintaining City wastewater collection and treatment services.

Level of Significance: Potentially significant

Mitigation Measures:

UTIL-1: The ODS shall contribute to City wastewater fees in the amount of its fair-share cost, as determined by the City.

Significance After Mitigation: Less than significant

b, d) Water Systems and Supply.

The City relies on both surface and groundwater for its supplies. Existing water transmission mains near the project include 12-inch mains located in Alluvial and Willow Avenues. Collectively, these facilities convey water from existing groundwater wells. The project is within the Kings River service area for the Fresno Irrigation District (FID), therefore the Project also has access to Kings River water as a supply source.

The Clovis Water Master Plan Update (1995) assigns a water usage factor for medium high density residential development at 5.1 acre-feet per acre per year and a water usage factor for commercial development of 2.4 acre-feet per acre per year. Based on 3.94 acres of residential development and 3.91 acres of commercial development, total water usage on the project site would be approximately 29.5 acre-feet per year. Based on the figures found in a) above, the automated car wash would use an estimated 1.12 acre-feet per year. If the assumption is made that the water usage of the car wash is in addition to the water usage of the overall commercial development, then the project would generate a demand of approximately 30.6 acre-feet of water per year.

As of 2016, the City had 42,610 acre-feet of water per year available by right or from safe yield. With 2016 water demand of 21,116 acre-feet per year deducted, the City had 21,494 acre-feet of water available in 2016 to serve additional development (pers. comm. Rob Rush). The City would have sufficient existing water supply to accommodate project water needs.

However, the project will require a land use designation different than anticipated by the City's General Plan. The anticipated rezoning from low density residential to medium-high density residential/neighborhood commercial will result in additional water demand and a potential future supply shortfall of 7.2 AFY. Since the entirety of the project is within the FID service area, water from the Kings River is available to offset the anticipated annual demand; however, the project must pay fees to acquire additional water supply.

Level of Significance: Potentially significant

Mitigation Measures:

UTIL-2: The ODS shall contribute water supply fees, to be determined by the City, to make up for the water supply shortfall created by rezoning the project site.

Significance After Mitigation: Less than significant

c) Stormwater Systems.

There are no existing impervious surfaces on the project site, which is currently undeveloped land with light ruderal vegetation. The project would include post construction storm water BMPs such as landscaping designed to minimize runoff. Storm water from the site would be directed through the existing storm drain system to a detention basin maintained by the FMFCD. Storm drainage at the site is designed for medium density residential land use. Per FMFCD, the site would be required to mitigate the higher runoff volume from the proposed commercial and medium-high density uses, storing the equivalent of a 10-year storm event and releasing it at a rate no higher than the volume of a 2-year storm event from a medium density residential land use (pers. comm. Michael Maxwell). Implementation of Mitigation Measure HYDRO-4 would reduce the impacts to a less than significant level.

f, g) Solid Waste Services.

The construction of the project would incur some solid waste disposal needs as part of the construction process. However, the construction impacts would be temporary, occurring only during construction activities, and would not have a significant impact on the capacity of the applicable landfill. All material for disposal resulting from the Project's construction activities would be disposed of in compliance with federal, state, and local statutes and regulations.

The completed project would generate a demand for solid waste services. Clovis Landfill has a remaining capacity of 6.73 million cubic yards (pers. comm. Rob Rush). Due to the availability of landfill capacity and the relatively nominal amount of solid waste generation from the proposed project, the project's solid waste disposal needs can be adequately met without a significant impact on the capacity of the nearest landfill. Therefore, it is not expected that the proposed project would impact the City's compliance with state-mandated (AB 939) waste diversion requirements. Impacts would be less than significant.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to 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, 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?	√		

NARRATIVE DISCUSSION

a) Findings on Biological and Cultural Resources.

The project's potential biological and cultural resource impacts were described in Sections 3.4 and 3.5, respectively. Potentially significant environmental effects were identified in these issue areas, but all of the potentially significant effects would be reduced to a less than significant level with mitigation measures that would be incorporated into the project.

b) Findings on Individually Limited but Cumulatively Considerable Impacts.

As described in this Initial Study, the potential environmental effects of the project would either be less than significant, or the project would have no impact at all, when compared to the baseline. Where the project involves potentially significant effects, these effects would be reduced to a less than significant level with proposed mitigation measures and compliance with required permits and applicable regulations.

The potential environmental effects identified in this Initial Study have been considered in conjunction with each other as to their potential to generate other potentially significant effects. The various potential environmental effects of the project would not combine to generate any potentially significant cumulative effects, except for traffic.

The traffic impact study for the project (see Appendix E) analyzed the potential cumulative impacts of the project on traffic conditions in the Clovis area, both with and without the project. An analysis of the cumulative traffic impacts of the project is provided below.

Cumulative No Project

Cumulative No Project conditions represent a long-term future background condition without development of the proposed project. It is based on development of land uses and roadway improvements associated with the City of Clovis General Plan in 2035. For this condition, the traffic impact study assumed roadway improvements for near-term future EPAP conditions, plus an added third southbound exclusive through lane at both the intersection of N. Willow Avenue and Spruce Avenue and the intersection of N. Willow Avenue and Herndon Avenue.

The traffic impact study evaluated cumulative traffic conditions at the study intersections during both morning and evening peak hours for traffic. Table 3-9 below presents LOS under cumulative conditions at the study intersections without the project. Under Cumulative No Project conditions, LOS at three of the four study intersections would operate at acceptable LOS conditions during both morning and evening peak hours. The exception is the intersection of N. Willow Avenue and Alluvial Avenue, which would operate at LOS F during the evening peak hour. Mitigation Measure CUMUL-1, described below, would improve cumulative LOS at this intersection during the evening peak hour to D, the minimally acceptable LOS. This would reduce impacts at the intersection under Cumulative No Project conditions to a level that would be less than significant.

Vehicle queueing also was evaluated at the four study intersections under Cumulative No Project conditions. The traffic impact study found that queueing at two of the four study intersections would be acceptable. Queueing at the intersection of N. Willow Avenue and Alluvial Avenue would exceed the existing length of the eastbound-to-southbound right-turn lane and the northbound-to-westbound left-turn lane. Queueing at the intersection of N. Willow Avenue and Alluvial Avenue would exceed the existing length of the eastbound-to-northbound left-turn lane, the eastbound-to-southbound right-turn lane, and the southbound-to-eastbound left-turn lane. Queueing at the intersection of N. Willow Avenue and Herndon Avenue would exceed the existing length of the eastbound-to-southbound right-turn lane and the northbound-to-westbound left-turn lane. Mitigation Measure CUMUL-2, described below, would provide adequate vehicle storage at these lanes, thereby reducing impacts to a level that would be less than significant.

Cumulative Plus Project

Cumulative Plus Project conditions represent a long-term future background condition with development of the proposed project. This condition uses the same assumptions that were used for the Cumulative No Project condition. Both morning and evening peak hours for traffic were analyzed.

TABLE 3-9
CUMULATIVE TRAFFIC CONDITIONS AT INTERSECTIONS

Intersection	**Intersection Control**	**Cumulative No Project LOS**		**Cumulative Plus Project LOS**	
		AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
N. Chestnut Ave. & Alluvial Ave.	Signal	C	C	C	C
N. Willow Ave. & Alluvial Ave. *With Mitigation Measure*	Signal	D *C*	**F** *D*	D *D*	**F** *D*
N. Willow Ave. & Spruce Ave.	Signal	B	C	B	C
N. Willow Ave. & Herndon Ave.	Signal	D	D	D	D
N. Willow Ave. & W. Parcel A Access	Unsignalized	N/A	N/A	A	A
Alluvial Ave. & S. Parcel A Access	Unsignalized	N/A	N/A	A	A
Allluvial Ave. & Parcel B Access	Unsignalized	N/A	N/A	A	A

Bold indicates unacceptable LOS.
Source: KD Anderson and Associates 2017.

Table 3-9 also presents LOS under cumulative conditions at the study intersections with the project. Under Cumulative Plus Project conditions, LOS at six of the seven study intersections would operate at acceptable LOS conditions during both morning and evening peak hours. The exception is the intersection of N. Willow Avenue and Alluvial Avenue, which would operate at LOS F during the evening peak hour. Mitigation Measure CUMUL-1, described below, would improve cumulative LOS at this intersection during the evening peak hour to D, the minimally acceptable LOS. This would reduce impacts at the intersection under Cumulative Plus Project conditions to a level that would be less than significant. This is the same mitigation measure that would be applied under Cumulative No Project conditions.

Vehicle queueing also was evaluated at the four study intersections evaluated under Cumulative No Project conditions. The traffic impact study found that queueing at two of the four study intersections would be acceptable. Queueing at the intersection of N. Willow Avenue and Alluvial Avenue would exceed the existing length of the eastbound-to-northbound left-turn lane and the eastbound-to-southbound right-turn lane - the same lanes affected under Cumulative No Project conditions. However, the southbound-to-eastbound left-turn lane would be more greatly impacted under Cumulative Plus Project conditions. Queueing at the intersection of N. Willow Avenue and Herndon Avenue would exceed the existing length of the eastbound-to-southbound right-turn lane and the northbound-to-westbound left-turn lane - the same lanes affected under Cumulative No Project conditions. Mitigation Measure CUMUL-2, prescribed for Cumulative No Project impacts, would provide adequate vehicle storage at most of these lanes, while Mitigation Measure CUMUL-3 would minimize impacts at the southbound-to-eastbound left-turn

lane the intersection of N. Willow Avenue and Alluvial Avenue under Cumulative Plus Project conditions, thereby reducing impacts to a level that would be less than significant.

Mitigation Measures

CUMUL-1: The project shall contribute its fair-share cost, to be determined by the City, to the following intersection improvement:

- Addition of a northbound exclusive through lane and a southbound exclusive through lane at the intersection of N. Willow Avenue and Alluvial Avenue.

CUMUL-2: The project shall contribute its fair-share cost, to be determined by the City, to the following intersection improvements:

- Lengthening the eastbound-to-northbound left-turn lane to accommodate a 213 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue.

- Lengthening the eastbound-to-southbound right-turn lane to accommodate a 227 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue.

Note: While the above mitigations are recommended in the traffic study, the City of Clovis is presently making improvements to N. Willow, including curb, gutter and sidewalks. The City has also installed curb and gutter along Alluvial Avenue, so the project will not be directly responsible for these improvements.

CUMUL-3: The project shall construct, or pay full cost to the City, for the following intersection improvement, to be constructed at a time determined by the City:

- Lengthening the southbound-to-eastbound left-turn lane to accommodate a 423 feet vehicle queue at the intersection of N. Willow Avenue and Alluvial Avenue.

Note: While the above mitigation is recommended in the traffic study, the recommended improvement is located within the City of Fresno. After discussion with the City of Fresno, the City of Clovis will not require this as a mitigation measure.

c) Findings on Adverse Effects on Human Beings.

Potential adverse effects on human beings were discussed in Section C(6), Geology and Soils (seismic hazards); Section C(8), Hazards and Hazardous Materials; Section C(9), Hydrology and Water Quality (flooding); and Section C(16), Transportation/Traffic (traffic hazards). Potential adverse effects on human beings were identified in the

Geology and Soils and Transportation/Traffic sections. Mitigation measures described in these sections would reduce impacts to a level that would be less than significant.

3.19 EARLIER ANALYSIS

Earlier analyses may be used where, pursuant to tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or Initial Study/Negative Declaration [Section 15063(c)(3)(d) of the State CEQA Guidelines]. The previously-certified or adopted environmental document(s) and any applicable adopted mitigation measures, CEQA "findings", Statements of Overriding Considerations, and mitigation monitoring/reporting programs are incorporated by reference, as cited below, and discussed on attached sheet(s) to identify the following:

Earlier Analysis Used - Identify earlier analyses that adequately address project impacts and that are available for review at the City of Clovis Community Development Department, Planning Division, 345 N. El Dorado Street, Stockton CA:

Final EIR File No.: 4-05 EIR, Clovis General Plan 2014, August 25, 2014
State Clearinghouse No.: SCH#2012061069

Impacts Adequately Addressed - Identify which effects from the above checklist (Section C) were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards: See C(18) Cumulative Impacts.

Mitigation Measures - For effects that are "Less Than Significant With Mitigation Incorporated," specify whether any applicable mitigation measures are incorporated or refined from the earlier document to address site-specific conditions for the project: No mitigation measures have been brought forward from the earlier document.

(d) CEQA Findings, Statements of Overriding Considerations, and Mitigation Monitoring/Reporting Programs - Indicate whether applicable previously adopted CEQA Findings, Overriding Considerations, and Mitigation Monitoring Provisions have been relied upon and incorporated into the proposed project, pursuant to Sections 15150 (incorporation by reference) and 15152(F)(3) (Tiering) of the State CEQA Guidelines: This analysis does not rely on previous findings or Statements of Overriding Considerations.

ENVIRONMENTAL ISSUE	Adequately Addressed in Earlier Analysis	Earlier Mitigation/ Findings/Monitoring Incorporated	N/A
1. Aesthetics			√
2. Agricultural and Forestry Resources			√
3. Air Quality (cumulative)	√		
4. Biological Resources			√

5. Cultural Resources			√
6. Geology and Soils			√
7. Greenhouse Gas Emissions			√
8. Hazards and Hazardous Materials			√
9. Hydrology and Water Quality			√
10. Land Use			√
11. Mineral Resources			√
12. Noise			√
13. Population and Housing			√
14. Public Services			√
15. Recreation			√
16. Transportation/Traffic			√
17. Mandatory Findings of Significance			√

3.20 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact" prior to mitigation), as indicated in the preceding Checklist (Section C) and the Earlier Analysis (Section 3.19):

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

4.0 REFERENCES

4.1 DOCUMENT PREPARERS

This IS/MND was prepared by BaseCamp Environmental for use by and under the supervision of the City of Clovis. The following persons were involved in preparation of the IS/MND:

BaseCamp Environmental

Charlie Simpson
Amy Gartin
Faith Dunham
Terry Farmer
Krista Simpson

Bole and Associates (Appendix A Biology)

Marcus H. Bole

Solano Archaeological Services (Appendix B Cultural Resources Study)

Jason Coleman

Applied Earth Works (Appendix B Cultural Resources Study)

Mary Baloian, Ph.D., RPA

Bollard and Brennan (Appendix C Noise)

Paul Bollard

KD Anderson and Associates (Appendix D Traffic)

Ken Anderson

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PERSONS CONSULTED

Eric Aller, Parks Manager, City of Clovis. March 22, 2017.

Gary Sawhill, Deputy Fire Marshal, Clovis Fire Department. March 21, 2017.

James Boldt, Police Sergeant, Clovis Police Department. March 22, 2017.

Jon Tenorio, Senior Analyst, Development & Boundary Analysis, Clovis Unified School District. March 22, 2017.

Joseph Draper, Staff Analyst, Environmental Department, Fresno Metropolitan Flood Control District. March 15, 2017.

Julio Tinajero, Milestone Associates Imagineering, Inc.

Michael Maxwell, Engineering Technician, Fresno Metropolitan Flood Control District, March 27, 2017.

Rob Rush, Utilities Manager, Clovis Public Utilities Department. March 15, 2017

5.0 NOTES RELATED TO EVALUATION OF ENVIRONMENTAL IMPACTS IN A CEQA INITIAL STUDY

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 referenced 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 is 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.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) The checklist in CEQA Guidelines Appendix G is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

APPENDIX A
AIR QUALITY MODELING RESULTS

Clovis AM PM

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Fast Food Restaurant with Drive Thru	5.96	1000sqft	2.60	5,962.00	0
Gasoline/Service Station	16.00	Pump	1.31	3,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per site plan.

Construction Phase - No demolition work.

Architectural Coating - Per SJVAPCD rule.

Vehicle Trips - Per ITE Trip Generation Manual.

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - Per standard figures used in traffic studies.

Area Coating - Per SJVAPCD rule.

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	4,863.00	5,187.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	14,589.00	15,560.00
tblArchitecturalCoating	ConstArea_Parking	0.00	4,344.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	50.00
tblArchitecturalCoating	EF_Parking	150.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	50
tblAreaCoating	Area_EF_Nonresidential_Interior	150	50
tblAreaCoating	Area_EF_Parking	150	50
tblAreaCoating	Area_Nonresidential_Exterior	4863	5188
tblAreaCoating	Area_Nonresidential_Interior	14589	15563
tblAreaCoating	Area_Parking	0	4344
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	18.00	10.00

tblConstructionPhase	NumDays	230.00	180.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	18.00	5.00
tblFleetMix	FleetMixLandUseSubType	Gasoline/Service Station	Fast Food Restaurant with Drive Thru
tblFleetMix	HHD	0.12	0.04
tblFleetMix	LDA	0.48	0.61
tblFleetMix	LDT1	0.03	0.03
tblFleetMix	LDT2	0.17	0.15
tblFleetMix	LHD1	0.02	8.7100e-003
tblFleetMix	LHD2	5.2900e-003	0.02
tblFleetMix	MCY	5.3770e-003	6.4860e-003
tblFleetMix	MDV	0.13	0.12
tblFleetMix	MH	7.1000e-004	7.1400e-004
tblFleetMix	MHD	0.03	1.3000e-003
tblFleetMix	OBUS	2.3740e-003	2.3770e-003
tblFleetMix	SBUS	1.1340e-003	1.6160e-003
tblFleetMix	UBUS	1.7570e-003	2.3470e-003
tblLandUse	BuildingSpaceSquareFeet	5,960.00	5,962.00
tblLandUse	BuildingSpaceSquareFeet	2,258.80	3,764.00
tblLandUse	LandUseSquareFeet	5,960.00	5,962.00
tblLandUse	LandUseSquareFeet	2,258.80	3,764.00
tblLandUse	LotAcreage	0.14	2.60
tblLandUse	LotAcreage	0.05	1.31
tblProjectCharacteristics	OperationalYear	2018	2019
tblVehicleTrips	ST_TR	168.56	204.47
tblVehicleTrips	SU_TR	168.56	166.88
tblVehicleTrips	WD_TR	168.56	152.84

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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2018	0.3014	2.4222	1.7681	2.7900e-003	0.0767	0.1507	0.2274	0.0398	0.1414	0.1812	0.0000	247.8124	247.8124	0.0607	0.0000	249.3292
Maximum	**0.3014**	**2.4222**	**1.7681**	**2.7900e-003**	**0.0767**	**0.1507**	**0.2274**	**0.0398**	**0.1414**	**0.1812**	**0.0000**	**247.8124**	**247.8124**	**0.0607**	**0.0000**	**249.3292**

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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2018	0.3014	2.4222	1.7681	2.7900e-003	0.0375	0.1507	0.1882	0.0187	0.1414	0.1601	0.0000	247.8121	247.8121	0.0607	0.0000	249.3289
Maximum	**0.3014**	**2.4222**	**1.7681**	**2.7900e-003**	**0.0375**	**0.1507**	**0.1882**	**0.0187**	**0.1414**	**0.1601**	**0.0000**	**247.8121**	**247.8121**	**0.0607**	**0.0000**	**249.3289**

	ROG	NOx	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**	**51.17**	**0.00**	**17.26**	**53.01**	**0.00**	**11.62**	**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)
5	**1-19-2018**	**4-18-2018**	0.5591	0.5591
6	**4-19-2018**	**7-18-2018**	0.8579	0.8579
7	**7-19-2018**	**9-30-2018**	0.6977	0.6977
		Highest	0.8579	0.8579

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0409	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004
Energy	7.2000e-003	0.0654	0.0550	3.9000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	132.1340	132.1340	4.1200e-003	1.8800e-003	132.7958
Mobile	1.6632	6.5316	11.0671	0.0260	1.6834	0.0268	1.7102	0.4510	0.0252	0.4762	0.0000	2,386.5953	2,386.5953	0.3392	0.0000	2,395.0750
Waste						0.0000	0.0000		0.0000	0.0000	15.6851	0.0000	15.6851	0.9270	0.0000	38.8592
Water						0.0000	0.0000		0.0000	0.0000	0.6414	3.4324	4.0737	0.0660	1.5900e-003	6.1975
Total	**1.7113**	**6.5970**	**11.1223**	**0.0264**	**1.6834**	**0.0318**	**1.7152**	**0.4510**	**0.0302**	**0.4811**	**16.3265**	**2,522.1620**	**2,538.4885**	**1.3363**	**3.4700e-003**	**2,572.9280**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0409	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004
Energy	7.2000e-003	0.0654	0.0550	3.9000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	132.1340	132.1340	4.1200e-003	1.8800e-003	132.7958
Mobile	1.5184	5.3541	7.6416	0.0132	0.5774	0.0150	0.5924	0.1547	0.0140	0.1687	0.0000	1,218.0868	1,218.0868	0.2943	0.0000	1,225.4451
Waste						0.0000	0.0000		0.0000	0.0000	3.9213	0.0000	3.9213	0.2317	0.0000	9.7148
Water						0.0000	0.0000		0.0000	0.0000	0.5131	2.7459	3.2590	0.0528	1.2700e-003	4.9580
Total	**1.5666**	**5.4195**	**7.6967**	**0.0136**	**0.5774**	**0.0199**	**0.5973**	**0.1547**	**0.0190**	**0.1737**	**4.4344**	**1,352.9671**	**1,357.4014**	**0.5830**	**3.1500e-003**	**1,372.9142**

	ROG	NOx	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	**8.46**	**17.85**	**30.80**	**48.37**	**65.70**	**37.31**	**65.17**	**65.70**	**37.06**	**63.90**	**72.84**	**46.36**	**46.53**	**56.37**	**9.22**	**46.64**

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	1/19/2017	1/18/2017	5	0	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	3/19/2018	5	8	
4	Building Construction	Building Construction	3/20/2018	11/26/2018	5	180	
5	Paving	Paving	11/27/2018	12/3/2018	5	5	
6	Architectural Coating	Architectural Coating	12/4/2018	12/17/2018	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 15,560; Non-Residential Outdoor: 5,187; Striped Parking Area: 4,344 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	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
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
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
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	4.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	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

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

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

3.2 Demolition - 2017

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.2 Demolition - 2017

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.1205	0.0562	1.0000e-004		6.4400e-003	6.4400e-003		5.9300e-003	5.9300e-003	0.0000	8.6900	8.6900	2.7100e-003	0.0000	8.7576
Total	**0.0114**	**0.1205**	**0.0562**	**1.0000e-004**	**0.0452**	**6.4400e-003**	**0.0516**	**0.0248**	**5.9300e-003**	**0.0308**	**0.0000**	**8.6900**	**8.6900**	**2.7100e-003**	**0.0000**	**8.7576**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.5900e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3312	0.3312	1.0000e-005	0.0000	0.3314
Total	**2.4000e-004**	**1.6000e-004**	**1.5900e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3312**	**0.3312**	**1.0000e-005**	**0.0000**	**0.3314**

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					0.0203	0.0000	0.0203	0.0112	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.1205	0.0562	1.0000e-004		6.4400e-003	6.4400e-003		5.9300e-003	5.9300e-003	0.0000	8.6900	8.6900	2.7100e-003	0.0000	8.7576
Total	**0.0114**	**0.1205**	**0.0562**	**1.0000e-004**	**0.0203**	**6.4400e-003**	**0.0268**	**0.0112**	**5.9300e-003**	**0.0171**	**0.0000**	**8.6900**	**8.6900**	**2.7100e-003**	**0.0000**	**8.7576**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.5900e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3312	0.3312	1.0000e-005	0.0000	0.3314
Total	**2.4000e-004**	**1.6000e-004**	**1.5900e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3312**	**0.3312**	**1.0000e-005**	**0.0000**	**0.3314**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1227	0.0663	1.2000e-004		6.2100e-003	6.2100e-003		5.7100e-003	5.7100e-003	0.0000	10.8428	10.8428	3.3800e-003	0.0000	10.9271
Total	**0.0111**	**0.1227**	**0.0663**	**1.2000e-004**	**0.0262**	**6.2100e-003**	**0.0324**	**0.0135**	**5.7100e-003**	**0.0192**	**0.0000**	**10.8428**	**10.8428**	**3.3800e-003**	**0.0000**	**10.9271**

3.4 Grading - 2018

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	3.1000e-004	2.1000e-004	2.1200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4415	0.4415	1.0000e-005	0.0000	0.4419
Total	**3.1000e-004**	**2.1000e-004**	**2.1200e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4415**	**0.4415**	**1.0000e-005**	**0.0000**	**0.4419**

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					0.0118	0.0000	0.0118	6.0600e-003	0.0000	6.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1227	0.0663	1.2000e-004		6.2100e-003	6.2100e-003		5.7100e-003	5.7100e-003	0.0000	10.8427	10.8427	3.3800e-003	0.0000	10.9271
Total	**0.0111**	**0.1227**	**0.0663**	**1.2000e-004**	**0.0118**	**6.2100e-003**	**0.0180**	**6.0600e-003**	**5.7100e-003**	**0.0118**	**0.0000**	**10.8427**	**10.8427**	**3.3800e-003**	**0.0000**	**10.9271**

3.4 Grading - 2018

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	3.1000e-004	2.1000e-004	2.1200e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4415	0.4415	1.0000e-005	0.0000	0.4419
Total	**3.1000e-004**	**2.1000e-004**	**2.1200e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4415**	**0.4415**	**1.0000e-005**	**0.0000**	**0.4419**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2412	2.1051	1.5822	2.4200e-003		0.1350	0.1350		0.1269	0.1269	0.0000	213.9905	213.9905	0.0524	0.0000	215.3012
Total	**0.2412**	**2.1051**	**1.5822**	**2.4200e-003**		**0.1350**	**0.1350**		**0.1269**	**0.1269**	**0.0000**	**213.9905**	**213.9905**	**0.0524**	**0.0000**	**215.3012**

3.5 Building Construction - 2018

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	9.3000e-004	0.0257	4.6500e-003	5.0000e-005	1.1900e-003	2.1000e-004	1.4000e-003	3.4000e-004	2.0000e-004	5.4000e-004	0.0000	4.9390	4.9390	6.3000e-004	0.0000	4.9548
Worker	1.8800e-003	1.2800e-003	0.0127	3.0000e-005	2.8800e-003	2.0000e-005	2.9000e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.6492	2.6492	9.0000e-005	0.0000	2.6514
Total	**2.8100e-003**	**0.0270**	**0.0174**	**8.0000e-005**	**4.0700e-003**	**2.3000e-004**	**4.3000e-003**	**1.1000e-003**	**2.2000e-004**	**1.3200e-003**	**0.0000**	**7.5882**	**7.5882**	**7.2000e-004**	**0.0000**	**7.6062**

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	0.2412	2.1051	1.5822	2.4200e-003		0.1350	0.1350		0.1269	0.1269	0.0000	213.9903	213.9903	0.0524	0.0000	215.3009
Total	**0.2412**	**2.1051**	**1.5822**	**2.4200e-003**		**0.1350**	**0.1350**		**0.1269**	**0.1269**	**0.0000**	**213.9903**	**213.9903**	**0.0524**	**0.0000**	**215.3009**

3.5 Building Construction - 2018

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	9.3000e-004	0.0257	4.6500e-003	5.0000e-005	1.1900e-003	2.1000e-004	1.4000e-003	3.4000e-004	2.0000e-004	5.4000e-004	0.0000	4.9390	4.9390	6.3000e-004	0.0000	4.9548
Worker	1.8800e-003	1.2800e-003	0.0127	3.0000e-005	2.8800e-003	2.0000e-005	2.9000e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.6492	2.6492	9.0000e-005	0.0000	2.6514
Total	**2.8100e-003**	**0.0270**	**0.0174**	**8.0000e-005**	**4.0700e-003**	**2.3000e-004**	**4.3000e-003**	**1.1000e-003**	**2.2000e-004**	**1.3200e-003**	**0.0000**	**7.5882**	**7.5882**	**7.2000e-004**	**0.0000**	**7.6062**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5600e-003	0.0363	0.0311	5.0000e-005		2.0900e-003	2.0900e-003		1.9300e-003	1.9300e-003	0.0000	4.2469	4.2469	1.2900e-003	0.0000	4.2790
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5600e-003**	**0.0363**	**0.0311**	**5.0000e-005**		**2.0900e-003**	**2.0900e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**4.2469**	**4.2469**	**1.2900e-003**	**0.0000**	**4.2790**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.8000e-004	1.7700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3679	0.3679	1.0000e-005	0.0000	0.3683
Total	**2.6000e-004**	**1.8000e-004**	**1.7700e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3679**	**0.3679**	**1.0000e-005**	**0.0000**	**0.3683**

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	3.5600e-003	0.0363	0.0311	5.0000e-005		2.0900e-003	2.0900e-003		1.9300e-003	1.9300e-003	0.0000	4.2469	4.2469	1.2900e-003	0.0000	4.2790
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5600e-003**	**0.0363**	**0.0311**	**5.0000e-005**		**2.0900e-003**	**2.0900e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**4.2469**	**4.2469**	**1.2900e-003**	**0.0000**	**4.2790**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.8000e-004	1.7700e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3679	0.3679	1.0000e-005	0.0000	0.3683
Total	**2.6000e-004**	**1.8000e-004**	**1.7700e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3679**	**0.3679**	**1.0000e-005**	**0.0000**	**0.3683**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0291					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2797
Total	**0.0306**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2797**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.8000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0368	0.0368	0.0000	0.0000	0.0368
Total	**3.0000e-005**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0368**	**0.0368**	**0.0000**	**0.0000**	**0.0368**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0291					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4900e-003	0.0100	9.2700e-003	1.0000e-005		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	1.2766	1.2766	1.2000e-004	0.0000	1.2797
Total	**0.0306**	**0.0100**	**9.2700e-003**	**1.0000e-005**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.2000e-004**	**0.0000**	**1.2797**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.8000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0368	0.0368	0.0000	0.0000	0.0368
Total	**3.0000e-005**	**2.0000e-005**	**1.8000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0368**	**0.0368**	**0.0000**	**0.0000**	**0.0368**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5184	5.3541	7.6416	0.0132	0.5774	0.0150	0.5924	0.1547	0.0140	0.1687	0.0000	1,218.0868	1,218.0868	0.2943	0.0000	1,225.4451
Unmitigated	1.6632	6.5316	11.0671	0.0260	1.6834	0.0268	1.7102	0.4510	0.0252	0.4762	0.0000	2,386.5953	2,386.5953	0.3392	0.0000	2,395.0750

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	2,956.88	4,303.30	3234.61	2,979,467	1,021,957
Gasoline/Service Station	2,445.44	3,271.52	2670.08	1,495,470	512,946
Total	5,402.32	7,574.82	5,904.69	4,474,937	1,534,903

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant with Drive	9.50	7.30	7.30	2.20	78.80	19.00	29	21	50
Gasoline/Service Station	9.50	7.30	7.30	2.00	79.00	19.00	14	27	59

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Gasoline/Service Station	0.613679	0.031816	0.154973	0.120992	0.008710	0.018915	0.001300	0.036075	0.002377	0.002347	0.006486	0.001616	0.000714
Fast Food Restaurant with Drive Thru	0.613679	0.031816	0.154973	0.120992	0.008710	0.018915	0.001300	0.036075	0.002377	0.002347	0.006486	0.001616	0.000714

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	60.9225	60.9225	2.7500e-003	5.7000e-004	61.1612
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.9225	60.9225	2.7500e-003	5.7000e-004	61.1612
NaturalGas Mitigated	7.2000e-003	0.0654	0.0550	3.9000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	71.2115	71.2115	1.3600e-003	1.3100e-003	71.6347
NaturalGas Unmitigated	7.2000e-003	0.0654	0.0550	3.9000e-004		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	71.2115	71.2115	1.3600e-003	1.3100e-003	71.6347

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with Drive Thru	1.2556e+006	6.7700e-003	0.0616	0.0517	3.7000e-004		4.6800e-003	4.6800e-003		4.6800e-003	4.6800e-003	0.0000	67.0035	67.0035	1.2800e-003	1.2300e-003	67.4016
Gasoline/Service Station	78855.8	4.3000e-004	3.8700e-003	3.2500e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.2081	4.2081	8.0000e-005	8.0000e-005	4.2331
Total		**7.2000e-003**	**0.0654**	**0.0550**	**3.9000e-004**		**4.9700e-003**	**4.9700e-003**		**4.9700e-003**	**4.9700e-003**	**0.0000**	**71.2115**	**71.2115**	**1.3600e-003**	**1.3100e-003**	**71.6347**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with Drive Thru	1.2556e+006	6.7700e-003	0.0616	0.0517	3.7000e-004		4.6800e-003	4.6800e-003		4.6800e-003	4.6800e-003	0.0000	67.0035	67.0035	1.2800e-003	1.2300e-003	67.4016
Gasoline/Service Station	78855.8	4.3000e-004	3.8700e-003	3.2500e-003	2.0000e-005		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	4.2081	4.2081	8.0000e-005	8.0000e-005	4.2331
Total		**7.2000e-003**	**0.0654**	**0.0550**	**3.9000e-004**		**4.9700e-003**	**4.9700e-003**		**4.9700e-003**	**4.9700e-003**	**0.0000**	**71.2115**	**71.2115**	**1.3600e-003**	**1.3100e-003**	**71.6347**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	175581	51.0785	2.3100e-003	4.8000e-004	51.2786
Gasoline/Service Station	33838.4	9.8440	4.5000e-004	9.0000e-005	9.8825
Total		**60.9225**	**2.7600e-003**	**5.7000e-004**	**61.1612**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	175581	51.0785	2.3100e-003	4.8000e-004	51.2786
Gasoline/Service Station	33838.4	9.8440	4.5000e-004	9.0000e-005	9.8825
Total		**60.9225**	**2.7600e-003**	**5.7000e-004**	**61.1612**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0409	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004
Unmitigated	0.0409	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004
Total	**0.0409**	**0.0000**	**2.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.9000e-004**	**3.9000e-004**	**0.0000**	**0.0000**	**4.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.9000e-004	3.9000e-004	0.0000	0.0000	4.2000e-004
Total	**0.0409**	**0.0000**	**2.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.9000e-004**	**3.9000e-004**	**0.0000**	**0.0000**	**4.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.2590	0.0528	1.2700e-003	4.9580
Unmitigated	4.0737	0.0660	1.5900e-003	6.1975

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	1.80906 / 0.115472	3.5392	0.0591	1.4200e-003	5.4393
Gasoline/Service Station	0.21251 / 0.130248	0.5346	6.9500e-003	1.7000e-004	0.7582
Total		**4.0737**	**0.0660**	**1.5900e-003**	**6.1975**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	1.44725 / 0.0923776	2.8314	0.0473	1.1400e-003	4.3514
Gasoline/Service Station	0.170008 / 0.104199	0.4276	5.5600e-003	1.3000e-004	0.6066
Total		**3.2590**	**0.0528**	**1.2700e-003**	**4.9580**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.9213	0.2317	0.0000	9.7148
Unmitigated	15.6851	0.9270	0.0000	38.8592

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	68.65	13.9353	0.8236	0.0000	34.5242
Gasoline/Service Station	8.62	1.7498	0.1034	0.0000	4.3350
Total		**15.6851**	**0.9270**	**0.0000**	**38.8592**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	17.1625	3.4838	0.2059	0.0000	8.6311
Gasoline/Service Station	2.155	0.4375	0.0259	0.0000	1.0838
Total		**3.9213**	**0.2317**	**0.0000**	**9.7148**

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

Clovis Apartments

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	48.00	Dwelling Unit	3.94	48,000.00	137

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per site plan.

Construction Phase - No demolition work.

Architectural Coating - Per SJVAPCD rule.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Per SJVAPCD rule.

Construction Off-road Equipment Mitigation -

Water Mitigation -

Waste Mitigation -

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Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Parking	0.00	3,360.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	32,400.00	37,800.00
tblArchitecturalCoating	ConstArea_Residential_Interior	97,200.00	113,400.00
tblArchitecturalCoating	EF_Parking	150.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	50.00
tblAreaCoating	Area_EF_Parking	150	50
tblAreaCoating	Area_EF_Residential_Exterior	150	50
tblAreaCoating	Area_EF_Residential_Interior	150	50
tblAreaCoating	Area_Parking	0	3360
tblAreaCoating	Area_Residential_Exterior	32400	37800
tblAreaCoating	Area_Residential_Interior	97200	113400
tblAreaMitigation	UseLowVOCPaintParkingValue	50	100
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	18.00	5.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LotAcreage	3.00	3.94
tblProjectCharacteristics	OperationalYear	2018	2019
tblWoodstoves	NumberCatalytic	3.94	3.50
tblWoodstoves	NumberNoncatalytic	3.94	3.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2019	0.5001	2.7907	2.2870	3.8800e-003	0.1091	0.1637	0.2728	0.0484	0.1537	0.2021	0.0000	341.9893	341.9893	0.0763	0.0000	343.8970
Maximum	**0.5001**	**2.7907**	**2.2870**	**3.8800e-003**	**0.1091**	**0.1637**	**0.2728**	**0.0484**	**0.1537**	**0.2021**	**0.0000**	**341.9893**	**341.9893**	**0.0763**	**0.0000**	**343.8970**

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					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2019	0.5001	2.7907	2.2870	3.8800e-003	0.0699	0.1637	0.2335	0.0274	0.1537	0.1810	0.0000	341.9889	341.9889	0.0763	0.0000	343.8966
Maximum	**0.5001**	**2.7907**	**2.2870**	**3.8800e-003**	**0.0699**	**0.1637**	**0.2335**	**0.0274**	**0.1537**	**0.1810**	**0.0000**	**341.9889**	**341.9889**	**0.0763**	**0.0000**	**343.8966**

	ROG	NOx	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**	**35.98**	**0.00**	**14.39**	**43.50**	**0.00**	**10.42**	**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)
8	10-19-2018	1-18-2019	0.0894	0.0894
9	1-19-2019	4-18-2019	0.9497	0.9497
10	4-19-2019	7-18-2019	0.9523	0.9523
11	7-19-2019	9-30-2019	0.7744	0.7744
		Highest	0.9523	0.9523

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2898	0.0327	1.0136	2.2500e-003		0.1091	0.1091		0.1091	0.1091	14.1495	21.3761	35.5257	0.0671	3.8000e-004	37.3172
Energy	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	118.5096	118.5096	4.1100e-003	1.5400e-003	119.0712
Mobile	0.1473	1.6792	1.4579	6.3800e-003	0.3556	9.2100e-003	0.3648	0.0959	8.7500e-003	0.1046	0.0000	593.4146	593.4146	0.0596	0.0000	594.9040
Waste						0.0000	0.0000		0.0000	0.0000	4.4820	0.0000	4.4820	0.2649	0.0000	11.1041
Water						0.0000	0.0000		0.0000	0.0000	0.9922	6.9304	7.9226	0.1022	2.4700e-003	11.2144
Total	**0.4419**	**1.7533**	**2.4891**	**8.8900e-003**	**0.3556**	**0.1217**	**0.4773**	**0.0959**	**0.1212**	**0.2171**	**19.6238**	**740.2307**	**759.8545**	**0.4979**	**4.3900e-003**	**773.6109**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2898	0.0327	1.0136	2.2500e-003		0.1091	0.1091		0.1091	0.1091	14.1495	21.3761	35.5257	0.0671	3.8000e-004	37.3172
Energy	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	118.5096	118.5096	4.1100e-003	1.5400e-003	119.0712
Mobile	0.1071	1.1269	0.7441	2.8300e-003	0.1220	3.7500e-003	0.1257	0.0329	3.5600e-003	0.0365	0.0000	263.5074	263.5074	0.0505	0.0000	264.7689
Waste						0.0000	0.0000		0.0000	0.0000	1.1205	0.0000	1.1205	0.0662	0.0000	2.7760
Water						0.0000	0.0000		0.0000	0.0000	0.7937	5.5443	6.3381	0.0818	1.9800e-003	8.9715
Total	**0.4018**	**1.2010**	**1.7753**	**5.3400e-003**	**0.1220**	**0.1162**	**0.2382**	**0.0329**	**0.1160**	**0.1489**	**16.0638**	**408.9375**	**425.0013**	**0.2697**	**3.9000e-003**	**432.9048**

	ROG	NOx	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	**9.08**	**31.50**	**28.68**	**39.93**	**65.70**	**4.49**	**50.10**	**65.70**	**4.28**	**31.41**	**18.14**	**44.76**	**44.07**	**45.84**	**11.16**	**44.04**

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/19/2017	1/18/2017	5	0	
2	Site Preparation	Site Preparation	1/14/2019	1/18/2019	5	5	
3	Grading	Grading	1/19/2019	1/30/2019	5	8	
4	Building Construction	Building Construction	1/31/2019	10/25/2019	6	230	
5	Paving	Paving	10/26/2019	11/1/2019	5	5	
6	Architectural Coating	Architectural Coating	11/2/2019	11/27/2019	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 113,400; Residential Outdoor: 37,800; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 3,360 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Grading	Excavators	1	8.00	158	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	6.00	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
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	2	6.00	132	0.36
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
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
Architectural Coating	1	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	35.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	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

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

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

3.2 Demolition - 2017

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

3.2 Demolition - 2017

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2019

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					0.0452	0.0000	0.0452	0.0248	0.0000	0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.1139	0.0552	9.0000e-005		5.9800e-003	5.9800e-003		5.5000e-003	5.5000e-003	0.0000	8.5422	8.5422	2.7000e-003	0.0000	8.6097
Total	**0.0108**	**0.1139**	**0.0552**	**9.0000e-005**	**0.0452**	**5.9800e-003**	**0.0512**	**0.0248**	**5.5000e-003**	**0.0303**	**0.0000**	**8.5422**	**8.5422**	**2.7000e-003**	**0.0000**	**8.6097**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3214	0.3214	1.0000e-005	0.0000	0.3216
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3214**	**0.3214**	**1.0000e-005**	**0.0000**	**0.3216**

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					0.0203	0.0000	0.0203	0.0112	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.1139	0.0552	9.0000e-005		5.9800e-003	5.9800e-003		5.5000e-003	5.5000e-003	0.0000	8.5422	8.5422	2.7000e-003	0.0000	8.6097
Total	**0.0108**	**0.1139**	**0.0552**	**9.0000e-005**	**0.0203**	**5.9800e-003**	**0.0263**	**0.0112**	**5.5000e-003**	**0.0167**	**0.0000**	**8.5422**	**8.5422**	**2.7000e-003**	**0.0000**	**8.6097**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3214	0.3214	1.0000e-005	0.0000	0.3216
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3214**	**0.3214**	**1.0000e-005**	**0.0000**	**0.3216**

3.4 Grading - 2019

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					0.0262	0.0000	0.0262	0.0135	0.0000	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.1134	0.0652	1.2000e-004		5.5900e-003	5.5900e-003		5.1400e-003	5.1400e-003	0.0000	10.6569	10.6569	3.3700e-003	0.0000	10.7412
Total	**0.0103**	**0.1134**	**0.0652**	**1.2000e-004**	**0.0262**	**5.5900e-003**	**0.0318**	**0.0135**	**5.1400e-003**	**0.0186**	**0.0000**	**10.6569**	**10.6569**	**3.3700e-003**	**0.0000**	**10.7412**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	1.8700e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4285	0.4285	1.0000e-005	0.0000	0.4288
Total	**2.8000e-004**	**1.9000e-004**	**1.8700e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4285**	**0.4285**	**1.0000e-005**	**0.0000**	**0.4288**

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					0.0118	0.0000	0.0118	6.0600e-003	0.0000	6.0600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.1134	0.0652	1.2000e-004		5.5900e-003	5.5900e-003		5.1400e-003	5.1400e-003	0.0000	10.6569	10.6569	3.3700e-003	0.0000	10.7412
Total	**0.0103**	**0.1134**	**0.0652**	**1.2000e-004**	**0.0118**	**5.5900e-003**	**0.0174**	**6.0600e-003**	**5.1400e-003**	**0.0112**	**0.0000**	**10.6569**	**10.6569**	**3.3700e-003**	**0.0000**	**10.7412**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	1.8700e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4285	0.4285	1.0000e-005	0.0000	0.4288
Total	**2.8000e-004**	**1.9000e-004**	**1.8700e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4285**	**0.4285**	**1.0000e-005**	**0.0000**	**0.4288**

3.5 Building Construction - 2019

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	0.2715	2.4241	1.9738	3.0900e-003		0.1483	0.1483		0.1395	0.1395	0.0000	270.3698	270.3698	0.0659	0.0000	272.0164
Total	**0.2715**	**2.4241**	**1.9738**	**3.0900e-003**		**0.1483**	**0.1483**		**0.1395**	**0.1395**	**0.0000**	**270.3698**	**270.3698**	**0.0659**	**0.0000**	**272.0164**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6500e-003	0.0777	0.0133	1.6000e-004	3.8100e-003	5.6000e-004	4.3700e-003	1.1000e-003	5.4000e-004	1.6400e-003	0.0000	15.6413	15.6413	1.9900e-003	0.0000	15.6910
Worker	0.0190	0.0125	0.1254	3.2000e-004	0.0322	2.1000e-004	0.0324	8.5500e-003	2.0000e-004	8.7500e-003	0.0000	28.7438	28.7438	8.6000e-004	0.0000	28.7652
Total	**0.0217**	**0.0902**	**0.1387**	**4.8000e-004**	**0.0360**	**7.7000e-004**	**0.0368**	**9.6500e-003**	**7.4000e-004**	**0.0104**	**0.0000**	**44.3851**	**44.3851**	**2.8500e-003**	**0.0000**	**44.4561**

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	0.2715	2.4241	1.9738	3.0900e-003		0.1483	0.1483		0.1395	0.1395	0.0000	270.3695	270.3695	0.0659	0.0000	272.0161
Total	**0.2715**	**2.4241**	**1.9738**	**3.0900e-003**		**0.1483**	**0.1483**		**0.1395**	**0.1395**	**0.0000**	**270.3695**	**270.3695**	**0.0659**	**0.0000**	**272.0161**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.6500e-003	0.0777	0.0133	1.6000e-004	3.8100e-003	5.6000e-004	4.3700e-003	1.1000e-003	5.4000e-004	1.6400e-003	0.0000	15.6413	15.6413	1.9900e-003	0.0000	15.6910
Worker	0.0190	0.0125	0.1254	3.2000e-004	0.0322	2.1000e-004	0.0324	8.5500e-003	2.0000e-004	8.7500e-003	0.0000	28.7438	28.7438	8.6000e-004	0.0000	28.7652
Total	**0.0217**	**0.0902**	**0.1387**	**4.8000e-004**	**0.0360**	**7.7000e-004**	**0.0368**	**9.6500e-003**	**7.4000e-004**	**0.0104**	**0.0000**	**44.3851**	**44.3851**	**2.8500e-003**	**0.0000**	**44.4561**

3.6 Paving - 2019

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	3.1700e-003	0.0319	0.0308	5.0000e-005		1.8000e-003	1.8000e-003		1.6600e-003	1.6600e-003	0.0000	4.1806	4.1806	1.2900e-003	0.0000	4.2127
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1700e-003**	**0.0319**	**0.0308**	**5.0000e-005**		**1.8000e-003**	**1.8000e-003**		**1.6600e-003**	**1.6600e-003**	**0.0000**	**4.1806**	**4.1806**	**1.2900e-003**	**0.0000**	**4.2127**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.5600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3571	0.3571	1.0000e-005	0.0000	0.3573
Total	**2.4000e-004**	**1.6000e-004**	**1.5600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3571**	**0.3571**	**1.0000e-005**	**0.0000**	**0.3573**

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	3.1700e-003	0.0319	0.0308	5.0000e-005		1.8000e-003	1.8000e-003		1.6600e-003	1.6600e-003	0.0000	4.1806	4.1806	1.2900e-003	0.0000	4.2127
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1700e-003**	**0.0319**	**0.0308**	**5.0000e-005**		**1.8000e-003**	**1.8000e-003**		**1.6600e-003**	**1.6600e-003**	**0.0000**	**4.1806**	**4.1806**	**1.2900e-003**	**0.0000**	**4.2127**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.6000e-004	1.5600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3571	0.3571	1.0000e-005	0.0000	0.3573
Total	**2.4000e-004**	**1.6000e-004**	**1.5600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3571**	**0.3571**	**1.0000e-005**	**0.0000**	**0.3573**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1791					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-003	0.0165	0.0166	3.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	2.2979	2.2979	1.9000e-004	0.0000	2.3028
Total	**0.1815**	**0.0165**	**0.0166**	**3.0000e-005**		**1.1600e-003**	**1.1600e-003**		**1.1600e-003**	**1.1600e-003**	**0.0000**	**2.2979**	**2.2979**	**1.9000e-004**	**0.0000**	**2.3028**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.0000e-004	1.9600e-003	0.0000	5.0000e-004	0.0000	5.1000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4499	0.4499	1.0000e-005	0.0000	0.4502
Total	**3.0000e-004**	**2.0000e-004**	**1.9600e-003**	**0.0000**	**5.0000e-004**	**0.0000**	**5.1000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4499**	**0.4499**	**1.0000e-005**	**0.0000**	**0.4502**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1791					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4000e-003	0.0165	0.0166	3.0000e-005		1.1600e-003	1.1600e-003		1.1600e-003	1.1600e-003	0.0000	2.2979	2.2979	1.9000e-004	0.0000	2.3028
Total	**0.1815**	**0.0165**	**0.0166**	**3.0000e-005**		**1.1600e-003**	**1.1600e-003**		**1.1600e-003**	**1.1600e-003**	**0.0000**	**2.2979**	**2.2979**	**1.9000e-004**	**0.0000**	**2.3028**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.0000e-004	1.9600e-003	0.0000	5.0000e-004	0.0000	5.1000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4499	0.4499	1.0000e-005	0.0000	0.4502
Total	**3.0000e-004**	**2.0000e-004**	**1.9600e-003**	**0.0000**	**5.0000e-004**	**0.0000**	**5.1000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4499**	**0.4499**	**1.0000e-005**	**0.0000**	**0.4502**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Increase Diversity

Improve Walkability Design

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1071	1.1269	0.7441	2.8300e-003	0.1220	3.7500e-003	0.1257	0.0329	3.5600e-003	0.0365	0.0000	263.5074	263.5074	0.0505	0.0000	264.7689
Unmitigated	0.1473	1.6792	1.4579	6.3800e-003	0.3556	9.2100e-003	0.3648	0.0959	8.7500e-003	0.1046	0.0000	593.4146	593.4146	0.0596	0.0000	594.9040

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	316.32	343.68	291.36	927,718	318,207
Total	316.32	343.68	291.36	927,718	318,207

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 Low Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.475203	0.033904	0.168176	0.133649	0.019863	0.005290	0.031901	0.120662	0.002374	0.001757	0.005377	0.001134	0.000710

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	70.4832	70.4832	3.1900e-003	6.6000e-004	70.7593
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	70.4832	70.4832	3.1900e-003	6.6000e-004	70.7593
NaturalGas Mitigated	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	48.0265	48.0265	9.2000e-004	8.8000e-004	48.3119
NaturalGas Unmitigated	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	48.0265	48.0265	9.2000e-004	8.8000e-004	48.3119

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 Low Rise	899982	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	48.0265	48.0265	9.2000e-004	8.8000e-004	48.3119
Total		**4.8500e-003**	**0.0415**	**0.0177**	**2.6000e-004**		**3.3500e-003**	**3.3500e-003**		**3.3500e-003**	**3.3500e-003**	**0.0000**	**48.0265**	**48.0265**	**9.2000e-004**	**8.8000e-004**	**48.3119**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	899982	4.8500e-003	0.0415	0.0177	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	48.0265	48.0265	9.2000e-004	8.8000e-004	48.3119
Total		**4.8500e-003**	**0.0415**	**0.0177**	**2.6000e-004**		**3.3500e-003**	**3.3500e-003**		**3.3500e-003**	**3.3500e-003**	**0.0000**	**48.0265**	**48.0265**	**9.2000e-004**	**8.8000e-004**	**48.3119**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	242284	70.4832	3.1900e-003	6.6000e-004	70.7593
Total		**70.4832**	**3.1900e-003**	**6.6000e-004**	**70.7593**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	242284	70.4832	3.1900e-003	6.6000e-004	70.7593
Total		**70.4832**	**3.1900e-003**	**6.6000e-004**	**70.7593**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2898	0.0327	1.0136	2.2500e-003		0.1091	0.1091		0.1091	0.1091	14.1495	21.3761	35.5257	0.0671	3.8000e-004	37.3172
Unmitigated	0.2898	0.0327	1.0136	2.2500e-003		0.1091	0.1091		0.1091	0.1091	14.1495	21.3761	35.5257	0.0671	3.8000e-004	37.3172

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	0.0179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0734	0.0285	0.6554	2.2300e-003		0.1071	0.1071		0.1071	0.1071	14.1495	20.7940	34.9435	0.0665	3.8000e-004	36.7207
Landscaping	0.0110	4.1500e-003	0.3582	2.0000e-005		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	0.5822	0.5822	5.7000e-004	0.0000	0.5965
Total	**0.2898**	**0.0327**	**1.0136**	**2.2500e-003**		**0.1091**	**0.1091**		**0.1091**	**0.1091**	**14.1495**	**21.3761**	**35.5257**	**0.0671**	**3.8000e-004**	**37.3172**

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	0.0179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0734	0.0285	0.6554	2.2300e-003		0.1071	0.1071		0.1071	0.1071	14.1495	20.7940	34.9435	0.0665	3.8000e-004	36.7207
Landscaping	0.0110	4.1500e-003	0.3582	2.0000e-005		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	0.5822	0.5822	5.7000e-004	0.0000	0.5965
Total	**0.2898**	**0.0327**	**1.0136**	**2.2500e-003**		**0.1091**	**0.1091**		**0.1091**	**0.1091**	**14.1495**	**21.3761**	**35.5257**	**0.0671**	**3.8000e-004**	**37.3172**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.3381	0.0818	1.9800e-003	8.9715
Unmitigated	7.9226	0.1022	2.4700e-003	11.2144

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	3.12739 / 1.97162	7.9226	0.1022	2.4700e-003	11.2144
Total		**7.9226**	**0.1022**	**2.4700e-003**	**11.2144**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	2.50191 / 1.57729	6.3381	0.0818	1.9800e-003	8.9715
Total		**6.3381**	**0.0818**	**1.9800e-003**	**8.9715**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.1205	0.0662	0.0000	2.7760
Unmitigated	4.4820	0.2649	0.0000	11.1041

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	22.08	4.4820	0.2649	0.0000	11.1041
Total		**4.4820**	**0.2649**	**0.0000**	**11.1041**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	5.52	1.1205	0.0662	0.0000	2.7760
Total		**1.1205**	**0.0662**	**0.0000**	**2.7760**

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 REPORT

Bole & Associates
An Environmental Consulting Firm

March 5, 2017

Willow Petroleum, Inc.
BaseCamp Environmental, Inc.
Attn: Charlie Simpson
115 South School Street, Suite 14
Lodi, CA 95240

BIOLOGICAL RESOURCES EVALUATION FOR APN 561-020-50 & 561-020-51, NEC W ALLUVIAL AVENUE & N WILLOW AVENUE, CLOVIS, FRESNO COUNTY, CA. MHBA 1227-2016-3461.

INTRODUCTION

Willow Petroleum, Inc., has submitted plans to develop Fresno County APNs 561-020-50 & 561-020-51 (Project Area); the proposed Clovis Commercial Center in accordance with the guidelines set forth in the California Environmental Quality Act (CEQA). In accordance with the requirements of the California Environmental Quality Act, a Biological Evaluation of the approximately 7.85-acre Project Area has been conducted by the biological and botanical staff of Bole & Associates. The 7.85-acre Project Area is located in a predominantly commercial and residential area of the City of Clovis. The Project Area is adjoined to the north by a self-storage facility; to the east and south by a senior living facility, and to the west by a gasoline service station and a multi-family residential development.

SETTING

The Project Area is located in the City of Clovis, Fresno County, California (Appendix A, Figure 1). The Project Area consists of undeveloped land that has historically been used for agricultural purposes. A historical aerial from 1998 shows a rural residence near the corner of W. Alluvial Avenue and N. Willow Avenue. A historical aerial from 2002 no longer shows the residence. The site is currently undeveloped land consisting is non-native, ruderal vegetation.

METHODOLOGY

Biological and botanical surveys were conducted based on United States Fish and Wildlife Services (USFWS), Sacramento office, species list (IPaC Resource List), California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDB) search and California Native Plant Society's (CNPS) list of rare and endangered plants (Appendix C). All species lists were derived from the United States Geological Survey (USGS) “Clovis” 7.5 minute quadrangle and surrounding eight (8) quadrangles. Based on the results of the species lists, appropriate biological and botanical surveys were conducted. Species habitat surveys were conducted during

February, 2017 by Bole & Associates biologists and botanists. Habitat surveys were conducted by walking all areas of the Project Area (and surrounding 500 foot buffer) and evaluating potential habitat for special-status species based on vegetation composition and structure, surrounding area, presence of predatory species, microclimate and available resources (e.g. prey items, nesting burrows). Botanical surveys and habitat evaluations for rare plant botanical species were conducted on February 24, 2017, by Bole and Associate's senior botanist Charlene J. Bole. Botanical surveys and habitat evaluations for rare plant botanical species were conducted by walking all areas of the Project Area while taking inventory of botanical species and searching for special-status plant species and their habitats. A determination of Waters of the U.S. was also conducted on February 24, 2017 by Marcus Bole and was conducted under the guidelines of the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008).

Regulatory Requirements

The following describes federal, state, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process.

Federal

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (ESA) in 1973 to protect species that are endangered or threatened with extinction. The ESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The ESA makes it unlawful to "take" a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, the term "harm" is defined as "an act which actually kills or injures wildlife." Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA.

Waters of the United States, Clean Water Act, Section 404

The US Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into jurisdictional waters of the United States, under the Clean Water Act (§404). The term "waters of the United States" is an

encompassing term that includes “wetlands” and “other waters.” Wetlands have been defined for regulatory purposes as follows: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). Wetlands generally include swamps, marshes, bogs, and similar areas.” Other waters of the United States (OWUS) are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for one or more of the three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) (33 CFR 328.4). The USACE may issue either individual permits on a case-by-case basis or general permits on a program level. General permits are pre-authorized and are issued to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits are general permits issued to cover particular fill activities. All nationwide permits have general conditions that must be met for permits issued for a particular Project, as well as specific regional conditions that apply to each nationwide permit.

Executive Orders 13112; Prevention and Control of Invasive Species

On Feb 3, 1999, Executive Order 13112 was signed establishing the National Invasive Species Council. Executive Order 11312 directs all federal agencies to prevent and control introductions of invasive nonnative species in a cost-effective and environmentally sound manner to minimize their economic, ecological, and human health impacts. Executive Order 11312 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Advisory Committee oversees and facilitates implementation of the Executive Order, including preparation of a National Invasive Species Management Plan. Section two (2) of the Executive Order states:
(a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law, (1) identify such actions; (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.
(b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

State of California

California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the ESA, but pertains to state-listed endangered and threatened species. The CESA requires state agencies to consult with the CDFW when preparing documents to comply with the CEQA. The purpose is to ensure that the actions of the lead agency do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species. In addition to formal listing under the federal and state endangered species acts, "species of special concern" receive consideration by CDFW. Species of special concern are those whose numbers, reproductive success, or habitat may be threatened.

California Fish and Wildlife Code

The California Fish and Game Code (CFWC) (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFWC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

Rare and Endangered Plants

The CNPS maintains a list of plant species native to California with low population numbers, limited distribution, or otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The CNPS California Rare Plant Rank (CRPR) categorizes plants as the following:
Rank 1A: Plants presumed extinct in California;
Rank 1B: Plants rare, threatened, or endangered in California or elsewhere;
Rank 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere;
Rank 3: Plants about which we need more information; and
Rank 4: Plants of limited distribution.

The California Native Plant Protection Act (CFGC §1900-1913) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered as defined by CDFW. An exception to this prohibition allows landowners, under specific circumstances, to take listed plant species, provided that the owners first notify CDFW and give the agency at least ten (10) days to retrieve (and presumably replant) the plants before they are destroyed. Fish and Wildlife Code §1913 exempts from the take' prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way."

California Environmental Quality Act Guidelines §15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines §15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled based on the definition in the ESA and the section of the CFGC dealing with rare, threatened, and endangered plants and animals. The CEQA Guidelines (§15380) 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 USFWS or CDFW (e.g. candidate species, species of concern) would occur. Thus, CEQA provides an agency with the ability to protect a species from a Project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

Personnel and Survey Dates

Habitat surveys were conducted by biologist Marcus Bole on February 24, 2017. Species of special interest included the tri-colored blackbird (*Agelaius tricolor*), western burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), and California tiger salamander (*Ambystoma californiense*). A general botanical survey and habitat evaluation for rare plant botanical species was conducted by botanist Charlene J. Bole during February 24, 2017. Species of special interest included the California jewelflower (*Caulanthus californicus*) and Green's Tuctoria (*Tuctoria greenei*). Other plants of special interest included A, B and C listed noxious weeds of California.

A determination of Waters of the U.S. was also conducted on February 24, 2017 by Marcus H. Bole. Jurisdictional and non-jurisdictional wetland and other water features were determined based on the definitions as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008.)

Agency Coordination and Professional Contacts

The USFWS was contacted on December 27, 2016 for documentation of special-status species likely to occur within the USGS "Clovis" 7.5 minute quadrangle and eight (8) surrounding quadrangles**.** On December 27, 2016, RareFind (5) was used to access the CNDDB regarding special-status species potentially occurring in or near the Project Area. The CNPS inventory of rare and endangered plants for the USGS quadrangle on which the Project occurs and surrounding USGS quadrangles with similar habitat, was also reviewed to determine the presence of special-status plant species that may occur in or near the Project Area.

FINDINGS

The Project Area is located on relatively flat land, at an average elevation of 359 feet above sea level, with no readily discernible gradient noted within the confines of the Project Area. Soils within the western portion of the property are classified as predominantly Hanford fine sandy loam. Soils along the center of the site are characterized as Visalia sandy loam, clay loam substratum, 0 to 3 percent slopes. Soil on the eastern portion of the property is characterized as Ramona sandy loam, hard substratum. Site vegetation consists of non-native grasses and forbs, with ornamental trees and shrubs located along the eastern perimeter of the property.

The majority of the Project Area historically has not been developed for any residential, commercial, or industrial purposes and has remained undeveloped/agricultural land. The south west corner of the property had a residence as late as 1998. The subject property has historically been used for agricultural purposes including row crops; the site ceased to be farmed in approximately 2005 during the construction of the adjoining residential developments and the site has remained fallow as ruderal grassland since the residence was removed.

Ruderal Grasslands

Ruderal grasslands characterize the majority of the Project Area. Ruderal grasslands include disturbed areas characterized by non-native, typically weedy vegetation. Most ruderal grasslands in the Clovis area are vacant parcels surrounded by developed areas. Ruderal land cover is dominated by a mixture of non-native annual grasses and weedy species, such as black mustard (*Brassica nigra*), thistles (*Cirsium* spp.), and wild radish (*Raphanus sativa*), that tend to colonize quickly after disturbance.

Wildlife common to ruderal habitats can include species closely associated with urban development such as the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), western scrub-jay (*Aphelocomo california*), skunk (*Mephitis mephitis*), house mouse (*Mus musculus*), and California ground squirrel (*Otospermophilus beecheyi*).

Regional Species and Habitats of Concern

Bole & Associates prepared the following table of species that have the potential to occur within the project's Project Area and is composed of special-status species within the USGS "Clovis" 7.5 minute quadrangle and surrounding eight (8) quadrangles. Species lists reviewed, and which are incorporated in the following table, include the USFWS Sacramento office species list (IPaC Resource List), and the CNDDB. Species that have the potential to occur within the Project Area are based on suitable habitat within the Project Area, CNDDB occurrences within a five (5) mile radius of the Project Area and observations made during biological surveys. Not all species listed within the following table have the potential to occur within the Project Area based on unsuitable habitat and/or lack of recorded observations within a five (5) mile radius of the Project Area.

Table 1. Listed and Proposed Species Potentially Occurring Near or Within The APN 561-020-50 & -51, NEC West Alluvial Avenue & North Willow Avenue, Clovis, California, Project Area

Common Name *(Scientific Name)*	**Status** Fed/State/ CNPS	**General Habitat Description**	**Habitat Present/ Habitat Absent**	**Rationale**
INVERTEBRATES				
Vernal pool fairy shrimp *(Branchinecta lynchi)*	FT/_/_	Small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt flow depression pools.	A/HA	There are no vernal pools within the Project Area.

Common Name *(Scientific Name)*	**Status** Fed/State/ CNPS	**General Habitat Description**	**Habitat Present/ Habitat Absent**	**Rationale**
Valley elderberry longhorn beetle *(Desmocerus californicus dimorphus)*	FT/_/_	Blue elderberry shrubs usually associated with riparian areas.	A/HA	There are no elderberry shrubs within the Project Area.
Conservancy fairy shrimp *(Brachinecta conservatio)*	FE/_/_	Vernal pools, swales, and ephemeral freshwater habitat.	A/HA	There are no vernal pools within the Project Area.
REPTILES AND AMPHIBIANS				
California Red-legged frog *(Rana draytonii)*	FT/SSC/_	Ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills.	A/HA	There is no suitable habitat within the Project Area for this species.
California tiger salamander *(Ambystoma californiense)*	FE/ST/_	Grasslands and low foothills with pools or ponds necessary for breeding, including vernal pools, stock ponds, etc.	A/HA	There is no suitable habitat within the Project Area for this species.
Giant garter snake (*Thamnophis gigas*)	ST/FT/_	Perennial wetlands; aquatic habitat for foraging, bankside basking areas with nearby emergent vegetation for cover and thermal regulation.	A/HA	There is no suitable habitat within the Project Area for this species.
Blunt-nosed Leopard Lizard (*Gambelia silus***)**	FE/SE/_	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief.	A/HA	There is no suitable habitat within the Project Area for this species.
BIRDS				
Western burrowing owl *(Athene cunicularia)*	MBTA/SSC/_	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	A/MH	There is marginal suitable habitat within the Project Area for this species. None were observed during the habitat survey.
Tri-colored	MBTA/SSC/_	Marshes and swamps, agricultural	A/HA	There is no suitable

Common Name *(Scientific Name)*	**Status** Fed/State/ CNPS	**General Habitat Description**	**Habitat Present/ Habitat Absent**	**Rationale**
black bird *(Agelaius tricolor)*		irrigation ditches, blackberry brambles and grasslands		habitat within the Project Area.
Swainson's Hawk (*Buteo swainsoni*)	ST/_/_	Breeding habitat includes shrub-steppe areas with scattered trees, large shrubs, and riparian areas. Preferred habitat includes adjacent irrigated agricultural areas with alfalfa and grass hay for foraging. Nests in a variety of trees, but most often small shrubby trees in shrub-steppe and desert habitats.	A/MA	There is no suitable habitat within the Project Area. Adjacent agricultural areas to the north may provide marginal foraging habitat. None observed during the habitat survey.
Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis***)**	FT/SE/_	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, blackberry, nettles or wild grape	A/HA	There is no suitable habitat within the Project Area.
MAMMALS				
Fresno Kangaroo Rat (*Dipodomys nitratoides exillis***)**	FE/SE/_	Alkali sink-open grassland habitats in Western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation.	A/HA	There is no suitable habitat in the Project Area. None were observed during the habitat survey.
San Joaquin Kit Fox (*Vulpes macrostis mutica*)	FE/ST/_	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	A/HA	There is no suitable habitat in the Project Area. None were observed during the habitat survey
PLANTS				
California jewelflower (*Caulanthus californicus*)	FE/SE/_	Chenopod scrub, valley and foothill grassland, pinyon and juniper woodlands.	A/HA	There is no suitable habitat within the Project Area.
Green's tuctoria (*Tuctoria greenei*)	FE/SR/_	Vernal pools, dry bottoms of vernal pools in open grasslands.	A/HA	There is no suitable habitat within the Project Area.

CODE DESIGNATIONS

FE = Federally-listed Endangered
FT = Federally-listed Threatened
FC = Federal Candidate Species
BCC = Federal Bird of Conservation Concern
MBTA = Protected by the federal Migratory Bird Treaty Act
SE = State-listed Endangered
ST = State-listed Threatened
SR = State-listed Rare
SSC = State Species of Special Concern
S1 = State Critically Imperiled
S2 = State Imperiled
S3 = State Vulnerable
S4 = State Apparently Secure
SSC = CDFW Species of Special Concern
FP =CDFW Fully Protected Species
SNC = CDFW Sensitive Natural Community

A = Species Absent
P = Species Present
HA = Habitat Absent
HP = Habitat Present
CH = Critical Habitat
MH = Marginal Habitat
CNPS 1B = Rare or Endangered in California or elsewhere
CNPS 2 = Rare or Endangered in California, more common elsewhere
CNPS 3 = More information is needed
CNPS 4 = Plants with limited distribution
0.1 =Seriously Threatened
0.2 = Fairly Threatened
0.3 = Not very Threatened

Migratory Birds

Nesting birds are protected under the MBTA (16 USC 703) and the CFWC (3503). The MBTA (16 USC §703) prohibits the killing of migratory birds or the destruction of their occupied nests and eggs except in accordance with regulations prescribed by the USFWS. The bird species covered by the MBTA includes nearly all of those that breed in North America, excluding introduced (i.e. exotic) species (50 Code of Federal Regulations §10.13). Activities that involve the removal of vegetation including trees, shrubs, grasses, and forbs or ground disturbance has the potential to affect bird species protected by the MBTA. The CFWC (§3503.5) states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks, eagles, and falcons) or Strigiformes (all owls except barn owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Take includes the disturbance of an active nest resulting in the abandonment or loss of young. The CFWC (§3503) also states that "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

Survey Results

During the migratory bird and raptor surveys conducted during February 2017, there were no "stick nests" or ground nests observed within the Project Area or surrounding 500 foot buffer. No nesting activity was observed. Due to the nature of the disturbed habitat within the Project Area, no further preconstruction nesting raptor surveys are indicated.

Wetlands and Others Waters of the U.S.

Bole and Associates conducted a determination of Waters of the U.S. within the Project Area. Surveys were conducted on February 24, 2017 by Wetland Scientist Marcus H. Bole. The surveys involved an examination of botanical resources, soils, hydrological features, and determination of wetland characteristics based on the *United States Army Corps of Engineers Wetlands Delineation Manual (1987); the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (2008); the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007); the *U.S. Army Corps of Engineers Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region*

(2011); and the *U.S. Army Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (2008). No federal jurisdictional wetlands or Other Waters of the U.S. were observed within the Project Area or within the 500 foot buffer surrounding the Project Area.

Invasive Species

The Project Area is within the residential and commercial area of the City of Clovis. The only habitat within the Project Area is a disturbed, non-native annual grassland. None of the onsite non-native grasses or forbs were identified as invasive plant species as listed on the United States Department of Agricultural (USDA) Natural Resource Conservation Service (NRCS) invasive and noxious weed plant list and the California Invasive Plant Council (CAL-IPC)**.**

CONCLUSIONS AND RECOMMENDATIONS

According to California Environmental Quality Act (CEQA) guidelines, a project is normally considered to have a significant impact on wildlife if it will interfere substantially with the movement of any resident or migratory fish or wildlife species; or substantially diminishes habitat quantity or quality for dependent wildlife and plant species. Impacts to special status species and their associated habitats are also considered significant if the impact would reduce or adversely modify a habitat of recognized value to a sensitive wildlife species or to an individual of such species. This guideline applies even to those species not formally listed as threatened, rare or endangered by the California Department of Fish & Wildlife and the United States Fish and Wildlife Service. Project implementation will not result in impacts to special status plant or wildlife species or their critical habitats. Project implementation will not have a significant impact on resident or migratory wildlife, special status plant or wildlife species, or any associated protected habitat. There are no recommended Mitigation Measures for biological, botanical or wetland resources on or near the Project Area.

This concludes our biological, botanical, and wetland evaluation of the 7.85-acre Project Area comprising Fresno County APNs 561-020-50 & -51, located at the NEC corner of West Alluvial Avenue & N Willow Avenue, Fresno County, CA 93611. If you have any questions concerning our findings please feel free to contact me directly at: Bole & Associates, Attn: Marcus Bole, 04 Brock Drive, Wheatland, CA, fax 530-633-0119, email: mbole@aol.com. For a complete copy of the Statement of Qualifications of the staff members conducting this evaluation please visit our website at: mhbole.com.

Respectfully Submitted:

Charlene J. Bole, M.S, Senior Botanist
Bole & Associates
Registered Environmental Property Assessor
REPA 229436

Marcus H. Bole, M.S, Senior Biologist
Bole & Associates
Registered Environmental Property Assessor
REPA #647913

APPENDIX

APPENDIX A: SITE MAPS

APPENDIX B: SITE PHOTOS

APPENDIX C: CNDDB/USFWS SPECIES LISTS

APPENDIX D: SOILS DATA

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APPENDIX A: SITE MAPS

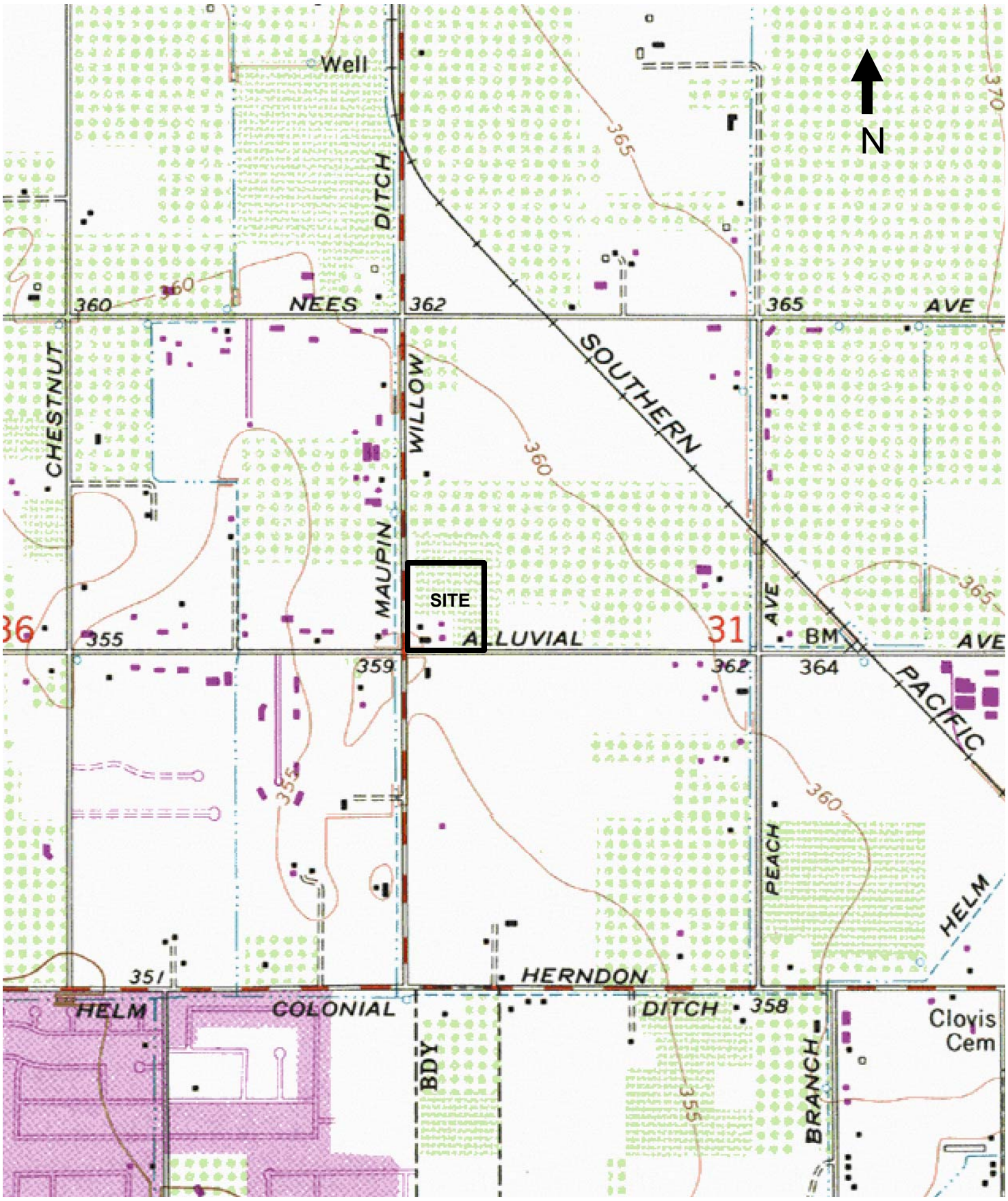
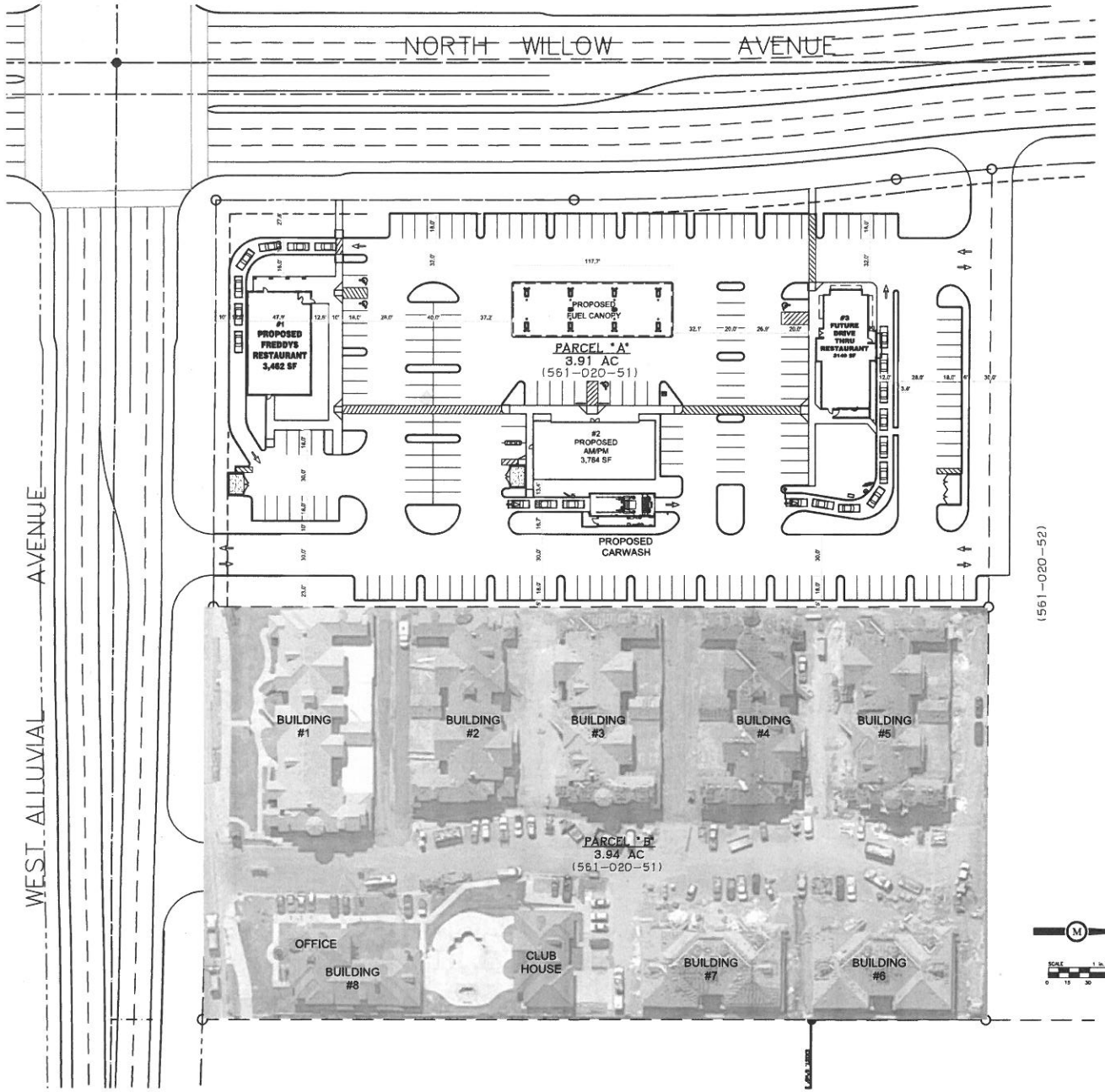


Figure 1: Vicinity Map, APNs 561-020-50 & -51, property located at the northeast corner of West Alluvial Avenue and North Willow Avenue, Clovis, California. Site is located in Section 31, Township 12 South, Range 20 East, Clovis 7.5" USGS Quadrangle. Site is located approximately at: 36.84554°North, -119.72899°West. Site proposed for development of Clovis Commercial Center.



VICINITY MAP
NOT TO SCALE

LOT DATA:

A.P.N.:	561-020-50 & -51
TOTAL ACREAGE:	341,946 SF (7.85 AC)
EXISTING PARCELS:	2
PROPOSED PARCELS:	2
EXISTING ZONE:	R-1-7500 LOW DENSITY RESIDENTIAL
PROPOSED ZONE:	COMMERCIAL / HIGH DENSITY RESIDENTIAL
EXISTING USE:	VACANT
PROPOSED USE:	CONVENIENCE STORE, GASOLINE SALES, AND TWO RESTAURANTS WITH DRIVE-THRU

PARKING DATA:

REQUIRED:	
#1 RESTAURANT (3,462 SF/100)	35 SPACES
#1 OUTDOOR SEATING (434 SF/100)	4 SPACES
#2 C-STORE (3,764 SF/185)	20 SPACES
#3 RESTAURANT (3149 SF/75):	42 SPACES
REQUIRED:	101 SPACES
PROVIDED:	
STANDARD SPACE (9'x20')	181 SPACES
ACCESSIBLE SPACE (9'x20')	4 SPACES
PROVIDED:	185 SPACES

APARTMENT BUILDING DATA:

NOTE: ALL BUILDINGS ARE TWO STORIES.

BUILDING NO.	# OF UNITS
BLDG #1	12
BLDG #2	8
BLDG #3	8
BLDG #4	8
BLDG #5	8
BLDG #6	4
BLDG #7	4
BLDG #8	4
CLUBHOUSE / OFFICE	
TOTAL	56 UNITS

APARTMENT PARKING (2/UNIT)	112 SPACES
GUEST PARKING (25% OF 112)	28 SPACES
TOTAL APARTMENT PARKING	140 SPACES

SITE UTILITIES:	PROVIDED BY:
SEWAGE DISPOSAL:	CITY
WATER SUPPLY:	CITY
DRAINAGE:	CITY

PROPERTY DESCRIPTION

PARCEL "A" AND "B" OF PARCEL MAP 2002-08, RECORDED IN BOOK 62, PAGE 64, FRESNO COUNTY OFFICIAL RECORDS, LOCATED IN THE CITY OF CLOVIS, COUNTY OF FRESNO, STATE OF CALIFORNIA.

APN: 561-020-50 & -51

APPLICANT

WILLOWS PETROLEUM, INC
CONTACT: SANDY MANN
2190 MERIDIAN PARK BLVD, STE. G
CONCORD, CA 94520
PHONE: (925) 446-6806

DESIGN FIRM

MILESTONE ASSOCIATES
CONTACT: JULIO TINAJERO
1000 LINCOLN ROAD, STE. H202
YUBA CITY, CA 95991
PHONE: (530) 755-4700

Milestone Associates
Imagineering
A California Corporation
1000 LINCOLN ROAD, SUITE H202
YUBA CITY, CALIFORNIA 95991
TEL: 530-755-4700
FAX: 530-755-4567

JULIO J. TINAJERO
LEAD DESIGNER

STAMP:

SUBMITTAL DATE

PLANNING DEPT:
BUILDING DEPT:
ENGINEERING:
SURVEY:

REVISIONS		
No.	Description	Date

CONCEPTUAL SITE PLAN

CLOVIS COMMERCIAL CENTER
N. WILLOW AVE. at W. ALLUVIAL AVE.
CLOVIS, CALIFORNIA
(APN 561-020-50 & 561-020-51)

DATE: 10-09-19
SCALE: 1" = 30'
DRAWN BY: STAFF
JOB NUMBER:
SHEET: DD1

APPENDIX B: SITE PHOTOS

MARCUS H. BOLE & ASSOCIATES
104 Brock Drive, Wheatland, CA 95692
(530) 633-0117, email: mbole@aol.com

SITE: APNs 561-020-50 & -51
ITEM: Non-Native Grasslands
DATE: 2/24/2017

Photo Plate 1

MARCUS H. BOLE & ASSOCIATES
104 Brock Drive, Wheatland, CA 95692
(530) 633-0117, email: mbole@aol.com

SITE: APNs 561-020-50 & -51
ITEM: Non-Native Grasslands
DATE: 2/24/2017

Photo Plate 2

APPENDIX C: CNDDB/USFWS SPECIES LISTS

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate OR All CNDDB element occurrences OR Delisted) OR State Listing Status IS (Endangered OR Threatened OR Rare OR All CNDDB element occurrences OR Delisted OR Candidate Endangered OR Candidate Threatened))
 AND Quad IS (Clovis (3611976))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	340 365	907 S:2	0	0	0	0	1	1	2	0	1	1	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	300 400	1148 S:3	0	1	0	0	2	0	2	1	1	0	2
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	331 351	1924 S:2	0	0	0	0	0	2	2	0	2	0	0
Bombus crotchii Crotch bumble bee	G3G4 S1S2	None None		300 300	233 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	385 395	753 S:2	0	0	0	1	0	1	1	1	2	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	300 300	2413 S:1	0	0	0	0	0	1	1	0	1	0	0
Caulanthus californicus California jewelflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1		63 S:1	0	0	0	0	1	0	1	0	0	0	1

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						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	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	345 345	155 S:1	0	0	0	0	1	0	1	0	0	0	1
Efferia antiochi Antioch efferian robberfly	G1G2 S1S2	None None		300 300	4 S:1	0	0	0	0	0	1	1	0	1	0	0
Imperata brevifolia California satintail	G4 S3	None None	Rare Plant Rank - 2B.1 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
Leptosiphon serrulatus Madera leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive		27 S:1	0	0	0	0	0	1	1	0	1	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	400 400	431 S:1	0	0	0	0	0	1	1	0	1	0	0
Lytta molesta molestan blister beetle	G2 S2	None None		360 360	17 S:1	0	0	0	0	0	1	1	0	0	1	0
Metapogon hurdi Hurd's metapogon robberfly	G1G3 S1S3	None None		325 325	3 S:1	0	0	0	0	0	1	1	0	0	1	0
Phalacrocorax auritus double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	332 332	38 S:1	0	0	0	0	0	1	0	1	1	0	0
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	300 300	746 S:1	0	0	0	0	1	0	1	0	0	1	0
Sagittaria sanfordii Sanford's arrowhead	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	325 345	93 S:2	0	0	1	0	0	1	2	0	2	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	250 250	523 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

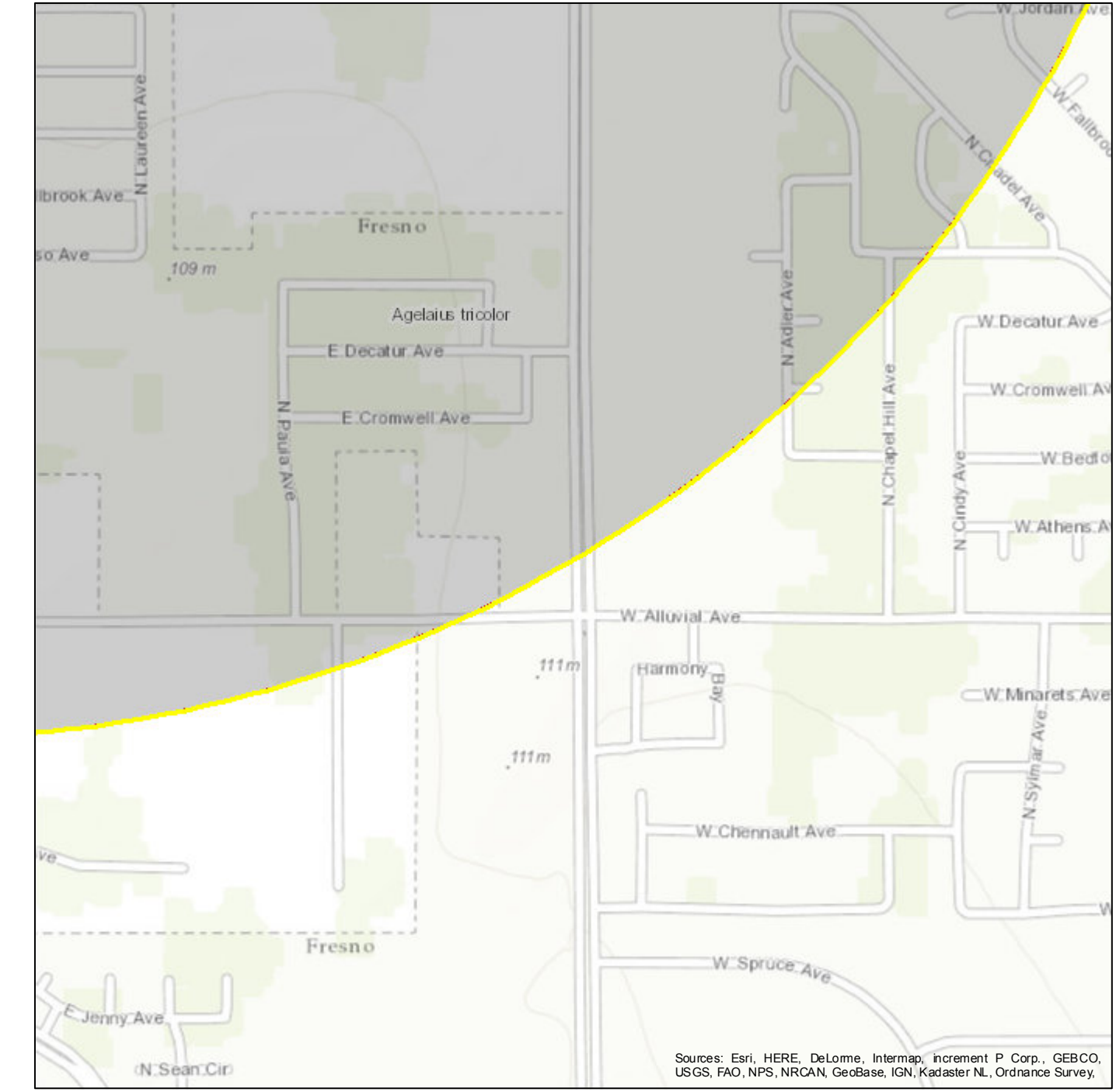
California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Tropidocarpum capparideum caper-fruited tropidocarpum	G1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive		18 S:1	0	0	0	0	0	1	1	0	1	0	0
Tuctoria greenei Greene's tuctoria	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1	405 405	48 S:1	0	0	0	0	1	0	1	0	0	0	1
Vireo bellii pusillus least Bell's vireo	G5T2 S2	Endangered Endangered	IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	345 360	472 S:2	0	0	0	0	2	0	2	0	0	2	0

Map of Project Area

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)



1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

N

December 27, 2016

Author: cnddb_com

Printed from http://bios.dfg.ca.gov

IPaC Information for Planning and Conservation **U.S. Fish & Wildlife Service**

IPaC resource list

Location

Fresno County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and should not be used for planning or analyzing project level impacts.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Review section in IPaC or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by creating a project and making a request from the Regulatory Review section.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2891	Threatened

California Tiger Salamander Ambystoma californiense There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2076	Threatened

Birds

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is a **proposed** critical habitat for this species. Your location is outside the proposed critical habitat. http://ecos.fws.gov/ecp/species/3911	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/498	Threatened

Fishes

NAME	STATUS

Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS
Greene's Tuctoria Tuctoria greenei There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/1573	Endangered

Mammals

NAME	STATUS
Fresno Kangaroo Rat Dipodomys nitratoides exilis There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/5150	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica **No critical habitat** has been designated for this species. http://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS

Blunt-nosed Leopard Lizard Gambelia silus — Endangered
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/625

Giant Garter Snake Thamnophis gigas — Threatened
No critical habitat has been designated for this species.
http://ecos.fws.gov/ecp/species/4482

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

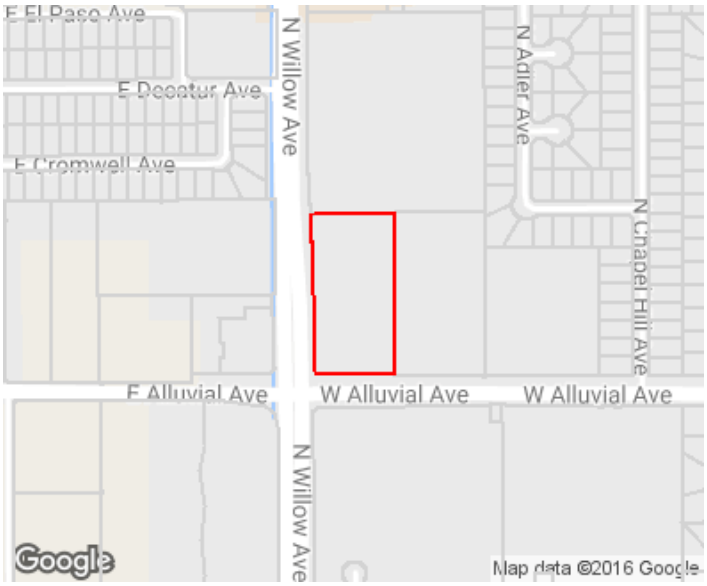
Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

APPENDIX D: SOILS DATA

SOILS REPORT

CLOVIS CA 93611



SOILS REPORT

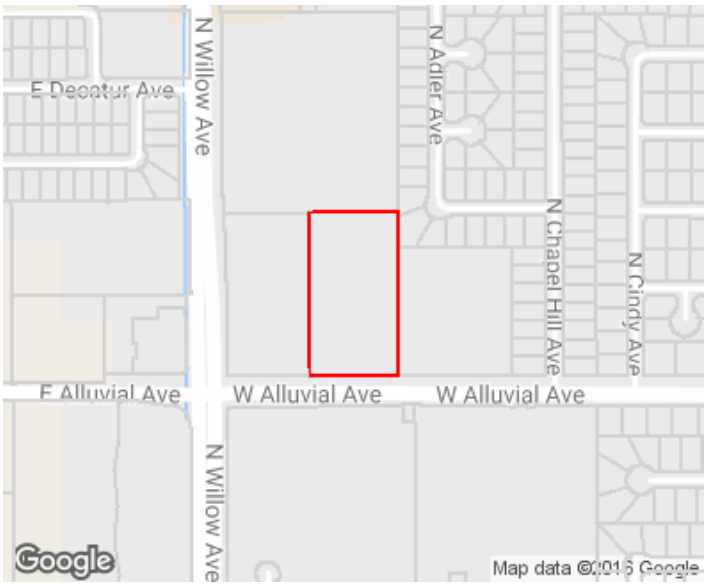
CLOVIS CA 93611

USDA Soils Legend

Symbol	Name	Slope Grade	Irr. Cap. Class	Non-Irr. Cap. Class	Storie Index	Acres	Parcel %
	0Hp Hanford fine sandy loam, clay loam substratum	1	1	4	90	2.831	75.29
	1Rb Ramona sandy loam, hard substratum	1	2	4	62	.719	19.11
	2VdA Visalia sandy loam, clay loam substratum, 0 to 3 percent slopes	1	1	4	81	.210	5.60
					Total Acres:	3.760	

SOILS REPORT

CLOVIS CA 93611



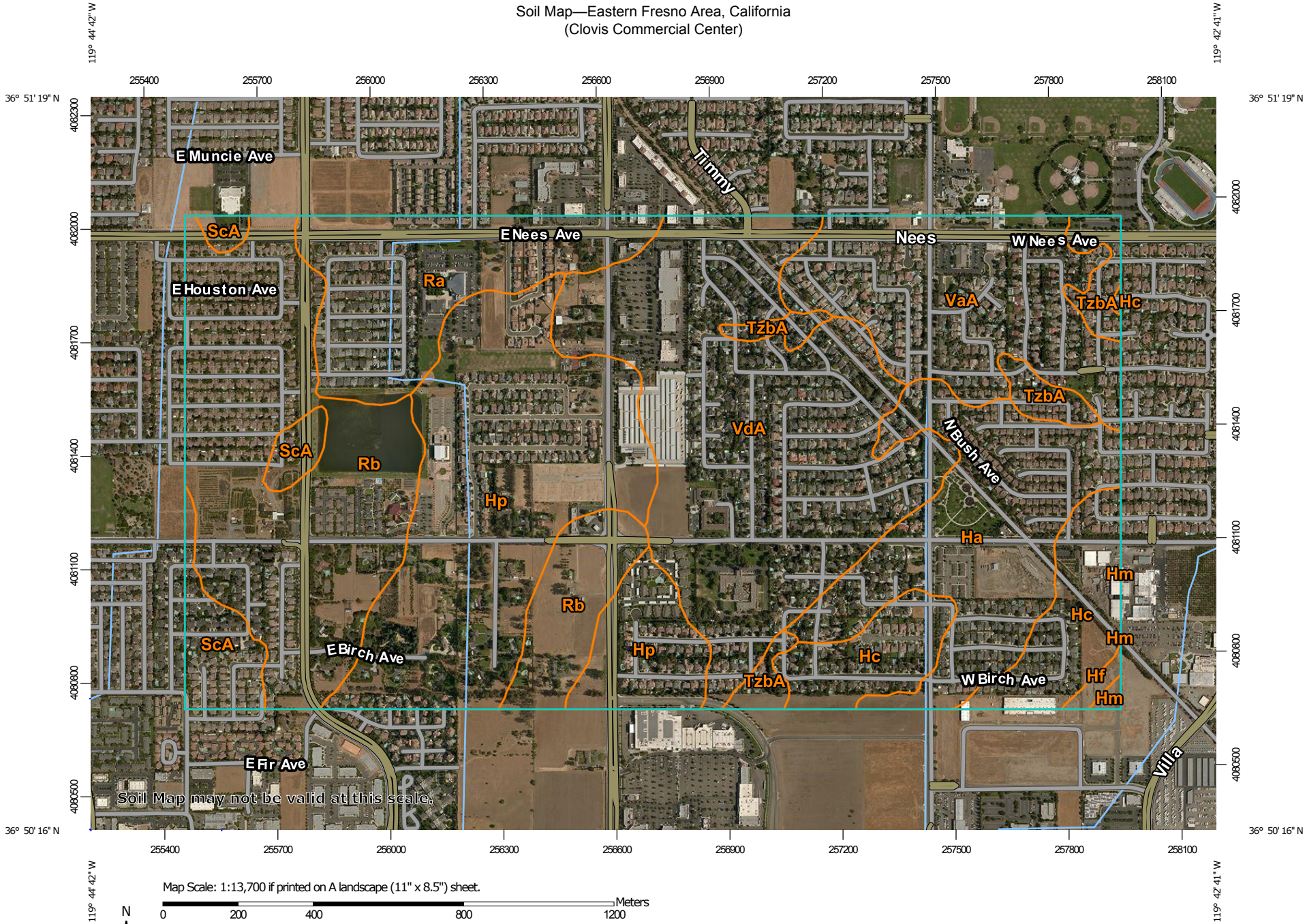
SOILS REPORT

CLOVIS CA 93611

USDA Soils Legend

Symbol	Name	Slope Grade	Irr. Cap. Class	Non-Irr. Cap. Class	Storie Index	Acres	Parcel %
0Hp	Hanford fine sandy loam, clay loam substratum	1	1	4	90	.276	6.53
1VdA	Visalia sandy loam, clay loam substratum, 0 to 3 percent slopes	1	1	4	81	3.949	93.47
					Total Acres:	7.984	

Soil Map—Eastern Fresno Area, California
(Clovis Commercial Center)



Map Scale: 1:13,700 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Fresno Area, California
Survey Area Data: Version 9, Sep 22, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 5, 2013—Aug 20, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Eastern Fresno Area, California (CA654)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ha	Hanford coarse sandy loam	84.6	10.5%
Hc	Hanford sandy loam	50.7	6.3%
Hf	Hanford sandy loam, sandy substratum	2.1	0.3%
Hm	Hanford fine sandy loam	1.1	0.1%
Hp	Hanford fine sandy loam, clay loam substratum	153.5	19.1%
Ra	Ramona sandy loam	63.9	8.0%
Rb	Ramona sandy loam, hard substratum	153.3	19.1%
ScA	San Joaquin sandy loam, 0 to 3 percent slopes, MLRA 17	23.8	3.0%
TzbA	Tujunga loamy sand, 0 to 3 percent slopes	22.1	2.8%
VaA	Visalia sandy loam, 0 to 3 percent slopes	80.0	10.0%
VdA	Visalia sandy loam, clay loam substratum, 0 to 3 percent slopes	168.5	21.0%
Totals for Area of Interest		**803.5**	**100.0%**

APPENDIX C
CULTURAL SURVEY

Applied EARTHWORKS Inc.

1391 W. Shaw Ave., Suite C
Fresno, CA 93711-3600
O: (559) 229-1856 | F: (559) 229-2019

April 13, 2017

Charlie Simpson
BaseCamp Environmental, Inc.
115 South School Street, Suite 14
Lodi, CA 95240
csimpson@basecampenv.com

RE: Methods and Results of Cultural Resources Pedestrian Survey of a 10-Acre parcel in Clovis, California for BaseCamp Environmental, Inc.

Dear Mr. Simpson:

Per your request, Applied EarthWorks, Inc. (*Æ*) conducted a cultural resources pedestrian survey on behalf of BaseCamp Environmental, Inc. The parcel is an approximate 10-acre open field at the northeast corner of Alluvial and Willow avenues in Clovis, California. The property is bordered by a Darryl's Mini Storage to the north and Orchard Park Senior Living to the east. It is our understanding that the information provided herein will be added to a technical inventory report prepared by BaseCamp that meets the standards of CEQA. We assume at a minimum the report will contain the records search results from the Southern San Joaquin Valley Information Center of the California Historical Resources Information Systems (Information Center) located at California State University, Bakersfield, a log of communication with the Native American Heritage Commission (NAHC) and local tribal representatives, and background historical research. A copy of the report should be filled with the Southern San Joaquin Valley Information Center upon completion.

On April 10, 2017, *Æ* archaeologist Jessica Jones surveyed the project area using meandering transects spaced no more than 10–15 meters apart. The entire project area is open and accessible to the public but ground visibility was poor with less than 15 percent visibilty due to a thick cover of dry foxtail weeds and grasses covering over 90 percent of the parcel (Figure 1). *Æ* observed modern debris (e.g., paper trash, miscellaneous car parts, aerosol and other cans, bricks, etc,) throughout the parcel (Figure 2). Abandoned fence posts and other debris associated with the adjacent senior living property is present in the far eastern portion of the lot. A utility pole is present along the southern edge of the survey area (Figure 3).

No prehistoric or historical isolated artifacts, sites, or features were observed in the project area. Although *Æ* did not observe cultural resources during our pedestrian survey, these results by themselves are not enough to rule out environmental impacts of the project under the California Environmental Quality Act (CEQA). These results must be considered in conjunction with the results of a records search from the SSJVIC, NAHC outreach, and background historical research.

Figure 1 **Overview of parcel and ground surface conditions, facing southeast.**

Figure 2 **Close up of modern debris present within the project area.**

Figure 3 **Utility pole along southeast edge of project area, facing west.**

Please do not hesitate to contact our office if you have any questions or comments about our pedestrian survey method and findings.

Sincerely,

Mary Clark Baloian

Mary Baloian, Ph.D., RPA
Principal Archaeologist

131 Sunset Avenue, Suite E # 120
Suisun, CA 94585-2064

707-718-1416 ▲ Fax 707-451-4775
www.solanoarchaeology.com

CULTURAL RESOURCES LETTER REPORT

Date: **July 31, 2017**

To: **BaseCamp Environmental, Inc.**

From: **Solano Archaeological Services (SAS)**

Subject: **Cultural Resources Study – Willow Petroleum Project, Clovis, California**

INTRODUCTION

This letter report summarizes the background research, Native American consultation, pedestrian survey, and findings for the Willow Petroleum Project (Project). The Project will result in the development of mixed residential and commercial buildings on two parcels in the City of Clovis, Fresno County, CA. The Project requires compliance with the California Environmental Quality Act (CEQA), and so SAS has prepared this technical memorandum to support those needs.

PROJECT LOCATION

The project area is at the northeast corner of the intersection of North Willow Avenue and Alluvial Avenue in the north-eastern portion of the City of Clovis. It is approximately 2 miles west of State Route (SR) 168 and approximately 2.54 miles east of SR 41. The two parcels proposed for construction are Assessor's Parcel Number 561-020-50 (Parcel A) and Assessor's Parcel Number 561-020-51 (Parcel B). The project area is located on the USGS Clovis, California, 7.5-minute quadrangle map within Section 5, Township 13 South, Range 21 East (Attachment A Figures 1, 2, and 3).

PROJECT DESCRIPTION

The project applicant proposes to construct a commercial center as well as a multi-family residential development within the City of Clovis. The proposed project would be constructed on two adjoining parcels; a gas station would be built on Parcel A, which is 3.91 acres in size, and a small apartment complex would be built on the 3.94-acre Parcel B. A six-foot masonry wall would separate the two parcels.

REGULATORY SETTING

CEQA requires that public agencies having authority to finance or approve public or private projects assess the effects of the projects on cultural resources. Cultural resources include buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA states that if a proposed project would result in an effect that may cause a substantial adverse change in the significance of a significant cultural resource (termed a "historical resource"), alternative plans or mitigation measures must be considered. Because only significant cultural resources need to be addressed, the significance of cultural resources must be determined before mitigation measures are developed.

CEQA §5024.1 (Public Resources Code §5024.1) and §15064.5 of the State CEQA Guidelines (14 California Code of Regulations [CCR] §15064.5) define a historical resource as "a resource listed or eligible for listing on the California Register of Historical Resources." A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR) if it:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important to our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important to prehistory or history.

In addition, CEQA also distinguishes between two classes of archaeological resources: archaeological sites that meet the definition of a historical resource, and "unique archaeological resources." An archaeological resource is considered "unique" if it:

- Is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory;
- Can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions;
- Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
- Is at least 100 years old and possesses substantial stratigraphic integrity; or
- Involves important research questions that historical research has shown can be answered only with archaeological methods (Public Resources Code §21083.2).

According to the State CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource is a project that may have a significant effect on the environment (14 CCR §15064.5[b]). CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The State CEQA Guidelines (14 CCR §15064.5[e]) also require that excavation activities be stopped whenever human remains are uncovered, and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of a Native American, the Native American Heritage Commission must be contacted within 24 hours, and the provisions for treating or disposing of the remains and any associated grave goods as described in CCR §15064.5 must be followed.

NATURAL AND CULTURAL SETTING

Existing Environment

The natural environment consists of a level open field in the San Joaquin Valley. The San Joaquin Valley is an asymmetric trough that is characterized by a relatively flat alluvial plain made up of a deep sequence of sediment deposits from Jurassic to Recent age. The sediments in the San Joaquin Valley vary between 3 and 6 miles in thickness and were derived primarily from erosion of the Sierra Nevada to the east, with lesser material from the Coast Ranges to the west. The eastern edge of the San Joaquin Valleys are

flanked by uplifted and tilted sedimentary strata that overlie rocks of the Foothills Metamorphic Belt and are in turn overlain on the west by younger alluvium. The natural community is dominated by open, rolling grasslands: prehistorically, grasslands included soft chess, foxtail brome, oats, filarees, clover, medusahead, purple stipa and fescue, and patches of Brodiaea and soaproot. In the more southern sections of the San Joaquin Valley, ryegrass, various mustards, star thistle, bitterbrush, black bush, sagebrush, junipers, and pines would also have been found.

Prehistoric Setting

Various syntheses have been proposed for the Project region past decades. In an attempt to unify the various hypothesized cultural periods in California, Fredrickson (1973, 1974, and 1993) proposed an all-encompassing scheme for cultural development, while acknowledging that these general trends may manifest themselves differently and there may be some variation between sub-regions. Fredrickson also recognized that the economic/cultural component of each pattern could be manifested in neighboring geographic regions according to the presence of stylistically different artifact assemblages. He introduced the term aspect as a cultural subset of the pattern, defining it as a set of historically related technological and stylistic cultural assemblages.

The **Paleo-Indian Period (12,000 to 8000 B.P.)** saw the first demonstrated entry and spread of humans into California. Known sites are situated along lake shores, and a developed milling tool technology may exist at this time depth. Characteristic artifacts include fluted projectile points and chipped stone crescents.

The beginning of the **Lower Archaic Period (8000 to 5000 B.P.)** coincides with that of the middle Holocene climatic change to generally drier conditions that brought about the drying up of the pluvial lakes. Subsistence appears to be focused on the consumption of plant foods over those obtained by hunting. Distinctive artifact types are large dart points and the milling slab and handstones.

The **Middle Archaic Period (5000 to 3000 B.P.)** begins at the end of mid-Holocene climatic conditions when the climate became similar to present-day conditions. Cultural change is primarily in response to environmental technological factors. Economies are more diversified, possibly with the introduction of acorn technology. Sedentism appears more fully developed and there is a general population growth and expansion. Artifacts diagnostic of this period include the bowl mortar and pestle.

The growth of sociopolitical complexity marks the **Upper Archaic Period (3000 to 1500 B.P.)**. The development of status distinctions based upon wealth is well documented. There is greater complexity of exchange systems with evidence of regular, sustained exchanges between groups. Shell beads gain in significance as possible indicators of personal status and as important trade items. This period retains the large dart points in different styles, but the bowl mortar and pestle replace the milling stone and handstone throughout most of the state.

Several technological and social changes distinguish the **Emergent Period (1500 to 200 B.P.)**. The bow and arrow are introduced, ultimately replacing the dart and atlatl. Territorial boundaries between groups are well established and may closely resemble those documented in the ethnographic literature. The clamshell disk bead becomes a monetary unit for exchange, and increasing quantities of goods move greater distances.

Groups who occupied the lowland valleys of central California appear to have lived in comparatively high-density villages, utilized a broad range of specialized technologies, and worked logistically from permanent or semi-permanent settlements to obtain resource surpluses for storage and exchange.

Ethnographic Setting

The project area is located in Northern Valley Yokuts ethnographic territory. Because of their rapid decimation as a result of disease, missionization, and Euro-American settlement, the Northern Valley Yokuts are generally not well documented in the ethnographic record (Wallace 1978). Information on the Yokuts' lifeways has been compiled by ethnographers from various sources; primarily military and missionary reports and diaries written during the Spanish and Mexican periods.

The Northern Valley Yokuts were organized into at least 11 small political units or tribes (Wallace 1978). Each tribe had a population of approximately 300 people, most of who lived within one principal settlement that usually had the same name as the political unit. Within the villages, structures included sweathouses, ceremonial chambers, and oval single-family dwellings made of tule (Wallace 1978).

Ethnographically, the Northern Valley Yokuts occupied the land on either side of the San Joaquin River from the delta to south of Mendota. The Diablo range probably marked the Yokuts' western boundary (Wallace 1978); the eastern edge would have lain along the Sierra Nevada foothills. The late prehistoric Yokuts may have been the largest ethnic group in pre-contact California.

Northern Valley Yokuts material culture included a wide range of implements. Acorn mortars were pecked into bedrock outcrops or could be made from oak to be more portable; pestles were frequently irregular or somewhat crude and were often left in place at bedrock outcrops (Kroeber 1925). Smaller mortars may have been used for tobacco or medicine. Snares, bows and spears were used in hunting, sometimes as part of organized animal drives or after being lured in with decoys. Fish were speared, netted or poisoned then gathered. Tule boats were used on rivers and lakes. Basketry took a wide variety of forms, as did cradle types. Clay cooking balls were used to replace scarce stone in the upper Valley.

Euro American contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento-San Joaquin valleys in the late 1700s to early 1800s. Cook (1975) attempted to identify San Joaquin Valley village and tribal groups based on early accounts from Spanish explorers and Mission records. Many Yokuts were lured or captured by missionaries and taken to Mission San Jose or Santa Clara. The malaria epidemic of 1833 decimated the indigenous population, killing thousands of the tribesmen. The influx of Europeans during the gold rush era further reduced the population because of disease and violent relations with the miners. Though there was no gold in the Yokuts territory, miners passing through on their way to the diggings caused a certain amount of upheaval. Former miners, who had seen the richness of the San Joaquin Valley on their way east later returned to settle and farm the area (Wallace 1978).

Historic Setting

One of the key components to the settlement of the San Joaquin Valley was in the 1870s, when the Central Pacific Railroad constructed its line through the San Joaquin Valley to reach southern California. This revolutionized the transportation network, passenger travel, and the ability of farmers and ranchers to sell their goods to distant markets. During the late 1800s, the San Joaquin Valley became the center of California's wheat belt. While ranching remained an important industry, with the expansion of large-scale irrigation in the early 1900s came the production of a variety of fruits and vegetables, vineyards, alfalfa, and cotton, among other crops (Jelinek 1982).

The establishment of a state highway system in the early-to-mid 1900s was the next major transportation development. This included two north-south highways through the Central Valley. One corresponded to today's State Route 99 in the interior; the second to U.S. Highways 1 and 101 along the western slope of the Coast Range. The routes that passed through population centers, and the region, particularly during the latter half of the 20th century witnessed the growth of existing and new residential, commercial, and industrial complexes along these corridors and the modern freeway system. SR 99 was completed as a four-lane expressway between Sacramento and Los Angeles in the 1950s, and Interstate 5 was completed in the 1970s (Berlo 1998).

The City of Fresno originated from the Central Pacific Railroad's establishment of a station stop for their SPRR line (Fresno Station). The city incorporated in 1897 and is the largest city in the San Joaquin Valley representing one of the largest agricultural industry trade centers (Hoover et al. 2002). Today, the economy of Fresno remains tied to the agricultural sector; the service industry also makes a substantial contribution to the area's income. At the geographic center of the valley, Fresno is considered to be the hub for commerce, industry, education, health care, and government in northern San Joaquin Valley.

Immediately to the northeast of Fresno, the City of Clovis was first explored by Spanish missionaries looking for new mission sites. Early settlers included Clovis Cole, a wheat farmer, and Marcus Pollasky, who coordinated the construction of a railroad system, allowing farmers, ranchers, and miners access to wider markets (City of Clovis 2017).

NATIVE AMERICAN CONSULTATION

On July 8, 2017 SAS emailed a letter and a map depicting the project area to the Native American Heritage Commission (NAHC). The letter requested a records search of the Sacred Lands Files for the project area, and for a list of Native American consultants that should be contacted about the project. On July 26, 2017, Ms. Sharaya Souza, Staff Services Analyst for the NAHC, replied in an emailed letter that the "Sacred Lands File was completed for the area of potential effect (APE) . . . with negative results." Ms. Souza also supplied a list of Native Americans to contact in regard to requesting official project recommendations and information on unrecorded cultural resources that may exist in the project area. On July 31, 2017, SAS mailed letters to the following Native Americans identified by the NAHC:

- Elizabeth D.Kipp (Chairperson, Big Sandy Rancheria of Western Mono Indians)
- Carol Bill (Chairperson, Cold Springs Rancheria)
- Robert Ledger, Sr. (Chairperson, Dumna Wo-Wah Tribal Governemt)
- Dunlap Band of Mono Indians
- Stan Alec (Kings River Choinumni Farm Tribe)
- Ron Goode (Chairperson, North Fork Mono Tribe)
- Claudia Gonzalez (Chairperson, Picayune Rancheria of Chukchansi Indians)
- Rueben Barrios, Sr. (Chairperson, Santa Rosa Indian Community of the Santa Rosa Rancheria)
- Leanne Walker-Grant (Chairperson, Table Mountain Rancheria of California)

- Bob Pennell (Cultural Resources Director, Table Mountain Rancheria of California)
- David Alvarez (Chairperson, Traditional Choinumni Tribe)
- Kenneth Woodrow (Chairperson, Wuksache Indian Tribe/Eshorn Valley Band)

To date there has been no response.

California Public Resources Code Sections 21080.1, 21080.3.1, and 21080.3.2 (AB 52) requires public agencies to consult with the appropriate California Native American tribes identified by the NAHC for the purpose of mitigating impacts to cultural resources.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM (CHRIS) RECORDS SEARCH

On July 8, 2017, a records search request was emailed to the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield. The SSJVIC in turn conducted a records search (I.C. file No. 17-341) of the CHRIS for any previously known or recorded cultural resources. The search included a review of all known archaeological sites, studies, and isolates within a half-mile radius of the project area. Additionally, the SSJVIC also reviewed the following sources:

- the *National Register of Historic Places* (Historic Properties Directory, California Office of Historic Preservation 2002);
- the *California Register of Historic Places* (Historic Properties Directory, California Office of Historic Preservation 2002);
- the *California Historical Landmarks* (California Office of Historic Preservation 1996);
- the *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- the *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976); and
- pertinent historical inventories including historic maps and plat maps.

Three sites have been previously recorded within half-mile of the Project area. These include: P-10-3930, a section of the Southern Pacific Railroad; P-10-4668, Herndon Orchards; and P-10-5511, the West Branch Helm Colonial Ditch. The record search further indicated that the Project footprint has not been previously surveyed, though nine surveys have been completed within a ½-mile radius (Table 1).

Table 1. *Previously Conducted Studies within a ½-Mile Radius of the Project Area*

Report #	Author	Title	Date
FR-00074	Baker, Suzanne	Archaeological Reconnaissance of the Shepherd 230kV Substation and Transmission Line	1978
FR-01006	Wren, Donald	Archaeological Field Reconnaissance Report Summary for the Chestnut-Willow Avenue Project, Fresno County, California	1988
FR-01223	Fey, Russel C.	Historic Architectural Survey Report for the Willow Avenue Extension, City of Fresno, Fresno County, California	1989
FR-01844	Derr, Eleanor H. and Brown, R. Keith	Historical and Cultural Resource Assessment for the Willow/Herndon, Site No. CV-735-03	2001

FR-01880	Holson, John	Cultural Resource Assessment for Cingular CV-735-02, Willow/Herndon	2002
FR-01946	Moore, Holly D.	Section 106 Review of the Proposed Bechtel Corporation Project "Buchanan," Located at the Southeast Corner of Willow Avenue and Nees Avenue in Clovis, Fresno County, California	2003
FR-02259	Baloian, Randy	Historical Resources Evaluation Report and Archaeological Survey Report for the Herndon Avenue Widening Project Between Willow and Minnewawa in Clovis, Fresno County, California	2006
FR-02318	Morlet, Aubrie and Whitehouse, John	Architectural Survey Report, Willow Avenue Widening in the City of Fresno between Secatur and Perrin, Fresno County, California	2009
FR-02319	Baloian, Randy	Archaeological Survey Report for the Willow Avenue Widening in the City of Fresno Between Decatur and Perrin Avenues, Fresno County, California	2009

FIELD SURVEY

Methods

On April 10, 2017, an Applied Earthworks archaeologist surveyed the Project area using meandering transects spaced no more than 10–15 meters apart. The entire project area was open and accessible to the public but ground visibility was poor with less than 15 percent visibility due to a thick cover of dry foxtail weeds and grasses covering over 90 percent of the parcel. Modern debris (e.g., paper trash, miscellaneous car parts, aerosol and other cans, bricks, etc,) was noted throughout the parcel. Abandoned fence posts and other debris associated with the adjacent senior living property was observed in the far eastern portion of the lot.

Results

No cultural resources were identified either by the record search or the field survey.

RECOMMENDATIONS

Provided that all ground-disturbing work is confined to the Project footprint as it is currently defined, a finding of *No Historical Resources Impacted* is recommended. It is not anticipated that buried resources will be uncovered during project construction, but there is always a remote possibility. In the event that buried archaeological deposits are encountered during any construction activity, work must cease within a 50-foot radius of the discovery, and the property owner notified. A qualified archaeologist must be retained to document the discovery, assess its significance, and recommend treatment. In the event that human remains or any associated funerary artifacts are discovered during construction, all work must cease within the immediate vicinity of the discovery. In accordance with CEQA and the California Health and Safety Code (Section 7050.5), the County coroner must be contacted immediately. If the remains are deemed to be Native American, the coroner will notify the Native American Heritage Commission, which will in turn appoint and notify a Most Likely Descendent (MLD) to act as a tribal representative. The MLD will work with WSID and a qualified archaeologist to determine the proper treatment of the human

remains and associated funerary objects. Construction activities will not resume until either the human remains are exhumed, or the remains are avoided via project construction design change.

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ATTACHMENT A

Figures

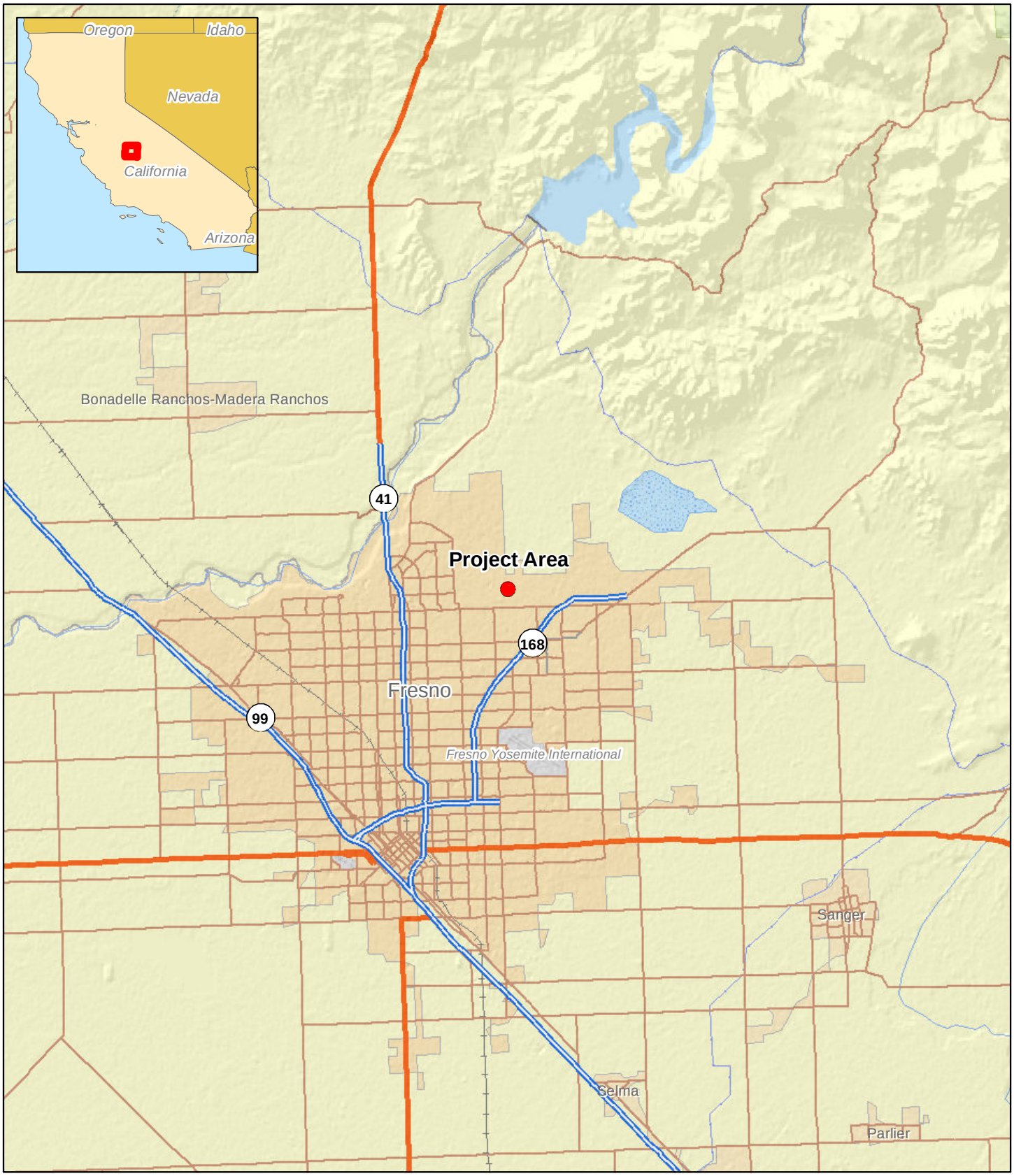


Figure1. Project Vicinity Map.

Project Area

1:250,000

0 2 Miles

0 5 Kilometers

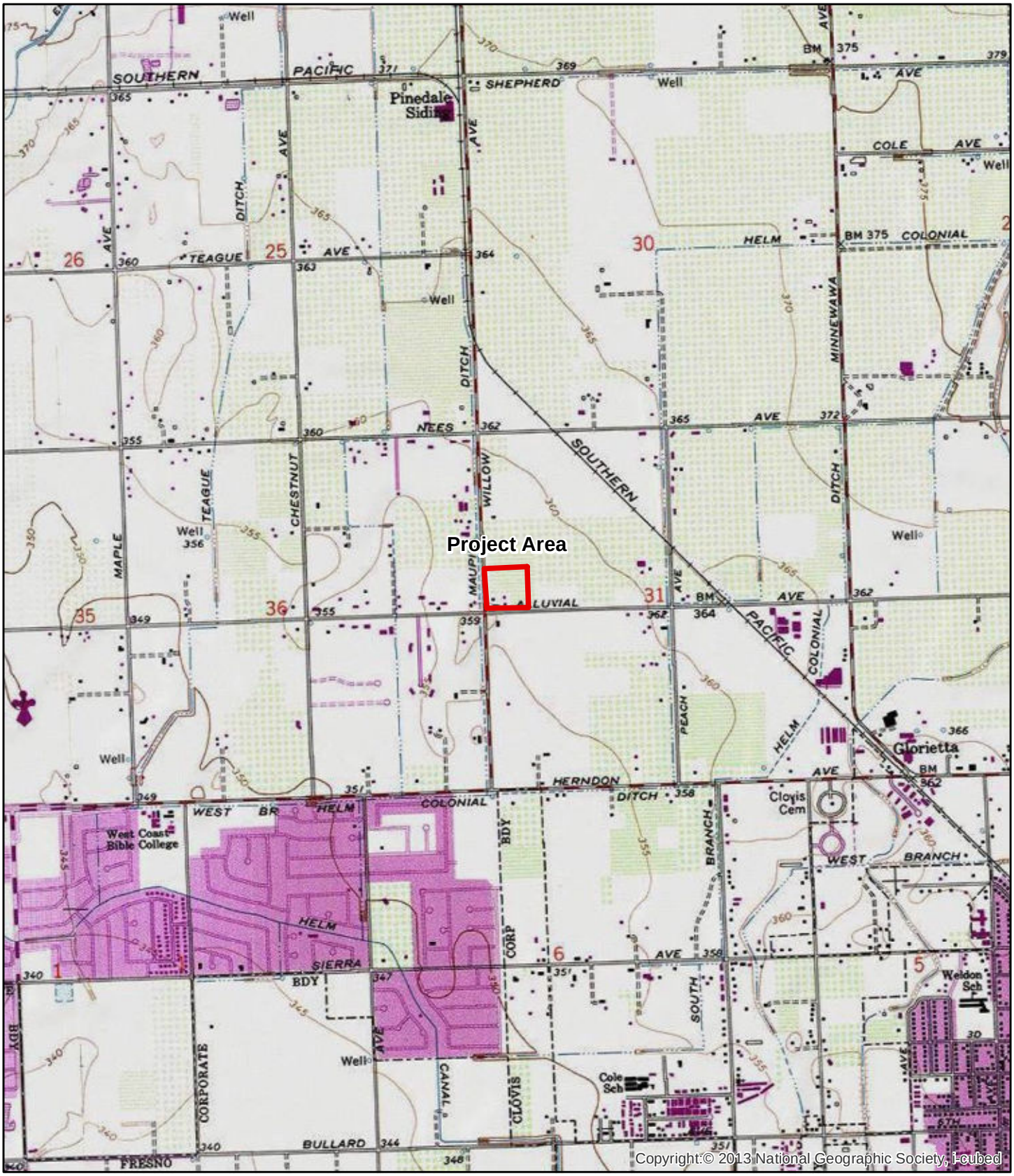


Figure 2. Project Location

Project Area

Fresno County, CA
T12S, R21E, Section 17
Clovis USGS Quadrangle,
7.5' Series, 1982

1:24,000

0 1,000 Feet

0 500 Meters

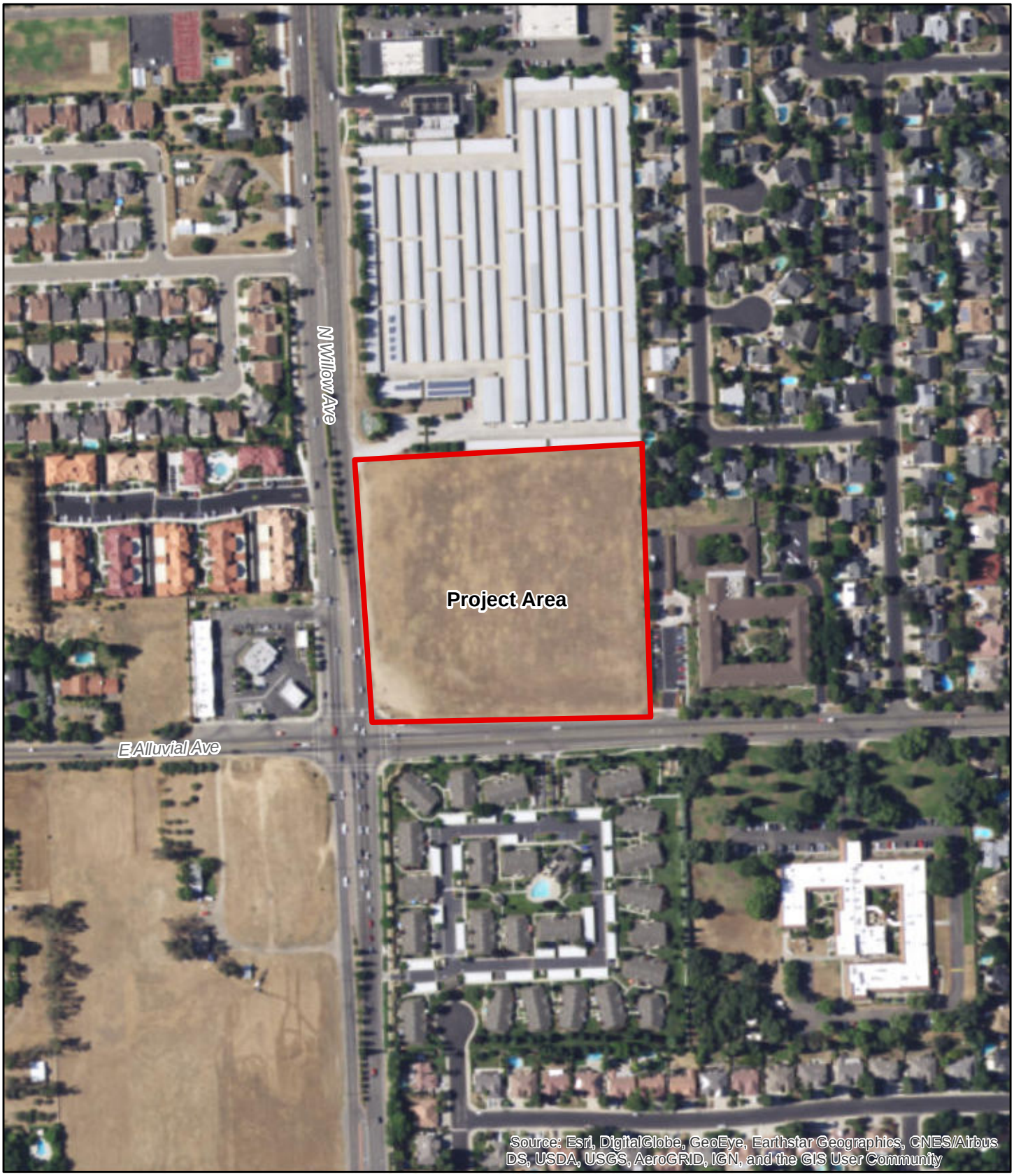


Figure 3. Project Area Map.

Project Area

1:3,600

0 200 Feet

0 100 Meters

APPENDIX D
ENVIRONMENTAL NOISE ASSESSMENT

Environmental Noise Assessment

Clovis Commercial Center

City of Clovis, California

BAC Job # 2016-200

Prepared For:

Willows Petroleum, Inc.

Attn: Surina Mann
2190 Meridian Park Dr., Ste. G
Concord, CA 94520

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

December 6, 2016

BOLLARD
Acoustical Consultants

Introduction

The proposed Clovis Commercial Center (project) consists of the construction of a new ARCO AM/PM minimart, gas station, car wash, and two restaurant drive-throughs located at the northeast corner of West Alluvial Avenue and North Willow Avenue in the City of Clovis, California. Existing land uses in the project vicinity include a mini-storage facility to the north, and residential uses to the south across West Alluvial Avenue. In addition, a residential development is proposed for the adjacent undeveloped parcel to the east of the project site. The project area and proposed site plan are shown on Figures 1 and 2, respectively.

Due to the proximity of the proposed project to the proposed future residential development to the east of the project site, the project applicant has retained Bollard Acoustical Consultants, Inc. (BAC) to prepare an acoustical analysis for this project. The purposes of this analysis are to quantify noise levels associated with the proposed project, to assess the state of compliance of those noise levels with applicable noise standards, and if necessary, to recommend measures to reduce those noise levels to acceptable limits at the nearest noise sensitive uses.

Background on Noise and Acoustical Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness.

The perceived loudness of sound is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels. Please see Appendix A for definitions of acoustical terminology used in this report. Appendix B illustrates common noise levels associated with various sources.

N

0 125 250 Feet

BOLLARD Acoustical Consultants

Figure 1
Project Area and Vicinity Map
Clovis Commercial Center
Clovis, California

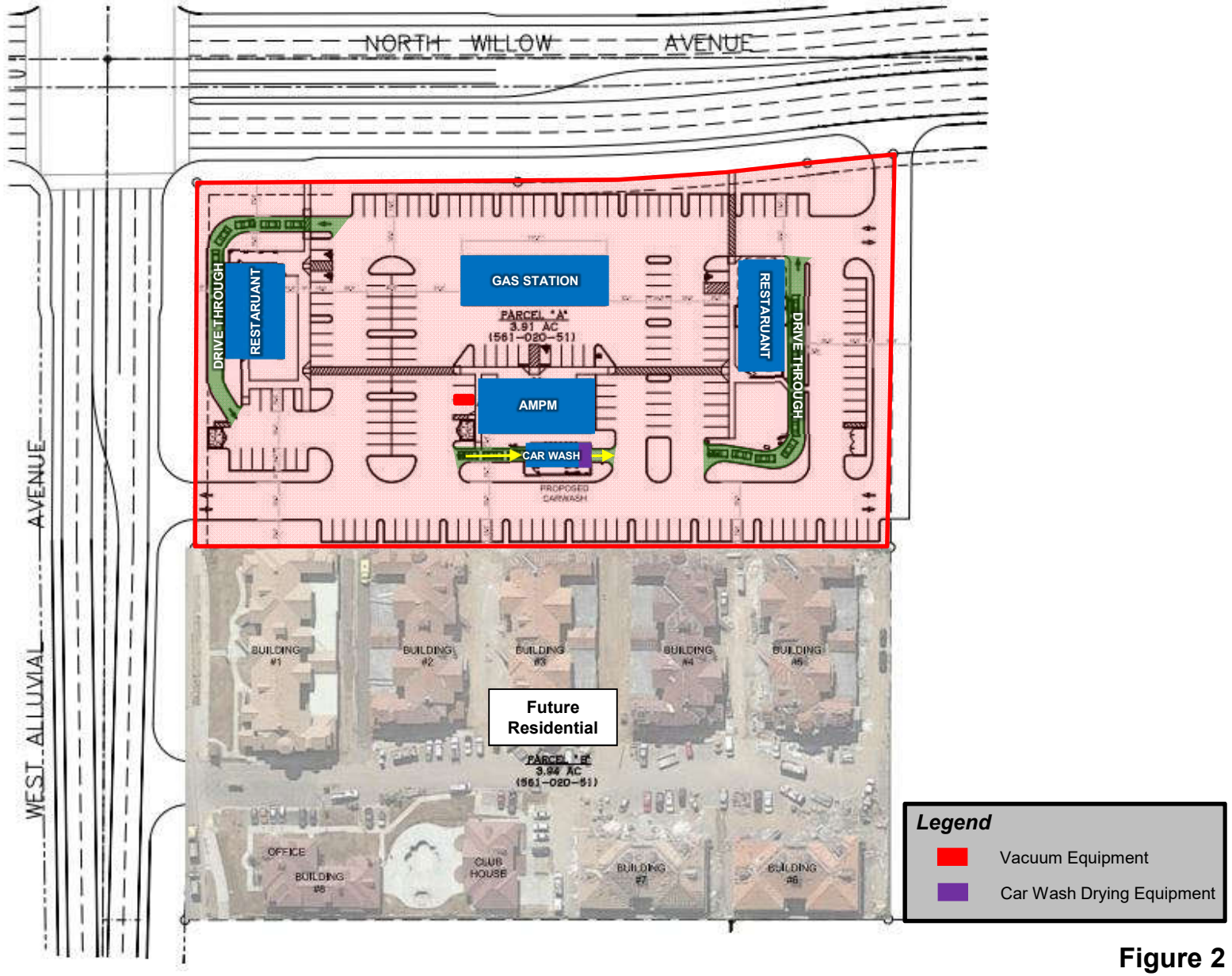


Figure 2
Project Site Plan
Clovis Commercial Center
Clovis, California

Criteria for Acceptable Noise Exposure

City of Clovis Municipal Code

Chapter 9.22 of the City of Clovis Municipal Code establishes acceptable noise level limits for non-transportation (stationary) noise sources applicable at the property line of noise-sensitive land uses. Specifically, Table 3-1 of Section 9.22.080 identifies exterior noise level standards of 55 dB L_{25} during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dB L_{25} during nighttime hours (10:00 p.m. to 7:00 a.m.) applicable to residential zones. In addition, Section 9.22.080(D)(2) identifies a maximum (L_{max}) impulsive noise level equal to the value of the applicable noise standard plus 20 dB for any period of time.

As shown in Figures 1 and 2, the project parcel is located adjacent to planned multi-family residences to the east. Because the project shares a property line with a planned noise-sensitive land use, the noise standards identified above were applied at this property line. Specifically, the following exterior noise level standards were applied:

- 55 dB L_{25} during daytime hours
- 50 dB L_{25} during nighttime hours
- 75 dB L_{max} during daytime hours
- 70 dB L_{max} during nighttime hours

Existing Ambient Noise Environment

The noise environment on the project site is defined primarily by traffic noise from West Alluvial Avenue and North Willow Avenue. To generally quantify background noise levels in the project vicinity, Bollard Acoustical Consultants, Inc. conducted long-term (24-hour) ambient noise level measurements on the project site November 28-29, 2016. The noise measurement location (Site A) is depicted on Figure 1 and a summary of the measurement results is provided in Table 1. Detailed noise measurement results can be seen numerically and graphically in Appendix C and D, respectively.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used to complete the noise level measurement survey. The meter was calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Table 1
Summary of Continuous Hourly Ambient Noise Monitoring
Clovis Commercial Center – Clovis, California

			Average Measured Hourly Noise Levels[2] (dBA)					
			Daytime (7 a.m. to 10 p.m.)			Nighttime (10 p.m. to 7 a.m.)		
Site[1]	Date	L_{dn} (dBA)	L_{eq}	L_{25}	L_{max}	L_{eq}	L_{25}	L_{max}
A	11/28 – 11/29	59	58	58	74	48	48	65

Notes:
1 Noise monitoring location identified on Figure 1.
2 Detailed noise monitoring results are provided in Appendices C and D.
Source: Bollard Acoustical Consultants, Inc. (2016)

The background noise level data provided in Table 1 indicate that existing ambient noise levels measured at the project site are in close agreement with the City of Clovis Municipal Code daytime and nighttime exterior noise level standards for noise-sensitive uses. As a result, compliance with the City of Clovis noise standards will ensure that the project does not result in a significant noise level increase at the nearest residential uses.

Evaluation of Car Wash Noise Levels

Based on the experience of Bollard Acoustical Consultants, noise levels generated by car wash facilities are primarily due to the drying portion of the operation. According to the project applicant, the proposed car wash will utilize an AquaDri Dryer Model FS-40D. The manufacturer's specifications, provided as Appendix E, indicate that the reference sound level varies relative to the tunnel entrance or exit. In addition, it has been BAC's experience that dryer noise levels vary relative to the position of the tunnel opening. For example, at a position 45 degrees and 90 degrees off-axis, blower noise levels are typically 5 and 10 dB less, respectively, due to the screening provided by the tunnel building structure. The location of the proposed car wash tunnel and the direction vehicles will move through the tunnel (south to north) is shown on Figure 2.

When the car wash is at its worst-case maximum capacity, the dryers are anticipated to operate for no more than 15 minutes during that hour. The reference noise levels provided in Appendix E represent maximum (L_{max}) dryer noise levels. Table 2 provides the dryer reference noise level (L_{max}) based on the adjacent residential property line position relative to the car wash tunnel opening. Assuming standard spherical spreading loss (-6 dB per doubling of distance), car wash dryer noise exposure at the nearest residential property line was calculated and the results of those calculations are presented in Table 2.

Table 2
Predicted Car Wash Noise Levels[1]
Clovis Commercial Center – Clovis, California

Nearest Residential Property Line	Reference Noise Level	Distance to Property Line (feet)	Offset (dBA)[2]	Predicted Noise Levels (dBA)[3]	
				Hourly Average, L_{25}	Maximum, L_{max}
East	81 dB at 30 feet	75	-10	57	63

Notes:
1 The proposed car wash location is shown on Figure 2.
2 Because the nearest residential property line to the east is located 90 degrees off-axis from the exit of the tunnel, a -10 dB offset was applied to account for the shielding provided by the tunnel.
3 Predicted hourly average noise level (L_{25}) is based on 15 minutes of dryer operation during a worst-case hour.

Source: Bollard Acoustical Consultants, Inc. 2016.

As indicated in Table 2, the predicted maximum car wash noise level of 63 dB L_{max} at the nearest residential property line to the east would satisfy the City of Clovis daytime and nighttime L_{max} noise level standards. However, the predicted car wash noise level of 57 dB L_{25} would exceed the City's daytime and nighttime L_{25} standards. As a result, consideration of additional noise mitigation measures would be warranted for this aspect of the project. Mitigation measures are discussed later in this report.

Evaluation of Vacuum Noise Levels

According to the project applicant, the proposed vacuum will be a JE Adams Super Vac Model #9209LD. The manufacturer's specifications, provided as Appendix F, indicate that the reference noise level depends on whether the vacuum hose is in the wide open position or the sealed position. During a worst-case hour, it was assumed that the vacuum would be operated with the hose in the wide open position for 30 minutes and with the hose in the sealed position for the remaining 30 minutes. Table 3 provides the vacuum reference noise level based on this assumption.

Based upon the manufacturer's data, the proposed location of the vacuum units, and assuming the continuous use of the vacuum for a given hour, vacuum noise exposure at the nearest residential property lines was calculated and the results of those calculations are presented in Table 3.

Table 3
Predicted Vacuum Noise Levels[1]
Clovis Commercial Center – Clovis, California

Nearest Residential Property Line	Reference Noise Level	Distance to Property Line (feet)	Offset (dBA)[2]	Predicted Noise Levels (dBA)[3]	
				Hourly Average, L_{25}	Maximum, L_{max}
East	63 dBA at 60 feet	120	-5	46	52

Notes:
1 The proposed vacuum location is shown on Figure 2.
2 An offset of -5 dB was applied due to shielding provided by proposed intervening structures.
3 Reference noise levels assume the vacuum operation will consist of the vacuum hose open for 50% of a given hour and with the vacuum hose sealed for 50% of the hour.
Source: Bollard Acoustical Consultants, Inc. 2016.

As shown in Table 3, the predicted average car wash noise level of 46 dB L_{25} at the nearest residential property line to the east would satisfy the City of Clovis daytime and nighttime L_{25} noise level standards. In addition, the predicted car wash noise level of 52 dB L_{max} would also satisfy the City's daytime and nighttime L_{max} standards. As a result, no further consideration of noise mitigation measures would be warranted for this aspect of the project.

Evaluation of Drive-Through Noise Levels

The project proposes two restaurants that will each contain a single-lane drive-through. The proposed restaurants are located on the northern and southern ends of the project site, as shown on Figure 2. The distance from the drive-through lane on the southern end of the site to the nearest residential property line to the east is approximately 195 feet, while the drive-through lane on the northern end of the site is approximately 150 feet from the property line.

To quantify noise levels resulting from use of the drive-through lanes, BAC utilized measurement results from various drive-through facilities collected for previous projects in recent years. BAC file data indicate a typical drive-through noise level of 55 dB L_{max} at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), drive-through lane noise exposure at the nearest residential property line to the east was calculated and the results of those calculations are presented in Table 4.

Table 4
Predicted Drive-Through Noise Levels[1]
Clovis Commercial Center – Clovis, California

Description	Distance to Residential Property Line (feet)	Predicted Noise Levels (dBA)	
		Hourly Average, L_{25}	Maximum, L_{max}
Drive-through – Southern end	195	38	43
Drive-through – Northern end	150	45	45

Notes:
[1] The proposed drive-through lane locations are illustrated on Figure 2.
[2] Predicted drive-through lane noise levels are based on a reference noise level of 55 dB L_{max} at 50 feet.
Source: Bollard Acoustical Consultants, Inc. 2016.

As indicated in Table 4, predicted average drive-through noise levels of 38-45 dB L_{25} at the nearest residential property line to the east would satisfy the City of Clovis daytime and nighttime L_{25} noise level standards. In addition, predicted drive-through noise levels of 43-45 dB L_{max} would also satisfy the City's daytime and nighttime L_{max} standards. As a result, no further consideration of noise mitigation measures would be warranted for this aspect of the project.

Mitigation Measures

Car Wash Noise Mitigation

Car wash noise exposure at the nearest residential property line to the east is predicted to exceed the City of Clovis daytime and nighttime L_{25} noise level criteria. To mitigate these identified exceedances, the effectiveness of the inclusion of car wash entrance and exit doors was considered. The manufacturer has indicated that closed entrance and exit doors during the car wash cycle provides approximately 10-20 dB of noise reduction. A conservative offset of -10 dB was applied to the reference noise levels shown in Table 2 to account for the tunnel doors being in the closed position during the drying cycle of the car wash. The predicted car wash noise levels are summarized in Table 5.

Table 5
Predicted Car Wash Noise Levels – Mitigated
Clovis Commercial Center – Clovis, California

Nearest Residential Property Line	Reference Noise Level[1]	Distance to Property Line (feet)	Tunnel Orientation Offset (dBA)[2]	Predicted Noise Levels (dBA)[3] Hourly Average, L_{25}
East	71 dB at 30 feet	75	-10	47

Notes:
1 Maximum dryer noise levels assuming closed entrance and exit doors during drying cycle.
2 Because the nearest residential property line to the east is located 90 degrees off-axis from the exit of the tunnel, a -10 dB offset was applied to account for the shielding provided by the tunnel.
3 Predicted hourly average noise level (L_{25}) is based on 15 minutes of dryer operation during a worst-case hour.

Source: Bollard Acoustical Consultants, Inc. (2016)

Provided the project incorporates the recommended car wash entrance and exit doors, car wash noise exposure at the nearest residential property line to the east would satisfy the City's daytime and nighttime L_{25} noise level standards.

Conclusions

Noise levels generated by the proposed Clovis Commercial Center are predicted to comply with the City of Clovis noise standards at the nearest residential property line provided the following noise mitigation measures are incorporated in the project design:

1. The proposed car wash tunnel should be equipped with the manufacturer's optional entrance and exit doors. Both doors should be in the closed position during every drying cycle.

These conclusions are based on the site plan shown in Figure 2, the manufacturers' noise level data, and on the assumptions stated herein. Deviations from these plans or data could cause noise levels to differ from those predicted in this assessment. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions or requests for additional information.

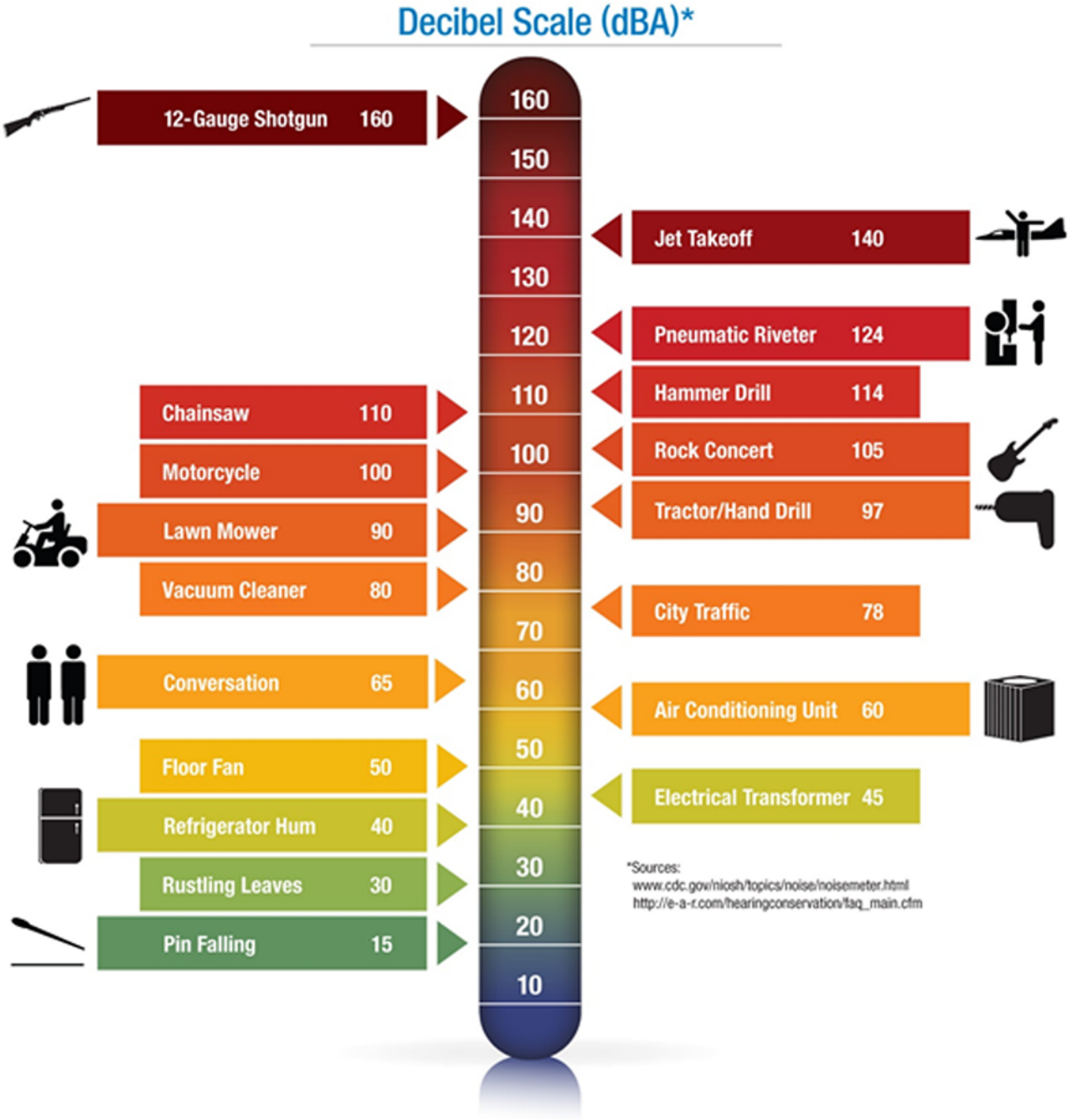
Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

Appendix B

Typical A-Weighted Sound Levels of Common Noise Sources



Appendix C
Ambient Noise Monitoring Results - Site A
Clovis Commercial Center - Clovis, California
11/28/16 - 11/29/16

Hour	Leq	Lmax	Lmin	L02	L08	L25	L50	L90
2:00 PM	63	96	47	66	62	60	58	54
3:00 PM	60	70	49	65	63	61	59	54
4:00 PM	60	67	49	65	63	61	59	55
5:00 PM	60	72	49	65	64	62	59	54
6:00 PM	60	72	48	65	63	61	58	54
7:00 PM	58	67	48	63	61	59	57	52
8:00 PM	57	69	46	62	61	58	55	51
9:00 PM	59	90	43	64	60	57	54	49
10:00 PM	52	68	38	58	56	53	51	45
11:00 PM	51	71	36	57	54	51	48	41
12:00 AM	48	61	32	57	53	48	43	36
1:00 AM	45	58	30	54	50	44	38	31
2:00 AM	42	59	30	51	48	41	35	32
3:00 AM	46	70	31	54	49	41	35	32
4:00 AM	48	64	32	56	53	48	42	36
5:00 AM	51	68	36	58	55	51	47	41
6:00 AM	52	66	41	58	56	53	51	46
7:00 AM	57	72	48	62	60	58	56	52
8:00 AM	55	70	44	61	58	55	53	49
9:00 AM	59	80	46	67	61	57	54	50
10:00 AM	55	69	46	60	58	56	53	50
11:00 AM	57	71	46	63	60	58	55	52
12:00 PM	56	72	48	63	59	57	55	51
1:00 PM	58	73	48	63	61	58	56	52

Daytime	Leq	Lmax	Lmin	L02	L08	L25	L50	L90
Average	58	74	47	64	61	58	56	52
High	63	96	49	67	64	62	59	55
Low	55	67	30	60	58	55	53	49

Nighttime	Leq	Lmax	Lmin	L02	L08	L25	L50	L90
Average	48	65	34	56	53	48	43	38
High	52	71	41	58	56	53	51	46
Low	42	58	30	51	48	41	35	31

Ldn:	59

% Daytime Energy:	93%	% Nighttime Energy:	7%

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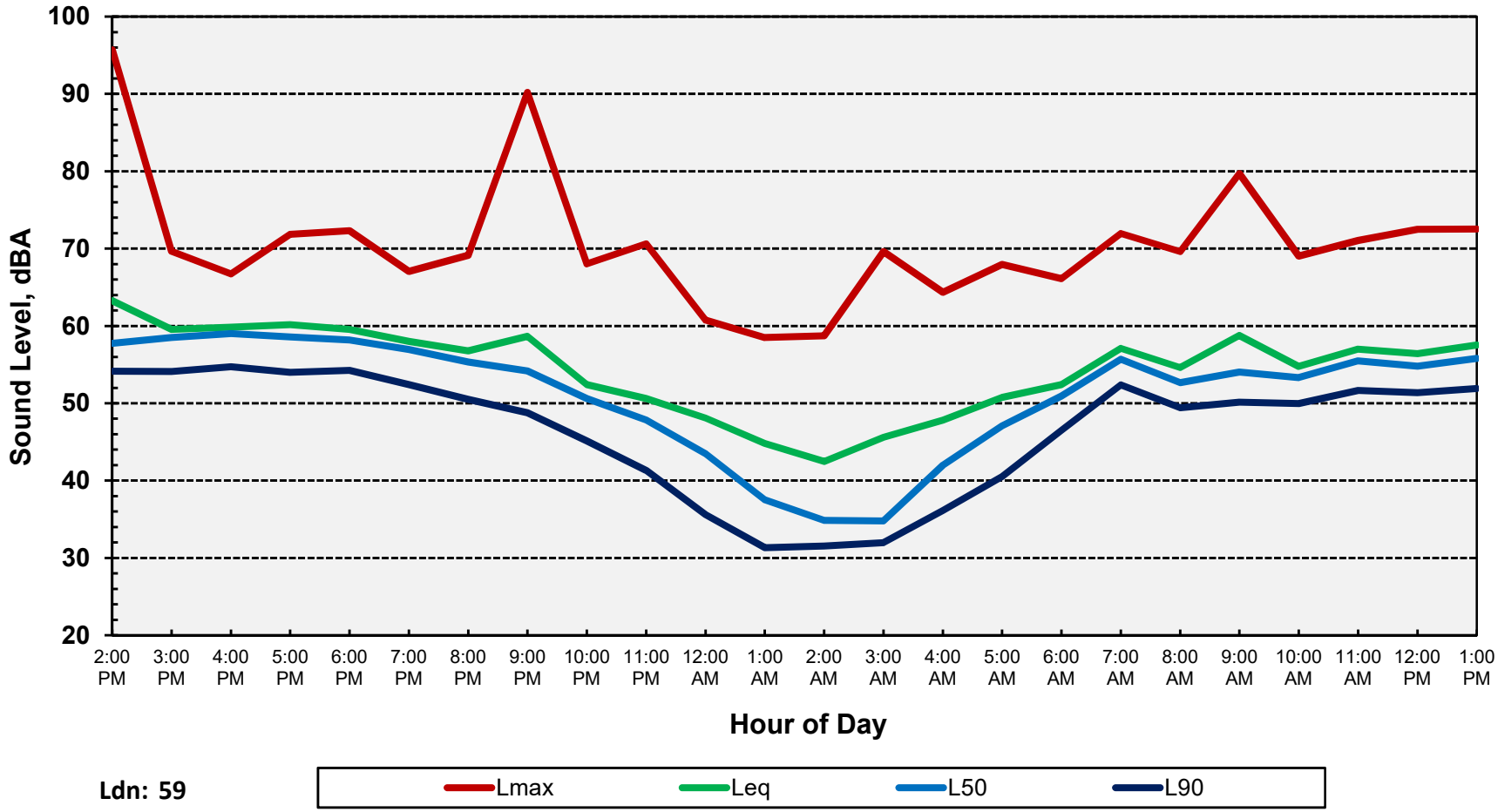
Acoustical Consultants

Appendix D
Ambient Noise Monitoring Results - Site A
Clovis Commercial Center - Clovis, California
11/28/16 - 11/29/16



Ldn: 59

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Appendix E

AquaDri Dryers Reference Noise Level Data

AquaDri® Dryers

Mark VII®
A subsidiary of WashTec AG

Noise Levels in dBA										
	Feet from Exit End					Feet from Entrance End				
	10	20	30	40	50	10	20	30	40	50
AquaDri Dryer Model										
FS-30 30hp Freestanding	91	86	83	80	75	88	85	80	79	77
FS-40 40hp Freestanding	92	87	84	81	77	89	84	81	80	78
E-20 20hp On-Board Static	84	82	78	74	72	83	80	75	73	71
E-30 30hp On-Board Static	85	83	80	76	74	84	81	78	75	72
C-15 15hp On-Board Contouring	92	88	84	80	77	90	86	82	80	77

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Appendix E

AquaDri Dryers Reference Noise Level Data

AquaDri® Dryers

Mark VII®
A subsidiary of WashTec AG

Noise Levels in dBA										
	Feet from Exit End					Feet from Entrance End				
	10	20	30	40	50	10	20	30	40	50
AquaDri Dryer Model										
FS-30 30hp Freestanding	91	86	83	80	75	88	85	80	79	77
FS-40 40hp Freestanding	92	87	84	81	77	89	84	81	80	78
E-20 20hp On-Board Static	84	82	78	74	72	83	80	75	73	71
E-30 30hp On-Board Static	85	83	80	76	74	84	81	78	75	72
C-15 15hp On-Board Contouring	92	88	84	80	77	90	86	82	80	77

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Appendix F

JE Adams Vacuum Reference Noise Level Data

9209

2 Motor Vac - Small Dome															
Wide Open With Attachment	Distance From Vac in Feet														
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Sound Level (dB)	76.4	70.4	66.9	64.4	62.4	60.9	59.5	58.4	57.3	56.4	55.6	54.8	54.1	53.5	52.9
Sealed Attachment	Distance From Vac in Feet														
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Sound Level (dB)	80.5	74.5	71.0	68.5	66.5	64.9	63.6	62.4	61.4	60.5	59.7	58.9	58.2	57.6	57.0
Attachment Removed	Distance From Vac in Feet														
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Sound Level (dB)	74.5	68.5	65.0	62.5	60.6	59.0	57.6	56.5	55.4	54.5	53.7	52.9	52.3	51.6	51.0

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APPENDIX E
TRAFFIC IMPACT ANALYSIS

TRAFFIC IMPACT STUDY FOR THE N. WILLOW AVENUE & ALLUVIAL AVENUE COMMERCIAL AND APARTMENTS PROJECT

Fresno, CA

Prepared For:
Willow Petroleum, Inc.

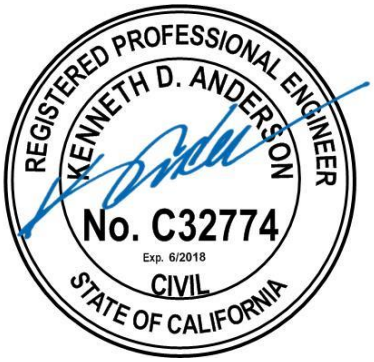
Prepared By:
KD Anderson & Associates
3853 Taylor Road, Suite G
Loomis, California 95650
(916) 660-1555
Contact: Wayne Shijo

KD Anderson & Associates Project Number 9431-01

March 6, 2017

Assessor Parcel Number 561-20-50 and 561-20-51
Sean Smith, Interim DRU Manager

This traffic impact study has been prepared under the direction of Kenneth D. Anderson, P.E., who attests to the technical information contained therein and has judged the qualifications of recommendations, conclusions, and decisions are based on City of Clovis guidelines, general engineering standards, and California/Federal laws.



TRAFFIC IMPACT STUDY FOR THE N. WILLOW AVENUE & ALLUVIAL AVENUE COMMERCIAL AND APARTMENTS PROJECT

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EXECUTIVE SUMMARY

This traffic impact study presents an analysis of the traffic-related effects of the proposed N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. The project site is located on the northeast corner of the intersection of Alluvial Avenue[1] and N. Willow Avenue.

The proposed project would consist of a convenience store with gasoline fueling facilities, two fast food restaurants with drive-through windows, and an apartment complex. The convenience store would be 3,764 square feet (SF) in size, with eight multi-product fuel dispensers with 16 fueling stations. The two restaurants would be 3,462 SF and 3,149 SF in size. The apartment complex would consist of 56 multiple family dwelling units.

Access to the non-residential portions of the project site would be provided by one driveway in the northwest corner of the project site connecting to N. Willow Avenue, and one driveway on the southern side of the project site connecting to Alluvial Avenue. Access to the apartment complex would be provided by one driveway in the southeastern portion of the project site connecting to Alluvial Avenue.

This traffic impact study presents level of service (LOS) analysis of the following study intersections:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

For study scenarios that include the proposed project, LOS analysis of the three project site access points is also presented in the traffic impact study.

This traffic impact study presents analysis of the following six scenarios:

- Existing conditions,
- Existing Plus Project,
- Existing Plus Approved Projects (EPAP) No Project,
- EPAP Plus Project,
- Cumulative No Project, and
- Cumulative Plus Project.

[1] Roadways with an east-west alignment analyzed for this traffic impact study have a naming prefix of "West" or "East". These roadways include Alluvial Avenue, Spruce Avenue, and Herndon Avenue. The "West" prefix is used for the portions of roadways east of N. Willow Avenue in the City of Clovis, and west of Blackstone Avenue in the City of Fresno. The "East" prefix is used for the portions of roadways west of N. Willow Avenue and east of Blackstone Avenue in the City of Fresno. To avoid confusion resulting from the naming of east-west roadways crossing study intersections along N. Willow Avenue, this traffic impact study does not use the prefixes "West" or "East".

Table 1, **Table 2**, and **Table 3** present the results of the LOS analysis of the intersections and scenarios listed above.

This traffic impact study also presents an assessment of vehicle queuing, bicycle and pedestrian access, and sight distance impacts.

Table 1. Level of Service - Existing and Existing Plus Project Conditions

	Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak LOS	AM Peak Delay	PM Peak LOS	PM Peak Delay
	Existing Conditions						
1	N. Chestnut Ave & Alluvial Ave	Signal		E	65.9	D	52.6
	With Recommended Improvement			*D*	*47.6*	*D*	*50.5*
2	N. Willow Ave & Alluvial Ave	Signal		C	21.1	C	28.6
3	N. Willow Ave & Spruce Ave	Signal		A	6.8	A	7.2
4	N. Willow Ave & Herndon Ave	Signal		D	39.8	D	39.7
	Existing Plus Project Conditions						
1	N. Chestnut Ave & Alluvial Ave	Signal		E	71.8	E	56.2
	With Mitigation Measure			*D*	*52.5*	*D*	*54.1*
2	N. Willow Ave & Alluvial Ave	Signal		C	28.5	D	54.7
3	N. Willow Ave & Spruce Ave	Signal		A	6.8	A	6.8
4	N. Willow Ave & Herndon Ave	Signal		D	41.1	D	41.4
5	N. Willow Ave & W. Parcel A Access	Unsig	No	A	0.4	A	0.4
6	Alluvial Ave & S. Parcel A Access	Unsig	No	A	3.8	A	2.5
7	Alluvial Ave & Parcel B Access	Unsig	No	A	0.4	A	0.3

Notes: "Inters. Control" = Type of intersection control. "LOS" = Level of service.
"Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control.
Delay is measured in seconds per vehicle. Per City of Clovis guidelines, intersection average delay is reported for all intersections, including unsignalized intersections.
Italics show results with recommended improvement and mitigation measure.

Table 2. Level of Service - EPAP No Project and EPAP Plus Project Conditions

	Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak LOS	AM Peak Delay	PM Peak LOS	PM Peak Delay
	EPAP No Project Conditions						
1	N. Chestnut Ave & Alluvial Ave	Signal		C	22.9	C	27.4
2	N. Willow Ave & Alluvial Ave	Signal		C	21.8	C	27.1
3	N. Willow Ave & Spruce Ave	Signal		B	10.6	B	10.9
4	N. Willow Ave & Herndon Ave	Signal		D	41.1	D	38.8
	EPAP Plus Project Conditions						
1	N. Chestnut Ave & Alluvial Ave	Signal		C	23.5	C	28.2
2	N. Willow Ave & Alluvial Ave	Signal		D	52.6	E	64.8
	With Mitigation Measure					*D*	*37.7*
3	N. Willow Ave & Spruce Ave	Signal		B	10.7	B	10.8
4	N. Willow Ave & Herndon Ave	Signal		D	51.9	D	39.1
5	N. Willow Ave & W. Parcel A Access	Unsig	No	A	0.4	A	0.4
6	Alluvial Ave & S. Parcel A Access	Unsig	No	A	3.5	A	2.5
7	Alluvial Ave & Parcel B Access	Unsig	No	A	0.4	A	0.3

Notes: "Inters. Control" = Type of intersection control. "LOS" = Level of service.
"Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control.
Delay is measured in seconds per vehicle. Per City of Clovis guidelines, intersection average delay is reported for all intersections, including unsignalized intersections.
Italics show results with mitigation measure.

Table 3. Level of Service - Cumulative No Project and Cumulative Plus Project Conditions

Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak LOS	AM Peak Delay	PM Peak LOS	PM Peak Delay
Cumulative No Project Conditions						
1 N. Chestnut Ave & Alluvial Ave	Signal		C	23.6	C	33.3
2 N. Willow Ave & Alluvial Ave	Signal		D	42.8	F	88.4
With Recommended Improvement			*C*	*33.8*	*D*	*54.8*
3 N. Willow Ave & Spruce Ave	Signal		B	11.0	C	28.3
4 N. Willow Ave & Herndon Ave	Signal		D	51.9	D	50.0
Cumulative Plus Project Conditions						
1 N. Chestnut Ave & Alluvial Ave	Signal		C	23.3	C	34.3
2 N. Willow Ave & Alluvial Ave	Signal		D	54.4	F	100.7
With Mitigation Measure			*D*	*43.8*	*D*	*54.3*
3 N. Willow Ave & Spruce Ave	Signal		B	11.0	C	28.4
4 N. Willow Ave & Herndon Ave	Signal		D	52.8	D	50.5
5 N. Willow Ave & W. Parcel A Access	Unsig	No	A	0.4	A	0.5
6 Alluvial Ave & S. Parcel A Access	Unsig	No	A	3.2	A	2.5
7 Alluvial Ave & Parcel B Access	Unsig	No	A	0.3	A	0.2

Notes: "Inters. Control" = Type of intersection control. "LOS" = Level of service.
"Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control.
Delay is measured in seconds per vehicle. Per City of Clovis guidelines, intersection average delay is reported for all intersections, including unsignalized intersections.
Italics show results with recommended improvement and mitigation measure.

INTRODUCTION

STUDY PURPOSE AND PROJECT DESCRIPTION

This traffic impact study presents analysis of the traffic-related effects of the proposed N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. The project site is located on the northeast corner of the intersection of N. Willow Avenue & Alluvial Avenue. The location of the project site is shown in **Figure 1**.

The proposed project would consist of a convenience store with gasoline fueling facilities, two fast food restaurants with drive-through windows, and an apartment complex. The convenience store would be 3,764 SF in size, with eight multi-product fuel dispensers with 16 fueling stations. The two restaurants would be 3,462 SF and 3,149 SF in size. The apartment complex would consist of 56 multiple family dwelling units.

The project site plan is shown in **Figure 2**. As shown in **Figure 2**, access to the western non-residential portions of the project site would be provided by one driveway in the northwest corner of the project site connecting to N. Willow Avenue, and one driveway on the southern side of the project site connecting to Alluvial Avenue. Access to the apartment complex in the eastern portion of the project site would be provided by one driveway in the southeastern portion of the project site connecting to Alluvial Avenue.

As shown in **Figure 2**, the western non-residential portion of the project site is referred to as "Parcel A", and the eastern residential portion of the project site is referred to as "Parcel B". In this traffic impact study, the driveway in the northwest corner of the project site connecting to N. Willow Avenue is referred to as the "West Parcel A Access" driveway. The driveway on the southern side of the project site connecting to Alluvial Avenue is referred to as the "South Parcel A Access". The driveway in the southeastern portion of the project site is referred to as the "Parcel B Access".

A raised concrete median is present along the project site frontage on N. Willow Avenue. Therefore turn movements at the West Parcel A Access driveway would be limited to right-turns; no left-turn movements would be allowed. Both left-turn and right-turn movements would occur at the South Parcel A Access driveway and the Parcel B Access driveway, with the existing center-two-way left-turn lane (CTWLTL) continuing to be present along Alluvial Avenue with implementation of the proposed project (Smith pers. comm.).

OVERALL ANALYSIS APPROACH

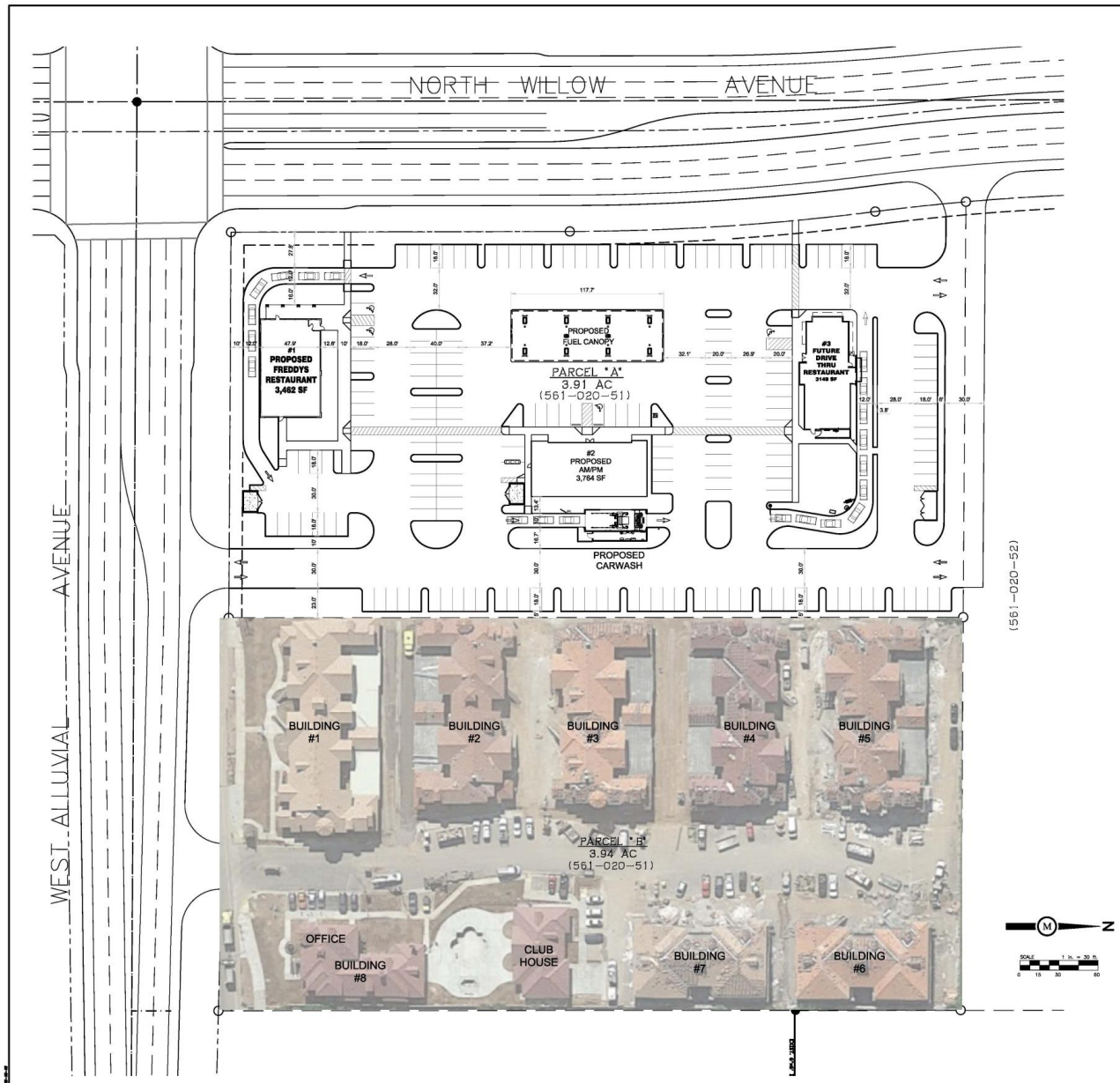
This traffic impact study presents an analysis of the traffic-related effects of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. The overall analysis approach is consistent with methods presented in the *City of Clovis Traffic Impact Study Guidelines* (City of Clovis 2014a).

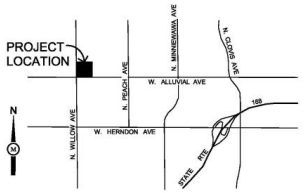
VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers

0483-010 RA 3/01/2017

figure 1





VICINITY MAP
NOT TO SCALE

LOT DATA:

A.P.N.:	561-020-50 & -51
TOTAL ACREAGE:	341,946 SF (7.85 AC)
EXISTING PARCELS:	2
PROPOSED PARCELS:	2
EXISTING ZONE:	R-1-7500 LOW DENSITY RESIDENTIAL
PROPOSED ZONE:	COMMERCIAL / HIGH DENSITY RESIDENTIAL
EXISTING USE:	VACANT
PROPOSED USE:	CONVENIENCE STORE, GASOLINE SALES, AND TWO RESTAURANTS WITH DRIVE-THRU

PARKING DATA:

REQUIRED:	
#1 RESTAURANT (3,462 SF/100)	35 SPACES
#1 OUTDOOR SEATING (434 SF/100)	4 SPACES
#2 C-STORE (3,764 SF/185)	20 SPACES
#3 RESTAURANT (3149 SF/75):	42 SPACES
REQUIRED:	101 SPACES
PROVIDED:	
STANDARD SPACE (9'x20')	181 SPACES
ACCESSIBLE SPACE (9'x20')	4 SPACES
PROVIDED:	185 SPACES

APARTMENT BUILDING DATA:

NOTE: ALL BUILDINGS ARE TWO STORIES.

BUILDING NO.	# OF UNITS
BLDG #1	12
BLDG #2	8
BLDG #3	8
BLDG #4	8
BLDG #5	8
BLDG #6	4
BLDG #7	4
BLDG #8	4
CLUBHOUSE / OFFICE	
TOTAL	56 UNITS

APARTMENT PARKING (2/UNIT)	112 SPACES
GUEST PARKING (25% OF 112)	28 SPACES
TOTAL APARTMENT PARKING	140 SPACES

SITE UTILITIES:	PROVIDED BY:
SEWAGE DISPOSAL:	CITY
WATER SUPPLY:	CITY
DRAINAGE:	CITY

PROPERTY DESCRIPTION

PARCEL "A" AND "B" OF PARCEL MAP 2002-08, RECORDED IN BOOK 62, PAGE 64, FRESNO COUNTY OFFICIAL RECORDS. LOCATED IN THE CITY OF CLOVIS, COUNTY OF FRESNO, STATE OF CALIFORNIA.

APN: 561-020-50 & -51

APPLICANT

WILLOWS PETROLEUM, INC
CONTACT: SANDY MANN
2190 MERIDIAN PARK BLVD, STE. G
CONCORD, CA 94520
PHONE: (925) 446-6806

DESIGN FIRM

MILESTONE ASSOCIATES
CONTACT: JULIO TINAJERO
1000 LINCOLN ROAD, STE. H202
YUBA CITY, CA 95991
PHONE: (530) 755-4700

Milestone Associates
Imagineering
A California Corporation
1000 LINCOLN ROAD, SUITE H202
YUBA CITY, CALIFORNIA 95991
TEL: 530-755-4700
FAX: 530-755-4567

JULIO J. TINAJERO
LEAD DESIGNER

STAMP:

SUBMITTAL DATE

PLANNING DEPT:	.
BUILDING DEPT:	.
ENGINEERING:	.
SURVEY:	.

REVISIONS

No.	Description	Date

CONCEPTUAL SITE PLAN

CLOVIS COMMERCIAL CENTER
N. WILLOW AVE. at W. ALLUVIAL AVE.
CLOVIS, CALIFORNIA
(APN 561-020-50 & 561-020-51)

DATE: 10-06-16
SCALE: 1" = 80'
DRAWN BY: STAFF
JOB NUMBER:
SHEET: DD1

SITE PLAN

Study Scenarios

This analysis is conducted using existing background conditions, near-term future background conditions, and long-term future background conditions. The effects of the proposed project on each of the three background conditions have been analyzed, resulting in analysis of the following six scenarios:

- Existing conditions,
- Existing Plus Project,
- EPAP No Project,
- EPAP Plus Project,
- Cumulative No Project, and
- Cumulative Plus Project.

As noted in Section 15125(a) of the State California Environmental Quality Act (CEQA) Guidelines, the description of existing conditions provides,

> ". . . a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

Existing Plus Approved Projects (EPAP) conditions are a near-term future background condition which includes existing traffic levels, and traffic associated with approved and pending land use development projects in the vicinity of the project site.

Cumulative conditions are a long-term background condition with future year traffic forecasts based on development of surrounding land uses and the roadway network. This set of scenarios assumes 2035 conditions with future development consistent with the Fresno Council of Governments (FCOG) Travel Demand Model (Fresno Council of Governments 2014).

Study Intersections

This traffic impact study presents LOS analysis of intersections that may be affected by implementation of the proposed project. The selection of the study intersections was made in consultation with City of Clovis staff (Smith pers. comm.) and City of Fresno staff (Gormley pers. comm.). The following four intersections are analyzed under all study scenarios:

1. N. Chestnut Avenue & Alluvial Avenue,
2. N. Willow Avenue & Alluvial Avenue,
3. N. Willow Avenue & Spruce Avenue, and
4. N. Willow Avenue & Herndon Avenue.

The locations of the above two study intersections are shown in **Figure 3**. The numbers listed above correspond to the intersection numbers on **Figure 3**.

For study scenarios that include the proposed project, LOS analysis of the following three project site access points is also presented in the traffic impact study:

5. N. Willow Avenue & West Parcel A Access,
6. Alluvial Avenue & South Parcel A Access, and
7. Alluvial Avenue & Parcel B Access.

The locations of the above three study intersections are shown in **Figure 4**. The numbers listed above correspond to the intersection numbers on **Figure 4**.

Study intersection 1 listed above, N. Chestnut Avenue & Alluvial Avenue, is located in the City of Fresno. In the vicinity of the project site, the city limit line between the City of Fresno and the City of Clovis is along N. Willow Avenue, which includes the following four study intersections:

2. N. Willow Avenue & Alluvial Avenue,
3. N. Willow Avenue & Spruce Avenue,
4. N. Willow Avenue & Herndon Avenue, and
5. N. Willow Avenue & West Parcel A Access.

The following two study intersections are located in the City of Clovis:

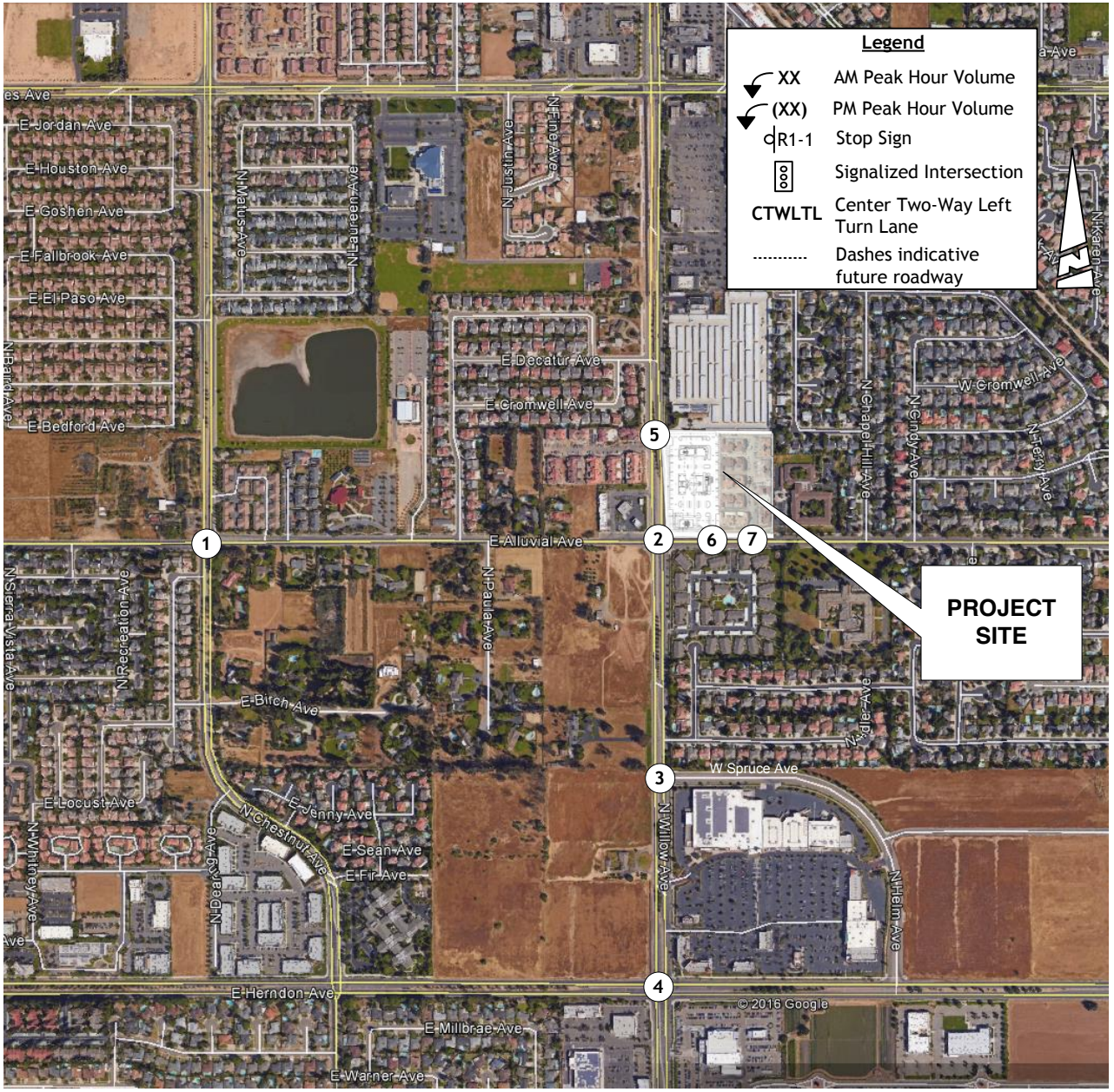
6. Alluvial Avenue & South Parcel A Access, and
7. Alluvial Avenue & Parcel B Access.

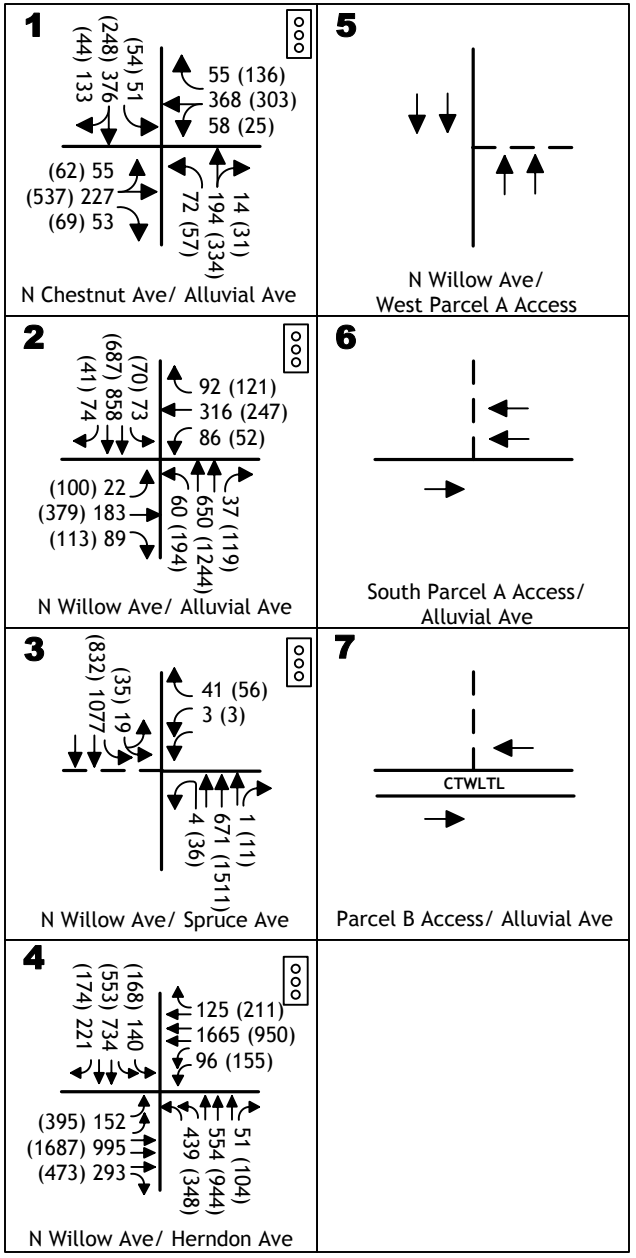
METHODOLOGY

The following is a description of the methods used in the analysis presented in this traffic impact study.

Level of Service Analysis Procedures

Level of service (LOS) analysis provides a basis for describing existing traffic conditions and for evaluating the significance of project-related traffic impacts. Level of service measures the quality of traffic flow and is represented by letter designations from A to F, with a grade of A referring to the best conditions, and F representing the worst conditions. The characteristics associated with the various LOS for intersections are presented in **Table 4**.



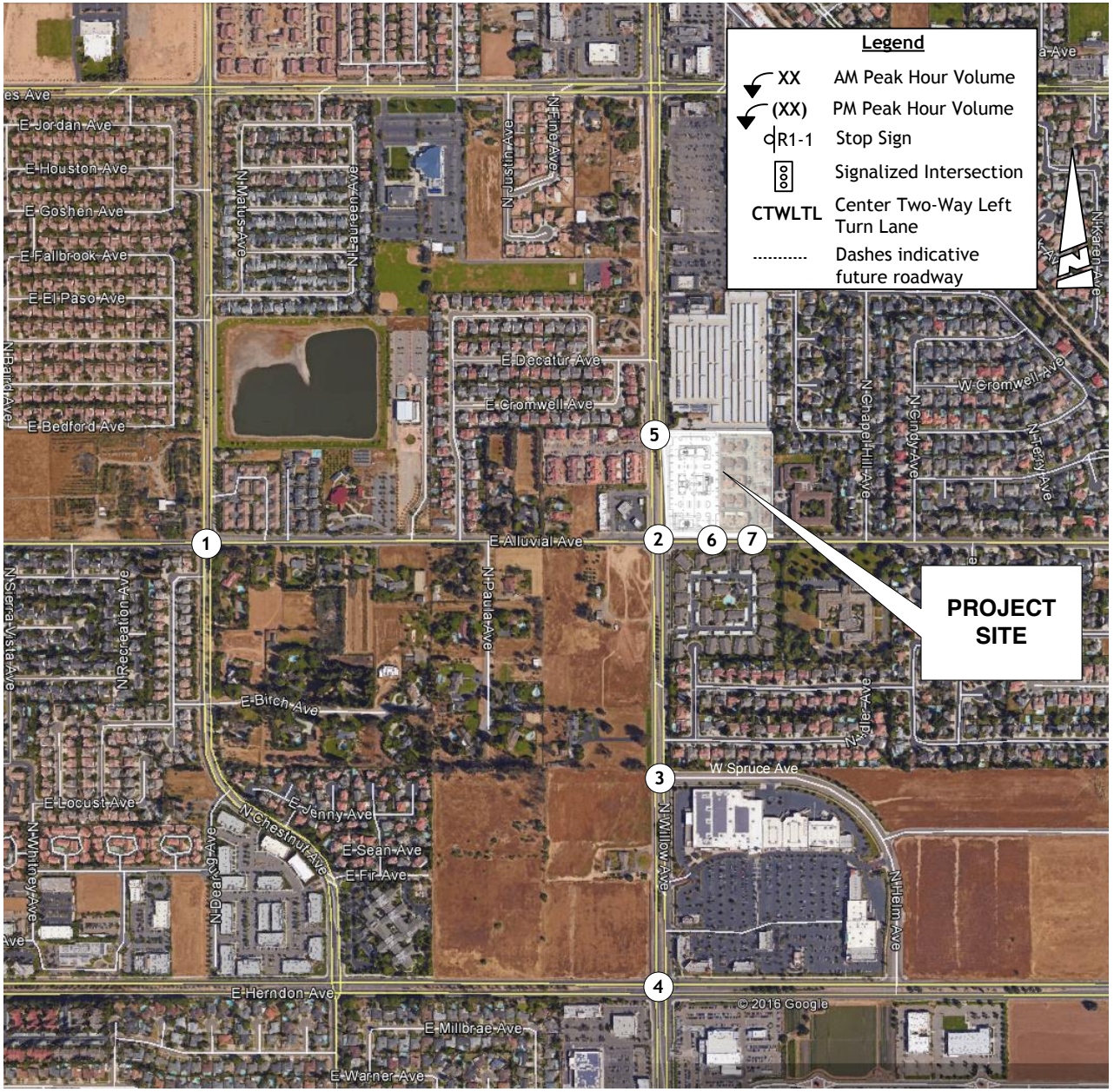


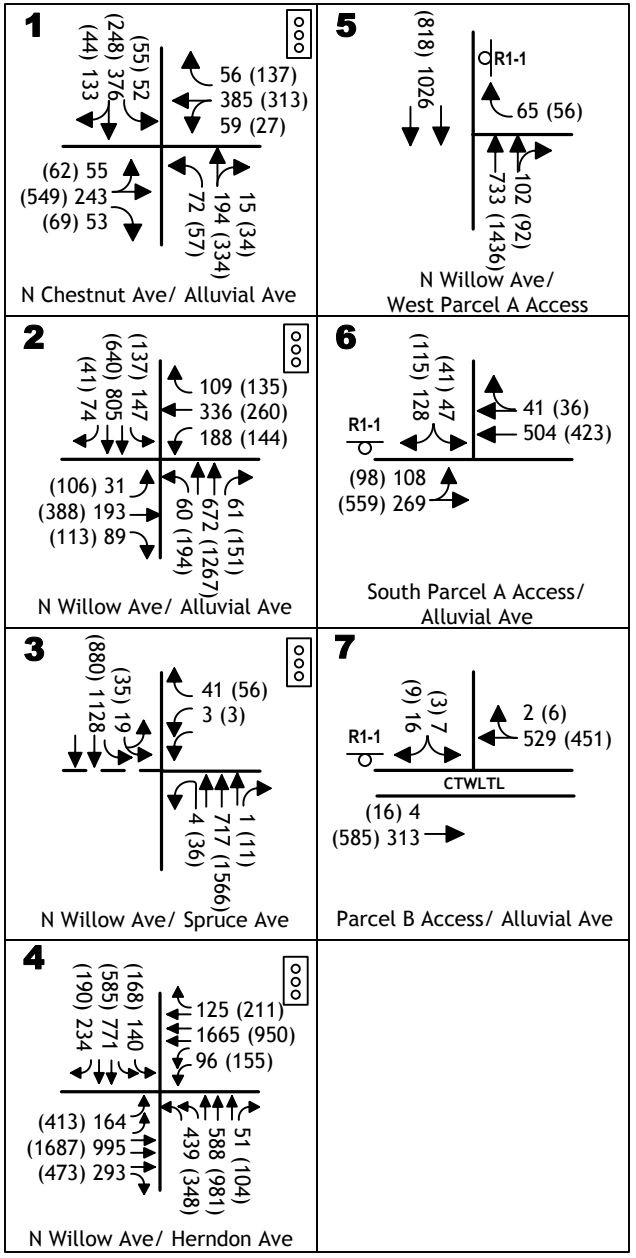
EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

0483-010 RA 3/01/2017

figure 3





KD Anderson & Associates, Inc.
Transportation Engineers

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 4

Table 4. Level of Service Definitions - Highway Capacity Manual 2010

Level of Service	Signalized Intersections	Unsignalized Intersections
A	Vehicle progression is exceptionally favorable or the cycle length is very short. Delay ≤ 10.0 seconds/vehicle	Little or no delay. Delay ≤ 10 seconds/vehicle
B	Vehicle progression is highly favorable or the cycle length is short. Delay > 10 seconds/vehicle and ≤ 20 seconds/vehicle	Short traffic delays. Delay > 10 seconds/vehicle and ≤ 15 seconds/vehicle
C	Vehicle progression is favorable or the cycle length is moderate. Individual cycle failures may begin to appear at this level. Delay > 20 seconds/vehicle and ≤ 35 seconds/vehicle	Average traffic delays. Delay > 15 seconds/vehicle and ≤ 25 seconds/vehicle
D	Vehicle progression is ineffective or the cycle length is long. Many vehicles stop and the individual cycle failures are noticeable. Delay > 35 seconds/vehicle and ≤ 55 seconds/vehicle	Long traffic delays. Delay > 25 seconds/vehicle and ≤ 35 seconds/vehicle
E	Vehicle progression is unfavorable and the cycle length is long. Individual cycle failures are frequent. Delay > 55 seconds/vehicle and ≤ 80 seconds/vehicle	Very long traffic delays, failure, extreme congestion. Delay > 35 seconds/vehicle and ≤ 50 seconds/vehicle
F	Vehicle progression is very poor and the cycle length is long. Most cycles fail to clear the vehicle queue. Delay > 80 seconds/vehicle	Intersection blocked by external causes. Delay > 50 seconds/vehicle

Source: Transportation Research Board 2010.

Level of service at both signalized and unsignalized intersections was analyzed using methods presented in the *Highway Capacity Manual*. Methods described in the *Highway Capacity Manual* were used to provide a basis for describing traffic conditions and for evaluating the significance of project traffic impacts. As specified in the *City of Clovis Traffic Impact Study Guidelines* (City of Clovis 2014a), methods from the latest version of the *Highway Capacity Manual*, the *Highway Capacity Manual 2010* (Transportation Research Board 2010), were used in this traffic impact study.

As noted in the *City of Clovis Traffic Impact Study Guidelines*,

> "While the City of Clovis does not officially advocate the use of any software, Synchro is the software used by City staff."

The Synchro software package (Trafficware 2017) was used for the LOS analysis presented in this traffic impact study. The lengths of vehicle queues were also analyzed for this traffic impact study. Methods presented in the *Highway Capacity Manual 2010* were used to analyze queuing. The 95th percentile queue length values are presented in this traffic impact study.

Worksheets and output reports for the calculation of LOS and vehicles queues are presented in the technical appendix of this traffic impact study.

Signal Warrants Procedures

Traffic signal warrants are a series of standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street, resulting in an undesirable increase in overall vehicle delay at the intersection. Signalization may also increase the occurrence of particular types of accidents. Therefore, if signals are installed where signal warrants are not met, the detriment of increased accidents and overall delay may be greater than the benefit in traffic operating conditions on the single worst movement at the intersection. Signal warrants, then, provide an industry-standard basis for identifying when the adverse effect on the worst movement is substantial enough to warrant signalization.

For the traffic analysis conducted for this traffic impact study, available data are limited to a.m. and p.m. peak hour volumes. Thus, unsignalized intersections operating at poor LOS were evaluated using the Peak Hour Warrant (Warrant Number 3) from the California Department of Transportation document *California Manual on Uniform Traffic Control Devices* (California Department of Transportation 2014). This warrant was applied where the minor street experiences long delays in entering or crossing the major street for at least one hour of the day. The Peak Hour Warrant itself includes several components. Some of the components involve comparison of traffic volumes and vehicle delay to a series of standards. Another component involves comparison of traffic volumes to a nomograph.

Even if the Peak Hour Warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the eight highest hours of the day, volumes during the four highest hours of the day, pedestrian traffic, and accident histories.

Signal warrant analysis worksheets for all stop sign-controlled intersections are presented in the technical appendix.

Travel Forecasting

This traffic impact study presents analysis of two future year background conditions: a near-term future EPAP condition, and a long-term future Cumulative condition.

Near-Term Future Existing Plus Approved Projects Background. EPAP conditions are a near-term future background condition which includes existing traffic levels, and traffic associated with approved and pending land use development projects in the vicinity of the project site. For this traffic impact study, background EPAP traffic volumes are based on information presented in recently-prepared traffic impact studies for previous and on-going land use development projects in the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project study area.

Because the Clovis portion of the study area is already well-developed, and new approved and pending projects are more than one mile away, City of Clovis staff did not identify approved or pending projects to include in the EPAP background conditions (Smith pers. comm.).

In consultation with City of Fresno staff (Gormley pers comm.), EPAP traffic volumes from the following three traffic impact studies were used in the development of EPAP traffic volumes for this traffic impact study:

- *Traffic Impact Study - Proposed Apartment Complex North of Herndon Avenue Between Chestnut and Willow Avenues* (Peters Engineering Group 2015),

- *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016), and

- *Transportation Impact Study – Multi-Family Development at Willow/Alluvial* (Precision Civil Engineering, Inc.2016).

EPAP traffic volumes from the three traffic impact studies listed above included other approved and pending projects. Vehicle trips generated by the three subject land use development projects listed above, and the other approved and pending projects were included in the EPAP traffic volumes for this traffic impact study. Trip generation estimates for approved and pending projects from the three traffic impact studies listed above are presented in the technical appendix.

Long-Term Future Cumulative Background. Cumulative conditions are a long-term future background condition with future year traffic forecasts based on development of surrounding land uses and the roadway network. This set of scenarios assumes 2035 conditions with future development consistent with the FCOG Travel Demand Model (Fresno Council of Governments 2014).

Travel forecasting data from a recent version of the FCOG Travel Demand Model was provided by FCOG staff (Han pers. comm.). In consultation with City of Clovis staff (Smith pers. comm.) and City of Fresno staff (Gormley pers comm.), these data were used to prepare Cumulative background traffic volume forecasts used in this traffic impact study.

Methods specified in the *City of Clovis Traffic Impact Study Guidelines* (City of Clovis 2014a) were used to forecast future traffic volumes. The FCOG Travel Demand Model results were applied to existing peak hour intersection turning movement traffic volumes. The development of future year intersection turning movement traffic volumes requires that the turning movements at each intersection "balance". To achieve the balance, inbound traffic volumes must equal the outbound traffic volumes, and the volumes must be distributed among the various left-turn, through, and right-turn movements at each intersection. The "balancing" of future year intersection turning movement traffic volumes was conducted using methods described in the Transportation Research Board's (TRB's) *National Cooperative Highway Research Program (NCHRP) Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design* (Transportation Research Board 1982). The NCHRP 255 method applies the desired peak hour directional volumes to the intersection turning movement volumes, using an iterative process to balance and adjust the resulting forecasts to match the desired peak hour directional volumes.

As specified in the *City of Clovis Traffic Impact Study Guidelines*, the "iterative" approach described in the NCHRP 255 document, as implemented in the TurnsW32 software package (Council of Fresno County Governments 2002) were used for this traffic impact study.

SIGNIFICANCE THRESHOLD

The following describes significance thresholds applied in this traffic impact study.

Level of Service

In this traffic impact study, the significance of the proposed project's impact on traffic operating conditions is based on a determination of whether resulting LOS is considered acceptable by the City of Clovis and City of Fresno. A project's impact on traffic conditions is considered significant if implementation of the project would result in LOS changing from levels considered acceptable to levels considered unacceptable, or if the project would substantially worsen already unacceptable LOS.

The *City of Clovis Traffic Impact Study Guidelines* (City of Clovis 2014a) states,

> "All City intersections and roadway segments shall operate at a LOS D or better under the near-term conditions, unless a finding of overriding consideration was adopted in the General Plan EIR. Under long-term conditions, all City intersections and roadway segments shall operate at a LOS D or better, except for the roadway segments adopted in the General Plan EIR to operate at LOS E or F."

Policy MT-1-n of the *Fresno General Plan* (City of Fresno 2014a) states,

> "**MT-1-n Peak Hour Vehicle LOS.** Maintain a peak-hour vehicle LOS standard of D or better for all roadway areas outside of identified Activity Center and Bus Rapid Transit Corridor districts, unless the City Traffic Engineer determines that mitigation to maintain this LOS would be infeasible and/or conflict with the achievement of other General Plan policies."

Therefore, for both the City of Clovis and the City of Fresno, LOS A through D are considered acceptable, while LOS E and F are considered unacceptable. In consultation with City of Clovis staff (Smith pers. comm.), in this traffic impact study a project will be considered to have a significant impact on LOS if the project:

- would cause LOS to degrade from acceptable LOS A through D to unacceptable LOS E or F, or
- would cause average delay to increase by five seconds or more where the LOS is LOS E or F without the project.

Vehicle Queuing

The *City of Clovis Traffic Impact Study Guidelines* requires a queuing analysis of the study intersections and recommendations for queues that are projected to exceed the available storage capacity. However, queuing is not included in the significance criteria specified in the guidelines.

A queuing deficiency is identified in No Project scenarios if the calculated 95th percentile queue length exceeds the existing storage length at a signalized intersection by more than 25 feet (the average storage length for one additional vehicle) since the turn lane bay taper can typically store at least one vehicle.

For Plus Project scenarios, a significant queuing impact is identified if the proposed project would cause the calculated 95th percentile queue length to exceed the existing storage capacity at a signalized intersection by more than 25 feet. In storage lanes that are already deficient under No Project scenarios, a significant queuing impact is identified if the proposed project would increase the calculated 95th percentile queue length by more than 25 feet.

Where a left-turn lane connects to a center-two-way left-turn lane (CTWLTL), although the calculated queue may exceed the length of the painted left-turn pocket, the presence of the CTWLTL provides additional storage and allows the queue to avoid spilling into through lanes. Therefore, queues exceeding the painted storage length in these situations may not contribute to operational problems and may not be considered a significant impact.

EXISTING SETTING

This section of this traffic impact study presents a description of existing conditions in the study area. Information presented in this section of the study is based on on-site field observations, traffic count data collected for this study, and other data available from local and state agencies.

STUDY AREA ROADWAYS

This traffic impact study presents analyses of traffic operating conditions at intersections in the study area that may be affected by the proposed project. The following is a description of roadways that provide access to the project site. These roadways are shown in **Figure 1**.

North Willow Avenue

N. Willow Avenue, Willow Avenue, and S. Willow Avenue is a north-south roadway. The northern terminus of this roadway is at N. Friant Road, east of the San Joaquin River. The southern terminus is in unincorporated Fresno County south of State Route (SR) 99. Portions of this roadway are discontinuous.

N. Willow Avenue is the western boundary of the project site. North of Alluvial Avenue, adjacent to the project site, N. Willow Avenue is a divided roadway with two northbound lanes and three southbound lanes. In the vicinity of the project site, the roadway is designated an arterial in the City of Clovis *General Plan* (City of Clovis 2014b), and designated a Super Arterial in the *Fresno General Plan* (City of Fresno 2014). The speed limit on N. Willow Avenue is 50 miles per hour (mph).

South of Alluvial Avenue, N. Willow Avenue is a divided roadway with two lanes in each direction. While this portion of N. Willow Avenue is striped for two northbound lanes, the pavement is wide enough for three through lanes. At the time this traffic impact study is prepared, roadway widening is under construction along the west side of N. Willow Avenue between Alluvial Avenue and Spruce Avenue.

North of the project site, N. Willow Avenue has bicycle lanes and sidewalks on both sides of the roadway. South of Alluvial Avenue, N. Willow Avenue has bicycle lanes and sidewalks along the east side of the roadway. Bicycle lanes and sidewalks are not present along the east side of Willow Avenue adjacent to the currently-vacant project site, and are not present along the west side of N. Willow Avenue south of Alluvial Avenue, which is also currently vacant.

Alluvial Avenue

Alluvial Avenue is an east-west roadway. The western terminus of this roadway is at N. Thiele Avenue, east of SR 99. The eastern terminus is at N. Thompson Avenue, east of SR 168. Portions of this roadway are discontinuous.

Alluvial Avenue is the southern boundary of the project site. Adjacent to the project site, Alluvial Avenue is two lanes wide (i.e., one lane in each direction) with a center-two-way left-turn lane (CTWLTL). In the vicinity of the project site, Alluvial Avenue is designated a collector roadway in both the City of Clovis *General Plan* and the *Fresno General Plan*. The speed limit on Alluvial Avenue adjacent to the project site is 40 mph.

Bicycle lanes are present on both sides of Alluvial Avenue east of N. Willow Avenue, and a sidewalk is present on the south side of Alluvial Avenue east of N. Willow Avenue. A sidewalk is present on the north side of Alluvial Avenue east of the project site, but is not present adjacent to the currently vacant project site.

Mountain View Elementary School is located northeast of the intersection of Alluvial Avenue and N. Maple Avenue, approximately one mile west of the project site. Bicycle lanes and sidewalks are present along a majority of the north side of Alluvial Avenue between N. Maple Avenue and N. Willow Avenue. Bicycle lanes and sidewalks are not present along north side of Alluvial Avenue adjacent to vacant parcels and large-lot residential development. In these areas, pedestrian were observed using the roadway shoulder and an informal path along the side of the roadway.

Along the south side of Alluvial Avenue, bicycle lanes and sidewalks are present between N. Maple Avenue and N. Chestnut Avenue, and are not present between N. Chestnut Avenue and N. Willow Avenue.

N. Chestnut Avenue

N. Chestnut Avenue and S. Chestnut Avenue is a north-south roadway. The northern terminus of N. Chestnut Avenue is at Shepherd Avenue, where the roadway continue north as N. Sommerville Drive and N. Maple Avenue. To the south, N. Chestnut Avenue is discontinuous at SR 168 and an area south of Ashlan Avenue. S. Chestnut Avenue continues south to Elkhorn Avenue in unincorporated Fresno County.

North of Alluvial Avenue, N. Chestnut Avenue is a divided two-lane roadway with one lane in each direction. South of Alluvial Avenue, N. chestnut Avenue is a divided roadway with two lanes in the southbound direction and one lane in the northbound direction. In the *Fresno General Plan*, N Chestnut Avenue is designated an arterial north of Herndon Avenue and designated a collector roadway south of Herndon Avenue.

N. Chestnut Avenue has a 45 mph speed limit north of Alluvial Avenue and a 40 mph speed limit south of Alluvial Avenue.

Spruce Avenue

Spruce Avenue is a roadway with a generally east-west orientation. Between a western terminus at approximately SR 99 and an eastern terminus at approximately N. Armstrong Avenue, Spruce Avenue is composed of several discontinuous portions.

East of N. Willow Avenue, Spruce Avenue is a four-lane roadway (two lanes in each direction) with a CTWLTL that provides access to the rear of a retail commercial area on the northeast corner of N. Willow Avenue and Herndon Avenue. This portion of Spruce Avenue has a 45 mph speed limit. An extension of Spruce Avenue, N. Helm Avenue, intersects Herndon Avenue.

In the City of Clovis *General Plan*, Spruce Avenue and N. Helm Avenue are designated a collector roadway between N. Willow Avenue and Herndon Avenue.

A portion of Spruce Avenue west of N. Willow Avenue is under construction. The intersection of Spruce Avenue and N. Willow Avenue is currently a "T" intersection. The portion of Spruce Avenue under construction will become the western fourth leg of this intersection.

Herndon Avenue

Herndon Avenue is a major east-west roadway. In the vicinity of the project site it is six-lanes wide (three lanes in each direction). In the City of Clovis *General Plan*, it is designated an expressway between N. Willow Avenue and SR 168.. In the *Fresno General Plan*, it is designated an expressway between N. Willow Avenue and N. Bryan Avenue.

The western terminus of Herndon Avenue is approximately three miles west of SR 99. The eastern terminus is at the Friant-Kern Canal. The roadway is discontinuous at SR 99. In the vicinity of the project site, the roadway has a 50 mph speed limit.

PUBLIC TRANSPORTATION

Clovis Transit Service provides public transportation to the Clovis area. Two transit lines serve the Clovis area: Stageline and Round Up. Stageline operates along fixed routes with regularly scheduled stops. Round Up is a demand-response service for disabled residents who call in advance to schedule trips. Stageline operates weekdays from approximately 6:15 a.m. to 6:15 p.m., with limited service on Saturdays (City of Clovis 2017). In addition, the Fresno Area Express (FAX) system route 9 operates in Clovis on Shaw Avenue weekdays from 6:30 a.m. to 7:30 p.m. and weekends from 8:11 a.m. to 3:15 p.m. The FAX system is operated by the City of Fresno and provides 16 fixed route bus lines (Fresno Area Express 2017).

Clovis Transit Service Stageline Route 10 operates on N. Willow Avenue along the western edge of the project site. During weekdays, service is provided with 30 minute frequency in each direction.

BICYCLE, PEDESTRIAN AND TRAILS

The generally level terrain and mild weather make bicycling and walking viable forms of transportation in Clovis. The City of Clovis and City of Fresno have an existing and planned

extensive network of bicycle facilities, including off-street trails and paths, as well as on-street bicycle lanes and routes. Many of these facilities also support pedestrian travel. Bicycle facilities are generally divided into three categories:

- Class I Bikeway (Bike Path). A completely separate facility designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.

- Class II Bikeway (Bike Lane). A striped lane designated for the use of bicycles on a street or highway. Vehicle parking and vehicle/pedestrian cross-flow are permitted at designated locations.

- Class III Bikeway (Bike Route). A route designated by signs or pavement markings within the vehicular travel lane (i.e., shared use) of a roadway.

The City of Clovis *General Plan* (City of Clovis 2014b) Circulation Element presents a *Bicycle and Trails System* map. In the vicinity of the project site, the map shows a Class I multipurpose trail on Herndon Avenue east of N. Willow Avenue; and Class II bike lanes on:

- Alluvial Avenue east of N. Willow Avenue, and
- N. Willow Avenue from Copper Avenue to Ashlan Avenue.

The City of Fresno *Bicycle, Pedestrian and Trails Master Plan* (City of Fresno 2010) presents existing and recommended bicycle facilities. The plan shows:

- a recommended Class I bicycle path along Herndon Avenue from N. Willow Avenue to just east of Chestnut Avenue, and an existing Class I bicycle path from just east of Chestnut Avenue to west of Cedar Avenue;

- a recommended Class I bicycle path and recommended Class II bicycle lane on N. Willow Avenue north of Herndon Avenue, and an existing Class II bicycle lane and a recommended Class I bicycle path on N. Willow Avenue south of Herndon Avenue;

- a recommended Class II bicycle lane on Alluvial Avenue west of N. Willow Avenue to approximately midway between Maple Avenue and Chestnut Avenue, and an existing Class II bicycle lane from approximately midway between Maple Avenue and Chestnut Avenue to just east of Cedar Avenue; and

- a recommended Class II bicycle lane on Chestnut Avenue in the vicinity of Alluvial Avenue, and existing Class II bicycle lanes on Chestnut Avenue north of and south of Alluvial Avenue.

TRANSPORTATION IMPACT FEE PROGRAMS

Transportation impact fees are collected by the City of Clovis and the City of Fresno.

City of Clovis

The City of Clovis collects development fee assessed on land use development projects. The development fee schedule includes Street Fees. The Street Fees are disaggregated to:

- outside travel lane,
- center travel lane,
- traffic signals,
- bridges, and
- quadrant intersections.

Information on the City's development fee schedule is available on the internet at http://www.ci.clovis.ca.us/Portals/0/Documents/Engineering/Standards/DevelopmentFeeSchedule.pdf?ver=2016-01-06-075122-037

City of Fresno

To improve and maintain the desired LOS on the Fresno streets and highways network, the City implements two major transportation impact fee programs. The two programs are:

1. The Traffic Signal Mitigation Impact (TSMI) fee program, which is directed to the improvement of major street intersections, and

2. The Fresno Major Street Impact (FMSI) fee program, which is directed to the improvement of major streets.

These programs collect fees from new development that are used to fund improvement, construction, and expansion of City roadway infrastructure commensurate with growth and development of the City. It should be noted that TSMI and FMSI fee are collected on projects located in the City of Fresno, and the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project is located in the City of Clovis.

TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following is a description of existing traffic operating conditions at the study intersections.

Traffic Volumes

Intersection turning movement count data at the existing study intersections were collected during the 7:00 a.m. to 9:00 a.m. period, and the 4:00 p.m. to 6:00 p.m. period. At the following three study intersections, data were collected on Wednesday January 11, 2017:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue, and
- N. Willow Avenue & Spruce Avenue.

At the intersection of N. Willow Avenue & Herndon Avenue, data were collected on Wednesday February 8, 2017.

Figure 3 presents the existing lane configurations and existing a.m. peak hour and p.m. peak hour traffic volumes at the existing study intersections.

Levels of Service

Table 1 presents a.m. peak hour and p.m. peak hour LOS at the existing study intersections. The worksheets presenting the calculation of LOS are included in the technical appendix.

Three of the four existing study intersections operate at acceptable LOS during both the a.m. peak hour and the p.m. peak hour under Existing conditions. No improvements are needed at these intersections to achieve acceptable LOS.

N. Chestnut Avenue & Alluvial Avenue. As shown in **Table 1,** this intersection would operate at LOS E with 65.9 seconds of delay during the a.m. peak hour and LOS D with 52.6 seconds of delay during the p.m. peak hour under Existing conditions. LOS E is considered unacceptable. To improve LOS to acceptable operating conditions, the following recommended improvement should be implemented:

> Recommended Improvement. Split the southbound combination through/right-turn lane into an exclusive southbound through and an exclusive southbound-to-westbound right-turn lane.

As shown in **Table 1**, implementing this recommended improvement would improve operations to LOS D with 47.6 seconds of delay during the a.m. peak hour and LOS D with 50.5 seconds of delay during the p.m. peak hour.

It should be noted that this recommended improvement is a part of project-related improvements at this intersection described in the *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016). This recommended improvement is also a part of improvements assumed at this intersection under EPAP conditions, which are described in more detail in the *Existing Plus Approved Projects No Project Conditions* section of this traffic impact study.

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under Existing conditions at the following four study intersections, respectively:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under Existing conditions do not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended.

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6** current vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue exceed the existing length of the eastbound-to-northbound left-turn lane by more than 25 feet.

> Recommended Improvement. To address this existing deficiency, the eastbound-to-northbound left-turn lane should be lengthened to accommodate a 153 feet vehicle queue.

This improvement would provide adequate vehicle storage under Existing conditions.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under Existing conditions do not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended.

N. Willow Avenue & Herndon Avenue

As shown in **Table 8** current vehicle queues at the intersection of N. Willow Avenue & Herndon Avenue exceed the existing length of the following turn lanes by more than 25 feet:

- the eastbound-to-southbound right-turn lane, and
- the northbound-to-westbound left-turn lane.

Recommended Improvement. To address this existing deficiency, the following improvements are recommended:

- lengthen the eastbound-to-southbound right-turn lane to accommodate a 222 feet vehicle queue, and

- lengthen the northbound-to-westbound left-turn lane to accommodate a 288 feet vehicle queue.

These improvements would provide adequate vehicle storage under Existing conditions.

Table 5. Turn Lane Queue Lengths at the Intersection of North Chestnut Avenue & Alluvial Avenue

Scenario and Time Period	EB-to-NB Left Turn	EB-to-SB Right Turn	WB-to-SB Left Turn	WB-to-NB Right Turn	NB-to-WB Left Turn	NB-to-EB Right Turn	SB-to-EB Left Turn	SB-to-WB Right Turn
Existing Length of Turn Lane	- -	180	- -	235	180	- -	255	- -
Existing								
AM Peak Hour	- -	12	- -	12	142	- -	89	- -
PM Peak Hour	- -	18	- -	52	120	- -	127	- -
Existing Plus Project								
AM Peak Hour	- -	12	- -	14	142	- -	90	- -
PM Peak Hour	- -	18	- -	53	120	- -	128	- -
Project-Related Change								
AM Peak Hour	- -	0	- -	2	0	- -	1	- -
PM Peak Hour	- -	0	- -	1	0	- -	1	- -
EPAP No Project								
AM Peak Hour	57	0	60	6	97	- -	109	20
PM Peak Hour	70	0	36	37	110	- -	92	0
EPAP Plus Project								
AM Peak Hour	57	0	61	7	97	- -	110	20
PM Peak Hour	70	0	38	36	111	- -	94	0
Project-Related Change								
AM Peak Hour	0	0	1	1	0	- -	1	0
PM Peak Hour	0	0	2	-1	1	- -	2	0
Cumulative No Project								
AM Peak Hour	81	19	111	3	132	- -	81	46
PM Peak Hour	108	39	83	36	138	- -	97	0
Cumulative Plus Project								
AM Peak Hour	81	19	112	3	132	- -	82	46
PM Peak Hour	108	39	87	36	138	- -	100	0
Project-Related Change								
AM Peak Hour	0	0	1	0	0	- -	1	0
PM Peak Hour	0	0	4	0	0	- -	3	0

Notes: "EB" = eastbound. "WB" = westbound. "NB" = northbound. "SB" = southbound. All values are in feet.
Zero ("0") indicates the queue is less than one foot. Dashes (" - - ") indicate exclusive turn lane not present in that scenario.
Bold black font indicates queue length exceeds existing length of turn lane.
Bold red font indicates queue length exceeds existing length of turn lane, and project-related change exceeds 25 feet.

Table 6. Turn Lane Queue Lengths at the Intersection of North Willow Avenue & Alluvial Avenue

Scenario and Time Period	EB-to-NB Left Turn	EB-to-SB Right Turn	WB-to-SB Left Turn *	WB-to-NB Right Turn	NB-to-WB Left Turn	NB-to-EB Right Turn	SB-to-EB Left Turn	SB-to-WB Right Turn
Existing Length of Turn Lane	95	50	240	285	300	105	260	155
Existing								
AM Peak Hour	42	34	132	36	88	0	116	20
PM Peak Hour	**153**	16	96	21	256	31	105	0
Existing Plus Project								
AM Peak Hour	54	34	**331**	38	88	12	265	20
PM Peak Hour	**164**	16	252	29	256	47	217	0
Project-Related Change								
AM Peak Hour	12	0	**199**	2	0	12	149	0
PM Peak Hour	11	0	156	8	0	16	112	0
EPAP No Project								
AM Peak Hour	78	37	146	8	154	0	118	4
PM Peak Hour	**141**	15	97	6	255	27	129	0
EPAP Plus Project								
AM Peak Hour	95	37	**316**	18	154	14	245	4
PM Peak Hour	**150**	11	264	10	255	39	241	0
Project-Related Change								
AM Peak Hour	17	0	**170**	10	0	14	127	0
PM Peak Hour	9	-4	167	4	0	12	112	0
Cumulative No Project								
AM Peak Hour	86	52	243	46	133	1	**300**	69
PM Peak Hour	**213**	**227**	**269**	57	290	4	**382**	44
Cumulative Plus Project								
AM Peak Hour	104	52	**325**	48	133	16	**333**	69
PM Peak Hour	**224**	**227**	**380**	71	290	23	**423**	44
Project-Related Change								
AM Peak Hour	18	0	**82**	2	0	15	**33**	0
PM Peak Hour	11	0	**111**	14	0	19	**41**	0

Notes: "EB" = eastbound. "WB" = westbound. "NB" = northbound. "SB" = southbound. All values are in feet.
Zero ("0") indicates the queue is less than one foot.
Bold black font indicates queue length exceeds existing length of turn lane.
Bold red font indicates queue length exceeds existing length of turn lane, and project-related change exceeds 25 feet.

* A center two-way left-turn lane east of the westbound-to-southbound left-turn lane extends for an additional 875 feet.

Table 7. Turn Lane Queue Lengths at the Intersection of North Willow Avenue & Spruce Avenue

Scenario and Time Period	EB-to-NB Left Turn	EB-to-SB Right Turn	WB-to-SB Left Turn*	WB-to-NB Right Turn*	NB-to-WB Left Turn	NB-to-EB Right Turn	SB-to-EB Left Turn	SB-to-WB Right Turn
Existing Length of Turn Lane	- -	- -	200	290	100	85	170	- -
Existing								
AM Peak Hour	- -	- -	3	12	9	0	11	- -
PM Peak Hour	- -	- -	3	15	38	0	19	- -
Existing Plus Project								
AM Peak Hour	- -	- -	3	12	9	0	11	- -
PM Peak Hour	- -	- -	3	19	39	0	19	- -
Project-Related Change								
AM Peak Hour	- -	- -	0	0	0	0	0	- -
PM Peak Hour	- -	- -	0	4	1	0	0	- -
EPAP No Project								
AM Peak Hour	27	0	6	0	33	0	11	0
PM Peak Hour	16	0	3	0	88	0	18	0
EPAP Plus Project								
AM Peak Hour	27	0	6	0	33	0	11	0
PM Peak Hour	17	0	3	0	73	0	18	0
Project-Related Change								
AM Peak Hour	0	0	0	0	0	0	0	0
PM Peak Hour	1	0	0	0	-15	0	0	0
Cumulative No Project								
AM Peak Hour	33	0	15	16	58	0	11	0
PM Peak Hour	59	0	5	0	49	0	179	0
Cumulative Plus Project								
AM Peak Hour	34	0	15	16	58	0	11	0
PM Peak Hour	59	0	5	0	49	0	179	0
Project-Related Change								
AM Peak Hour	1	0	0	0	0	0	0	0
PM Peak Hour	0	0	0	0	0	0	0	0

Notes: "EB" = eastbound. "WB" = westbound. "NB" = northbound. "SB" = southbound. All values are in feet.
Zero ("0") indicates the queue is less than one foot. Dashes (" - - ") indicate exclusive turn lane not present in that scenario.
Bold black font indicates queue length exceeds existing length of turn lane.
Bold red font indicates queue length exceeds existing length of turn lane, and project-related change exceeds 25 feet.

* Under Existing conditions, turn lanes extend east for an additional 250 feet as through travel lanes.

Table 8. Turn Lane Queue Lengths at the Intersection of North Willow Avenue & Herndon Avenue

Scenario and Time Period	EB-to-NB Left Turn	EB-to-SB Right Turn	WB-to-SB Left Turn	WB-to-NB Right Turn	NB-to-WB Left Turn	NB-to-EB Right Turn	SB-to-EB Left Turn	SB-to-WB Right Turn
Existing Length of Turn Lane	270	195	255	130	260	180	225	115
Existing								
AM Peak Hour	123	53	69	37	**288**	0	92	111
PM Peak Hour	239	**222**	117	111	220	27	152	63
Existing Plus Project								
AM Peak Hour	132	53	69	37	**288**	0	92	126
PM Peak Hour	224	**225**	117	117	220	27	152	79
Project-Related Change								
AM Peak Hour	9	0	0	0	0	0	0	15
PM Peak Hour	-15	3	0	6	0	0	0	16
EPAP No Project								
AM Peak Hour	140	101	55	46	258	0	98	120
PM Peak Hour	198	208	123	142	193	42	114	87
EPAP Plus Project								
AM Peak Hour	167	95	54	41	**305**	0	94	125
PM Peak Hour	209	211	123	144	193	42	114	104
Project-Related Change								
AM Peak Hour	27	-6	-1	-5	**47**	0	-4	5
PM Peak Hour	11	3	0	2	0	0	0	17
Cumulative No Project								
AM Peak Hour	113	**303**	160	61	**394**	51	121	52
PM Peak Hour	191	**462**	226	88	**358**	118	188	53
Cumulative Plus Project								
AM Peak Hour	125	**303**	160	61	**394**	51	121	58
PM Peak Hour	199	**462**	226	88	**358**	118	188	59
Project-Related Change								
AM Peak Hour	12	0	0	0	0	0	0	6
PM Peak Hour	8	0	0	0	0	0	0	6

Notes: "EB" = eastbound. "WB" = westbound. "NB" = northbound. "SB" = southbound. All values are in feet.
Zero ("0") indicates the queue is less than one foot. Dashes (" - - ") indicate exclusive turn lane not present in that scenario.
Bold black font indicates queue length exceeds existing length of turn lane.
Bold red font indicates queue length exceeds existing length of turn lane, and project-related change exceeds 25 feet.

EXISTING PLUS PROJECT IMPACTS

The Existing Plus Project scenario may be used to identify the direct impacts of the proposed project, by comparing conditions under the Existing Plus Project scenario to conditions under Existing conditions. As noted in Section 15125(a) of the State CEQA Guidelines, Existing conditions ". . . will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

Traffic volumes under Existing Plus Project conditions are determined by adding project-related traffic to existing background traffic volumes.

Implementation of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would result in vehicle traffic to and from the project site. The amount of additional traffic on a particular section of the street network depends on three factors:

- Trip Generation, the number of new trips generated by the project;
- Trip Distribution, the direction of travel for the new traffic; and
- Trip Assignment, the specific routes used by the new traffic.

Each of these factors is described below.

TRIP GENERATION

Proposed land uses in the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project include:

- a 3,764 building SF convenience store with 16 gasoline fueling stations,
- two fast food restaurants with drive-through windows 3,462 building SF and 3,149 building SF in size, and
- an apartment complex with 56 multiple family dwelling units.

A more detail description of the project is provided in the *Introduction* section of this traffic impact study.

Implementation of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would generate new vehicle trips and potentially affect traffic operations at the study intersections. The number of vehicle trips that are expected to be generated by development of the proposed project has been estimated using typical trip generation rates that have been developed based on the nature and size of project land uses.

Data compiled by the Institute of Transportation Engineers (ITE) and presented in the publication *Trip Generation, 9th Edition* (Institute of Transportation Engineers 2012) is the primary source of trip generation rates.

The trip generation rates used in this traffic impact study are presented in **Table 9**. The trip generation rates are applied to the amount of project-related land uses. The resulting trip generation estimates are presented in **Table 10**. As shown in **Table 10**, the trip generation estimate has been adjusted to reflect pass-by trips to the non-residential portion of the project, drawn from the flow of background (not project-related) traffic.

The pass-by trip adjustment was made using methods specified in the ITE document *Trip Generation Handbook, 2nd Edition* (Institute of Transportation Engineers 2012), and in consultation with City of Clovis staff (Smith pers. comm.) The *Trip Generation Handbook 2nd Edition* specifies the methods used in applying pass-by adjustments.

As shown in **Table 10**, the proposed project would generate an estimated 254 trips during the a.m. peak hour and 241 trips during the p.m. peak hour.

TRIP DISTRIBUTION

Project-related trips were geographically distributed over the study area roadway network. The distribution of trips is based on the relative attractiveness or utility of possible destinations. Trip distribution percentages applied in this traffic impact study are presented in **Table 11,** and are graphically shown in **Figure 5** and **Figure 6**.

The FCOG Travel Demand Model (Han pers. comm.) was used to estimate trip distribution percentages. Raw unadjusted select link results from the travel demand model are presented in the technical appendix.

This traffic impact study includes analysis of scenarios based on three different background development conditions:

- Existing conditions,
- EPAP conditions, and
- Cumulative conditions.

Under Existing background conditions, the west leg of the intersection of N. Willow Avenue & Spruce Avenue is not present. The west leg of this intersection is under constructions, and is assumed to be present with near-term future EPAP and long-term future Cumulative background conditions. The presence of the west leg of the intersection would affect project-related trip distribution. Therefore, **Table 11** separately presents trip distribution percentages for Existing background conditions, and for EPAP and Cumulative background conditions.

Table 9. Trip Generation Rates for
N. Willow Avenue & Alluvial Avenue Commercial and Apartments Project

Land Use Category and ITE Land Use Code	Independent Variable	Vehicle Trip Rates						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Freddy's and Future Drive-Thru Restaurant (ITE 934 - Fast-Food Restaurant with Drive-Through Window)	1,000 Sq. Ft	496.12	23.16	22.26	45.42	16.98	15.67	32.65
am/pm Convenience Store (ITE 946 - Gasoline/Service Station with Convenience Market and Car Wash)	Vehicle Fueling Positions	152.84	6.04	5.80	11.84	7.07	6.79	13.86
Apartment (ITE 220)	Dwelling Units	6.65	0.10	0.41	0.51	0.40	0.22	0.62

Notes: Totals may not equal the sum of the components due to rounding.
Source: Institute of Transportation Engineers 2012.

Table 10. Trip Generation Estimates for
N. Willow Avenue & Alluvial Avenue Commercial and Apartments Project

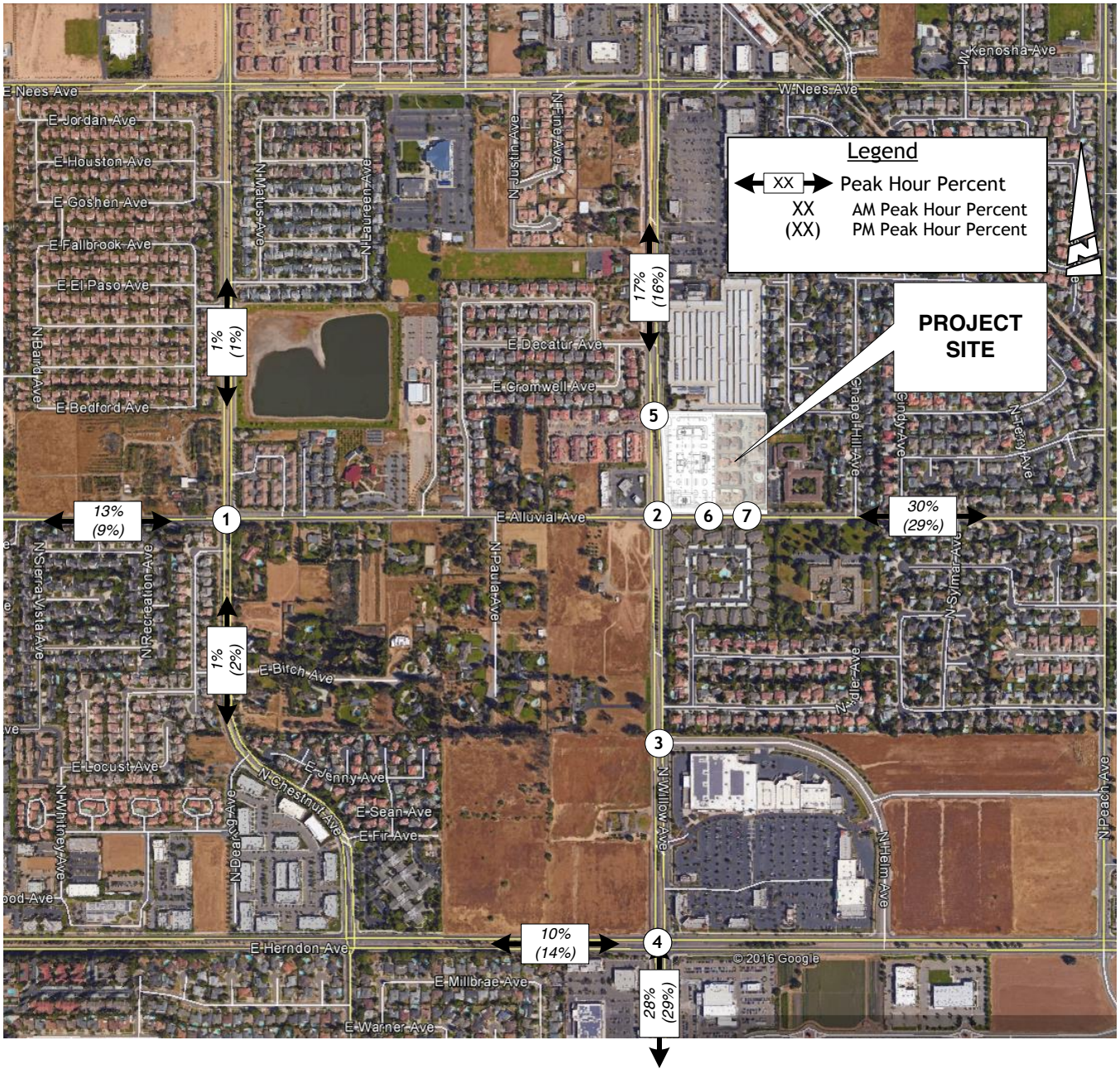
Land Use Category and ITE Land Use Code	Amount of Land Use	Vehicle Trips						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Freddy's and Future Drive-Thru Restaurant (ITE 934 - Fast-Food Restaurant with Drive-Through Window)	6.611 1,000 Sq. Ft	3,280	153	147	300	112	104	216
am/pm Convenience Store (ITE 946 - Gasoline/Service Station with Convenience Market and Car Wash)	16 Vehicle Fueling Positions	2,445	97	93	189	113	109	222
Apartment (ITE 220)	56 Dwelling Units	372	6	23	29	22	12	35
Unadjusted Subtotal		6,097	256	263	518	247	225	473
Pass-By Trip Reductions								
Freddy's and Future Drive-Thru Restaurant (ITE 934 - Fast-Food Restaurant with Drive-Through Window)		-1,640	-75	-72	-147	-56	-52	-108
am/pm Convenience Store (ITE 946 - Gasoline/Service Station with Convenience Market and Car Wash)		-1,223	-60	-58	-117	-63	-61	-124
Adjusted Total		3,234	121	133	254	128	112	241

Notes: Totals may not equal the sum of the components due to rounding.
Pass-by percentages based on Institute of Transportation Engineers 2012.

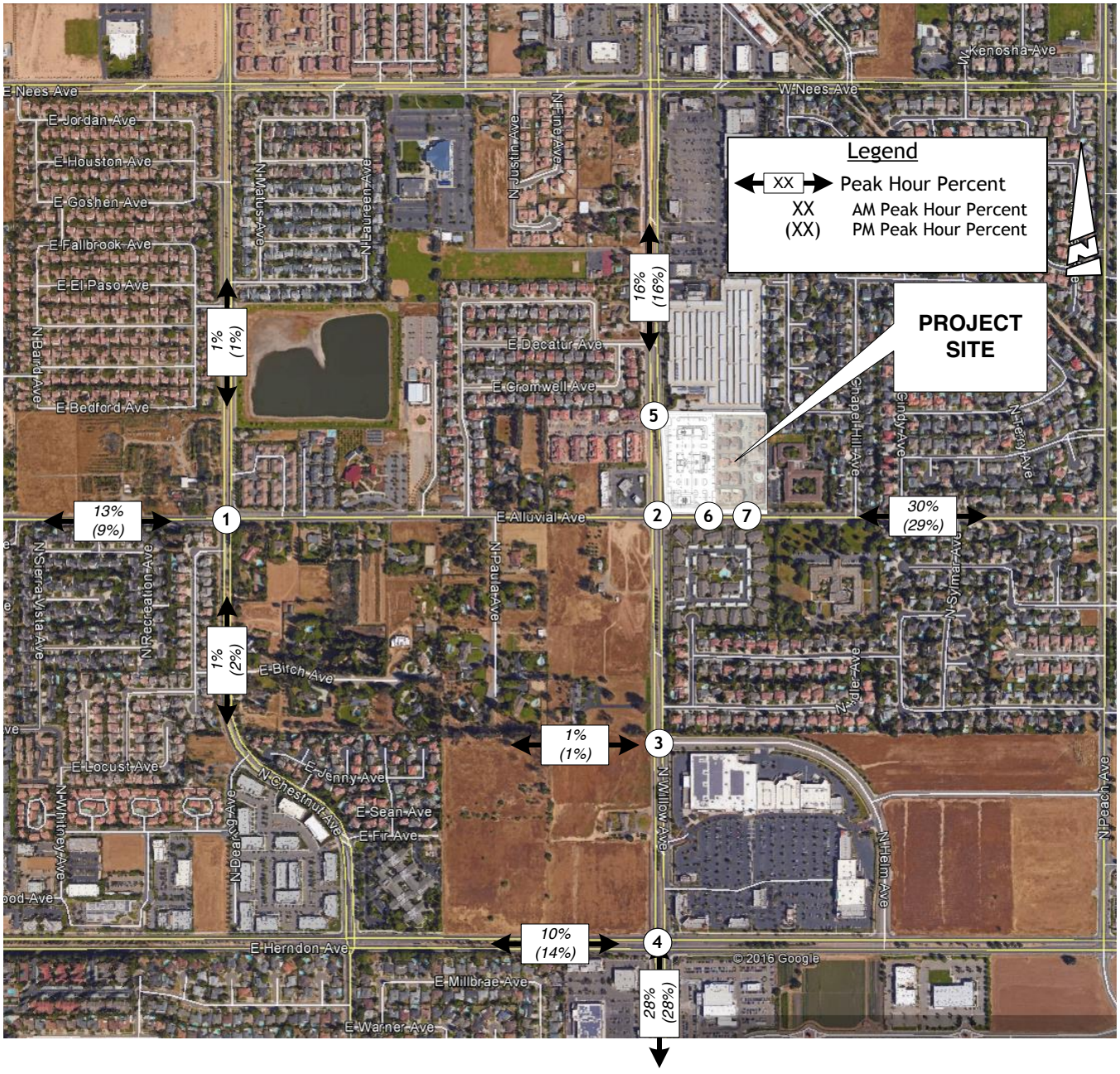
Table 11. Trip Distribution Percentages

Direction of Travel	Existing Background		EPAP and Cumulative Background	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
North on North Chestnut Avenue	1%	1%	1%	1%
North on North Willow Avenue	17%	16%	16%	16%
West on Alluvial Avenue	13%	9%	13%	9%
East on Alluvial Avenue	30%	29%	30%	29%
South on North Chestnut Avenue	1%	2%	1%	2%
West on Spruce Avenue	- -	- -	1%	1%
West on Herndon Avenue	10%	14%	10%	14%
South on Willow Avenue	28%	29%	28%	28%
TOTAL	100%	100%	100%	100%

Source: Fresno Council of Governments Transportation Demand Model
Note: Dashes ("- -") indicate roadway does not exist.



PROJECT TRIP DISTRIBUTION PERCENTAGES
EXISTING BACKGROUND



PROJECT TRIP DISTRIBUTION PERCENTAGES
EPAP AND CUMULATIVE BACKGROUND

The FCOG travel model indicates project-related trip distribution percentages would be different during the a.m. peak hour and p.m. peak hour. Common reasons for travel patterns to differ during the a.m. peak hour and p.m. peak hour include:

- travel related to schools – trips going to school occur during the a.m. peak hour, but trips leaving school occur during the mid-afternoon, missing the p.m. peak hour; and

- travel related to retail commercial land use – retail commercial land uses generate relatively fewer trips during the a.m. peak hour and relatively more trips during the p.m. peak hour.

Because the FCOG travel model indicates project-related trip distribution percentages would be different during the a.m. peak hour and p.m. peak hour, **Table 11** presents different trip distribution percentages for the a.m. peak hour and p.m. peak hour.

TRIP ASSIGNMENT

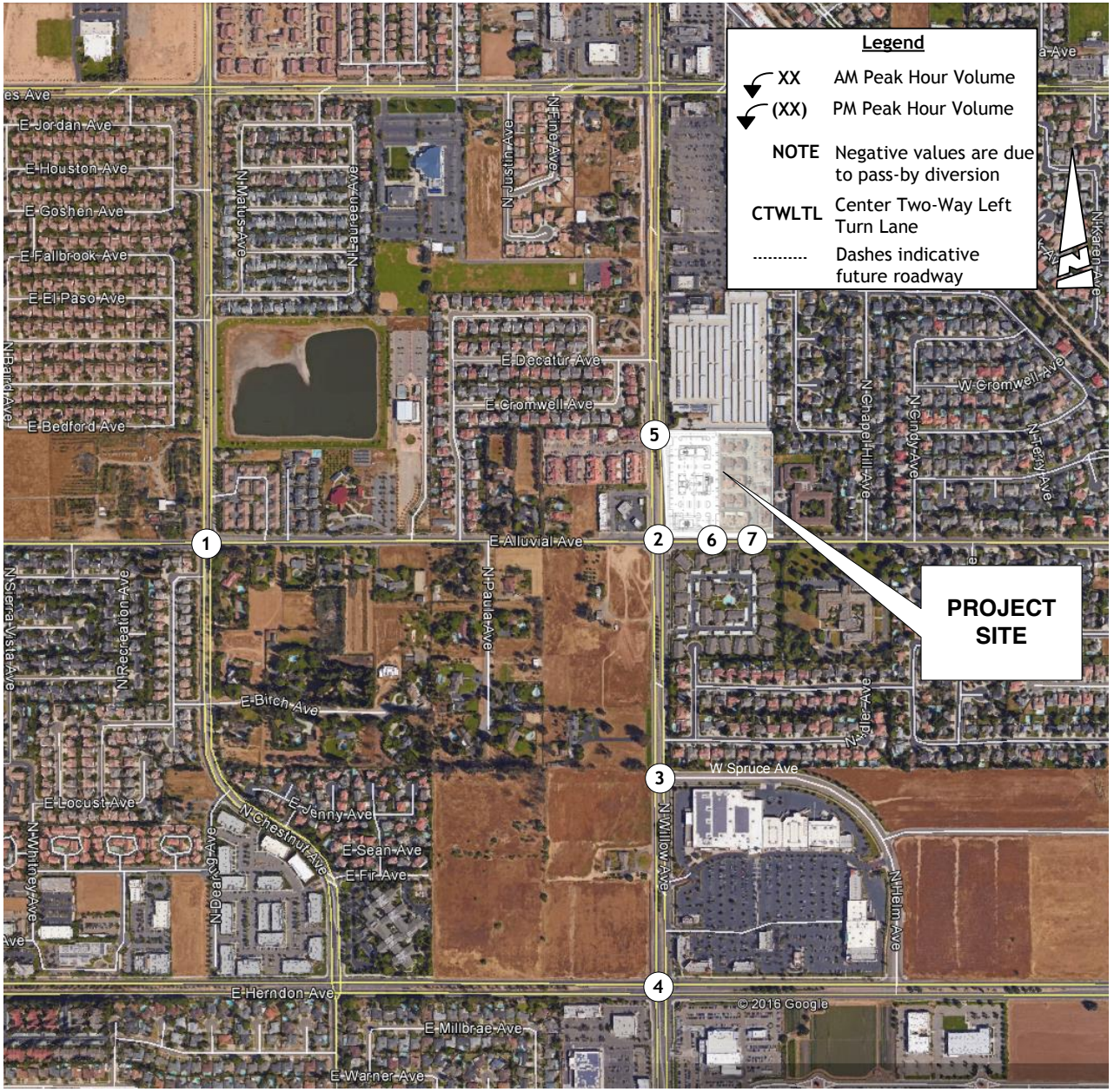
Traffic that would be generated by the proposed project was added to Existing volumes. **Figure 7** displays the project-related-only traffic volumes for each study intersection in the a.m. peak hour and p.m. peak hour. **Figure 4** displays the resulting Existing Plus Project traffic volumes anticipated for each study intersection in the peak hours.

LEVELS OF SERVICE

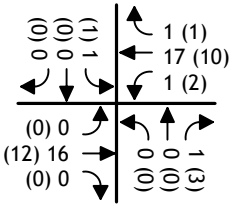
Table 1 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Existing Plus Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Existing Plus Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under Existing Plus Project conditions would be higher than under Existing conditions.

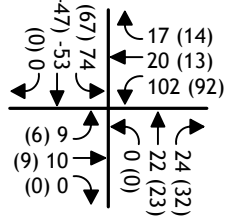
Under Existing Plus Project conditions, LOS at six of the seven study intersections would be at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. The impact at these six intersections is considered to be less than significant. No mitigation measures are required.



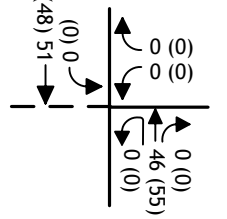
1 N Chestnut Ave/ Alluvial Ave



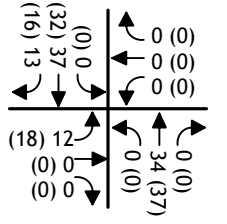
2 N Willow Ave/ Alluvial Ave



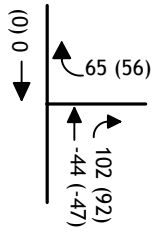
3 N Willow Ave/ Spruce Ave



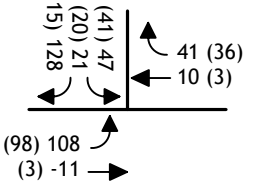
4 N Willow Ave/ Herndon Ave



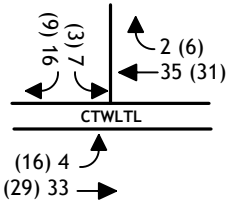
5 N Willow Ave/ West Parcel A Access



6 South Parcel A Access/ Alluvial Ave



7 Parcel B Access/ Alluvial Ave



EXISTING BACKGROUND PROJECT-RELATED TRIPS

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 1,** this intersection would operate at LOS E with 71.8 seconds of delay during the a.m. peak hour and LOS E with 56.2 seconds of delay during the p.m. peak hour under Existing Plus Project Conditions. LOS E is considered unacceptable. This impact is considered to be significant. Implementation of the following mitigation measure would reduce this impact to a less than significant level:

> Mitigation Measure. Split the southbound combination through/right-turn lane into an exclusive southbound through and an exclusive southbound-to-westbound right-turn lane.

As shown in **Table 1**, implementing this mitigation measure would improve operations to LOS D with 52.5 seconds of delay during the a.m. peak hour and LOS D with 54.1 seconds of delay during the p.m. peak hour. LOS D is considered acceptable.

It should be noted that this mitigation measure is:

- the same as the recommended improvement under Existing conditions;
- a part of project-related improvements at this intersection described in the *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016); and
- is a part of improvements assumed at this intersection under EPAP conditions, which are described in more detail in the *Existing Plus Approved Projects No Project Conditions* section of this traffic impact study.

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under Existing Plus Project conditions at the following four study intersections, respectively, and shows the project-related change:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under Existing Plus Project conditions would not exceed the existing length of turning

lanes by more than 25 feet. Therefore, this impact is considered less than significant and no mitigation measures are required.

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the eastbound-to-northbound left-turn lane by more than 25 feet under Existing Plus Project conditions. This is the same lane that would experience vehicle queues exceeding the length of turning lane by more than 25 feet under Existing conditions. The project-related change in the vehicle queue length would not be more than 25 feet in the eastbound-to-northbound left-turn lane. Therefore, the impact on this turning lane would be less than significant and no mitigation measure is required.

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the westbound-to-southbound left-turn lane by more than 25 feet under Existing Plus Project conditions. However, a CTWLTL east of the westbound-to-southbound left-turn lane extends for an additional 875 feet, which would be adequate for containing the queue. Therefore, the impact on this turning lane would be less than significant and no mitigation measure is required.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7,** vehicle queues at the intersection of N. Willow Avenue & Spruce Avenue under Existing Plus Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, the impact of vehicle queuing at this intersection would be less than significant and no mitigation measure is required.

N. Willow Avenue & Herndon Avenue

As shown in **Table 8,** at the intersection of N. Willow Avenue & Herndon Avenue under Existing Plus Project conditions, vehicle queues would exceed the existing length of the following turn lanes by more than 25 feet

- the eastbound-to-southbound right-turn lane, and
- the northbound-to-westbound left-turn lane.

These are the same lanes that would experience vehicle queues exceeding the length of turning lane by more than 25 feet under Existing conditions. The project-related change in the vehicle queue length would not be more than 25 feet. Therefore, the impact on turning lanes at this intersection would be less than significant and no mitigation measure is required.

SITE ACCESS AND CIRCULATION

The following describes impacts associated with project site access and circulation.

Sight Distance

Vegetation, structures, and horizontal and vertical curvature can potentially impair the distance at which approaching vehicles can be seen by drivers waiting to depart a project site driveway. This distance is referred to as sight distance. Sight distance determines the amount of time a driver has to execute a maneuver – in the case of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project, exiting the project site using:

- the West Parcel A Access driveway on N. Willow Avenue,
- the South Parcel A Access driveway on Alluvial Avenue, or
- the Parcel B Access driveway on Alluvial Avenue.

As specified in section 201.1 of the Caltrans *Highway Design Manual* (California Department of Transportation 2016), sight distance has been assessed for this traffic impact study using the Stopping Sight Distance procedures described in section 201.3 of the *Highway Design Manual*.

Table 201.1 of the Highway Design Manual presents a description of minimum acceptable stopping sight distances at various speeds. The speed limit on N. Willow Avenue adjacent to the project site is 50 mph. At 50 mph, the minimum acceptable stopping distance is 430 feet. The speed limit on Alluvial Avenue adjacent to the project site is 40 mph. At 40 mph, the minimum acceptable stopping distance is 300 feet.

Figure 8 shows the sight distance view from the West Parcel A Driveway looking north along N. Willow Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 430 feet. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Figure 9 shows the sight distance view from the West Parcel A Driveway looking south along N. Willow Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 430 feet. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Figure 10 shows the sight distance view from the South Parcel A Driveway looking west along Alluvial Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 300 feet. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Figure 11 shows the sight distance view from the South Parcel A Driveway looking east along Alluvial Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 300 feet.

Therefore, this impact is considered less than significant, and no mitigation measures are required.

Figure 12 shows the sight distance view from the Parcel B Driveway looking west along Alluvial Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 300 feet. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Figure 13 shows the sight distance view from the Parcel B Driveway looking east along Alluvial Avenue using procedures described in section 201.3 of the *Highway Design Manual*. The available sight distance would exceed the minimum acceptable sight distance of 300 feet. Therefore, this impact is considered less than significant, and no mitigation measures are required.

VIEW LOOKING NORTH FROM THE WEST PARCEL A DRIVEWAY

VIEW LOOKING SOUTH FROM THE WEST PARCEL A DRIVEWAY

VIEW LOOKING WEST FROM THE SOUTH PARCEL A DRIVEWAY

VIEW LOOKING EAST FROM THE SOUTH PARCEL A DRIVEWAY

VIEW LOOKING WEST FROM THE PARCEL B DRIVEWAY

VIEW LOOKING EAST FROM THE PARCEL B DRIVEWAY

Pedestrian and Bicycle Access

Implementation of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would result in pedestrian and bicycle travel to and from the project site. As noted in the *Study Area Roadways* section of this traffic impact study:

- N. Willow Avenue has bicycle lanes and sidewalks on both sides of the roadway north of the project site.
- N. Willow Avenue has bicycle lanes and sidewalks along the east side of the roadway south of Alluvial Avenue.
- Alluvial Avenue has bicycle lanes and sidewalks on both sides east of the project site.
- Alluvial Avenue has bicycle lanes and sidewalks along a majority of the north side between N. Maple Avenue and N. Willow Avenue. Bicycle lanes and sidewalks are not present along north side of Alluvial Avenue adjacent to vacant parcels and large-lot residential development. In these areas, pedestrian were observed using the roadway shoulder and an informal path along the side of the roadway.
- Alluvial Avenue has bicycle lanes and sidewalks along the south side between N. Maple Avenue and N. Chestnut Avenue. However, bicycle lanes and sidewalks and are not present along the south side of Alluvial Avenue between N. Chestnut Avenue and N. Willow Avenue.

In addition, crosswalks are present across all four approaches to the intersection of N. Willow Avenue & Alluvial Avenue, providing protected access to the project site.

As shown in **Figure 2**, implementation of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would include construction of sidewalks along the project site frontage to both N. Willow Avenue and Alluvial Avenue. Therefore, bicycle and pedestrian access to the project site is considered adequate. This impact is considered less than significant and no mitigation measures are required.

EXISTING PLUS APPROVED PROJECTS NO PROJECT CONDITIONS

EPAP No Project conditions, also referred to as Near-Term No Project conditions, represent a near-term future background condition. Development of land uses and roadway improvements associated with previously-approved and pending projects are assumed in this condition. This scenario does not include development of any of the proposed N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. The EPAP No Project condition, therefore, serves as the baseline condition used to assess the significance of near-term future project-related traffic impacts.

TRAFFIC VOLUME FORECASTS

As previously described in the *Travel Forecasting* section of this traffic impact study, data from the following three traffic impact studies were used to develop forecasts of background increases in traffic volumes under near-term EPAP conditions. The increases in traffic volumes reflect development of previously-approved and pending projects in the vicinity of the project site.

- *Traffic Impact Study - Proposed Apartment Complex North of Herndon Avenue Between Chestnut and Willow Avenues* (Peters Engineering Group 2015),
- *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016), and
- *Transportation Impact Study – Multi-Family Development at Willow/Alluvial* (Precision Civil Engineering, Inc 2016).

A more detailed description of traffic volume forecasting methods is presented in the *Travel Forecasting* section of this traffic impact study. Application of these methods results in the a.m. peak hour and p.m. peak hour traffic volumes presented in **Figure 14**.

ROADWAY IMPROVEMENTS

In consultation with City of Fresno staff (Gormley pers. comm.), roadway improvements for EPAP No Project conditions were assumed to be consistent with the three traffic impact studies listed immediately above. These improvements include the following.

At the intersection of N. Chestnut Avenue & Alluvial Avenue:

- split the southbound combined through/right-turn lane into an exclusive southbound through lane and an exclusive southbound-to-westbound right-turn lane,

- add a second southbound exclusive through lane,

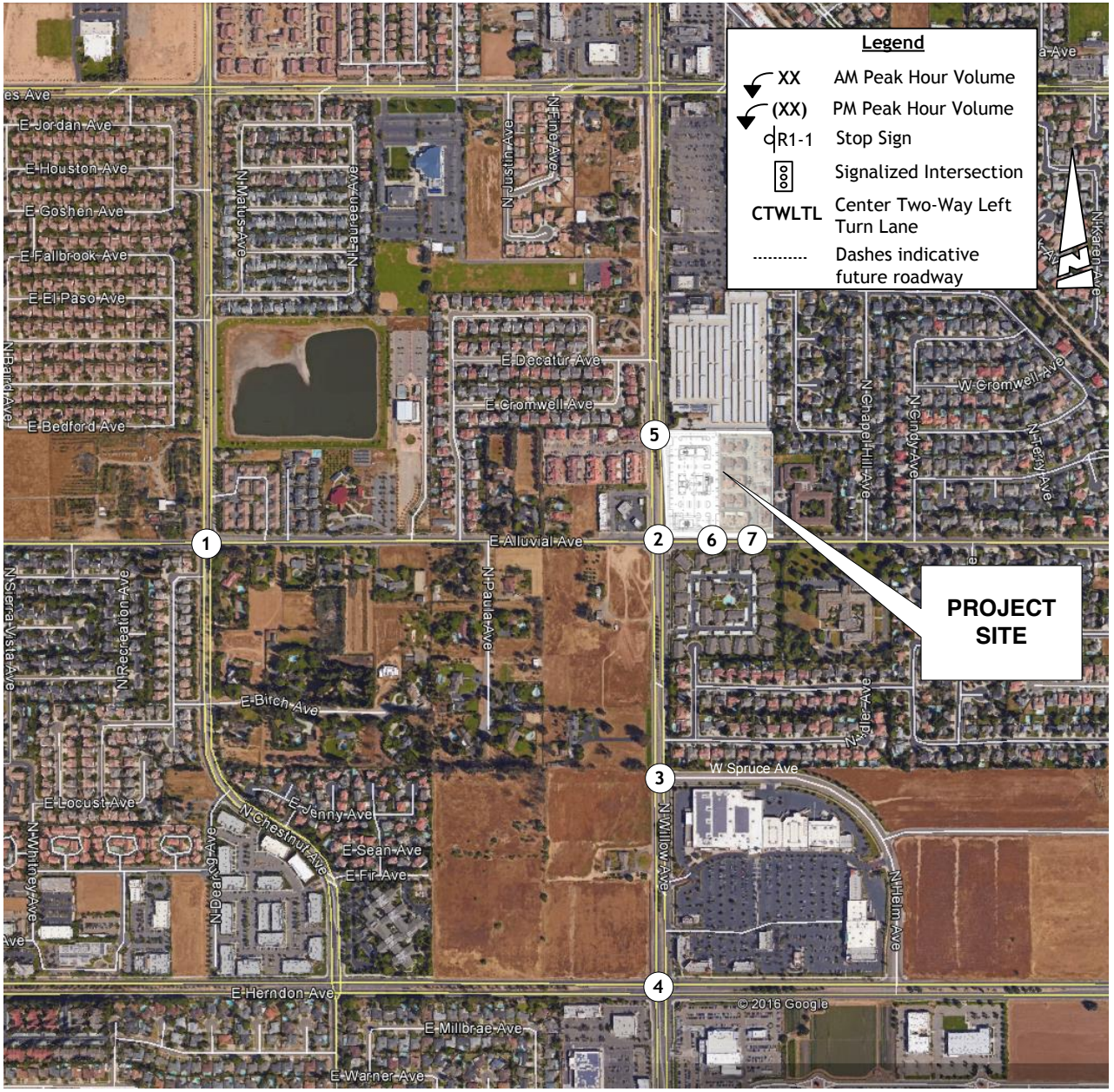
- split the westbound combined through/left-turn lane into an exclusive westbound through lane and an exclusive westbound-to-southbound left-turn lane, and

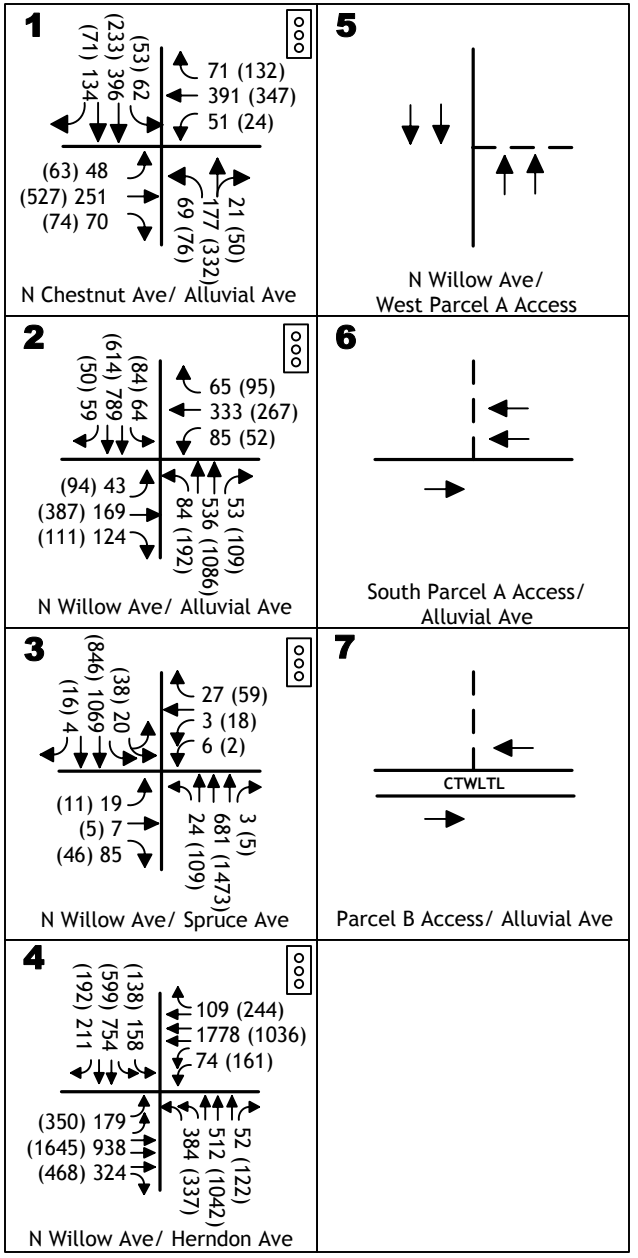
- split the eastbound combined through/left-turn lane into an exclusive eastbound through lane and an exclusive eastbound-to-northbound left-turn lane.

Complete the west leg of the intersection of N. Willow Avenue & Spruce Avenue, which is under construction:

- add an exclusive eastbound-to-northbound left-turn lane,
- add an exclusive eastbound through lane,
- add an exclusive eastbound-to-southbound right-turn lane,
- add an exclusive southbound-to-westbound right-turn lane, and
- add an exclusive westbound through lane.

The resulting intersection lane geometrics are shown in **Figure 14**.





EPAP NO PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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Transportation Engineers

0483-010 RA 3/01/2017

figure 14

LEVELS OF SERVICE

Table 2 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under EPAP No Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under EPAP No Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under EPAP No Project conditions would be generally higher than under Existing conditions.

Under EPAP No Project conditions, LOS at all four study intersections would be at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. No improvements are needed at these intersections to achieve acceptable LOS.

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under EPAP No Project conditions at the following four study intersections, respectively:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under EPAP No Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended:

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6** vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue under EPAP No Project conditions would exceed the existing length of the eastbound-to-northbound left-turn lane by more than 25 feet.

> Recommended Improvement. To address this deficiency, the eastbound-to-northbound left-turn lane should be lengthened to accommodate a 141 feet vehicle queue.

This improvement would provide adequate vehicle storage under EPAP No Project conditions.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7** vehicle queues at the intersection of N. Willow Avenue & Spruce Avenue under EPAP No Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended.

N. Willow Avenue & Herndon Avenue

As shown in **Table 8** vehicle queues at the intersection of N. Willow Avenue & Herndon Avenue under EPAP No Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended.

EXISTING PLUS APPROVED PROJECTS PLUS PROJECT IMPACTS

EPAP Plus Project development conditions, also referred to as Near-Term Plus Project conditions, describes near-term traffic operations assuming implementation of both other approved and pending projects, and the proposed N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. Comparing traffic operations under this condition to traffic operations under EPAP No Project conditions allows an identification of the near-term future project-related effects of the proposed project.

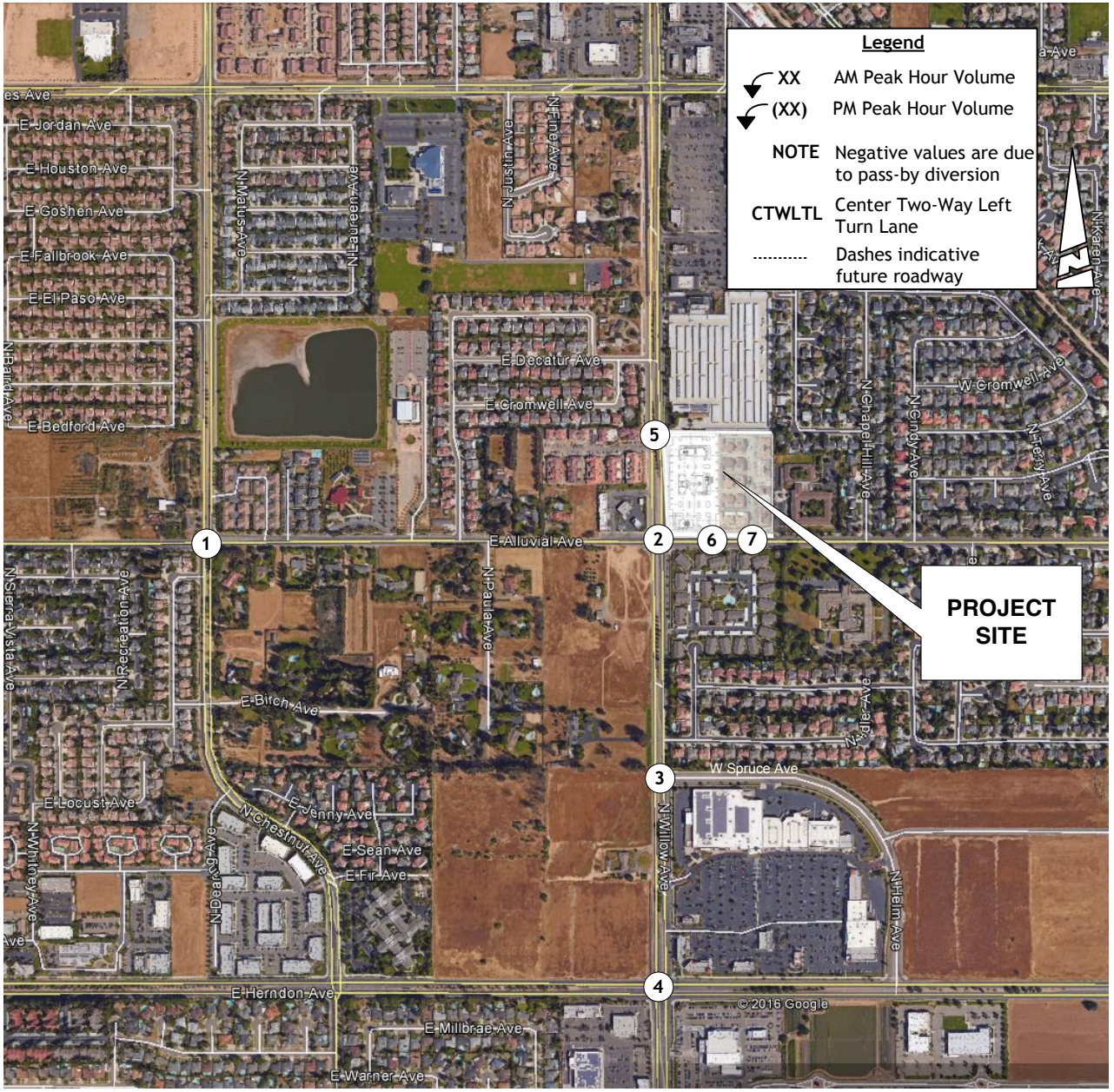
The development of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would result in vehicle traffic to and from the project site. Methods used to estimate project-related travel have been previously described in the *Existing Plus Project Impacts* section of this traffic impact study. **Figure 15** displays the project-related-only traffic volumes for each study intersection in the a.m. peak hour and p.m. peak hour under near-term EPAP and long-term Cumulative background conditions. **Figure 16** displays the resulting EPAP Plus Project traffic volumes anticipated for each study intersection in the peak hours.

LEVELS OF SERVICE

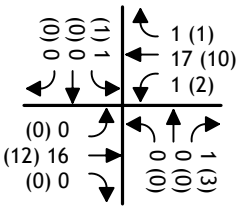
Table 2 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under EPAP Plus Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under EPAP Plus Project conditions would be generally higher than under EPAP No Project conditions and, as a result, vehicle delay at study intersections under EPAP Plus Project conditions would be higher than under EPAP No Project conditions.

Under EPAP Plus Project conditions, LOS at six of the seven study intersections would be at acceptable LOS D or better during both the a.m. peak hour and the p.m. peak hour. The impact at these six intersections is considered to be less than significant. No mitigation measures are required.

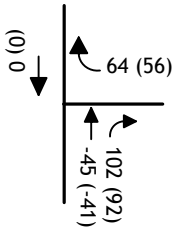


1



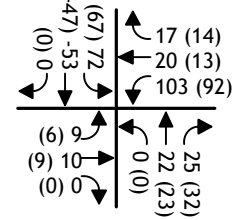
N Chestnut Ave/ Alluvial Ave

5



N Willow Ave/
West Parcel A Access

2



N Willow Ave/ Alluvial Ave

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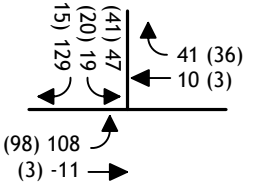
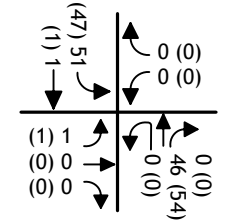


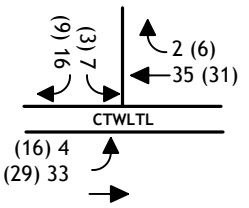
South Parcel A Access/
Alluvial Ave

3



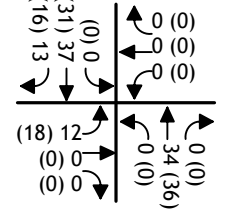
N Willow Ave/ Spruce Ave

7



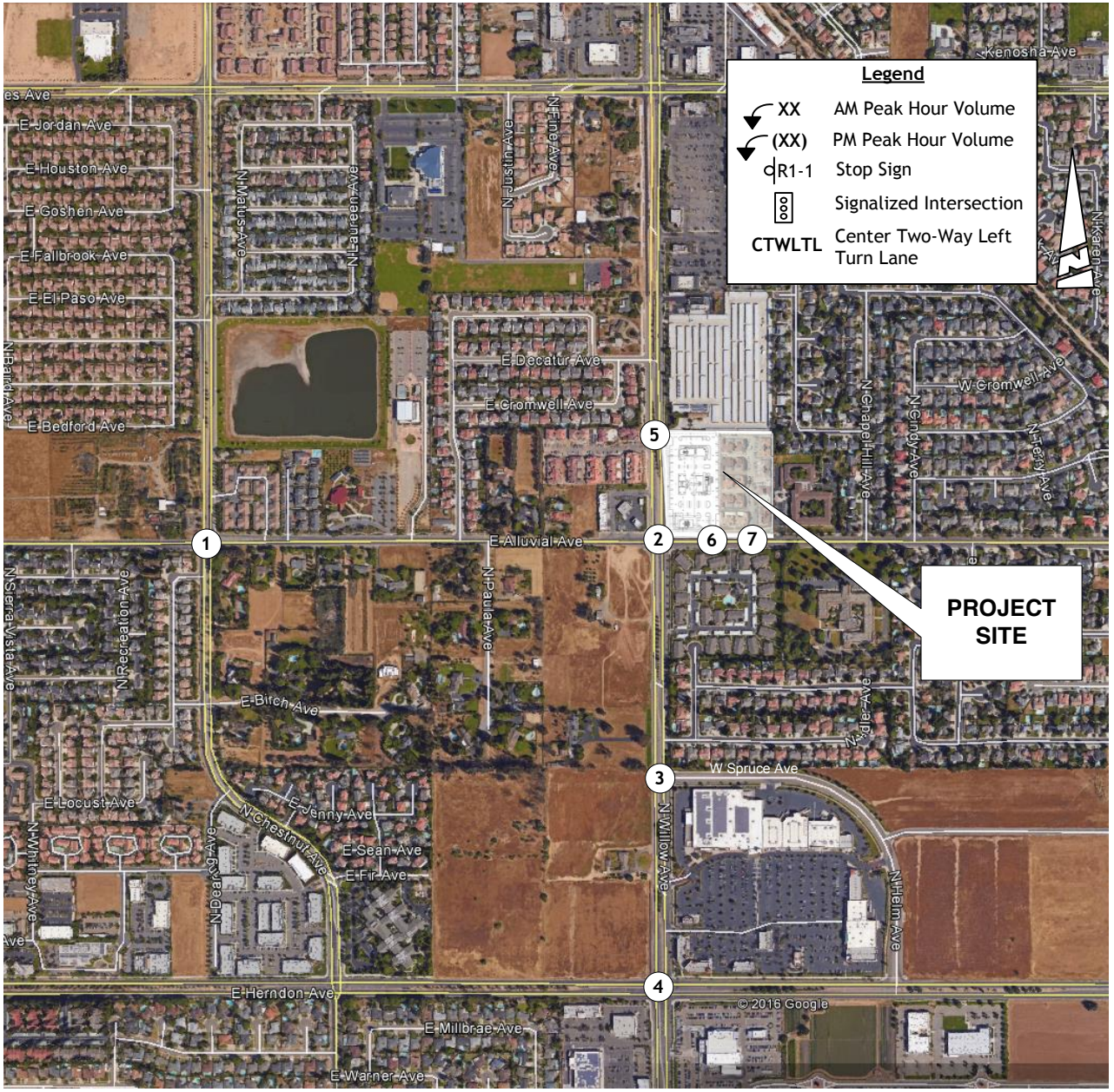
Parcel B Access/ Alluvial Ave

4

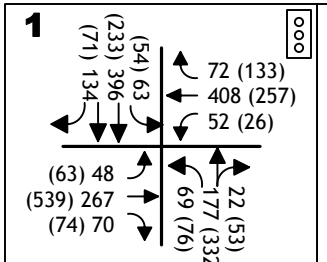


N Willow Ave/ Herndon Ave

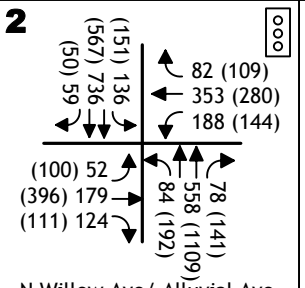
EPAP AND CUMULATIVE BACKGROUND PROJECT-RELATED TRIPS



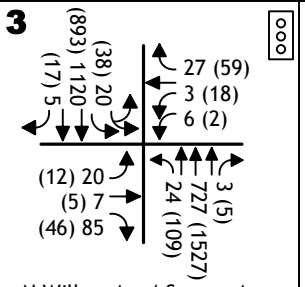
1 — N Chestnut Ave/ Alluvial Ave



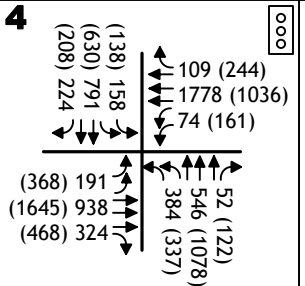
2 — N Willow Ave/ Alluvial Ave



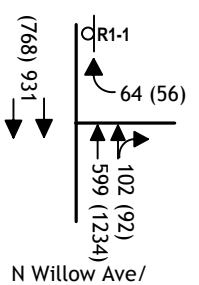
3 — N Willow Ave/ Spruce Ave



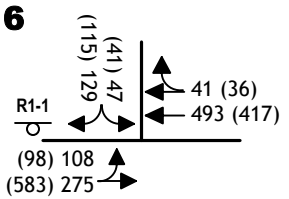
4 — N Willow Ave/ Herndon Ave



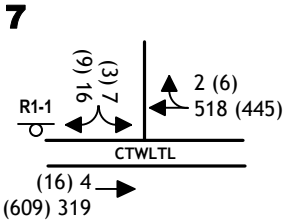
5 — N Willow Ave/ West Parcel A Access



6 — South Parcel A Access/ Alluvial Ave



7 — Parcel B Access/ Alluvial Ave



EPAP PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 16

N. Willow Avenue & Alluvial Avenue

As shown in **Table 2,** this intersection would operate at LOS D with 52.6 seconds of delay during the a.m. peak hour and LOS E with 64.8 seconds of delay during the p.m. peak hour under EPAP Plus Project Conditions. LOS E is considered unacceptable. This impact is considered to be significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure. Optimize the timing of the signal.

As shown in **Table 2**, implementing this mitigation measure would improve operations to LOS D with 37.7 seconds of delay during the p.m. peak hour. LOS D is considered acceptable.

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under EPAP Plus Project conditions at the following four study intersections, respectively, and shows the project-related change:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under EPAP Plus Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, this impact is considered less than significant and no mitigation measure are required.

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the eastbound-to-northbound left-turn lane by more than 25 feet under EPAP Plus Project conditions. This is the same lane that would experience vehicle queues exceeding the length of turning lane by more than 25 feet under EPAP No Project conditions. The project-related change in the vehicle queue length would not be more than 25 feet in the eastbound-to-northbound left-turn lane. Therefore, the impact on this turning lane would be less than significant and no mitigation measure is required.

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the westbound-to-southbound left-turn lane by more than 25 feet under EPAP Plus Project conditions. However, a CTWLTL east of the westbound-

to-southbound left-turn lane extends for an additional 875 feet, which would be adequate for containing the queue. Therefore, the impact on this turning lane would be less than significant and no mitigation measure is required.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7,** vehicle queues at the intersection of N. Willow Avenue & Spruce Avenue under EPAP Plus Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, the impact of vehicle queuing at this intersection would be less than significant and no mitigation measure is required.

N. Willow Avenue & Herndon Avenue

As shown in **Table 8,** at the intersection of N. Willow Avenue & Herndon Avenue under EPAP Plus Project conditions, the project would have a significant impact on the northbound-to-westbound left-turn lane. To reduce this impact to a less-than-significant level, the following mitigation measure would be required:

> Mitigation Measure. Lengthen the northbound-to-westbound left-turn lane to accommodate a 305 feet vehicle queue.

CUMULATIVE NO PROJECT CONDITIONS

Cumulative No Project conditions represent a long-term future background condition. Development of land uses and roadway improvements in the year 2035 are assumed in this condition. This scenario does not include development of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments. However, it does assume on-site land use development consistent with current General Plan land use designations. The Cumulative No Project condition, therefore, serves as the baseline condition used to assess the significance of long-term future project-related traffic impacts.

TRAFFIC VOLUME FORECASTS

As previously described in the *Travel Forecasting* section of this traffic impact study, data from the FCOG Travel Demand Model (Fresno Council of Governments 2014) were used to forecast background increases in traffic volumes under long-term future Cumulative conditions. The increases in traffic volumes reflect long-term future development throughout the region.

A more detailed description of traffic volume forecasting methods is presented in the *Travel Forecasting* section of this traffic impact study. Application of these methods results in the a.m. peak hour and p.m. peak hour traffic volumes presented in **Figure 17**.

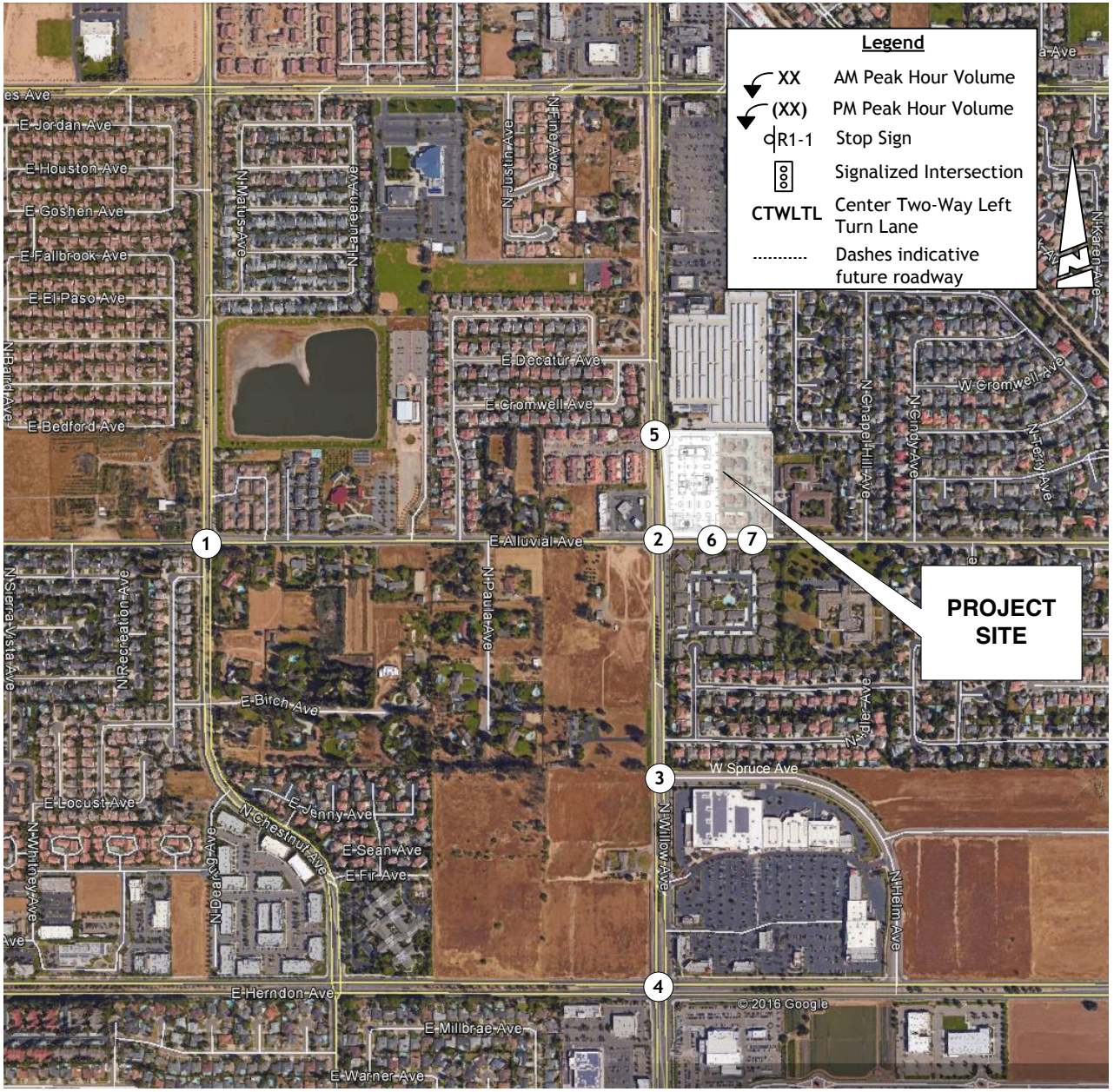
ROADWAY IMPROVEMENTS

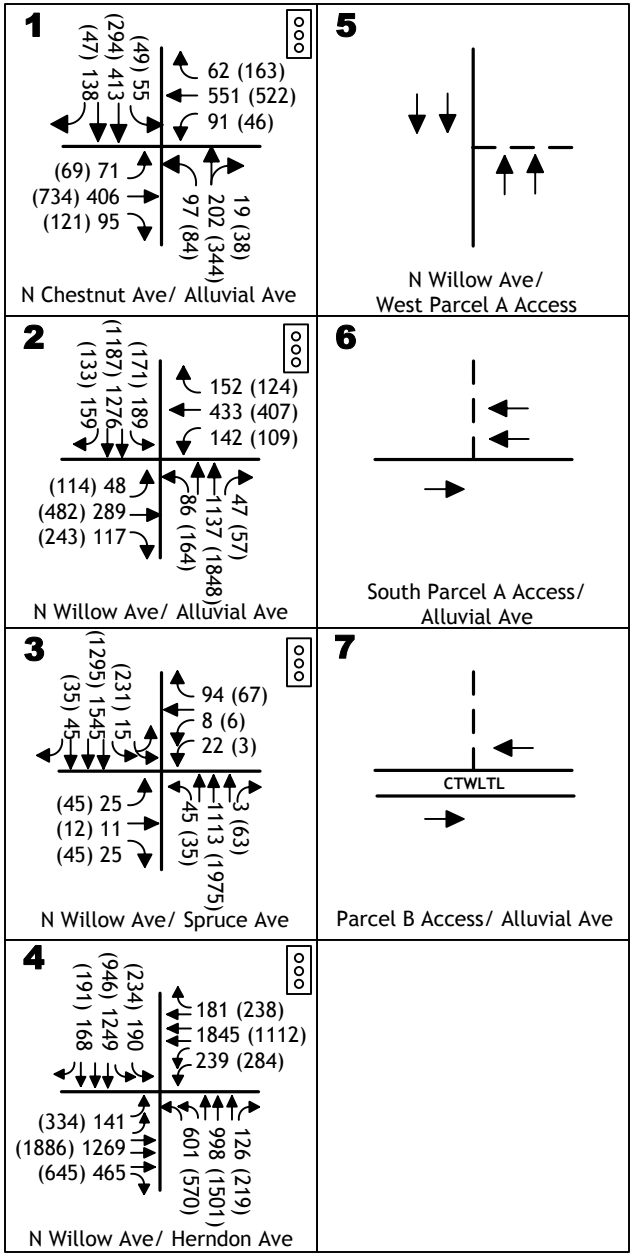
In consultation with City of Fresno staff (Gormley pers. comm.), roadway improvements for Cumulative No Project conditions were assumed to be consistent with the following two traffic impact studies:

- *Traffic Impact Study - Proposed Apartment Complex North of Herndon Avenue Between Chestnut and Willow Avenues* (Peters Engineering Group 2015), and
- *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016).

In addition to those roadway improvements assumed for near-term future EPAP conditions, the improvements for long-term future Cumulative conditions include the following:

- At the intersection of N. Willow Avenue & Spruce Avenue, add a third southbound exclusive through lane.
- At the intersection of N. Willow Avenue & Herndon Avenue, add a third southbound exclusive through lane.





CUMULATIVE NO PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

LEVELS OF SERVICE

Table 3 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Cumulative No Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Cumulative No Project conditions would be generally higher than under Existing conditions and, as a result, vehicle delay at study intersections under Cumulative No Project conditions would be generally higher than under Existing conditions.

Under Cumulative No Project condition, LOS at three of the four study intersections would be at unacceptable levels during both the a.m. peak hour and the p.m. peak hour. No improvements are needed at these intersections to achieve acceptable LOS.

N. Willow Avenue & Alluvial Avenue

Under Cumulative No Project condition, this intersection would operate at LOS D with 42.8 seconds of delay during the a.m. peak hour, and LOS F with 88.4 seconds of delay during the p.m. peak hour. LOS F is considered unacceptable. To improve LOS to acceptable operating conditions, the following recommended improvement should be implemented:

> Recommended Improvement. Add a northbound exclusive through lane and a southbound exclusive through lane at the intersection of N. Willow Avenue & Alluvial Avenue.

As shown in **Table 3**, implementing this recommended improvement would improve operations to LOS C with 33.8 seconds of delay during the a.m. peak hour and LOS D with 54.8 seconds of delay during the p.m. peak hour. LOS C and D are considered acceptable.

The worksheets presenting the calculation of LOS with recommended improvements are included in the technical appendix.

It should be noted that this recommended improvement is the same as a mitigation measure for Cumulative With Project conditions described in the *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016). This recommended improvement is also consistent with:

- the number of southbound through lanes on N. Willow Avenue north of Alluvial Avenue,
- the roadway widening construction along the west side of N. Willow Avenue south of Alluvial Avenue,

- the width of pavement in the northbound direction on N. Willow Avenue north of the project site.

- the width of pavement in the northbound direction on N. Willow Avenue south of Alluvial Avenue.

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under Cumulative No Project conditions at the following four study intersections, respectively:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,
- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under Cumulative No Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended:

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6** vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue under Cumulative No Project conditions would exceed the existing length of the following turning lanes:

- the eastbound-to-northbound left-turn lane,
- the eastbound-to-southbound right-turn lane, and
- the southbound-to-eastbound left-turn lane.

  Recommended Improvement. To address these deficiencies under Cumulative No Project conditions, the following improvements are recommended:

  - lengthen the eastbound-to-northbound left-turn lane to accommodate a 213 feet vehicle queue,

  - lengthen the eastbound-to-southbound right-turn lane to accommodate a 227 feet vehicle queue, and

  - lengthen the southbound-to-eastbound left-turn lane to accommodate a 382 feet vehicle queue.

These improvements would provide adequate vehicle storage under Cumulative No Project conditions.

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the westbound-to-southbound left-turn lane by more than 25 feet under Cumulative No Project conditions. However, a CTWLTL east of the westbound-to-southbound left-turn lane extends for an additional 875 feet, which would be adequate for containing the queue. Therefore, the length of this turning lane is considered to be adequate and no improvement is recommended.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7** vehicle queues at the intersection of N. Willow Avenue & Spruce Avenue under Cumulative No Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, no improvements are recommended:

N. Willow Avenue & Herndon Avenue

As shown in **Table 8** vehicle queues at the intersection of N. Willow Avenue & Herndon Avenue under Cumulative No Project conditions would exceed the existing length of the following turning lanes:

- the eastbound-to-southbound right-turn lane, and
- the northbound-to-westbound left-turn lane.

Recommended Improvement. To address these deficiencies under Cumulative No Project conditions, the following improvements are recommended:

- lengthen the eastbound-to-southbound right-turn lane to accommodate a 462 feet vehicle queue, and

- lengthen the northbound-to-westbound left-turn lane to accommodate a 394 feet vehicle queue.

These improvements would provide adequate vehicle storage under Cumulative No Project conditions.

CUMULATIVE PLUS PROJECT IMPACTS

The analysis of the Cumulative Plus Project development condition describes long-term traffic operations assuming development of land uses and roadway improvements in the year 2035 and the proposed N. Willow Avenue & Alluvial Avenue Commercial and Apartments project. Comparing traffic operations under this condition to traffic operations under Cumulative No Project conditions allows an identification of the long-term project-related effects of the proposed project.

Development of forecasts of future year background traffic volumes has been previously described in the *Cumulative No Project Conditions* section of this traffic impact study.

The development of the N. Willow Avenue & Alluvial Avenue Commercial and Apartments project would result in vehicle traffic to and from the project site. Methods used to estimate project-related travel have been previously described in the *Existing Plus Project Impacts* section, and the *Existing Plus Approved Projects Plus Project Impacts* section, of this traffic impact study.

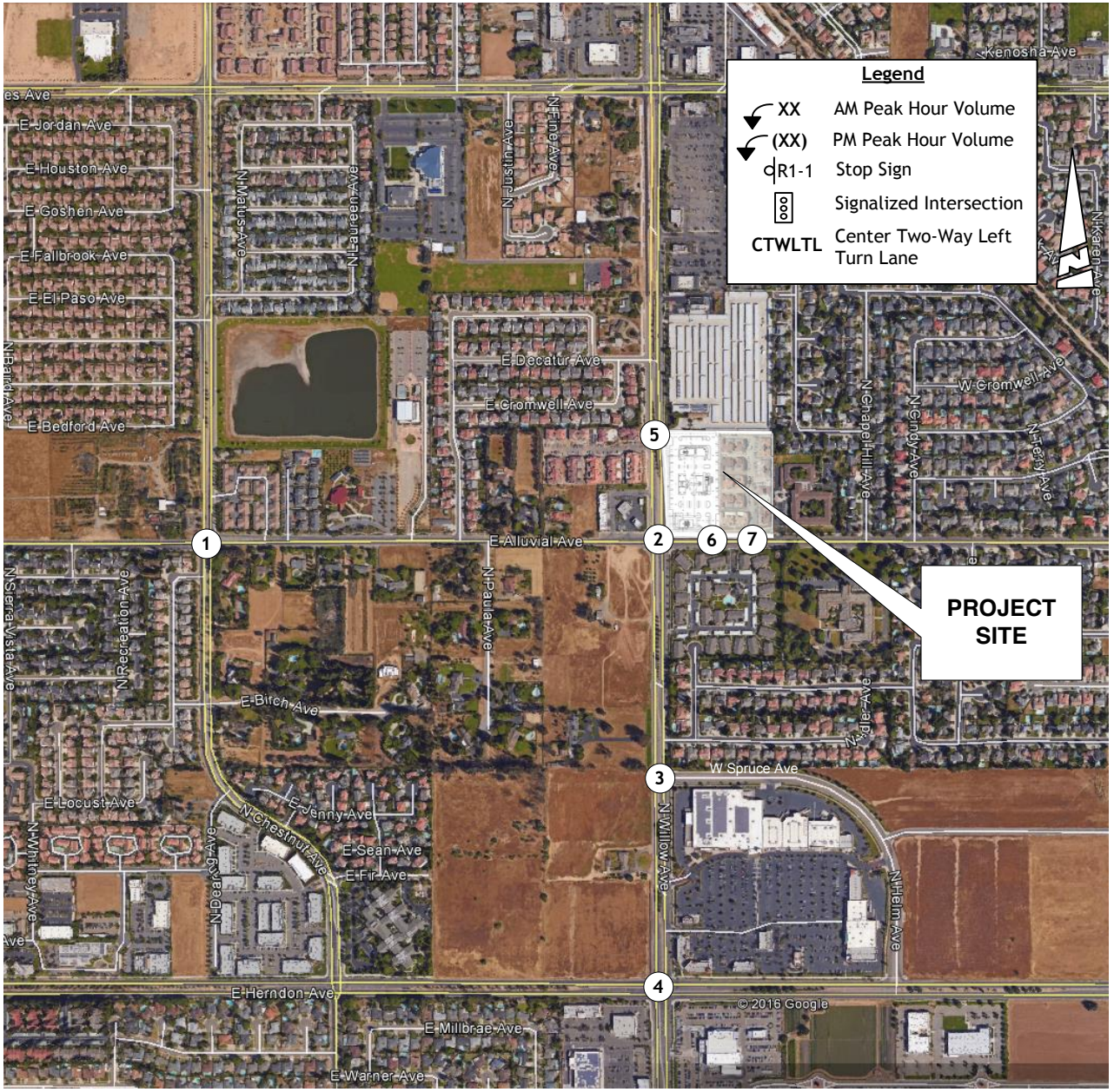
Figure 15 displays the project-related-only traffic volumes for each study intersection in the a.m. peak hour and p.m. peak hour under long-term Cumulative background conditions. Project-related traffic volumes were added to Cumulative background traffic volumes to develop Cumulative Plus Project volumes. **Figure 18** displays the resulting Cumulative Plus Project traffic volumes anticipated for each study intersection in the peak hours.

LEVELS OF SERVICE

Table 3 presents the a.m. peak hour and p.m. peak hour LOS at each study intersection under Cumulative Plus Project conditions. The worksheets presenting the calculation of LOS are included in the technical appendix.

Traffic volumes under Cumulative Plus Project conditions would be generally higher than under Cumulative No Project conditions and, as a result, vehicle delay at study intersections under Cumulative Plus Project conditions would be higher than under Cumulative No Project conditions.

Under Cumulative Plus Project conditions, LOS at six of the seven study intersections would be at acceptable LOS during both the a.m. peak hour and the p.m. peak hour. This impact is considered to be less than significant at these intersections. No mitigation measures would be required.



1 N Chestnut Ave/ Alluvial Ave

(294) 413 (50) 56 63 (164)
(47) 138 566 (531)
92 (48)
(69) 71
(744) 421 97 (84) 202 (344) 20 (41)
(121) 95

2 N Willow Ave/ Alluvial Ave

(1187) 1276 (188) 207 168 (136)
(133) 159 450 (419)
187 (152)
(119) 57
(490) 299 86 (164) 1158 (1867) 71 (85)
(243) 117

3 N Willow Ave/ Spruce Ave

(1337) 1590 (231) 15 94 (67)
(36) 46 8 (6)
22 (3)
(46) 26
(12) 11 45 (35) 1157 (2021) 3 (63)
(45) 25

4 N Willow Ave/ Herndon Ave

(974) 1281 (234) 190 181 (238)
(205) 179 1845 (1112)
239 (284)
(349) 152
(1886) 1269 601 (570) 1030 (1531) 126 (219)
(645) 465

5 N Willow Ave/ West Parcel A Access

(1509) 1643 R1-1
64 (56)
1292 (2039) 102 (92)

6 South Parcel A Access/ Alluvial Ave

(115) 129 (41) 47 41 (36)
R1-1 676 (592)
(98) 108
(660) 460

7 Parcel B Access/ Alluvial Ave

(9) 16 (3) 7 2 (6)
R1-1 701 (620)
CTWLTL
(16) 4
(686) 504

CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

0483-010 RA 3/01/2017

figure 18

N. Willow Avenue & Alluvial Avenue

As shown in **Table 3,** this intersection would operate at LOS D with 54.4 seconds of delay during the a.m. peak hour and LOS F with 100.7 seconds of delay during the p.m. peak hour under Cumulative Plus Project Conditions. LOS F is considered unacceptable. This impact is considered to be significant. Implementation of the following mitigation measure would reduce this impact to a less than significant level:

> Mitigation Measure. Add a northbound exclusive through lane and a southbound exclusive through lane at the intersection of N. Willow Avenue & Alluvial Avenue.

As shown in **Table 3**, implementing this mitigation measure would improve operations to LOS D with 43.8 seconds of delay during the a.m. peak hour and LOS D with 54.3 seconds of delay during the p.m. peak hour. LOS D is considered acceptable. The worksheets presenting the calculation of LOS with mitigation measures are included in the technical appendix.

It should be noted that this mitigation measure is the same as the recommended improvement for Cumulative No Project conditions presented earlier in the *Cumulative No Project Conditions* section of this traffic impact study, and is the same as a mitigation measure for Cumulative With Project conditions described in the *Traffic Impact Study - Proposed Villages at the Ranch - Residential Development Northwest of the Intersection of Alluvial and Chestnut Avenues* (Peters Engineering Group 2016). This mitigation measure is also consistent with:

- the number of southbound through lanes on N. Willow Avenue north of Alluvial Avenue,
- the roadway widening construction along the west side of N. Willow Avenue south of Alluvial Avenue,
- the width of pavement in the northbound direction on N. Willow Avenue north of the project site, and
- the width of pavement in the northbound direction on N. Willow Avenue south of Alluvial Avenue

VEHICLE QUEUING

Table 5, **Table 6**, **Table 7**, and **Table 8** present 95th percentile vehicle queuing under Cumulative Plus Project conditions at the following four study intersections, respectively, and shows the project-related change:

- N. Chestnut Avenue & Alluvial Avenue,
- N. Willow Avenue & Alluvial Avenue,

- N. Willow Avenue & Spruce Avenue, and
- N. Willow Avenue & Herndon Avenue.

N. Chestnut Avenue & Alluvial Avenue

As shown in **Table 5** vehicle queues at the intersection of N. Chestnut Avenue & Alluvial Avenue under Cumulative Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, this impact is considered less than significant and no mitigation measures are required.

N. Willow Avenue & Alluvial Avenue

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the eastbound-to-northbound left-turn lane and the eastbound-to-southbound right-turn lane by more than 25 feet under Cumulative Plus Project conditions. These are the same lanes that would experience vehicle queues exceeding the length of turning lane by more than 25 feet under Cumulative No Project conditions. The project-related change in the vehicle queue length would not be more than 25 feet in these turning lanes. Therefore, the impact on these turning lanes would be less than significant and no mitigation measures are required.

As shown in **Table 6**, vehicle queues at the intersection of N. Willow Avenue & Alluvial Avenue would exceed the existing length of the westbound-to-southbound left-turn lane by more than 25 feet under Cumulative Plus Project conditions. However, a CTWLTL east of the westbound-to-southbound left-turn lane extends for an additional 875 feet, which would be adequate for containing the queue. Therefore, the impact on this turning lane would be less than significant and no mitigation measure is required.

As shown in **Table 6** at the intersection of N. Willow Avenue & Alluvial Avenue under Cumulative Plus Project conditions, the project would have a significant impact on the southbound-to-eastbound left-turn lane. To reduce this impact to a less-than-significant level, the following mitigation measures would be required.

> Mitigation Measure. Lengthen the southbound-to-eastbound left-turn lane to accommodate a 423 feet vehicle queue.

N. Willow Avenue & Spruce Avenue

As shown in **Table 7,** vehicle queues at the intersection of N. Willow Avenue & Spruce Avenue under Cumulative Plus Project conditions would not exceed the existing length of turning lanes by more than 25 feet. Therefore, the impact of vehicle queuing at this intersection would be less than significant and no mitigation measure is required.

N. Willow Avenue & Herndon Avenue

As shown in **Table 8**, vehicle queues at the intersection of N. Willow Avenue & Herndon Avenue would exceed the existing length of the eastbound-to-southbound right-turn lane and the northbound-to-westbound left-turn lane by more than 25 feet under Cumulative Plus Project conditions. These are the same lanes that would experience vehicle queues exceeding the length of turning lane by more than 25 feet under Cumulative No Project conditions. The project-related change in the vehicle queue length would not be more than 25 feet in these turning lanes. Therefore, the impact on these turning lanes would be less than significant and no mitigation measures are required.

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APPENDICES

(see Electronic Files)