Love's Country Store
Draft Environmental Impact Report

City of Williams

August 2016

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Appendices

Appendix A: Notice of Preparation (NOP) and NOP Responses

Appendix B: Air Quality Assessment - Greenhouse Gas Emissions /Global Climate Change Study

Appendix C: Biological Resources Evaluation Report

Appendix D: Archaeological Survey Report Separately Bound Confidential Document

Appendix E: Geotechnical Engineering Report Love's Travel Stop

Appendix F: Initial Site Assessment/ Phase I Environmental Site Assessment (ISA/ESA)

Appendix G: Environmental Noise Assessment

Appendix H: Traffic Report Love's Country Store

1. Executive Summary

1.1.Introduction

A Draft Environmental Impact Report (DEIR) for the Love's Country Store Project (proposed Project or Project) has been prepared by the City of Williams (City or Lead Agency) to: 1) identify the impacts of the proposed project on the environment; 2) discuss alternatives to the proposed project; and 3) propose mitigation measures that will offset, minimize or otherwise avoid significant environmental impacts. The DEIR has been prepared in accordance with the California Environmental Quality Act (CEQA) and the Guidelines for California Environmental Quality Act (CEQA Guidelines 2016), both of which regulate the preparation of EIRs.

Based on the potential impacts of the proposed project, including cumulative impacts, and the comments received during the public review of the Notice of Preparation (NOP), the City determined that an EIR should be prepared to analyze potential impacts of the proposed project with respect to the following environmental issues:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Geology and Soils
- Greenhouse Gas Emission
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/ Service Systems

These 18 environmental issues are individually addressed in Section 4.0 (Environmental Impact Evaluation).

1.1 Proposed Project

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, CA (Figure 1). Love's Country Stores of California submitted an application for a Design Review and Site Plan Permit for a proposed Love's Country Store to be sited on approximately 11.15 acres located near the southwest corner of the Margurite Street and State Route 20 (SR 20) intersection (Figure 2) just east of the Interstate 5 (I-5)/SR 20 intersection. The proposed Project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The Project would include a 13,582 square- foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop (Figure 3). The proposed travel center will function as a "one stop shop" for freeway travelers and truckers including minor vehicle repairs and tire sales. The Project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.

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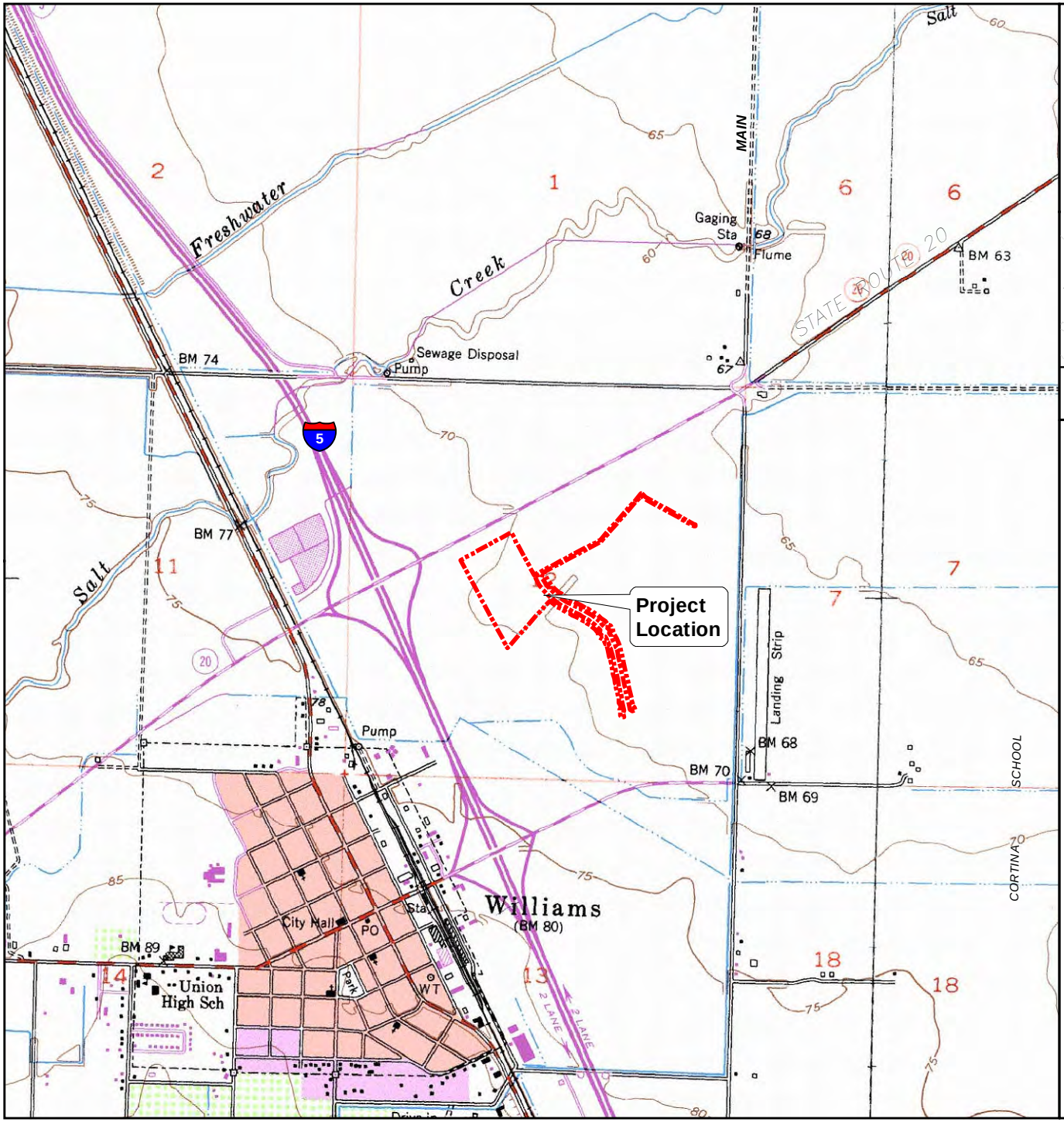

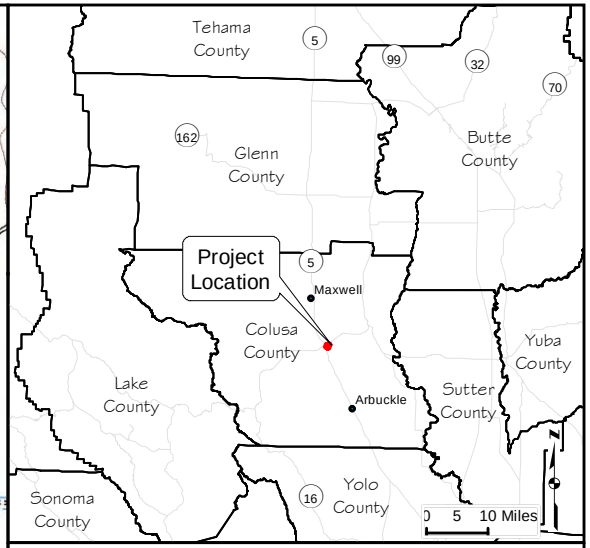

Love's Country Stores
City of Williams, CA
1 July 2016

Figure 1. Project Location Map

Project Location

2,000 1,000 0 2,000 Feet

Scale: 1 inch = 2,000 feet

N

SYCAMORE Environmental Consultants, Inc.

Williams, CA (Revised 1994) &
Colusa, CA (Photoinspected 1991)
CASIL California USGS Digital Raster Graphics (DRG),
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
o_nw0302.sid

14024LovesCountryStores_Fig1LocationMap.mxd

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Love's Country Stores
City of Williams, CA
26 July 2016

Project Site

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 13 July 2014
2014NAIP USDA FSA Imagery
ESRI ArcGIS Basemap Service Layer

Figure 2. Aerial Photograph

14024LovesCountryStores_Fig2AerialPhotoCEQA.mxd

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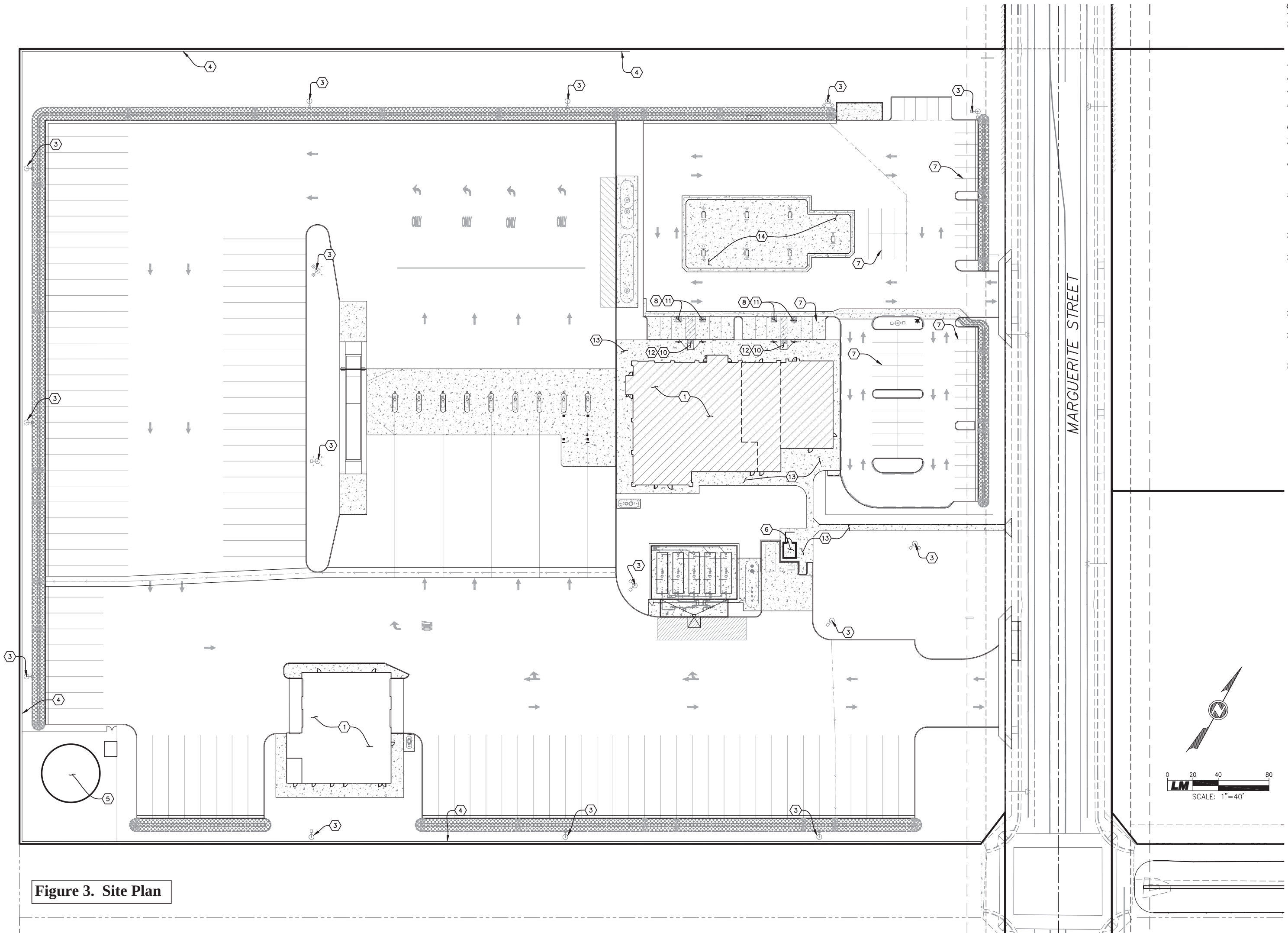

Figure 3. Site Plan

CONSTRUCTION NOTES:

1. HATCHING DENOTES COMPACTED BUILDING PAD PER SOILS REPORT. VERIFY OVER-EXCAVATION, OVER BUILD, FOOTING EXCAVATION & COMPACTION REQUIREMENTS WITH GEOTECHNICAL REPORT AND STRUCTURAL PLANS PRIOR TO GRADING.
2. SEE SHEET C6 FOR PAVEMENT SECTIONS.
3. INSTALL SITE LIGHTS PER ELECTRICAL PLANS. (TYPICAL)
4. INSTALL FENCE PER ARCHITECTURAL PLANS.
5. PROPOSED WATER TANK FOR FIRE SYSTEM PER NFPA 22 AND 24. SEE SHEET C15 AND THE SPRINKLER PLANS.
6. INSTALL TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
7. 4" WIDE PAINTED PARKING STALL STRIPES (TYPICAL). SEE ARCHITECTURAL PLANS FOR MORE INFORMATION.
8. INSTALL ACCESSIBLE PARKING AND SIGNAGE WHERE SHOWN PER CALTRANS REVISED STANDARD PLAN RSP A90A. CONFIRM WITH ARCHITECTURAL SITE PLAN.
9. "NO PARKING FIRE LANE" CURB PAINTING (— — — — — —). FIELD VERIFY LOCATION FIRE LANE STRIPING AND "NO PARKING FIRE LANE" SIGN LOCATIONS WITH FIRE MARSHALL PRIOR TO SIGNING AND STRIPING. SEE ARCHITECTURAL.
10. INSTALL CASE C ADA RAMP WITH TRUNCATED DOMES PER CALTRANS REVISED STANDARD PLAN RSP A88A.
11. 2% MAXIMUM SLOPE AT ADA PARKING STALLS. CONTRACTOR SHALL VERIFY TOP OF A.B. GRADE PRIOR TO PAVING FOR SLOPE COMPLIANCE. A.C. GRADES WILL BE VERIFIED BY ENGINEER PRIOR TO ACCEPTANCE. FOR ANY SLOPES GREATER THAN THE 2% MAXIMUM ALLOWED, THE CONTRACTOR SHALL REMOVE AND REPLACE AS REQUIRED FOR FULL COMPLIANCE.
12. INSTALL TRUNCATED DOMES PER CALTRANS REVISED STANDARD PLAN RSP A88A. TRUNCATED DOMES SHALL BE WET SET IN CONCRETE.
13. INSTALL SIDEWALK PER DETAIL 5, SHEET C18. VERIFY TYPE OF FINISH, COLOR PATTERNS AND SCORE LINE REQUIREMENTS WITH ARCHITECTURAL PLANS.
14. AUTO ISLAND CANOPY. CONTRACTOR SHALL VERIFY ANY FOUNDATION CONFLICTS WITH PROPOSED UTILITIES PRIOR TO DESIGN/INSTALLATION (TYPICAL).

DESIGNED BY BPB
DRAWN BY PF
CHECKED BY BPB

REV.	DATE	DESCRIPTION	BY	APP'D.

LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CALIFORNIA 95695 · PHONE: (530) 662-1755
P.O. BOX 828, WOODLAND, CALIFORNIA 95776 · FAX: (530) 662-4602
BY ____
BRYAN P. BONINO
DATE ____ P.E. 41804

REGISTERED PROFESSIONAL ENGINEER · BRYAN P. BONINO · No. 41804 · CIVIL · STATE OF CALIFORNIA

Love's Travel Stops & Country Stores

A NEW TRAVEL STOP
STORE NO. 652
MARGUERITE STREET & STATE HIGHWAY 20 — WILLIAMS, CALIFORNIA
CIVIL SITE PLAN

SCALE 1"=40'
CAD FILE: 3927_C05
DATE: 01-22-16
JOB NO. 3927
SHEET C5 OF 20

X:\Land Projects\3927\dwg\3927_C05.dwg

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1.2.Areas of Controversy and Issues to Be Resolved

In addition to a summary of the significant effects that would result from implementation of the proposed project, this EIR includes proposed mitigation measures that have been identified to reduce or avoid such effects. CEQA Guidelines §15123(b)(2) requires that areas of controversy known to the City be stated in the EIR summary. The following discussion identifies issues raised by other agencies and the public during the 30-day public comment period of the NOP and the Public Scoping Meeting.

1.2.1. Notice of Preparation

An NOP for the Draft EIR was distributed to State, regional, and local agencies, and other interested parties considered likely to be interested in the project and its potential impacts. The NOP solicits public comment in order to identify and determine the full range and scope of issues of concern so that these issues might be fully examined in the EIR. The City sent copies of the NOP to the circulated copies of the NOP for the Love's Country Store EIR to State, regional, local agencies and owners of adjacent properties on 14 January 2016, for a 30-day review period. Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project. The NOP, distribution list, and response letters are included in Appendix A of the Draft EIR.

1.2.2. Draft EIR Scoping Meeting

A public scoping meeting was held at the Williams City Hall on 9 February 2016, 6-7:30 PM. No outside agencies or members of the public attended.

1.3.Alternatives to the Proposed Project

One of the most important aspects of the environmental review process is to identify and assess reasonable alternatives that have the potential to avoid or minimize impacts of a proposed project. CEQA Guidelines §15126(d) emphasizes the selection of a reasonable range of technically feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis and consideration by decision-makers. CEQA Guidelines state that the discussion of alternatives shall focus on alternatives capable of eliminating or reducing significant adverse environmental effects of a proposed project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives required in an EIR is governed by a "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Pursuant to CEQA, "feasible" has been defined as "…capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

1.3.1. Alternatives Summary

Three alternatives were identified for further analysis in this EIR. Summaries of each alternative have been provided below. More detailed descriptions of each project alternative are provided in Section 6.0 of this EIR. The four alternatives analyzed in this EIR are:

- No Project/ No Build Alternative;
- No Project/ Existing Zoning
- Reduced Build Alternative on APN 016-070-119; and
- Alternative Sites: Moving the project to an available off-site location.

1.3.2. No Project/ No Build Alternative

Under the No Build Alternative, no development would take place. No ground disturbing activities would occur, and no commercial structures or facilities would be constructed. In the absence of development, no impacts would occur and this alternative would be the environmentally superior alternative. However, prohibiting development of the site would not fulfill any of the objectives of the proposed Project. This alternative provides a baseline of existing conditions for comparison to the proposed project.

1.3.3. No Project/ Existing Zoning

It is reasonable to assume that in the event the proposed Project were not approved, the site would be developed in accordance with the existing General Plan designation of Business Park. The Business Park zoning designation allows a maximum building size of 0.88 times the area of the lot and requires 20% of the site be open space. Therefore, this alternative would result in development of approximately 341,928 square feet of business park uses and 97,138.8 square feet of open space on 11.15 gross acres of the Project site, consistent with the Business Park designation of the General Plan.

1.3.4. Reduced Build Alternative on APN 016-070-119.

Under the Reduced Build Alternative, only the fueling component would be constructed at the Project site. Project components eliminated under this alternative include the 6,322 square-foot tire shop, 13,582 square- foot convenience store with an attached restaurant space, and both auto and truck parking including overnight truck parking.

1.3.5. Alternative Sites.

Seventeen (17) properties that were evaluated as alternative sites to the Project evaluated in Section 4 of this EIR. The list was generated by reviewing the City General Plan land use diagram and identifying unoccupied parcels located in the City zoned as Commercial Business Park, or Industrial.

1.4.Impacts, Mitigation, and Level of Impact Summary Table

The Love's Travel Center Environmental Impact Summary (Table 1) below, lists the environmental impacts for various issues of the proposed project as discussed in this Draft EIR. This table serves as a tool designed to track both standard requirements and mitigation measures identified in the Draft EIR and will be used to prepare the project's Mitigation Monitoring Reporting Program (MMRP).

Table 1. Environmental Impact Summary

Issues/Impacts	Mitigation Measures	Level of Significance
4.1 Aesthetics: All potential Project impacts to aesthetics or light and glare have been determined to be less than significant. No significant aesthetics or light and glare impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.2 Agricultural and Forestry Resources: All potential Project impacts to agricultural and forest resources have been determined to be less than significant. No significant agricultural or forest resource impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.3 Air Quality: 4.3.7.1 Sensitive Receptors: **Impact**: The grading and site preparation activities have the potential to emit fugitive dust (PM10) from soil disturbance.	AIR-1: Implement Dust Control Measures sufficient to control fugitive dust during soil disturbing activities and during periods of inactivity to prevent windblown dust. The following measures shall be implemented as needed (frequency of application and need for specific measures are dependent on weather and actual construction activities occurring at any given time: • Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure. • Haul trucks shall maintain at least 2 feet of freeboard, or cover all trucks hauling dirt, sand, or loose materials. • Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least 4 consecutive days). • Plant vegetative ground cover in disturbed areas as soon as possible. • Cover inactive storage piles. • Sweep streets if visible soil material is carried out from the construction site. • Treat accesses to a distance of 100 feet	Implementation and adherence to AIR-1 will reduce potential impacts to less than significant.

Issues/Impacts	Mitigation Measures	Level of Significance
	from the paved road with a 6- to 12-inch layer of wood chips or mulch, or treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.	
4.3 Air Quality: All other potential Project impacts to air quality have been determined to be less than significant. No other significant air quality impact would result from the implementation of the proposed Project.	No Additional Mitigation Required	Less Than Significant
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species. **Impact:** The proposed project has the potential to impact special status species. **Giant Garter Snake (*Thamnophis gigas*)**	BIO-1 • Prior to the issuance of a grading permit for work in the detention basin, the project proponent shall demonstrate to the City that State and Federal endangered species act compliance has been satisfied. USFWS may authorize take of GGS through the issuance of a Biological Opinion with an Incidental Take Statement at the conclusion of formal endangered species act consultation. Take authorization from CDFW is through one of two processes, through the issuance of a 2080.1. California Endangered Species Act (CESA) Consistency Determination or a 2081 CESA Incidental Take Permit. • Mitigation for permanent impacts of GGS aquatic and upland habitat will be based on the programmatic biological opinion's mitigation ratios, namely 3:1 for permanent impacts to aquatic habitat and 1:1 for permanent upland impacts. Temporarily affected areas will be restored to their pre-project conditions. Restored habitat will be monitored for a period of one year following implementation. A monitoring report will be submitted to the USFWS one year	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
	after completion of the restoration implementation. The project proponent will mitigate impacts to GGS habitat through the purchase of USFWS and CDFW approved GGS mitigation credits.	
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species. **Impact:** The proposed project has the potential to impact special status species. **Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code**	BIO-2 Under the MBTA, nests that contain eggs or unfledged young are not to be disturbed during the breeding season. Nesting or attempted nesting by migratory birds and birds-of-prey is anticipated from 15 February to 1 September. **Birds of Prey and Birds Protected by the Migratory Bird Treaty Act** • If construction begins outside the 15 February to 1 September breeding season, there will be no need to conduct a preconstruction survey for active nests. • If applicable, trees scheduled for removal should be removed during the non-breeding season from 1 September to 31 January. • If construction is scheduled to begin between 15 February and 1 September, a biologist shall conduct a survey for active bird of prey nests within 250 ft and active MTBA bird nests within 100 ft of the Project area from publicly accessible areas within one week prior to construction. The measures listed below shall be implemented based on the survey results. No Active Nests Found: • If no active nest of a bird of prey, MBTA bird, or other CDFW protected bird is found, then no further avoidance and minimization measures are necessary. Active Nests Found: • If an active nest of a bird of prey, MBTA bird, or other CDFW protected bird is discovered that may be adversely affected by construction	Less Than Significant

<table>
<tr><th>Issues/Impacts</th><th>Mitigation Measures</th><th>Level of Significance</th></tr>
<tr><td></td><td>activities or an injured or killed bird is found, immediately:
1. Stop all work within a 100-ft radius of the discovery.
2. Notify the Engineer.
3. Do not resume work within the 100-ft radius until authorized.
• The biologist shall establish a minimum 250-ft Environmentally Sensitive Area (ESA) around the nest if the nest is of a bird of prey, and a minimum 100-ft ESA around the nest if the nest is of an MBTA bird other than a bird of prey.
Bird Species Protection Areas
<table>
<tr><th>Protected Bird Type</th><th>Size of Protection Area (ESA)</th></tr>
<tr><td>Bird of prey</td><td>250 ft no-disturbance buffer</td></tr>
<tr><td>MBTA protected bird (not bird of prey)</td><td>100 ft no-disturbance buffer</td></tr>
</table>
• Activity in the ESA will be restricted as follows:
1. Do not enter the ESA unless authorized.
2. If the ESA is breached, immediately:
a. Secure the area and stop all operations within 60 feet of the ESA boundary.
b. Notify the Engineer.
3. If the ESA is damaged, County determines what efforts are necessary to remedy the damage and who</td><td></td></tr>
</table>

Issues/Impacts	Mitigation Measures	Level of Significance
	performs the remedy. • No construction activity will be allowed in the ESA until the biologist determines that the nest is no longer active, or unless monitoring determines that a smaller ESA will protect the active nest. • The size of an ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the active nest is occurring. Reduction of ESA size depends on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific factors. • Between 15 February and 1 September, if additional trees or shrubs need to be trimmed and/or removed after construction has started, a survey will be conducted for active nests in the area to be affected. If an active nest is found, the above measures will be implemented. • If an active nest is identified in or adjacent to the construction zone after construction has started, the above measures will be implemented to ensure construction is not causing disturbance to the nest.	
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species. **Impact:** The proposed project has the potential to impact special status species. **Burrowing Owl**	BIO-3: A qualified biologist will conduct Take Avoidance Surveys in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). An initial Take Avoidance Survey will be conducted no less than 14 days prior to initiating ground disturbance activities and a final survey will be conducted within 24 hours prior to ground disturbance. The preconstruction survey for burrowing owls will include all potential burrowing owl habitat within 500 ft of the project. Portions of the survey	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
	area located on private land will be survey from all publicly accessible areas. If active burrowing owl burrows are found, the following measures shall be implemented: • During the non-breeding season (1 September through 31 January), the biologist shall establish a 160 ft ESA around the burrow. During the breeding season (1 February through 31 August), the biologist shall establish a 250 ft ESA around the burrow in consultation with CDFW. • The size of the ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the burrowing owl is occurring. Reduction of ESA size depends on the location of the burrow relative to the project, project activities during the time the burrow is active, and other project-specific factors. • If the burrow is located within the construction zone and it is during the non-breeding season, the burrowing owl can be passively excluded from the burrow using one-way doors, as described in the Exclusion Plan of Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). • If the burrow is located within the construction zone and it is during the breeding season, the burrow owl can only be passively excluded if it has been confirmed that the owl has not begun egg laying and incubation, the clutch was unsuccessful, or juveniles from the occupied burrows are foraging independently and are capable of independent survival.	
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species.	BIO-4 • A preconstruction survey for nesting Swainson's hawk will be conducted and will be timed in accordance with the	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
Impact: The proposed project has the potential to impact special status species. **Swainson's hawk**	*Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys In California's Central Valley* (Swainson's Hawk TAC 2000). The survey area will include the Project area and a 0.25 mile radius around the Project area. Portions of the survey area located on private land will be surveyed from publicly accessible areas. If a nesting Swainson's hawk is found within 0.25 mile of the Project area, CDFW will be contacted to confirm monitoring and avoidance buffers.	
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species. **Impact:** The proposed project has the potential to impact special status species. **White-tailed kite**	Implementation BIO-2 of will reduce potential impact to White-tailed kite also.	Less Than Significant
4.4 Biological Resources: 4.4.7.1 Substantial Adverse Effect on Riparian Habitat or Other Sensitive Natural Community **Impact:** The proposed Project has the potential to impact a potential sensitive community. **GGS Habitat**	Implementation of BIO-1 will reduce potential impacts to less than significant.	Less Than Significant
4.5 Cultural Resources 4.5.7.1 Human Remains **Impact:** The proposed project has the potential to impact previously undetected human remains.	CULTURAL-1 • Implement State Health and Safety Code Section 7050.5. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. CULTURAL-2 • Implement Public Resources Code Section	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
	5097.9 et seq. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Further provisions of PRC 5097.9 et seq are to be followed as applicable. CULTURAL-3 • Implement Public Resources Code Section 5097.5 et seq. Pursuant to Public Resources Code Section 5097.5 no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.	
4.5 Cultural Resources: All other potential Project impacts to cultural resources have been determined to be less than significant. No other significant cultural resource impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.6 Tribal Cultural Resources: All potential Project impacts to Tribal Cultural Resources have been determined to be less than significant. No significant Tribal Cultural Resources impact would result from the implementation of the proposed project.	None Required	Less Than Significant
4.7 Geology and Soils 4.7.7.1 Expansive Soils	GEOLOGY-1 • Prior to the issuance of a grading permit for the 11.15- acre project, the project proponent	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
Impact: Soils in the Project area are expansive and have the potential to create a substantial risk to property.	shall demonstrate to the City that the siting, design and construction of all structures and facilities within the project limits are in accordance with the recommendations provided in the site-specific Terracon Consultants Geotechnical Engineering Report (2015), as well as regulations established in the California Building Code. These California Building Codes are specifically designed to ensure structural safety in the event of a seismic event.	
4.7 Geology and Soils: All other potential Project impacts to geology and soils have been determined to be less than significant. No other significant geology and soils impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.8 Greenhouse Gas Emissions: All potential Project impacts to greenhouse gas emissions have been determined to be less than significant. No significant greenhouse gas emissions impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.9 Hazards and Hazardous Materials: All potential Project impacts related to hazards and hazardous materials have been determined to be less than significant. No significant hazards and hazardous materials impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.10 Hydrology and Water Quality: All potential Project impacts related to hydrology and water quality have been determined to be less than significant. No significant hydrology and water quality impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.11 Land Use and Planning: All potential Project impacts related to land use and planning have been determined to be less than significant. No significant land use and planning impact would result from the implementation of the proposed	None Required	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
Project.		
4.12 Mineral Resources: All potential Project impacts related to mineral resources have been determined to be less than significant. No significant mineral resources impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.13 Noise 4.13.7.1 Substantial Temporary or Periodic Increase in Ambient Noise **Impact:** Activities associated with the Project construction would result in elevated noise levels, with maximum noise levels as high as 89 dB at 50 feet.	NOISE-1 • Construction operations will be restricted to the hours of 7:00 AM to 7:00 PM Monday through Sunday. Exceptions to the hours may be approved by the City Manager if necessary to alleviate traffic congestion or minimize safety hazards. • All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.	Less Than Significant
4.13 Noise: All other potential Project impacts related to noise have been determined to be less than significant. No other significant noise impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.14 Population and Housing: All potential Project impacts related to population and housing have been determined to be less than significant. No significant population and housing impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.15 Public Services: All potential Project impacts related to public services have been determined to be less than significant. No other significant public services impact would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.16 Recreation: All potential Project impacts related to recreation have been determined to be less than significant. No other significant recreation impact would result from the implementation of the proposed Project.	None Required	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
4.17 Transportation/ Circulation 4.17.7.1: Conflict with an applicable plan ordinance or policy establishing measures of effectiveness for the performance of the circulation system **Impact:** The cumulative conditions analysis results indicate that the addition of the Project would, with other cumulative growth, result in unacceptable operations at three study intersections.	TRAFFIC-1(a) Prior to the issuance of a Certificate of Occupancy the Applicant will either: • Pay its fair share cost for each of the three intersections requiring signalization/ improvement. The fair share cost will be based on the City's updated CIP and be calculated using cumulative plus Project conditions, excluding existing traffic. OR • Enter into an agreement with the City of Williams to pay a fair share cost based on an engineer's estimate acceptable to the City Engineer for the design and construction of the intersections signalization improvements. The fair share cost will be calculated using cumulative plus Project conditions, excluding existing traffic. TRAFFIC-1(b) • Regardless of which option is selected under measure TRAFFIC-1(a) the fair share payment would be held in an escrow account until such time as Caltrans implements the required signalization/ improvements. If within 10 years of construction of the Love's Country Store, Caltrans and the City have not yet completed the required signalization/ improvements Love's will be reimbursed the fair share cost paid.	Significant and Unavoidable
4.17 Transportation/ Circulation: All other potential Project impacts related to transportation/ circulation have been determined to be less than significant. No other significant transportation/ circulation impacts would result from the implementation of the proposed Project.	None Required	Less Than Significant
4.18 Utilities/ Service Systems: All potential	None Required	Less Than Significant

Issues/Impacts	Mitigation Measures	Level of Significance
Project impacts related to utilities/ service systems have been determined to be less than significant. No other significant utilities/ service system impact would result from the implementation of the proposed Project.		

2. Introduction and Purpose

This Environmental Impact Report (EIR) was prepared to evaluate the potential environmental impacts associated with the proposed Love's Country Store (Project) in the City of Williams (City) and to identify mitigation measures to avoid or minimize significant environmental impacts.

The City is the "public agency which has the principal responsibility for carrying out or approving the project" and, as such, is the "Lead Agency" for this project under the California Environmental Quality Act (CEQA) of 1970 (CEQA Guidelines section 15367). CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action. The EIR is also a public disclosure document available to agencies and the public for review and comment prior to the consideration of the Project by the City, and is intended to serve as an informational document to be considered by the City, any Responsible Agencies, and any Trustee Agencies during deliberations on the proposed project. The project approvals associated with the proposed project are described in Chapter 3.0.

This section outlines the EIR format; describes the purpose of the EIR; summarizes public review of the EIR; describes the Mitigation Monitoring and Reporting Program (MMRP); identifies the environmental issues discussed in the EIR; and defines the basis of the cumulative impact analysis.

2.1.Document Format

To assist the reader's review of the document, the following describes the format of this EIR.

- **Section 1.0 Executive Summary:** This section provides a summary of the EIR document and (in Table 1) identifies potentially significant impacts, mitigation measures, and the level of significance of each impact following mitigation.
- **Section 2.0 Introduction and Purpose:** This section outlines the EIR document's format including technical appendices; describes the purpose of the EIR including the legal purpose of CEQA, the intended use of the EIR, and the EIR's incorporated documents and referenced technical reports; summarizes the public review of the EIR to date; describes the role of the MMRP to be provided in the Final EIR; identifies the seventeen environmental issues that are discussed; and defines the basis of the cumulative impact analysis provided in the EIR.
- **Section 3.0 Project Description:** This section provides a detailed description of the geographical setting, project location, project setting, City of Williams General Plan land use designations, zoning designations, project characteristics, project objectives, and discretionary actions required to implement the proposed project.
- **Section 4.0 Existing Setting, Impacts, and Mitigation Measures:** This section evaluates the impacts associated with the proposed project. This section is organized by eighteen subject areas with each utilizing the following framework:

- *Existing Setting*: Information in the existing setting contains a discussion of the local and regional environment conditions (environmental and man-made) in existence at the time this EIR was prepared. Existing setting information provides the reader with the "baseline" from which future impacts are analyzed, and provides a standard against which to measure these impacts.
- *Existing Policies and Regulations:* Regulatory requirements and policies (federal, state, and local) applicable to the issue area are summarized.
- *Methodology*: A brief summary of the methods and resources utilized in the preparation of the environmental analysis.
- *Thresholds of Significance*: Determinations regarding the significance of potential impacts resulting from implementation of the proposed project are provided. These thresholds represent the criteria used in this EIR to determine whether identified impacts are significant.
- *Less than Significant Impacts*: Potential issues for which the proposed project was determined to have no impact or a less than significant impact are identified. For these issues, either no mitigation would be required or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.
- *Significant Impacts*: Potential impacts from implementation of the proposed project are identified. Each of these issues contains an impact analysis, mitigation measures, and significance after mitigation discussion.
  - *Impact Analysis:* An analysis of potential impacts of the proposed project is presented in this section. This discussion focuses on the impacts of implementation of the proposed project, and includes potential short-term/ long-term and direct/indirect project impacts, and consistency with applicable planning documents or regulations.
  - *Mitigation Measures*: The measures proposed to mitigate any potential impacts of the proposed project are identified.
  - *Level of Significance after Mitigation:* Provides a conclusion as to whether implementation of the proposed project will reduce the project-related and cumulative impacts to a level that is less than significant.

- **Section 5.0 Additional Topics Required by CEQA:** This section contains discussions of additional topics required by CEQA, including effects found not to be significant, unavoidable effects of the proposed project, cumulative impacts, and significant irreversible environmental changes. The proposed project's consistency with regional plans (discussed in Section 4.10) and potential to induce growth (discussed in Section 4.13) are summarized in this section.
- **Section 6.0 Alternatives**: This section contains a discussion of alternatives to development of the proposed project. As allowed by CEQA, the impacts of these alternatives are evaluated at a more general level than the analyses of the proposed

project that is contained in Section 4.0. This section also evaluates the proposed effects of the No Project Alternative and identifies the environmentally superior alternative.

- **Section 7.0 References:** This section contains all references cited in the EIR.
- **Sections 8.0 List of Preparers:** This section lists those persons involved in the preparation of the EIR, including City staff, other agency staff, and the EIR consultants.
- **Section 9.0 References:** This section lists all, acronyms and abbreviations used in the document, and definitions of terms used, including those specific to the proposed project (as applicable).
- **Appendices:** The Appendices contain a copy of the Notice of Preparation (NOP), NOP mailing list, NOP comment letters received and responses to those comments, public scoping meeting information, technical studies, referenced material, and other relevant correspondence received during the course of the analysis of the proposed project. An NOP to prepare an EIR has a critical objective of providing a means by which the general public and responsible and affected agencies can participate in the environmental process by providing written comments in the public record as to what issues they suggest or require be addressed in the EIR.

2.2. Report Purpose of CEQA and the Draft Environmental Impact Report

As per Section 15002 of the CEQA Guidelines (California Code of Regulations [CCR] Title 14, Chapter 3, Sections 15000–15387), the basic purposes of CEQA are:

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

CEQA requires that a project be reviewed to determine the environmental effects that would result if the project were approved and implemented. The City has the responsibility for preparing, processing, and determining whether to approve the proposed project and certify this EIR. As Lead Agency, the City has the authority to make decisions regarding discretionary actions relating to implementation of the proposed project.

This EIR will serve as a Project EIR pursuant to Section 15161 of the CEQA Guidelines. According to Section 15161 of the CEQA Guidelines, a Project EIR is appropriate for specific development projects in which information is available for all phases of the project, including planning, construction, and operation.

As previously noted, the objective of the EIR is to inform City decision-makers, representatives of other affected/responsible agencies, the public, and other interested parties of the potential

environmental consequences that may be associated with the approval and implementation of the proposed project. CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action on a project. This EIR provides information to the City and other public agencies, the general public, and decision makers regarding the potential environmental impacts from the construction and operation of the proposed project. The purpose of the public review of the EIR is to evaluate the adequacy of the environmental analysis in terms of compliance with CEQA. Section 15151 of the CEQA Guidelines states the following regarding standards from which adequacy is judged:

> "*An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have not looked for perfection but for adequacy, completeness, and a good faith effort at full disclosure.*"

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the CEQA Guidelines, and provides the information needed to assess the environmental consequences of a proposed project. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that have the potential to result in significant, adverse environmental impacts.

As per CEQA (PRC Section 21002.1[a]):

> *"The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the proposed project, and to indicate the manner in which those significant effects can be mitigated or avoided."*

This EIR has been prepared to evaluate the potential environmental impacts associated with the construction and operation of the proposed project as well as infrastructure associated with the proposed project. As permitted under the CEQA Guidelines (Section 15084[d-e]), Sycamore Environmental Consultants, Inc. has prepared the EIR under the direction of professional City planning staff. Prior to certification, the City Planning Commission must independently review the methodologies and conclusions reached in the EIR. The City is undertaking an independent review of this EIR by having city planning staff work with Sycamore Environmental Consultants, Inc. on the EIR. If certified by the City, the information included in and the conclusions reached in the EIR will, therefore, represent the City's independent judgment regarding the potential environmental impacts of the proposed project. This EIR has been prepared in accordance with CEQA, California Public Resources Code §21000 et seq.; the CEQA Guidelines; and the rules, regulations, and procedures for implementing CEQA as adopted by the City.

This EIR has been prepared utilizing information from City planning and environmental documents, technical studies prepared for the proposed project, and other publicly-available data.

Mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts from the proposed project have been identified. Alternatives to the proposed project are also discussed (refer to Section 6 in this EIR).

2.3.Incorporated Documents

CEQA (§15150) permits the incorporation by reference of all or portions of other documents that are generally available to the public. Any document incorporated by reference shall be made available to the public for inspection at a public place or public building and requires that the EIR state where the incorporated documents will be made available for public inspection.

The following documents have been incorporated by reference and are available for inspection at the City of Williams, City Hall (see address below).

2.4.Technical Reports

Various technical reports have been prepared to assess specific issues that may result from the construction and operation of the proposed project. Information from the following documents has been incorporated as applicable into the EIR and is included the following appendices:

- **Appendix B:** Air Quality Assessment & Greenhouse Gas Emissions and Global Climate Change Study (First Carbon Solutions 2016)
- **Appendix C:** Biological Resources Evaluation Report (Sycamore Environmental 2016)
- **Appendix D:** Archaeological Survey Report (Far Western 2016, Separately Bound Confidential Document)
- **Appendix E:** Geotechnical Engineering Report Love's Travel Stop (Terracon 2015)
- **Appendix F:** Initial Site Assessment/ Phase I Environmental Site Assessment (ISA/ESA) (Hanover 2013)
- **Appendix G:** Noise Study (Bollard 2016)
- **Appendix H:** Traffic Report Love's Country Store (Fehr & Peers 2016)

In addition to their inclusion in their entirety as appendices to this EIR, these documents are available for review at the following location:

Williams City Hall
810 E St
Williams, CA 95987
Phone: (530) 473-2955
Monday – Friday 8:00 am - 4:30 pm

2.5.Public Review of the Draft Environmental Impact Report

This EIR was distributed for review to responsible and trustee agencies, other affected agencies, and interested parties. In accordance with Public Resources Code Section 21092(b)(3), the EIR has also been provided to all parties who have previously requested copies. The Notice of Completion and Notice of Availability of the EIR have been distributed as required by CEQA.

During the 45-day public review period, the EIR and technical appendices have been made available for review.

Written comments regarding this EIR should be addressed to:

Monica Stegall, City Planner
City of Williams
P.O. Box 310
Williams, CA 95987
Phone: (530) 473-2955

After the 45-day public review period, written responses to all significant environmental issues raised will be prepared. These responses will be available for review for a minimum of 10 days prior to a public hearing before the City of Williams Planning Commission, at which time a recommendation regarding the certification of the Final EIR will be made. The Final EIR (which includes the Draft EIR, the public comments and responses to the Draft EIR, and findings) will be included as part of the environmental record for consideration.

2.5.1. Notice of Preparation

The City determined that due to the nature and size of the proposed Project, all environmental topics identified in the CEQA Guidelines Appendix G Initial Study form warranted further environmental review in an EIR. The City circulated copies of the NOP for the Project to State, regional, and local agencies on 15 January 2016, for a 30-day review period. The NOP was distributed to the State Clearinghouse, as well as agencies and organizations that may provide appropriate comment on the proposed project as well as the potential environmental impacts that may result from the construction and operation of the proposed Project.

Comments received regarding the NOP were used to help identify impacts that could result from implementation of the proposed project. The City received four (4) agency comment letters in response to the NOP. The NOP and comment letters received regarding the NOP are included in Appendix A of the EIR. Table 2 provides a brief summary of NOP comment letters.

Table 2. Notice of Preparation Comment Letters Received

Agency	Date	Comments (NOP response letters are included in Appendix A of the EIR.)	Addressed in Section(s)
Department of Transportation (Caltrans) District 3	4 February 2016	Caltrans requested that a Traffic Impact Study be prepared to adequately assess impacts on the State Highway System.	4.16, Transportation/ Circulation
Central Valley Regional Water Quality Control Board	9 February 2016	They had no comments specific to the EIR. The letter restates the CVRWCB's various responsibilities and permitting authority.	NA
California Native American Heritage Commission	9 February 2016	The NAHC outlined their responsibilities regarding cultural resources, including AB52.	4.5, Cultural Resources

Agency	Date	Comments (NOP response letters are included in Appendix A of the EIR.)	Addressed in Section(s)
California Department of Fish and Wildlife	29 January 2016	Department recommended surveys for listed and sensitive species of plants and animals and expressed concern about direct, indirect and cumulative adverse impacts to environmental and Public Trust resources within the project area.	4.4, Biological Resources

2.5.2. Public Scoping Meeting

A public scoping meeting was held at Williams City Hall, on 9 February 2016 from 6-7:30 PM. No outside agencies or members of the public attended.

2.6.Mitigation Monitoring and Reporting Program

A Mitigation Monitoring and Reporting Program (MMRP) will be prepared for this EIR to comply with the requirements of State law (Public Resources Code Section 21081.6). When mitigation measures are required to avoid or reduce the severity of significant impacts, State law requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the Project. An MMRP will be adopted by the City Council concurrent with certification of the Final EIR for the proposed project.

2.7.Potential Significant Impacts of the Proposed Project Discussed in the EIR

This EIR focuses on the areas of concern identified in the NOP and comments submitted on the NOP. The following environmental topics are addressed in this EIR:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Geology and Soils
- Greenhouse Gas Emission
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities/ Service Systems

2.8.Cumulative Projects

CEQA Guidelines (Section 15130) require an EIR include a discussion of potential cumulative impacts of a proposed project. Cumulative impacts are defined as two or more individual affects that, when considered together, are considerable or that compound or increase other environmental effects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the development when added to the impacts of other closely related past, present, and reasonably foreseeable or probable future developments. Cumulative impacts can result from individually minor (but collectively significant) developments taking place over a period of time. CEQA generally requires the following analysis of cumulative impacts:

- Cumulative impacts shall be discussed when the project's incremental effect is cumulatively considerable.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.

Pursuant to CEQA Guidelines, Section 15130, the cumulative analysis contained in this EIR includes an analysis of both (i) past, present, and probable future projects, which are either approved or being considered for approval by the City or other municipalities (or anticipated to be submitted for consideration, including projects in the design phase or under construction) and (ii) growth projections set forth in regional plans, including regional modeling plans. By performing a cumulative analysis in this way, which includes both reasonably foreseeable projects and growth projections set forth in regional growth projection models, the cumulative impact analysis set forth in this EIR is highly conservative and would tend to overstate (rather than understate) cumulative impacts.

This section evaluates the proposed project together with (i) the reasonably foreseeable potential effects of other closely related past, present, and reasonably foreseeable or probable future development in the area of the project, and (ii) growth projections set forth in regional plans.

Criteria evaluating the significance of adverse effects are identified for each environmental issue in Section 4.0. These criteria, which are based on resource sensitivity, quality, and quantity, are also used when evaluating whether the environmental effect resulting from implementation of a particular project is cumulatively considerable. The timing and duration of each activity is also an important consideration for evaluating the potential cumulative effects of activities that occur for a short duration. In such cases, a cumulative effect may occur only when two or more of the activities are occurring simultaneously.

Given the nature of individual environmental factors, the cumulative area for every issue addressed in this EIR will not be identical. For example, the cumulative area for air quality impacts is much larger than the cumulative area for public service impacts.

The following cumulative project list includes reasonably foreseeable projects identified by City staff that may interact with the proposed project and thus were included as part of the cumulative impact analysis prepared for this EIR. Projects included within Table 3 could be built out over time as market conditions permit. The potential exists that several of the projects listed may not be constructed within the reasonably foreseeable future. By including all of the listed projects in the cumulative analysis for the project, this EIR likely overstates identified cumulative impacts because many of the identified projects may never be built or may not be built at the densities identified. Cumulative projects include commercial, industrial, and other uses consistent with the General Plan designation and zoning.

Table 3. Table of Cumulative Projects

Project Name and Location **Estimated Dates of Construction**
West Williams Community Sewer and Water Rehabilitation Project West Williams June – September 2016 (currently under construction)
Arco Gas Station, corner of E Street & Vann St April – October 2016 (currently under construction)
Valley Ranch Subdivision, Phase 10, south end of subdivision May 2016 – May 2018 (currently under construction)
Development of citywide ADA and Transition Plan
Development and revisions to Water & Sewer Master Plans 2016-2018

3. Project Description

The following project description is provided in conformance with CEQA Guidelines Section 15124. It discusses the geographic setting, project location, project setting, current City of Williams land use and zoning designations, project characteristics, project objectives, and discretionary actions required to implement the proposed Project. This information will be the basis for analyzing the project's impacts on the existing physical environment in Section 4.0 of the EIR.

3.1.Project Location

The Project site is located approximately 1,100 ft southeast of the intersection of I-5 and SR 20 in the City of Williams, CA, Colusa County. The site will be located immediately southwest of the new road connection between SR 20 and Margurite Street (construction accepted as complete in 2016). The Project is located on Colusa County Assessor's Parcel Number (APN) 016-070-119. The Project is located on the Williams quad (T15N, R3W, Section 12) and is in the Sacramento-Stone Corral Hydrologic Unit (hydrologic unit code 18020104). The centroid of the Project is located at 39.167402° north, 122.144405° west (WGS84). UTM is 573,910 m E 4,335,700 m N (UTM Zone 10N, WGS84). Figures 1 and 2 show the regional location and an aerial photograph of the site.

3.2.Project Setting

Elevation of the Project site is approximately 69 feet above sea level and the topography is generally flat. In 2016, most of the business park in which the Project is located (between I-5 and Husted Rd and SR 20 and Ella Street) was fallow land. North of the Project, between SR 20 and Freshwater Road, agricultural production continues on lands designated in the City General Plan as Business Park southeast of the Interstate 5 (I-5). Most of the developed portion of the City of Williams is located west of I-5. South of Ella Street, educational facilities and undeveloped lots are present. Some residential neighborhoods are located south of E Street and east of I-5. The Williams Soaring Center is a small private glider airport located immediately east of Husted Road north of its intersection with E Street. The private use airstrip is located approximately 2,000 ft east of the Project site.

The Project area consists of flat ground located within the Great Valley geomorphic province. The Great Valley geomorphic province is located an alluvial plain about 50 mi wide and 400 mi long in the central part of California. It is composed of the Sacramento Valley in the north and the San Joaquin Valley in the south. Soils in the Project area consist of Willows silty clay. The Willows series is a very deep, poorly drained soil that formed from fine-textured alluvium derived from mixed rock sources.

3.3.General Plan and Zoning Designations

The 1988 General Plan, Lan Use Element designated the area east of I-5, south of SR 20, west of Husted Rd, and north of E Street as Light Manufacturing (M-L), Heavy Manufacturing (M-H), and Commercial Heavy (CH), with Highway Commercial (HC) north of E Street. The Project site was in the area designated for Heavy Manufacturing. The current General Plan (Williams

2012) re-designated and rezoned the M-L, M-H, and CH areas to Business Park (BP). The land north of SR 20 within the City limits was changed from Agricultural to Business Park. The proposed Project site is zoned as Business Park. Much of the area had previously been in rice production.

Construction on the Margurite Street extension to a new intersection with SR 20 commenced in 2015 and completed in 2016. The road extension includes underground water and sewer, as well as storm drain facilities sized for Margurite Street. Storm drain crossings are also installed at future street intersections to serve future development. Margurite Street from SR 20 south to E Street is a designated truck traffic route. A Glenn-Colusa Irrigation District (GCID) drainage that conveys stormwater east to Salt Creek ditch is located north of the property and just south of the SR 20 right-of-way.

3.4.Project Characteristics

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, CA. Love's Country Stores of California submitted an application for a Design Review and Site Plan Permit for a proposed Love's Country Stores to be sited on approximately 11.15 acres located southeast of the I-5 and SR 20 interchange. The proposed Project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The Project would include a 13,582 square foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop. The Project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck Stop/Truck Wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.

3.4.1. Detailed Project Description

The facility would include the following:

- One truck fueling island and open-sided canopy with eight fueling stations including 8 main pumps and one satellite slave pump located on the end of the diesel island to dispense diesel;
- One auto fueling island and open-sided canopy with seven fueling stations including 14 pumps to dispense gasoline and auto diesel;
- Two underground auto fuel storage tanks consisting of one 20,000 gallon and one 30,000 gallon tank; five 12,000-gallon above ground truck diesel fuel storage tanks; one above ground 1,000-gallon propane tank, and one 20,000-gallon underground Diesel Exhaust Fluid (DEF) tank;
- One 13,582 square- foot convenience store with an attached restaurant space for three vendors;
- One 6,322 square-foot tire shop;
- A truck scale;
- A trash compactor, grease container, and yard equipment shed;
- A minimum 50,000 gallon fire water storage tank and a fire pump house;
- On-site stormwater runoff collection system;

- On-site parking for 97 truck stalls and 68 passenger vehicle stalls, including 4 ADA accessible stalls and a bicycle rack for bicycles;
- 75-foot tall pylon sign (940 square feet surface area) with fuel pricing located adjacent to the I-5 northbound off-ramp to SR 20;
- 25-foot tall street sign (174 square feet surface area);
- On-site lighting, consisting of 39 foot tall pole lights with full cutoff fixtures, canopy lights, and wall lights; and
- Landscaping, hardscaping, and pavement

The proposed convenience store, restaurants and automobile fueling area would be located on the east portion of the site, truck fueling in the middle portion, and truck parking along the western and southern perimeter of the site (Figure 3). The tire shop will be located in the southwest portion of the project site. The passenger vehicle fueling area and circulation for this area would be physically separated from the truck fueling area and parking stalls by raised curbs that link Margurite Street to the proposed convenience store and fast food restaurant. Of the 22 fueling positions, 14 pumps would dispense gasoline, and the remaining eight would dispense diesel fuel.

Underground fuel storage for passenger vehicles would be located west of the passenger vehicle fueling area. Passenger vehicle fuel storage tanks are expected to include a 30,000-gallon unleaded tank and a 20,000-gallon split tank for super and auto diesel. Truck diesel fuel storage would be above-ground in an approximately 350 square foot “tank farm” located directly south of the convenience store (Figure 3). The tanks are expected to include five 12,000-gallon tanks, one 20,000-gallon propane tank, and one 20,000-gallon tank for diesel exhaust fluid (DEF).

The overall site plan is shown in Figure 3, and shows the layout of the proposed uses described below. Figure 4 shows the planned front, side, and rear architectural elevations and exterior finishes.

The facility would operate 24 hours a day, 365 days per year. The Project is anticipated to employ 40 to 45 full-time employees; approximately 12 employees would be on-site at any one time. The site lighting would be designed and submitted to the City of Williams Planning Department in compliance with the City’s Design review process established in municipal code 17.05.270 (Ord. No. 194-12, § I, 7-25-2012).

A landscape plan was prepared by Thomas H. Phelps, California Landscape Architect #4122 (Figure 5). The site landscaping plan was prepared in accordance with the City’s Design review process and site permit application. The plan is designed to comply with the criteria for the City’s water efficient landscape ordinance.

Figure 4. Architectural Elevations and Exterior Finishes

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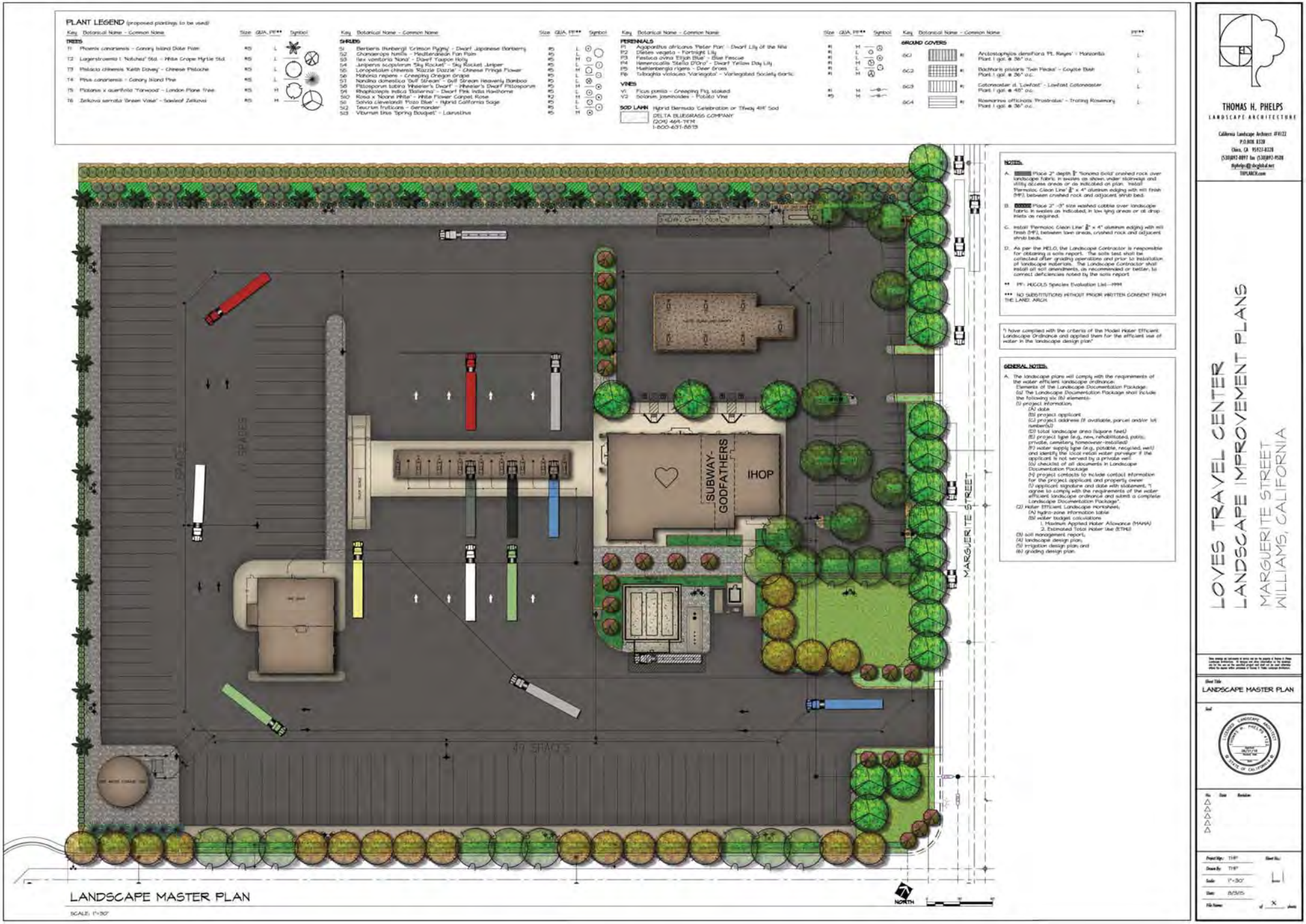

Figure 5. Landscape Plan

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The Project would include the installation of various illuminated and non-illuminated advertising, directional, and informational signage. Signage would be placed primarily on-site with the exception of a hi-rise sign placed west of the Project site near the I-5 northbound off ramp. Electrical power for the hi-rise sign would be provided by power from the Love's site and will be installed in a new utility easement on APN 016-070-120. All signage has been designed to comply with the City's Sign ordinance (Ord. No. 212-15, § 1(Exhibit. A), 1-20-2016) as codified in Chapter 17.11 of the City Code.

The Project site would include 97 truck stalls located along the western and southern boundaries of the site. Truck stalls would permit overnight parking. On-site parking for the proposed Project would include 68 passenger vehicle stalls. Four spaces will be provided for compliance with the Americans with Disabilities Act (ADA), one of which will be van accessible.

Access to the site would be via two ingress/egress drives along the west side of Margurite Street. The northernmost proposed access would be a 35-foot wide driveway that would allow for a full range of left- and right-turn movements by passenger vehicles accessing the fueling area and convenience store and restaurant. This entrance is located approximately 300 feet south of the Margurite Street/SR 20 intersection. The second proposed entrance is located approximately 280 feet south of the north driveway and would provide a variable width - two-way driveway for trucks only, ranging from 76 ft at its widest to 53 ft at its most narrow point. The south access would lead directly to the proposed truck fueling stations where they could follow the drive counterclockwise and back out the access driveway to exit.

Utilities

Water, waste water, and storm drain service will be provided by the City of Williams. The City provides utilities concurrently with development consistent with the Policy 5.1 of the 2012 General plan. Solid waste (refuse), green waste and recycling will be provided by Recology; who provides service for Colusa and Butte Counties. Police protection services will be provided by the City of Williams Police Department. Fire protection will be provided by the Williams Fire Protection Authority.

The project will connect to PG&E electric and natural gas lines which will be extended within a public utility easement along the Margurite Street right-of-way from existing facilities. Electrical power for the hi-rise sign adjacent to the I-5 northbound off ramp would be provided by power from the Love's site and will be installed in a utility easement on APN 016-070-120.

Water: The City of Williams would provide water service to the project site. The project would connect to an 8" lateral that connects to the 12" main line located within the Margurite Street right-of-way. There are no off-site improvements that require water service. Three fire hydrants are located on the east side of Margurite Street between SR 20 and the future Wallace Street. A minimum 50,000 gallon fire water storage tank and fire pump house will be located at the southwest corner of the site.

Sewer: The City of Williams would provide waste water service to the project site. The project would connect to the sanitary sewer line located in the Margurite Street right-of-way. There are no off-site improvements that require waste water service.

Storm Drainage: Stormwater runoff from the developed portion of the site would be collected in a series of at grade concrete swales, catch basins, and a pipe conveyance system that would convey flows to the storm drain crossing installed at future street intersection south of the parcel. A new ditch or storm drain pipe will be extended from the easterly side of Margurite Street easterly within a future street right of way to an existing detention pond.

State regulations and City standards require source control and treatment controls to be included in project design to reduce to the maximum extent practicable pollutants in stormwater runoff. Before the City issues a grading permit for the project, it will require the applicant to provide a detailed site plan identifying where each of the specific stormwater quality best management practices (BMPs) will be located, along with hydrologic and hydraulic calculations showing how stormwater would be managed in accordance with the Phase II Small MS4 General Permit (Order No. 2013-0001-DWQ) Section E.12 (Post-Construction Storm Water Management Program).

The project design includes several BMPs to prevent pollutants from contacting stormwater so that runoff from the site does not contaminate the GCID ditch. Proposed source control features included in project design are:

- **Fuel-Dispensing Area:** The fueling islands would consist of a concrete slab and canopy with a hydraulically isolated drainage system. The drainage system would be a concrete swale directing any fuel spill or stormwater runoff to a perimeter trench drain that discharges into an oil/water separator with an emergency shut-off valve. Any discharge that flows through the oil/water separator and perimeter trench drain would drain to the sanitary sewer system.
- **Tire Shop:** The Tire Shop would have a permanent roof and would include floor materials consisting of concrete to prevent infiltration of polluted wash water. It would have an independent and isolated drainage system that would discharge to the sanitary sewer.
- **Trash Enclosure:** The trash enclosure, which would be on the east side of the site would be constructed with a material base that is impervious to spills, and would be covered with a permanent roof. The area would have an independent and isolated drainage system that would discharge to the sanitary sewer.
- **Storm Drain Signage:** Storm drain message markers would be placed at all storm drain inlets on the project site.

3.5.Project Objectives

The general objective of the proposed Project is to construct a Love's Country Store location to serve existing travelers and truck traffic on SR 20 and I-5 and other potential customers within nearby areas along these major thoroughfares. Specifically, the objectives include:

- To create a high-quality travel center development near Interstate 5 and State Route 20, which are major transportation corridors, with access to a federal Surface Transportation Assistance Act (STAA) National Network road/ Terminal Access and/or California Legal Route as shown on the official Caltrans Truck Route Map.
- To develop a regional travel center on commercially-designated land within the City of Williams that is consistent with City General Plan policy and zoning.
- To develop a property of sufficient size to accommodate a truck and auto fuel dispensing area, emergency tire repair and replacement services, convenience store, and fast-food restaurant to create a regional travel stop.
- To provide a travel stop facility of sufficient size to accommodate overnight truck parking.
- To provide a travel stop facility that maximizes its proximity to Interstate 5 for all buildings and tenants.
- To construct a facility near a major freeway interchange in order to minimize traffic generation on local streets.
- To construct a facility with access to adequate existing or anticipated utility infrastructure to support planned operations.

3.6.Required Discretionary Actions and Permits

The following discretionary actions and permits are anticipated for the proposed project:

- City of Williams Certification of Environmental Impact Report;
- City of Williams Design Review for the project site plan, building elevations, and signage; and
- City of Williams Site Plan Review.
- A Section 402 National Pollutant Discharge Elimination System (NPDES) permit.
- Colusa County Air Pollution Control District's Authority to Construct and Permit to operate

4. Environmental Impact Evaluation

As stated previously, there are 18 environmental issue areas that are analyzed in this EIR with respect to the proposed project. These issues are:

• Aesthetics	• Hydrology and Water Quality
• Agricultural and Forestry Resources	• Land Use and Planning
• Air Quality	• Mineral Resources
• Biological Resources	• Noise
• Cultural Resources	• Population and Housing
• Tribal Cultural Resources	• Public Services
• Geology and Soils	• Recreation
• Greenhouse Gas Emission	• Transportation/Traffic
• Hazards and Hazardous Materials	• Utilities/ Service Systems

Section 4 presents the following information, as applicable, for each resource topic:

- Existing setting;
- A summary of existing policies and regulations;
- Methodology
- Identification of the thresholds of significance;
- Evaluation of project-specific impacts and a determination of significance based on identified threshold levels;
- Identification of mitigation measures;
- A determination of the level of significance after mitigation measures are implemented; and
- Cumulative impacts.

The environmental analysis provided in Sections 4.1 through 4.18 focuses on changes in the existing physical environment and identifies direct and indirect significant impacts associated with the proposed project. The cumulative impacts for each of the proposed project components are analyzed within the discussion of each component for each threshold.

4.1. Aesthetics

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities." (CA Public Resources Code Section 21001[b]). This section describes the existing aesthetic conditions of the Project area and evaluates Project components such as light and glare generation and compatibility issues with the visual characteristics of surrounding land uses. Specifically the existing visual characteristics, both on site and in the vicinity of the project site, are presented. Potential Project impacts to aesthetic and visual resources are based on the evaluation and analyses of site photographs, reconnaissance visits to the site, and data provided in technical reports prepared for the project. The following documents were utilized in the preparation of this chapter:

- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)
- City of Williams, Official Zoning Map (City of Williams 2012b)
- Draft City of Williams Design Review Manual 2012 (City of Williams 2012c)

The term 'views' generally refers to visual access to, or the visibility of, a particular sight from a given vantage point or corridor. "Focal views" focus on a particular object, scene, setting, or feature of visual interest; "panoramic views" or vistas provide visual access to a large geographic area, for which the field of view can be wide and extend into the distance. Examples of focal views include natural landforms, public art/signs, individual buildings, and specific, important trees. Panoramic views are usually associated with vantage points looking out over a section of urban or natural areas that provide a geographic orientation not commonly available. Examples of panoramic views might include an urban skyline, valley, mountain range, the ocean, or other water bodies.

Through the General Plan, the City specifies development standards, which help prevent the obstruction of views. These standards include the regulation of building height, mass, and floor to area ratio, as well as landscaping and grading, which are the principal issues in view obstruction.

CEQA makes a distinction between "public" and "private" views in terms of aesthetic impacts. CEQA documents typically address how a project will change views seen by the general public (e.g., from public roads, parks, or recreational areas established for scenic character). CEQA documents typically do not address how a project would affect views of private individuals or from private property. This EIR will focus on changes in public views, but will identify where private views will change and if characteristics of the project will help mitigate these changes.

4.1.1. Existing Setting

The Project occurs on lands within the City of Williams municipal boundary within an urban/ suburban/ agricultural area. The Project is not located on a state scenic highway.

4.1.1.1 Topography and Vegetation

The Project is located about 10 mi east of the base of the Coast Range and approximately 13 mi east of the base of the Sutter Buttes. These features are visible to travelers on I-5 and SR 20. The City of Williams including the Project site occurs on flat land making the mountains visible from most locations, unless obstructed by buildings or landscaping.

Vegetation onsite is composed of scattered weedy species occurring in fallow/ unused agricultural fields. In 2010 a portion of the fields in the Project area were used for safflower production. In 2013, the site was used for rice production. The agricultural fields have a business park land use and zoning designation in the 2012 City of Williams General Plan Update (GPU). While rice was farmed in these fields in 2013, no rice farming occurred after 2013 to allow for construction of the SR 20-Margurite Street Connection. No trees occur in the Project area. No structures occur in the Project area.

4.1.1.2 Viewshed

A viewshed is comprised of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the proposed project. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features. Table 4 provides a summary of the existing viewsheds.

Table 4. Viewshed Information

Observation Point	View Characteristics		
	Foreground	**Midground**	**Background**
North from Project Area	SR 20, Agricultural Fields	Agricultural Fields	Agricultural Fields and Infrastructure
South from Project Area	Agricultural Fields, Margurite Street	Buildings in the City of Williams, vacant land, and landscape trees	Coast Range, landscape trees
West from Project Area	Agricultural Fields, I-5	Buildings in the City of Williams and landscape trees	Coast Range
East from Project Area	Margurite Street, Detention Basin, Agricultural Fields	Husted Road, Williams Soaring Center	Sutter Buttes
North toward Project Area	Agricultural Fields	Agricultural Fields and Infrastructure	Agricultural Fields and Infrastructure
South toward Project Area	Margurite Street, Agricultural Fields	Agricultural Fields landscape trees adjacent to SR 20/ I-5 overpass	Coast Range
West toward Project Area	Margurite Street, Agricultural Fields	Buildings in the City of Williams and landscape trees	Coast Range
East toward Project Area	Margurite Street, I-5, Agricultural Fields	Agricultural Fields and Infrastructure	Sutter Buttes

4.1.1.3 Lighting and Visibility

Existing nighttime lighting adjacent to the Project site is typical for areas along minor and major transportation arterials. No existing light sources occur within the Project area. Adjacent light sources include streetlights and the headlights of vehicles traveling along Margurite Street, I-5, and SR 20. Street lights were installed on SR 20 at the Margurite Street intersection in 2015.

4.1.1.4 Surrounding Land Uses

The Official Zoning Map shows the zoning as Business Park in the Project area (City of Williams 2012b). All parcels immediately adjacent to the Project are zoned as Business Park. The parcels north of SR 20 to the City limit are also designated as Business Park. No residential uses or parks are identified as existing or proposed adjacent to the Project (City of Williams 2012a). I-5 and SR 20 occur west and north of the Project area respectively.

A California Highway Patrol station, the Colusa County Department of Education, Alternative Education School and Special Education/Severely Handicapped School, and the Woodland Community College are located southwest of the Project site. These uses are within an area bounded by Ella Street on the north, Husted Road on the east, E Street on the south, and Marguerite Street on the west; and are shown as 'Institutional' on General Plan Map 3.5. (City of Williams 2012a).

4.1.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding aesthetics.

4.1.3. Existing Policies and Regulations

4.1.3.1 Federal Regulations

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the Federal Highway administration in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values. There are no specific federal regulations regarding aesthetics that are applicable to the proposed project.

4.1.3.2 State Regulations

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the State "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities." (CA Public Resources Code Section 21001[b]). There are no specific State regulations regarding aesthetics that are applicable to the proposed project.

4.1.3.3 Local Regulations

The City of Williams General Plan EIR states the following about implementation of the General Plan with regards to visual/ aesthetic resources:

> *"Implementation of the General Plan would result in increased urban and suburban growth, which could alter the visual setting or character of the SOI. This would occur primarily at the City's southern and eastern edges, which would not affect the westward views to the mountains. This additional development is unlikely to be perceived as a negative aesthetic impact in comparison to its current state."*

The City of Williams prepared and adopted a Design Review Manual in 2012 (City of Williams 2012c). The primary purpose of the Design Review Manual is to assure that the community develops according to the City's aesthetic and functional expectations provided under the General Plan and Zoning Code. Design Review is one of several procedures the City uses to guide development in the interest of the public's health, safety and general welfare. Design Review examines a project's layout, its relationship to the neighborhood, landscaping, parking, driveways, signs and other features. It considers a project's physical features, such as appearance and how well it functions on the site in relation to its surroundings.

The City of Williams prepared and adopted Ord. No. 212-15 regarding signage on 20 January 2016, as codified in Chapter 17.11 of the City code. The purpose of this ordinance is to provide minimum standards to safeguard life, health, property, aesthetics and public welfare and safety by regulating and controlling the type, size, number, design, and quality of materials, construction, illumination, location and maintenance of all signs in the City of Williams. As per the project description all signage has been designed to comply with the City's Sign ordinance (Ord. No. 212-15, § 1(Exh. A), 1-20-2016) as codified in Chapter 17.11 of the City code.

4.1.4. Methodology

The evaluation of potential visual impacts focuses on changes in the visual character of the Project site that would result from the development of the proposed onsite uses, including the visual compatibility of onsite and adjacent uses, changes in vistas and viewsheds where visual changes would be evident, and the introduction of sources of light and glare. Although few standards exist to singularly define perceptions of aesthetic value, the degree of visual change can be measured and described in terms of visibility and visual contrast, dominance, and magnitude. Concepts of visual character and quality can be organized around four elements: site utilization; buildings and structures; landscaping; and signage.

A scenic vista can be categorized as either containing a panoramic view or a focal view. Panoramic views are typically associated with vantage points that provide a sweeping geographic orientation not commonly available (e.g., skylines, valleys, mountain ranges, or large bodies of water). Focal views are typically associated with views of natural landforms, public art/signs, and visually important structures, such as historic buildings. Aesthetic components of a scenic vista include three components: scenic quality; sensitivity level; and view access.

4.1.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts to aesthetic resources are based on Appendix G (Environmental Checklist) set forth in the CEQA Guidelines (2016). A project would have a significant impact on aesthetic resources if it would result in any of the following:

- A substantial adverse effect on a scenic vista;
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;
- Substantial degradation of the existing visual character or quality of the site and its surroundings; and/or
- A new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

4.1.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.1.6.1 Scenic Vistas

Threshold: Would the proposed project have a substantial adverse effect on a scenic vista?

The General Plan EIR identifies the downtown area and established neighborhoods north, south, and west of downtown as unique visual features. The Project area is not located in close proximity to these unique visual features.

The City of Williams is situated approximately 10 miles east of the base of the Coast Range approximately 13 mi east of the base of the Sutter Buttes. The Coast Range is visible to travelers on Interstate 5 and westbound on SR 20. Sutter Buttes are visible to travelers on Interstate 5 and eastbound on SR 20. Given that the City Williams is situated on flat land, the mountains are visible in the distance from most locations unless obstructed by buildings or landscaping. While attractive, the mountains are of great enough distance from the City of Williams that the vista cannot be characterized as being unique or significant (City of Williams 2011). Views west and east toward the mountain ranges would not be completely obstructed by the proposed Project. Views afforded through public rights-of-way within the surrounding areas of the proposed Project site would be preserved.

Because no scenic vistas occur in or adjacent to the Project, the proposed Project is consistent with development envisioned in the City's General Plan. The Project would adhere to the design guidelines established in the City's Design Review Manual, therefore potential impact to scenic vistas would be less than significant. No mitigation is required.

4.1.6.2 Scenic Resources and Scenic Highways

Threshold: Would the proposed project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway and/or local scenic road?

The proposed Project does not occur adjacent to any state scenic highway or local scenic road (Caltrans 2016, City of Williams 2011). As per the General Plan:

> *"There are no scenic highways, rock outcroppings or other terrain features that could be adversely impacted by growth and development in the City."*

No impact will occur and no mitigation is needed.

4.1.6.3 Existing Visual Character

Threshold: Would the proposed project substantially degrade the existing visual character or quality of the site and its surroundings?

The proposed Project will result in changes to the general character of the project area (e.g., loss of open area), the components of the visual settings (e.g., landscaping and architectural elements), and the visual compatibility between proposed site uses and adjacent land uses. Currently, the Project area is undeveloped. Institutional, residential, and commercial uses occur south of the Project area. Commercial/ retail and industrial uses occur west of the Project on the west side of the Interstate 5 corridor. The proposed Project would alter the character of the site from its current undeveloped state to a more urbanized setting. The change in the character of the site would constitute an alteration of the existing visual character.

The Project would construct a 13,582 square- foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop on approximately 11.15 ac. The proposed travel center will function as a "one stop shop" for freeway travelers and truckers including minor vehicle repairs and tire sales. Construction would include associated parking areas, landscaping, drainage, and roadway infrastructure. The proposed travel center will be constructed in a single phase.

Implementation of the proposed Project would replace the relatively undeveloped character of the site with a semi-urban setting. The change in the character to the Project area would be recognizable and would constitute a permanent alteration of the existing visual character.

Figures 3 through 5 in Section 1.0, show the proposed site plan, landscape plan, and building elevations for the proposed Project. While the final design may differ slightly, sufficient detail exists to assess the effect of the proposed Project may have on aesthetic character of the Project and surrounding areas. As demonstrated on Figure 4 the proposed Project includes a number of architectural features including façade accents such as corner treatments and roof trim and the proposed "Country Store" building will incorporate an attractive but neutral color scheme accented by tile, wood, stone, and other materials. The combination of alternating colors and/or materials along the building elevations will establish the mix of natural elements while maintaining visual interest over a sustained period of time and as such, will be consistent with the Design Review Manual.

Landscaping on site would be provided in accordance with the development standards in Appendix D, Section III (Landscape Design Standards) of the Design Review Manual. The Project will also incorporate variations in massing and scale (e.g., recessed walls, accent colors, and differing heights) to indicate building entrances.

While the visual characteristic of the Project area would change, the proposed project would replace the existing semi-developed/vacant parcel with an attractive, well-designed facility through the use of architectural and landscaping elements in accordance with City's adopted Design Review Manual. The Project will not result in a demonstrable negative effect to the existing visual character or quality of the Project area or its surroundings. No significant impact would occur and no mitigation is required.

4.1.6.4 Light and Glare

Threshold: Would the proposed project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Existing nighttime lighting adjacent to the Project site is typical of areas along minor and major transportation arterials. No existing light sources occur within the Project area. Adjacent light sources include streetlights and the headlights of vehicles traveling along Margurite Street, Interstate 5, and SR 20. Street lights were installed on SR 20 at the Margurite Street intersection in 2015.

The Project will introduce new light sources into the Project area. New lighting sources include signage, building lighting, and parking lot lighting. The Project will not construct large reflective surfaces (such as large expanses of metal and glass surfaces) and would not significantly increase the amount of daytime glare in the Project area.

The Project is required to comply with the lighting standards as per Section 6.2 (Lighting) of the Design Review Manual. Among other requirements the Project lighting would:

- Enhance architectural, landscaping and other Project features.
- Lighting levels should be limited to the minimum levels necessary to provide public safety. Lighting fixtures should be thoughtfully placed to avoid light spillage and glare on adjacent properties.
- "Down shine" luminare should be utilized.
- Energy efficient lighting shall also be utilized.

The Project would include the installation of various illuminated and non-illuminated advertising, directional, and informational signage. Signage would be placed primarily on-site with the exception of a hi-rise sign placed west of the Project site near the I-5 northbound off ramp. Electrical power for the hi-rise sign would be provided by underground power from the Love's site and will be installed in a new utility easement on APN 016-070-120. All signage has been designed to comply with the City's Sign ordinance (Ord. No. 212-15, § 1(Exh. A), 1-20-2016) as codified in Chapter 17.11 of the City code.

Adherence to the City's adopted Design Review Manual and Chapter 17.11 of the City code would ensure that any building or parking lighting and signage would not significantly affect adjacent uses. Impacts are less than significant and no mitigation is required.

4.1.7. Significant Impacts

All potential Project impacts to aesthetics or light and glare have been determined to be less than significant. No significant aesthetics or light and glare impact would result from the implementation of the proposed Project. No mitigation is required.

4.1.8. Cumulative Impacts

The cumulative area for aesthetics is the City of Williams. The cumulative effect on scenic vistas from the proposed Project would be less than significant as scenic vistas would not be affected from viewpoints within certain Project locations and adjacent roads. The development of the proposed Project would partially obstruct views of surrounding mountain ranges from current vantage points near the project structures. Views of the mountains would be available from various viewpoints afforded by the circulation network, openings between rows of buildings or trees, or at the end of vehicular rights-of-way. Compliance with the City's adopted Design Review Manual would ensure that the proposed Project in combination with other projects in the area would not result in significant impacts to scenic vistas, scenic resources, and visual character. The Project would have a less than significant cumulative impact on local scenic vistas, scenic resources, and visual character.

Development of lands within the City would result in the cumulative conversion from open space to a more urbanized land use. This is a continuing development trend currently occurring within the City that has been anticipated in the City's General Plan. Cumulatively, more lighting would be introduced into the area by proposed, existing, and future development. As with past and currently proposed development, cumulative lighting-related impacts would be reduced through the adherence to applicable City lighting standards. No cumulatively significant lighting impact would result from implementation of the proposed project.

4.2. Agricultural and Forestry Resources

This section addresses agricultural and forestry resource impacts attributable to the proposed Project. The focus of this section is a discussion of applicable State, regional, and local policies regarding agricultural and forestry resources and the conversion of farmland to non-agricultural uses. The evaluation in this section is based in part on the following reference documents:

- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.2.1. Existing Setting

4.2.1.1 Agricultural Resources

The Project is not on prime farmland or farmland of statewide importance. The California Department of Conservation, Division of Land Resource Protection's 2010 map of Colusa County Important Farmland Data Availability shows the Project is located on unique farmland (CDOC 2016c).

The City 2012 General Plan Figure 7.1 shows that no Williamson Act lands are in the Project area (City of Williams 2012a). The Project occurs on lands within the City of Williams municipal boundary. The Project site is already designated and zoned as Business Park. The 1988 General Plan, designated the area east of I-5, south of SR 20, west of Husted Rd, and north of E Street as Light Manufacturing (M-L), Heavy Manufacturing (M-H), and Commercial Heavy (CH), with Highway Commercial (HC) north of E Street. The project site was in the area designated for Heavy Manufacturing. The current General Plan (Williams 2012) re-designated and rezoned the M-L, M-H, and CH in the area described to Business Park (BP). The land north of SR 20 within the City limits was changed from agricultural to Business Park.

4.2.1.2 Forestry Resources

The City 2011 General Plan Map 7.5 indicates there are no designated forestlands in the Project area or within the City of Williams (City of Williams 2012a).

4.2.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding agricultural and forestry resources.

4.2.3. Existing Policies and Regulations

4.2.3.1 State Regulations

The California Environmental Quality Act requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to deter the early conversion of agricultural and open space lands to other uses.

California Government Code § 65570 requires the collection and reporting of agricultural land use acreage and conversion by June 30 of each even-numbered year. Utilizing data from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey and current land use information, the California Department of Conservation (CDOC), the Farmland Mapping and Monitoring Program (FMMP) compiles important farmland maps for each county within the state. These maps delineate land use in eight mapping categories (and one overlay category) and represent an inventory of agricultural soil resources within Colusa County. The categories of land shown on these maps are defined below.

- **Prime Farmland:** Land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.
- **Farmland of Statewide Importance:** Land that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.
- **Unique Farmland:** Land of lesser quality soils used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated, but may include non- irrigated orchards or vineyards as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grape, and cut flowers.
- **Farmland of Local Importance:** Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees. Examples include dairies, dryland farming, aquaculture, and uncultivated areas with soils qualifying for Prime Farmland and Farmland of Statewide Importance.
- **Grazing Land:** Land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock.
- **Urban and Built-up Land:** Land used for residential, industrial, commercial, construction, institutional, public administrative purpose, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are also included in this category.
- **Other Land:** Land not included in any of the other mapping categories. Common examples include low-density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres.
- **Water:** Water areas with an area of at least 40 acres.

The proposed Project area and lands immediately surrounding it are classified as "Unique Farmland". No land within or immediately adjacent to the Project is classified as Prime Farmland, Farmland of Statewide Importance, or Farmland of Local Importance.

Williamson Act Contract Lands: The Williamson Act is a non-mandated State program, administered by counties and cities, for the preservation of agricultural land. Individual property owners enter into a contract that restricts or prohibits development of their property to nonagricultural uses during the term of the contract in return for lower property taxes. Initially signed for a minimum 10 year period, the contracts are automatically renewed each year for a successive minimum 10 year period unless a notice of non-renewal is filed or a contract cancellation is approved by the local government. The 2012 General Plan Figure 7.1 shows that no Williamson Act lands are in the Project area (City of Williams 2012a).

State Forestry Laws: Title 14 of the California Public Resources Code governs the designation and monitoring of forests and forest resources within the State. In addition, the State Board of Forestry and Fire Protection administers the "Forest Practice Rules" for professional foresters and their activities in the State.

4.2.3.2 Local Regulations

The City General Plan Chapter 3 (Land Use and Character) provides land use strategies that address the relationship between agricultural and urbanized lands by defining land use districts and the allowable development types within each district, together with lot size, percent open space, densities for the residential districts; and the heights, percentage of green space, and floor area ratios for the nonresidential districts.

4.2.4. Methodology

The evaluation of potential impacts to agricultural and forestry resources included:

- Evaluate the FMMP maps to determine whether the proposed Project site contains Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.
- Evaluate the current General Plan land use designations and zoning applicable to the site to determine the existence of any conflicts between the proposed project and any potential existing agricultural General Plan and zoning designations applicable to the site.
- Regarding forest resources, determine via onsite inspection and consulting the City General Plan if the site or area contain any forest resources.

4.2.5. Thresholds of Significance

Appendix G of the CEQA Guidelines recognizes the following significance thresholds related to agricultural resources. Impacts to agricultural resources could be considered significant if the proposed project:

- Results in the conversion of Prime, Unique, or Statewide Important farmland as shown on the maps prepared by the FMMP;
- Conflicts with a Williamson Act contract;
- Conflicts with existing zoning for agricultural use;
- Involves other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use;

4.2.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.2.6.1 Conversion of Prime, Unique, or Statewide Important Farmland

Threshold: Would the Project 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?

The proposed Project area and lands immediately surrounding it are classified as "Unique Farmland". No land within or immediately adjacent to the Project is classified as Prime Farmland, Farmland of Statewide Importance, or Farmland of Local Importance. The Project would convert approximately 11.15 ac of lands classified as "Unique Farmland" as identified on the maps prepared pursuant to the Farmland Mapping and Monitoring Program.

The Project site is currently designated and zoned as Business Park. The Project occurs on lands within the City of Williams municipal boundary. The City General Plan Sections 3 and 7 considered the loss of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and include the following policies intended to reduce the impact of conversions:

- The City will grow contiguously to manage the efficiency of public services and municipal infrastructure provision, to maintain a compact and well defined community form, and to oblige its fiscal responsibility.
- Priority in the form of infrastructure and other capital improvements will be given to the redevelopment of blighted structures or properties and infill development of vacant parcels or underutilized tracts.
- Development will occur first within the existing corporate limits where the infrastructure and services are readily available.
- Development or individual uses outside the corporate limits will not be prematurely provided municipal infrastructure until annexation is warranted and executed, subject to conformance with the Future Land Use and Growth Plan. Services will be provided to these areas through mutual aid and other agreements and mandates.
- The City's land use pattern should focus new development and significant redevelopment where adequate public services and utility capacity are already in place or projected for improvement, including streets, water, wastewater, and drainage infrastructure.
- The agricultural use and rural character of the City's perimeter should be maintained through the strict enforcement of zoning, as applicable, and influence exerted by the City within its sphere of influence.
- Agriculture and ranching activities will be supported through financial incentives and access to municipal venues and facilities.
- Prime farmland should be prioritized for agricultural (rather than industrial or residential) uses to ensure the most efficient use of land.

Chapter 8 (Significant Unavoidable Impacts), Section 8.1 of the City General Plan DEIR concludes (City of Williams 2012a):

> *'The loss of agricultural land as a result of urban development is an overall consequence of growth, and the County will continue to face development pressure in the foreseeable future as the urbanization continues to reach out from Sacramento. As more fully described in Section 4.12, the Proposed General Plan Update includes goals and recommended actions addressing the conversion of agricultural uses. However, since the region is projected to continue urbanizing at a significant rate, the loss of agricultural lands as a result of the Proposed Project would contribute considerably to a significant and unavoidable cumulative impact to agricultural resources.'*

Per CEQA Guidelines section 15093 the City Williams adopted a statement of overriding considerations (Resolution No. 12-14). The loss of the unique farmland in the current Project area was considered and addressed in the City General Plan update. The proposed Project impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are less than significant.

4.2.6.2 *Williamson Act* and Zoning for Agricultural Use

Threshold: Conflict with existing zoning for agricultural use, or a contract?

No Williamson Act lands occur in the Project area. The City 2012 General Plan Figure 7.1 shows that no Williamson Act lands are in the Project area. The Project site and adjacent parcels are currently designated and zoned as Business Park. The Project occurs on lands within the City of Williams municipal boundary. No impact will occur and no mitigation is needed.

4.2.6.3 Conflict with an Existing Zoning for Forest Land

Threshold: 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))?

No forest land, timberland, or timberland zoned Timberland Production occur in the Project area or the City of Williams. No impact will occur and no mitigation is needed.

4.2.6.4 Loss of Conversion of Forest Land

No forest land, timberland, or timberland zoned Timberland Production occur in the Project area or the City of Williams. No impact will occur and no mitigation is needed.

4.2.6.5 Other Changes in the Existing Environment

The Project is not anticipated to involve other changes in the existing environment that could result in conversion of farmland or forest land. No impact will occur and no mitigation is needed.

4.2.7. Significant Impacts

All potential Project impacts to agricultural and forest resources have been determined to be less than significant. No significant agricultural or forest resource impact would result from the implementation of the proposed project.

4.2.8. Cumulative Impacts

The cumulative area for agriculture and forestry resources is the City of Williams and Colusa County. Currently, the Project site does not contain any significant agricultural or forestry resources and would not eliminate any ongoing agricultural operations or convert forest lands to non-forest uses; however, past agricultural uses in the project area have included rice and safflower cultivation.

In 2012 when the City updated its General Plan, the following summary was noted: *'The loss of agricultural land as a result of urban development is an overall consequence of growth, and the County will continue to face development pressure in the foreseeable future as the urbanization continues to reach out from Sacramento. As more fully described in Section 4.12, the Proposed General Plan Update includes goals and recommended actions addressing the conversion of agricultural uses. However, since the region is projected to continue urbanizing at a significant rate, the loss of agricultural lands as a result of the General Plan Update would contribute considerably to a significant and unavoidable cumulative impact to agricultural resources.'*

Per CEQA Guidelines section 15093 the City Williams adopted a statement of overriding considerations (Resolution No. 12-14). The loss of the farmland in the current Project area was considered and addressed in the City's 2012 General Plan. Consequently, the Proposed Love's Country Store Project will not contribute cumulatively considerable impacts relative to agricultural or forestry resources.

4.3. Air Quality

This section analyzes the proposed Project's potential air quality impacts and provides a discussion of the proposed Project, the physical setting, and the air quality regulatory framework. Modeled air quality levels are based upon vehicle data and project trip generation included in the Project's Traffic Impact Analysis and peak turn volumes generated for the proposed project combined with emission factors from the California Air Resources Board (CARB) EMFAC2007 program. The evaluation in this section is based on the following:

- Air Quality and Greenhouse Gas Analysis Report, Love's Country Store Project (FirstCarbon Solutions 2016, see Appendix B)
- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.3.1. Existing Setting

The Project is located within the City of Williams in Colusa County, within the Sacramento Valley Air Basin (Air Basin). The Coast, Cascade, and Sierra Nevada Ranges bound the Air Basin on the west, north, and east. The Air Basin consists of all or portions of Shasta, Tehama, Glenn, Colusa, Yolo, East Solano, Sacramento, Placer, Sutter, Yuba, and Butte Counties. Air quality within the Colusa County portion of the Sacramento Valley Air Basin is regulated by the Colusa County Air Pollution Control District (CCAPCD).

Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the Air Basin and the City of Williams.

4.3.1.1 Sacramento Valley Air Basin

Topography: The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants and can channel air from upwind areas that transport pollutants to downwind areas. Elevations within the Air Basin range from a few feet above sea level at the southern end to 10,457 feet at the top of Mount Lassen in eastern Shasta County. The Air Basin is surrounded by the Coast Mountains to the west, the Cascade Mountains to the north, and the Sierra Nevada Mountains to the east. The variation in topography causes a wide variation in rainfall, temperature, and localized winds.

Elevations within the City of Williams range from approximately 110 feet above sea level to approximately 60 feet above sea level.

Climate and Meteorology: The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, creating adverse air quality, or to rapidly disperse pollutants over a wide area preventing high concentrations from accumulating under different climatic conditions. Temperatures in the City of Williams range from highs between 80 degrees Fahrenheit (°F) to 110°F and lows ranging from 24°F to 44°F. The average

annual rainfall in the project area, as recorded in the 2007 City of Williams Storm Drainage Master Plan, is 14.2 inches (City of Williams 2007).

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants and, consequently, their effect on air quality.

Inversions are also an important component of regional air quality. In general, air temperature decreases with distance from the earth's surface, creating a gradient from warmer air near the ground to cooler air at elevation. Under normal circumstances, the air close to the earth warms as it absorbs surface heat and begins to rise. Winds occur when cooler air rushes in to take the place of the rising warm air. The wind and upward movement of air causes "mixing" in the atmosphere and can carry away or dilute pollution.

Inversions occur when warm air sits over cooler air, trapping the cooler air near the ground, when the temperature profile is 'inverted' from its usual state. These inversions trap pollutants from dispersing vertically and the terrain of the Air Basin can trap the pollutants from dispersing horizontally. The two most common types of inversions in the Northern Sacramento Valley Planning Area are subsidence and radiative. The strong inversions typical in summers are caused by subsidence, the slow sinking of air causing compressional warming. Localized shallow nighttime radiative inversions occur in the winter, formed when air is cooled when it comes in contact with the earth's cold surface. Summer inversions occur on more than 90 percent of summer days, and winter radiative inversions occur on more than 70 percent of winter nights.

4.3.1.2 Existing Air Quality Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 5 summarizes 2012 through 2014 published monitoring data, which is the most recent 3-year period available. Where available, the table displays data from the Colusa-Sunrise Boulevard monitoring station (located approximately 7.93 miles east of the project site). No monitoring data was available from the Colusa-Sunrise Boulevard monitoring station for carbon monoxide (CO), nitrogen dioxide (NO2), or sulfur dioxide (SO2). No data was available for the three closest monitoring sites for CO; the data displayed for CO is a summary for the Sacramento Air Basin. The closest monitoring data available for NO2 is from the Yuba City-Almond Street monitoring station (28.28 miles southeast of the project site), which is in Sutter County. The only monitoring station that measures SO2 in the Air Basin is the Sacramento-Del Paso Manor station, located 56.66 miles southeast of the project site.

The data shows that during the past few years, the project area has exceeded the state standard for inhalable coarse particles (PM10). No exceedances of state or federal standards were recorded for other pollutants. The data in the table reflects the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period.

Table 5. Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2012	2013	2014
Ozone[1]	1 Hour	Max 1 Hour (ppm)	0.074	0.068	0.072
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.067	0.062	0.067
		Days > State Standard (0.07 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Carbon monoxide[2]	8 Hour	Max 8 Hour (ppm)	2.14	ID	ID
		Days > State Standard (9.0 ppm)	0	0	0
		Days > National Standard (9 ppm)	0	0	0
Nitrogen dioxide[3]	Annual	Annual Average (ppm)	0.010	0.009	0.008
	1 Hour	Max 1 Hour (ppm)	0.0830	0.0574	0.0490
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide[4]	Annual	Annual Average (ppm)	ID	ID	ID
	24 Hour	Max 24 Hour (ppm)	0.002	0.002	ID
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	23.3	26.1	22.3
	24 hour	24 Hour (µg/m^3)	96.7	74.9	57.1
		Days > State Standard (50 µg/m^3)	ID	ID	ID
		Days > National Standard (150 µg/m^3)	0.0	ID	0.0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	7.3	7.2	7.2
	24 Hour	24 Hour (µg/m^3)	23.8	24.5	20.3
		Days > National Standard (35 µg/m^3)	0.0	0.0	0.0

Notes: > = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Colusa-Sunrise Boulevard Station—8 miles from the site
[2] Sacramento Valley Air Basin—57 miles from site
[3] Yuba City-Almond Street -28 miles from site
[4] Sacramento-Del Paso Manor—57 miles from site
Source: California Air Resources Board 2014a

Attainment Status: The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be

exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual fine particulate matter PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard.

The current attainment designations for the basin are shown in Table 6. The basin is designated as nonattainment for the state ozone, PM10, and PM2.5 standards and the national ozone standard. The current attainment designations for Colusa County are shown in Table 7.

Table 6. Sacramento Valley Air Basin Attainment Status

Criteria Pollutant	State	Federal
Ozone (8-hour)	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide (annual)	Attainment	Unclassified/Attainment
Nitrogen dioxide (1-hour)	Attainment	Unclassified/Attainment
Sulfur dioxide	Attainment	Attainment (Pending)
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
Lead	Attainment	Unclassified/Attainment
Source: ARB 2015.		

Table 7. Colusa County Attainment Status

Criteria Pollutant	State	Federal
Ozone (1-hour)	Attainment	Unclassifiable/Attainment
Ozone (8-hour)	Attainment	Unclassifiable/Attainment
Carbon monoxide	Unclassified	Unclassifiable/Attainment
Nitrogen dioxide	Attainment	Unclassifiable/Attainment
Sulfur dioxide	Attainment	Unclassifiable
PM_{10}	Nonattainment[1]	Unclassifiable
$PM_{2.5}$	Attainment	Unclassifiable/Attainment
Lead	Attainment	No Standard
Notes: California area designations from http://www.arb.ca.gov/desig/changes/ozone.pdf (ARB 2015) Federal designations from http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol17/pdf/CFR-2010-title40-vol17-sec81-305.pdf. [1] All of the Sacramento Valley Air Basin—nonattainment for PM_{10} Source: ARB 2015.		

4.3.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding air quality.

4.3.3. Existing Policies and Regulations

Air pollutants are regulated to protect human health and for secondary effects such as visibility and building soiling. The Clean Air Act of 1970 tasks the United States Environmental Protection Agency (EPA) with setting air quality standards. The State of California also sets air quality standards that are in some cases more stringent than federal standards, and address additional pollutants. The following section describes these federal and state standards and the health effects of the regulated pollutants.

4.3.3.1 Federal Regulations

Clean Air Act: Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants 'criteria air pollutants' because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called 'primary standards'. Another set of limits intended to prevent environmental and property damage are called secondary standards. The federal standards are called National Ambient Air Quality Standards (NAAQS). The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO2)
- Lead
- Particulate matter (PM10 and PM2.5)
- Carbon monoxide (CO)
- Sulfur dioxide (SO2)

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

4.3.3.2 State Regulations

California Clean Air Act: The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The California Air Resources Board (ARB) administers California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the CCAA. The 10 state air pollutants are the six federal standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for

motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are less stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

Toxic Air Contaminants: A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. There are no ambient air quality standards for TAC emissions. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants. The 1990 Clean Air Act Amendments significantly expanded the EPA's authority to regulate hazardous air pollutants (HAP). Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. Authority to regulate these pollutants was delegated to individual states. ARB and local air districts regulate TACs and HAPs in California.

Air Pollutant Description and Health Effects: The federal and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 8. Several pollutants listed in Table 8 are not addressed in this analysis. Analysis of lead is not included in this report because no new sources of lead emissions are anticipated with the project. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed as PM10 and PM2.5. No components of the project would result in vinyl chloride or hydrogen sulfide emissions in any substantial quantity.

Toxic Air Contaminants Health Effects: A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. The ten TACs are acetaldehyde, benzene, 1.3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program (ARB 1998) demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

DPM differs from other TACs in that it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion

engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies to estimate concentrations of DPM.

Table 8. Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_x, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_x) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.070 ppm[f]			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen	1 Hour	0.18 ppm	0.100 ppm	Potential to aggravate chronic	During combustion of fossil fuels,	NO_x is produced in motor vehicle

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
dioxide[b] (NO_2)	Annual	0.030 ppm	0.053 ppm	respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contribution to atmospheric discoloration; increased visits to hospital for respiratory illnesses.	oxygen reacts with nitrogen to produce nitrogen oxides—NO_x (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_x is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_x can react with compounds to form nitric acid and related small particles and result in PM-related health effects.	internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide (NO_2) forms quickly from NO_x emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_x) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness;	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes;
	Mean	20 µg/m^3	—			
Particulate	24 Hour	—	35 µg/m^3			

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
matter ($PM_{2.5}$)	Annual	12 µg/m^3	12.0 µg/m^3	shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.	with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
Visibility-reducing particles	8 Hour	See note below[d]				
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[e]	30-day	1.5 µg/m^3	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m^3			
	Rolling 3-month average	—	0.15 µg/m^3			

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Vinyl chloride[e]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no state or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROG), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROG and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources

Notes:

ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour NO_2 national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb) (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility-reducing particles: In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

[e] The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[f] The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard will go into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and will become effective on December 28, 2015.

Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009a; U.S. Environmental Protection Agency 2003, 2009, 2009b, 2010, 2011, and 2012a; National Toxicology Program 2011a and 2011b.

Source of standards: California Air Resources Board 2013a.

Limited data on levels and health risks attributable to the top ten TACs listed above is available to provide a precise estimate of the level of existing risk from TAC emissions in the City of Williams. The nearest monitoring station for TAC emissions is located in Chico. ARB and CAPCOA provided estimates for average background risk from TAC emissions in the Sacramento Valley Air Basin SVAB) in the Risk Management Guidance for Stationary Sources of Air Toxics (ARB/CAPCOA 2015). The average risk in the SVAB from TAC emissions was a cancer risk of 680 in a million accounting for recent changes in health risk estimation methodologies provided by the Office of Health Hazard Assessment (OEHHA) that increased estimate risk by a factor of 2-3. It is important to note that depending on many factors, exposures may actually be lower. However, exposures and potential risk may also be higher than the ambient background risk in areas near emission sources (i.e., living near a freeway, freight hub, or large stationary source). Risk from TAC emissions has declined substantially over the last 20 years. Since 1990, ambient monitored TAC emissions and DPM have decreased by 78 and 69 percent, respectively.

Asbestos: Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.

State Implementation Plan: A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. The CCAA requires that an Attainment Plan (Plan) be developed by all non-attainment districts for ozone (O3), carbon monoxide (CO), sulfur oxide (SOx), and nitrogen oxides (NOx) that are either receptors or contributors of transported air pollutants. The most recent attainment plan for the Northern Sacramento Valley Planning Area is the 2015 Triennial Air Quality Attainment Plan, which addresses ozone in the SVAB (SVAQEEP 2015).

Low-Emission Vehicle Program: The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, ARB adopted the LEV III amendments to California's Low-Emission Vehicle (LEV) regulations. These amendments include more stringent emission standards for both criteria pollutants and GHGs for new passenger vehicles.

On-Road Heavy-Duty Vehicle Program: The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013b).

ARB Regulation for In-Use Off-Road Diesel Vehicles: On July 26, 2007, the ARB adopted a regulation to reduce DPM and nitrous oxides (NOx) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501–5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

ARB Airborne Toxic Control Measure for Asbestos: In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos. The proposed Project does not include any demolition work. However, asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near Williams. Colusa County contains ultramafic rock. The closest chrysotile asbestos site is approximately 17.1 miles west of the project site.

Diesel Risk Reduction Plan: The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000).

4.3.3.3 Colusa County Air Pollution Control District

As required by the California Clean Air Act and the Federal Clean Air Act, the Colusa County Air Pollution Control District (CCAPCD) is responsible for air monitoring, permitting, enforcement, long-range planning, regulatory development, education, and public information activities related to air quality. Local districts are the primary mechanism for air quality management. Districts must implement rules and regulations and provide enforcement for the attainment and maintenance of the California and national ambient air quality standards.

Air Quality Plan: An Air Quality Plan (AQP) is a plan prepared and implemented by an air pollution control district for a county or region designated as nonattainment of the federal or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded

As discussed above, each air district designated nonattainment for a federal standard prepares an attainment plan that describes air quality conditions and measures that will be enacted to attain and maintain the federal standard, which is incorporated into the State Implementation Plan. State ozone standards have planning requirements under the California Clean Air Act. However, state PM10 standards have no attainment planning requirements, but air districts must demonstrate that all measures feasible for the area have been adopted.

The counties in the northern portion of the Air Basin—Butte, Colusa, Glenn, Shasta, Sutter, Tehama and Yuba—comprise the Northern Sacramento Valley Planning Area. The air districts in the Planning Area work cooperatively to prepare and implement the Northern Sacramento Valley Planning Area Air Quality Attainment Plan. The current air quality plan for the Planning Area is the 2015 Triennial Air Quality Attainment Plan, which contains control strategies for both ozone and PM10. The Attainment Plan contains control measures for stationary, areawide, and indirect sources, as well as addresses public education programs. The Attainment Plan also provides information on transport of pollutants from the Broader Sacramento Area, and the associated planning and California Clean Air Act requirements on the Broader Sacramento Area-related to transport.

CCAPCD Rules and Regulations: The CCAPCD rules and regulations that may apply to projects that will occur during buildout of the project include, but are not limited to the following:

- Rule 2.10—Nuisance. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- Rule 2.26—Architectural Coatings. The purpose of this rule is to require a limit of the quantity of volatile organic compounds (VOC) emissions in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the Colusa County Air Pollution Control District.
- Rule 2.33—Cutback and Emulsified Asphalt. The purpose of this rule is to limit VOC emissions from asphalt paving, construction, and maintenance operations.

CEQA: The District has three roles under CEQA:

- Lead Agency: Responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the District where the District has primary approval authority over the project.
- Responsible Agency: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The District defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits, unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible.

- Commenting Agency: The District may review and comments on air quality analyses prepared by other public agencies.

The District has not adopted guidelines for Lead Agencies to follow when addressing air quality impacts under CEQA. The District would require the fueling operation component of the Project to obtain an authority to construct and permit to operate.

4.3.3.4 Local Regulations

The Land Use and Character, Open Space and Conservation, and Circulation elements of the City of Williams General Plan defines the goals, policies, and actions related to biological resources (Table 9).

Table 9. General Plan Consistency

Policy	Consistency
Land Use and Character Element	
Policy 3.25: The City's Auto-Urban areas will be improved by better standards for the arrangement of buildings and parking, site landscaping and screening, and sign control, among others.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 3.43: Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.	The proposed project would be consistent with the City's Business Park zone.
Policy 3.48: Resources will be protected and integrated as amenities into development.	The Project occurs in an area that has been used for agriculture for many years in the past. Little in the way of resources occur in the Project area.
Policy 3.52: Potential adverse impacts on adjacent land use types should be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.).	The proposed project would be consistent with the City's Business Park zone. All parcels adjacent to the Project site also have Business Park zoning
Policy 3.62: Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.	Not Applicable. This policy applies to the City and not to individual development projects.
Open Space and Conservation Element	
Policy 7.12: A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.13: The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.14: The creation of linear greenways will serve as a vehicle to protect natural resources and provide for natural scenic corridors.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.15: The local trail system will connect local residents to regional, state, and federal trail systems.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.16: Pedestrian paths will adhere to ADA accessibility guidelines, including possible redesign of existing sidewalks, sidewalk curb cuts, ramps, and trails.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.21: Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment	The Proposed project includes measures to reduce and minimize soil erosion with respect to wind, and water, and is consistent with this policy.

Policy	Consistency
control, and structural foundations.	
Action 7.yy: Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.	The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Action 7.bbb: Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.	Not applicable. The project has limited roof area suitable for installation of green roofs. The project will comply with high albedo (reflective) roof requirements of Title 24 that have similar heat island and energy savings benefits.
Circulation Element	
Policy 8.1: Coordinate transportation planning with regional and local plans.	Not Applicable. This policy applies to the City and not to individual development projects.
Not Applicable. This policy applies to the City and not to individual development projects.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 8.l-4: The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities.	The City will make the environmental document available for comment by these agencies.
Policy 8.n: Protect natural features.	The Project occurs in an area that has been used for agriculture for many years in the past. Little in the way of natural features occur in the Project area.
Action 8.n-6: The City shall evaluate circulation improvements and traffic control as to their effect on air and noise pollution and greenhouse gas emissions.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 8.o: Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.	The Project provides the required number of parking spaces.

The City of Williams's air quality related goals and policies from the 2012 General Plan are listed below.

Land Use and Character

- **Policy 3.25:** The City's Auto-Urban areas will be improved by better standards for the arrangement of buildings and parking, site landscaping and screening, and sign control, among others.
- **Policy 3.43:** Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.
- **Policy 3.48:** Resources will be protected and integrated as amenities into development.
- **Policy 3.52:** Potential adverse impacts on adjacent land use types should be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.).

- **Policy 3.62:** Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.

Open Space and Conservation

- **Policy 7.12:** A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.
- **Policy 7.13:** The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.
- **Policy 7.14:** The creation of linear greenways will serve as a vehicle to protect natural resources and provide for natural scenic corridors.
- **Policy 7.15:** The local trail system will connect local residents to regional, state, and federal trail systems.
- **Policy 7.16:** Pedestrian paths will adhere to ADA accessibility guidelines, including possible redesign of existing sidewalks, sidewalk curb cuts, ramps, and trails.
- **Policy 7.21:** Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment control, and structural foundations.
- **Action 7.yy:** Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.
- **Action 7.bbb:** Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.

Circulation

- **Policy 8.1:** Coordinate transportation planning with regional and local plans.
- **Action 8.l-2:** The City shall evaluate regional impacts of proposed local improvements.
- **Action 8.l-4:** The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities.
- **Policy 8.n:** Protect natural features.
- **Action 8.n-6:** The City shall evaluate circulation improvements and traffic control as to their effect on air and noise pollution and greenhouse gas emissions.
- **Policy 8.o:** Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.

City of Williams General Plan Program EIR: The General Plan Program Environmental Impact Report air quality and greenhouse gas sections include mitigation/policies and recommended action items listed above that would reduce significant air quality impacts related to General Plan implementation.

Sacramento Valley Basinwide Air Pollution Control Council: Colusa County participates in the Sacramento Valley Basinwide Air Pollution Council. The control strategy from the 2015 Triennial Air Quality Attainment Plan includes three components that target non-stationary source emissions: 1) grant and incentive programs; 2) public education programs; and 3) commenting on development projects subject to CEQA. No control measures were identified that would apply to the project.

4.3.4. Methodology

4.3.4.1 Model Selection and Guidance

Air pollutant emissions can be estimated by using emission factors and a level of activity. Emission factors are the emission rate of a pollutant given the activity over time; for example, grams of NOx per horsepower hour. The ARB has published emission factors for on-road mobile vehicles/trucks in the Emission FACtors (EMFAC) mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) version 2013.2.2 was developed by the South Coast Air Quality Management District in cooperation with other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with construction and operation from a variety of land uses.

The modeling follows District guidance where applicable from its guidance for assessing and mitigating air quality impacts (GAMAQI). The models used in this analysis are summarized as follows:

- Construction emissions: CalEEMod, version 2013.2.2
- Operational emissions: CalEEMod, version 2013.2.2

(a) Criteria Pollutants Assessed

The following air pollutants are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NOx)
- Carbon monoxide (CO)
- Sulfur oxides (SOx)
- Particulate matter less than 10 microns in diameter (PM10)

- Particulate matter less than 2.5 microns in diameter (PM2.5)

Note that the project would emit ozone precursors ROG and NOx. However, the project would not directly emit ozone, since it is formed in the atmosphere during the photochemical reaction of ozone precursors. The air basin is in attainment for sulfur dioxide standards and the project would emit inconsequential amounts of this pollutant; therefore, no additional analysis is warranted.

4.3.4.2 Construction Modeling Assumptions

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM10) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM10 and PM2.5).

The activity for construction equipment is based on the horsepower and load factors of the equipment. In general, the horsepower is the power of an engine—the greater the horsepower, the greater the power. The load factor is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity.

The construction equipment assumed for the project is included in the CalEEMod output contained in Appendix A. The CalEEMod default construction equipment fleet mix was used for the site preparation, grading, paving, and architectural coating phases in the analysis. The CalEEMod default schedule was revised to reflect the project's anticipated construction timeframe. The fleet mix was adjusted to conserve the horsepower hours indicated in the default CalEEMod run.

The project was assumed to start construction in September of 2016 and be completed by April of 2017. The construction schedule is shown in Table 10.

Table 10. Construction Schedule

Phase	Phase Start Date	Phase End Date	Total Number of Days
Site Preparation	9/5/2016	9/16/2016	10
Grading	9/17/2016	10/28/2016	30
Building Construction	10/29/2016	2/8/2017	73
Paving	2/9/2017	3/8/2017	20
Architectural Coating	3/9/2017	4/5/2017	20

(a) Construction Equipment Emission Factors

CalEEMod contains an inventory of construction equipment that incorporates estimates of the number of equipment, their age, their horsepower, and equipment tier from which rates of

emissions are developed. The CalEEMod default equipment assumptions were used in this analysis for the estimation of emissions from on-site construction equipment for the unmitigated scenario. CalEEMod's off-road emission factors are based on the equipment populations from the OFFROAD model.

(b) Grading

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each of those activities is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment.

Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day as follows:

- Crawler tractors, graders, and rubber tired dozers: 0.5 acre per 8-hour day, and
- Scrapers: 1 acre per 8-hour day

Therefore, the following acres are the total quantities disturbed per day, per phase, according to the acreage disturbed quantities listed above:

- Site preparation = 3.5 acre per day; and
- Grading = 4 acres per day

It was assumed that soil would be balanced on-site and, therefore, there would be no material imported or exported from the project site.

(c) Building Construction, Paving, and Architectural Coatings

The analysis uses the default modeling assumptions from CalEEMod for construction equipment during building construction, paving, and application of architectural coatings.

(d) Construction Off-site Trips

Worker trips are accounted for during the construction phases, based on 1.25 trips per piece of equipment (the CalEEMod default). The CalEEMod default trip lengths of 10.8 miles (worker), 7.3 miles (vendor), and 20.0 miles (hauling) were retained. The CalEEMod default vehicle fleet light duty (LD Mix) was used for employee trips.

Vendor trips for the building construction phase are calculated from a study performed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) based on land use and size. The CalEEMod defaults for vendor trips, trip length, and vehicle fleet (Heavy Duty Truck Vehicle Fleet Mix) were used. The modeling results indicated that no haul trips are expected for this project.

A summary of the construction-related trips is shown in Table 11. Note that the total number of off-site construction trips would not necessarily occur on the same day, since the various construction activities would vary each day.

Table 11. Construction Off-site Trips

Activity	Construction Trips per Day		
	Worker	Vendor	Haul
Site Preparation	18	0	0
Grading	20	0	0
Building Construction	6	3	0
Paving	15	0	0
Architectural Coating	1	0	0
Source: FirstCarbon Solutions and CalEEMod.			

4.3.4.3 Operations

Operational emissions are those emissions that occur when the project is occupied by the future customers, employees, vendors, and service vehicles. The major sources are summarized below.

(a) Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project siteGreen.

Project trip generation was obtained from data provided by the Fehr and Peers, traffic consultant for the project. The trip generation rates are included in the modeling results in Appendix A.

A pass-by trip accounts for vehicles already on the roadway network that stop at the project site as they pass-by; the pass-by trips are existing vehicle trips in the community. CalEEMod default rates of 3 percent pass-by trips were used in this analysis.

The traffic study provides an estimate of trips that were diverted from Interstate 5 and State Route 20 to obtain fuel or other travel related services on their way to an ultimate destination. These trips are referred to as diverted-link trips. The distance of the diverted-link trips was estimated from the freeway off-ramps to the project driveway and from the intersection of State Route 20 and Margurite Street and the project driveway.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix was revised to reflect the expected percentage of diesel trucks accessing the site for services. Separate CalEEMod runs were accomplished for local trips and diverted link trips to more accurately characterize emissions from the different locations.

(b) Architectural Coatings (Painting)

Paints release VOC emissions during application and drying. The buildings in the project would be repainted on occasion. CalEEMod defaults were used for this purpose.

(c) Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers, including but not limited to detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products, but it does not include other paint products, furniture coatings, or architectural coatings (ARB 2011b). The default emission factor developed for CalEEMod was used.

(d) Landscape Equipment

CalEEMod estimated the landscaping equipment using the default assumptions in the model.

(e) Electricity

There would be emissions from the power plants that would generate electricity to be used by the project (for lighting, etc.). Electricity emissions estimates are only used in the GHG analysis (Section 4.8). CalEEMod was used to estimate these emissions from the project.

Electricity Emission Factor: The default CalEEMod emission factors for Pacific Gas & Electric Company (PG&E) (from the CEC's year 2006 data) are as follows:

- Carbon dioxide: 641.35 pounds per megawatt hour (lbs/MWh);
- Methane: 0.029 lb/MWh; and
- Nitrous oxide: 0.006 lb/MWh.

It is assumed that the Renewable Electricity Standards would be fully implemented by 2020. The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020. In 2006, PG&E had 12.6 percent renewable energy in its portfolio (California Public Utilities Commission 2011).

The emission factors projections for PG&E for 2020 are as follows:

- Carbon dioxide: 491.65 lbs/MWh
- Methane: 0.022 lb/MWh
- Nitrous oxide: 0.005 lb/MWh

(f) Electricity Consumption

CalEEMod has three categories for electricity consumption: 1) electricity that is impacted by Title 24 regulations; 2) non-Title 24 electricity; and 3) lighting. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part of and not part of Title 24. Since lighting is not considered as part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24 includes everything else such as appliances and electronics. Total electricity consumption in CalEEMod is divided into the three categories. The percentage for each category is determined by using percentages derived from

the CalEEMod default electricity intensity factors. The percentages are then applied to the electricity consumption to result in the values used in the analysis.

(g) Natural Gas

There would be emissions from the combustion of natural gas used for the project (water heaters, heat, etc.). CalEEMod has two categories for natural gas consumption; 1) Title 24 and 2) non-Title 24. CalEEMod defaults were used.

(h) Water and Wastewater

GHG emissions are emitted from the use of electricity to pump water to the project and to treat wastewater. CalEEMod defaults were used.

(i) Refrigerants

During operation, there may be leakages of refrigerants (hydrofluorocarbons) from air conditioners and the refrigeration system. Hydrofluorocarbons are typically used for refrigerants, which are long-lived GHGs. The project's anticipated uses of refrigerants are minor; therefore, they were not estimated.

(j) Solid Waste

GHG emissions would be generated from the decomposition of solid waste generated by the project. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture: 6%
- Landfill capture gas flare: 94%; and
- Landfill capture gas energy recovery: 0%

(k) Vegetation

There is limited carbon sequestration occurring on-site. Carbon sequestration is the process involved with carbon capture and long-term storage of atmospheric carbon dioxide in plants. The project would plant trees and integrate landscaping into the project design, which would provide carbon sequestration. However, the number of trees to be planted is unknown and data are insufficient to accurately determine the impact that landscaping trees have on carbon sequestration. For this analysis, it was assumed that the loss and addition of carbon sequestration that are due to the project would be balanced; therefore, emissions due to carbon sequestration were not included.

4.3.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts to air quality resources are based on Appendix G (Environmental Checklist) set forth in the CEQA Guidelines (2016). A project would have a significant impact on air quality resources if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any ambient air quality standards;

- Contribute substantially to an existing air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the Colusa County Air Pollution Control District recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable District thresholds and methodologies are contained under each impact statement below.

4.3.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.3.6.1 Consistency with Applicable Air Quality Plan

Threshold: Conflict with or obstruct implementation of the applicable air quality plan?

There is no federal attainment plan for the Upper Sacramento Valley, which includes Tehama, Shasta, Glenn, and Colusa counties. The Northern Sacramento Valley-which includes Colusa County-is subject to state planning requirements. The most recent plan is the 2015 Triennial Air Quality Attainment Plan. The CCAA requires air districts which have been designated as a nonattainment area for California Ambient Air Quality Standards (CAAQS) for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare and submit a plan for attaining and maintaining the standards.

The CCAA also requires that districts review their progress made toward attaining the CAAQS every 3 years. The Triennial Plan indicates that Colusa County has attained state ozone standards effective July 1, 2014. There are no requirements in the CCAA to develop plans for PM10 or PM2.5. Areas that exceed state PM10 standards must implement all feasible control measures to reduce emissions.

The Triennial Plan indicates that emissions of criteria pollutants will continue to decline, accounting for projected growth through 2020. Therefore, projects that are accounted for in the growth projections for the air basin would not result in conflict with the implementation of the Triennial Plan. When emissions decline in the air basin, it is reasonable to assume that violations of air quality standards will be less likely to occur.

Based on the information provided above, this document uses the following criteria for determining project consistency with the current AQPs:

- Will the project result in an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified for regional and local air pollutants.
- Will the project conform to the assumptions in the AQPs? The analysis assesses the assumptions in the Triennial Plan to determine compliance with this criteria.
- Will the project comply with applicable control measures in the AQPs? The analysis examines the control measures from the 2015 Triennial Plan to assess project conformity.

The use of the criteria listed above is a standard approach for CEQA analysis of projects for the following reasons:

- Significant contribution to existing or new exceedances of the air quality standards would be inconsistent with the goal of attaining the air quality standards; and
- AQP emissions inventories and attainment modeling are based on growth assumptions for the area within the air district's jurisdiction; and
- AQPs rely on a set of air district-initiated control measures as well as implementation of federal and state measures to reduce emissions within their jurisdictions, with the goal of attaining the air quality standards.

(a) Contribution to Air Quality Violations

A measure for determining if the project is consistent with the air quality plans is if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Regional air quality impacts and attainment of standards are the result of the cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the project is based on its incremental contribution. Because of the air basin's attainment status for ozone, PM10, and PM2.5, projects would be significant if project-generated emissions of either of the ozone precursor pollutants (ROG and NOx), PM10, or PM2.5 would exceed quantitative thresholds based on the District's Stationary Source New Source Review Offset Thresholds from Regulation III. This approach is used by most air districts that have adopted CEQA thresholds for land use projects.

Offset thresholds vary by the severity of the air pollution problem in each nonattainment area. Areas with the most severe air pollution problems have the lowest threshold. Areas with less severe air quality problems have higher thresholds. The amounts are based on Federal Clean Air Act requirements. Stationary source projects with emissions exceeding the threshold must obtain emission offsets to reduce emissions to below the thresholds, or the project would not be approved. Colusa County is in attainment for all federal criteria pollutants and has a 25-ton-per-

year offset threshold. If a project exceeds these thresholds, then the project would be considered to contribute to potential future violations of the applicable standards and to conflict with the attainment plans.

As discussed in Section 4.3.6.2(a) below, emissions of ROG, NOx, PM10, and PM2.5 associated with the construction and operation of the Project would not exceed the project significance thresholds. The project would not result in CO hotspots that would violate CO standards. Therefore, the project would not contribute to air quality violations.

(b) Consistency with Assumptions in AQPs

The Triennial Plan estimated future emissions using population data derived from California Department of Finance and vehicle miles traveled (VMT) forecasts from EMFAC that were derived from data from regional traffic models provided by the Regional Transportation Planning Agencies. The Triennial Plan indicates that the population of Colusa County is projected to increase from 21,478 in 2010 to 24,886 by 2020 for a net increase of 3,408 people over the 10-year period (or 15.8 percent). VMT is projected to increase from 696,000 miles per day in 2010 to 801,000 miles per day in 2020, for a net increase of 105,000 miles per day (or 15.1 percent).

The Project is a highway commercial business that serves the traveling public. Most of the project's customers are existing travelers that are currently traveling on Interstate 5 and State Route 20 in route to other destinations. Growth in the region and growth in travel on the highways may result in additional customers accessing the project site in the future; however, it is unlikely that the project would induce significant numbers of trips in the region other than by limited numbers of employees working at the site. The Triennial Plan indicates that emissions of ozone precursors will continue to decline rapidly between 2010 and 2020 even with the projected growth due to the adopted regulations on emission sources in the air basin. NOx emissions are projected to decline from 98.7 tons per day in 2010 to 66.7 tons in 2020. ROG emissions are projected to decline from 70 tons per day in 2020 to 58.4 tons per day. Based on this information, it is reasonable to conclude that air quality will continue to improve in the air basin even with the project's emission contribution.

The General Plan EIR found the growth allowed by the plan to be less than significant for these criteria with compliance of General Plan policies and recommended actions that are listed in Table 12. An analysis of the project's compliance with the measures is included in the table.

Table 12. Consistency with General Plan Policies and Recommended Actions

General Plan Policy/Action	Project Consistency
Mitigation/Policies and Recommended Actions in the General Plan Update	
Policies	
3.56: Potential adverse impacts on adjacent land use types should be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.)	**Consistent:** The project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of truck stop/truck wash, fueling station/light automobile service/car wash and restaurants.

General Plan Policy/Action	Project Consistency
3.62: Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.	**Consistent:** The project is proposed in an area adjacent to a freeway and regional highway that is suitable for automobile-oriented uses and not suitable for pedestrian-oriented development.
3.64: Residential development should be oriented away from I-5 and other primary streets without adequate transitioning standards and situated within the roadway network and relative to other land uses so as to minimize high volumes of through traffic	**Not Applicable:** The project is not residential.
7.12: A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.	**Consistent:** The project would comply with trail and pedestrian infrastructure requirements, if any are required on the streets serving the site.
7.13: The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.	**Consistent**. The project is not located on an intercity trail route.
7.15: The local trail system will connect local residents to regional, state, and federal trail systems	**Consistent**. The project is not located in an area served by regional, state, or federal trails.
Actions	
7.bbb: as Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, use of green roofs should result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards	**Not applicable**. The project has limited roof area suitable for installation of green roofs. The project will comply with high albedo (reflective) roof requirements of Title 24 that have similar heat island and energy savings benefits.
8.b: Establish complete street subdivision criteria for new development and improve convenience, energy efficiency, and safety for multi-modal travel in existing neighborhoods.	**Not applicable**. The project is not in a subdivision subject to complete street criteria.
8.b-5: Upon signalization improvements, the City shall optimize traffic signal performance to increase traffic flow and reduce vehicular emissions.	**Consistent.** The project will contribute funding for signalization at intersections impacted by the project. The City would be responsible for optimizing performance.
8.b-7: The City shall coordinate bicycle and pedestrian paths to logically link to the County's plans for bicycle and pedestrian travel.	**Not applicable**. This action applies to City planning efforts.
8.c: Monitor the operation and performance of the multi-modal circulation system	**Not applicable**. This action will be accomplished by the City and not individual project proponents.
8.c-7: All transportation improvement projects proposed for inclusion in the City's Capital Improvement Program shall be consistent with air quality, land use, circulation, and other goals and policies of the General Plan	**Consistent**. Transportation improvements required of the project that are part of the Capital Improvement Program are required to comply with this action.
8.d-2: New development shall construct and dedicate streets that accommodate the full range of locally available travel modes	**Consistent.** The project connects to an existing street via driveways.
8.d-3: New development shall construct and dedicate and/or contribute to a connected bicycle/pedestrian	**Consistent**. The project is an automobile oriented use that is not intended to attract pedestrians or bicycles; the

General Plan Policy/Action	Project Consistency
network that is designed to promote travel to schools, parks, and other major destinations	site layout will be required to meet city design standards.
8.d-7: The City shall integrate local bikeway planning with regional plans	**Not applicable**. This action is the responsibility of the City.
8.d-11: Provide dedicated pedestrian and bike lanes on the E Street overpass of I-5, as recommended in Chapter 5, Open Space and Conservation	**Not applicable**. The project is not located on E Street.
8.f-2: The City shall designate by ordinance truck routes to direct trucks to routes that maintain sufficient carrying capacity and to discourage truck traffic on local residential streets	**Not applicable**. The City designated Margurite Street as a truck route between SR20 and E Street, both of which are designated truck routes.
8.h-4: The City shall plan and require construction of bikeways, sidewalks, and pedestrian access ways to major destination points with emphasis on providing connecting access to schools, parks and shopping centers from residential neighborhoods	**Consistent**. The project will construct bikeways and pedestrian infrastructure required by City design standards and plans.
8.i: Encourage the continued development and expansion of local and regional public transit systems	**Not applicable**. The project use and location does not hinder the development and expansion of transit systems.
8.i-1: The City shall review and comment on proposed changes to the Colusa County Transit Authority	**Not applicable**. This action is the City's responsibility.
8.i-2: The City will consult with the California Public Utilities Commission, Amtrak, Union Pacific Railroad Company, and any other relevant agencies to encourage and accommodate any future opportunities for establishing passenger rail service in Colusa County and create a central multimodal transit station in Williams	**Not applicable**. This action is the City's responsibility.
8.i-3: The City should actively engage in the restoration of passenger rail service along the California Northern Pacific Railroad tracks within Williams	**Not applicable**. This action is the City's responsibility
8.l: Coordinate transportation planning with regional and local plans	**Not applicable**. This action is the City's responsibility
8.l-4: The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities	**Consistent**. The City will make the environmental document available for comment by these agencies.
8.o: Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics	**Consistent**. The project parking design is appropriate for a land use that serves the traveling public and will meet City design standards.
Source: City of Williams General Plan	

(c) Air Quality Plan Control Measures

The 2015 Triennial Plan contains control measures (which are voluntary actions) and enforceable requirements through the adoption of rules and regulations. The Project would comply with all applicable CCAPCD rules and regulations. Therefore, the Project complies with this criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plan.

(d) Conclusion

The Project's emissions are less than significant for all criteria pollutants and would not result in inconsistency with the AQP for this criterion. The Project's land use designation is consistent with the land use assumptions of the City of Williams General Plan. The Project complies with all applicable policies, implementation actions of the 2012 General Plan; therefore, the project is not considered inconsistent with the AQP. Potential Project impacts are less than significant and no mitigation is needed.

4.3.6.2 Potential for Air Quality Standard Violation

Threshold: Violate any ambient air quality standards Conflict with or obstruct implementation of the applicable air quality plan?

(a) Regional Emissions

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to quantitative thresholds of significance for short-term construction activities and long-term operation of the project in tons per year of each pollutant emitted. Localized emissions from project construction and operation are also assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, NOx, PM10, and PM2.5. The CCAPCD has not adopted CEQA thresholds of significance for land use projects. However, in the absence of adopted Air District thresholds specifically for land use, the City may use the Air District's stationary source new source review offset thresholds that apply to projects where stationary source permits are required under Regulation III-Permits. Regulation 3 requires offsets for a new stationary source with a potential to emit nonattainment pollutants or their precursors equal to or exceeding twenty five (25) tons per year. The air basin is classified as nonattainment for ozone, PM10 (State), and PM2.5.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and NOx emissions in the presence of sunlight. Therefore, ROG and NOx are termed ozone precursors. The Air Basin has exceeded the state and national ozone standards and Colusa County has exceeded the ozone standards in the past, although now in attainment of ozone standards. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for PM10, and PM2.5; therefore, substantial project emissions may contribute to an exceedance for these pollutants.

The following thresholds would apply to the project:

ROG:	25 tons/year	PM10	25 tons/year
NOx	25 tons/year	PM2.5	25 tons/year

Thresholds adopted by some air districts and lead agencies do not apply the regional thresholds to construction emissions because they are temporary. Others apply the annual operational thresholds to construction activities to ensure that large construction projects and projects with multi-year construction schedules assess potential regional impacts. The analysis prepared for this project applies the thresholds to both operational and construction emissions. The Air Basin is in attainment for CO and SO2; therefore, no ton per year threshold is required for these pollutants. CO is assessed as a localized pollutant below to address potential hotspots. The Project does not contain sources that would produce substantial quantities of SO2 emissions during construction and operation. No further analysis of SO2 is required.

(b) Construction Emissions

Construction emissions associated with the project are shown for the years 2016 and 2017 in Table 13. Construction is scheduled to be completed in a single phase. Construction emissions are temporary, so their impacts are addressed separately from operational emissions and would be subject to their own mitigation measures if the thresholds were exceeded. For assumptions in estimating the emissions, please refer to section 4.3.4.1. As shown in Table 13, the emissions are below the significance thresholds in each construction year. Therefore, the emissions are less than significant on a project basis.

Table 13. Construction Air Pollutant Emissions

Source	Emissions (tons per year)			
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
2016 Construction	0.44	4.04	0.48	0.34
2017 Construction	0.43	1.75	0.12	0.11
Significance threshold (tons/year)	25	25	25	25
Exceed threshold—significant impact?	No	No	No	No

Notes:
ROG = reactive organic gases NO_x = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Area source emissions include emissions from natural gas, landscape, and painting.

(c) Operational Emissions

Operational emissions occur over the lifetime of the project and are from two main sources: area sources and motor vehicles, or mobile sources. Operations were assumed to commence in 2017 after construction is expected to be complete.

For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. The emissions modeling results for project operation are summarized in Table 14. Please note that these results include the benefits from compliance with mandated regulations

not yet incorporated into CalEEMod. These regulations are considered part of the project baseline; however, the results are presented in the CalEEMod mitigated model output and are not considered mitigation required for CEQA compliance.

The results of the analysis are presented in Table 14. The emissions are below the CCAPCD significance thresholds. Project impacts are less than significant and no mitigation is needed.

Table 14. Operational Air Pollutant Emissions (2017)

Source	Emissions (tons per year)			
	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Area	0.10	<0.01	<0.01	<0.01
Energy	0.01	0.05	<0.01	<0.01
Mobile—Local Area	0.58	1.02	0.42	0.12
Mobile—Diverted Trips	3.63	7.33	0.26	0.10
Total	**4.31**	**8.41**	**0.69**	**0.22**
Significance threshold (tons/year)	25	25	25	25
Exceed threshold—significant impact?	No	No	No	No

Notes:
ROG = reactive organic gases NO_x = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Area source emissions include emissions from natural gas, landscape, and painting.
Source: CalEEMod output

4.3.6.3 Cumulatively Considerable Net Increase of Any Criteria Pollutant

Threshold: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard?

To result in a less than significant impact, the following criteria must be true:

- Regional analysis: Emissions of nonattainment pollutants must be below the regional significance thresholds.
- Summary of projections: The project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.
- Cumulative health impacts: The project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, Bakersfield Citizens for Local Control v. City of Bakersfield (2004) 124 Cal.App.4th 1184, 1219-20.

(a) Regional Analysis

If an area is in nonattainment for a criteria pollutant, then the background concentration of that pollutant has historically exceeded the ambient air quality standard. It follows that if a project exceeds the regional threshold for that nonattainment pollutant, then it would result in a

cumulatively considerable net increase of that pollutant and result in a significant cumulative impact.

Colusa County has attained all ambient air quality standards with the exception of the State PM10 standard. However, other locations in the Air Basin have not attained other standards and emissions that occur in Colusa County could contribute to violations of standards in other portions of the Air Basin. The Air Basin is in nonattainment for PM10, PM2.5, and ozone. Therefore, if the project exceeds the regional thresholds for PM10, or PM2.5, then it contributes to a cumulatively considerable impact for those pollutants. If the project exceeds the regional threshold for NOx or ROG, then it follows that the project would contribute to a cumulatively considerable impact for ozone.

Regional emissions include those generated from all on-site and off-site activities. Regional significance thresholds have been identified from CCAPCD new and modified stationary source review offset thresholds because emissions from projects in the Air Basin can potentially contribute to the existing emission burden and possibly affect the attainment and maintenance of ambient air quality standards. Projects with regional emissions in excess of any threshold presented in section 4.3.6.2(a) are considered to have a significant regional air quality impact.

The criteria pollutant emissions analysis was assessed to determine whether the project would exceed the CCAPCD regional thresholds of significance. As shown in Tables 12 and 13, criteria pollutant emissions would not exceed any threshold of significance during project construction or operation. Therefore, the combination of unmitigated project emissions with the criteria pollutants from other sources within the Air Basin would not cumulatively contribute to a significant impact according to this criterion.

(b) Plan Approach

Section 15130(b) of the CEQA Guidelines states:

> *'The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.'*

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts is based on a summary of projections analysis. The project's consistency with the attainment plan is provided above. The results of that assessment found that the project is consistent with the applicable plan for the Air Basin.

This analysis considers the current CEQA Guidelines. The Air Basin is in nonattainment or maintenance status for ozone and particulate matter (PM10 and PM2.5), which means that concentrations of those pollutants currently exceed the ambient air quality standards for those pollutants, or that the standards have recently been attained in the case of pollutants with maintenance status. When concentrations of ozone, PM10, or PM2.5 exceed the ambient air

quality standard, then those sensitive to air pollution (such as children, the elderly, and the infirm) could experience health effects such as decrease of pulmonary function and localized lung edema in humans and animals, increased mortality risk, and risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans. Current air quality in the Williams area does not exceed state and federal air quality standards for ozone and PM2.5, so no health impacts from these pollutants occur. Colusa County exceeds State PM10 standards on occasion, so the population is currently experiencing health impacts that are due to PM10 exposure.

Under the CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. In accordance with CEQA Guidelines Section 15064, subdivision (h)(3), a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously approved plan or mitigation program. The geographic scope for cumulative criteria pollution from air quality impacts is the Air Basin, because that is the area in which the air pollutants generated by the sources within the Air Basin circulate and are often trapped. The 2015 Triennial Plan is the applicable plan for the Air Basin. The Triennial Plan evaluated emissions from land uses and transportation related sources in the entire Air Basin during plan development. As described above, emissions are declining sufficiently because of adopted regulations to help ensure that health impacts will continue to decline even with predicted growth.

As discussed above, the Project is consistent with all applicable control measures in the air quality attainment plans. The Project would comply with any CCAPCD rules and regulations that may pertain to implementation of the AQPs. Therefore, impacts would be less than significant with regard to compliance with applicable rules and regulations.

(c) Cumulative Health Impacts

The County is in attainment of all ambient air quality standards with the exception of the State PM10 standard. However, the Air Basin is in nonattainment for ozone, PM10, (State only) and PM2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and the infirm). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects that were described in Table 8. However, the health effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience health effects.

Since the Basin is nonattainment for ozone, PM10, and PM2.5, it is considered to have an existing significant cumulative health impact without the project. When this occurs, the analysis considers whether the project's contribution to the existing violation of air quality standards is

cumulatively considerable. The regional thresholds for NOx, VOC, PM10, or PM2.5 are applied as cumulative contribution thresholds. Projects that exceed the regional thresholds would have a cumulatively considerable health impact. As shown in Tables 12 and 13 and the regional analysis of construction and operational emissions indicates that the project would not exceed the District's significance thresholds and the project is consistent with the applicable Air Quality Attainment Plan. Therefore, the project would not result in significant cumulative health impacts and no mitigation is needed.

4.3.6.4 Odors

Threshold: Create objectionable odors affecting a substantial number of people?

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. Common land use types that are known to produce odors are shown in Table 15.

Table 15. Screening Levels for Potential Odor Sources

Odor Generator	Screening Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: SJVAPCD 2015.	

Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roasters, asphalt batch plants, and rendering plants. The project would not engage in any of these activities. Therefore, the project would not be considered a generator of objectionable odors during operations.

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and would not likely be noticeable for extended periods of time beyond the project's site boundaries. The potential for diesel odor impacts during construction is therefore less than significant.

During operations, the project will dispense motor vehicle fuels and will serve diesel trucks that purchase fuel and use the other facilities available at the project site. The project site is over 3,000 feet from the nearest sensitive receptor; therefore, the odorous emissions would not expose sensitive receptors to substantial concentrations of these pollutants. This impact is less than significant and no mitigation is needed.

4.3.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.3.7.1 Sensitive Receptors

Threshold: Expose sensitive receptors to substantial pollutant concentrations?

Impact: The grading and site preparation activities have the potential to emit fugitive dust (PM10) from soil disturbance.

(a) Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. A sensitive receptor is defined as a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The closest sensitive receptors to the Project site are the Woodland Community College, Colusa County Outreach Facility and the Colusa County Department of Education, Alternative Education School and Special Education/Severely Handicapped School and are located a minimum of approximately 0.4 mile south of the Project site. Emissions decrease in concentration with distance from the emission sources at a rate of approximately 80 percent at 1,000 feet (ARB 2005). At this distance, emissions generated by a project could not be differentiated from background emissions. At 3,000 feet from the Project site, emission concentrations would be extremely low.

(b) Construction

The CCAPCD has not published guidance for assessing the localized impacts of construction emissions. Review of SMAQMD guidance for assessing construction emissions indicates that the District does not expect construction activity to generate high concentrations of other criteria pollutants (e.g., NO2, SOX, CO) and, therefore, does not recommend their evaluation. Based on this guidance and the distance to the nearest sensitive receptor, no quantitative analysis for the localized impacts of these pollutants during construction was conducted.

ROG is emitted during the application of architectural coatings (painting). The amount emitted is dependent on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern rather than an outdoor air quality health hazard concern.

Therefore, exposure to ROG during architectural coatings is a less than significant health impact.

As discussed in Section 4.3.6.2 emissions during construction would not exceed the significance thresholds and therefore would not be expected to result in concentrations that would exceed ambient standards or contribute substantially to an existing exceedance of an ambient air quality standard.

The grading and site preparation activities have the potential to emit fugitive dust (PM10) from soil disturbance. Standard dust control practices such as watering areas that will be actively disturbed, and prevention and frequent clean-up of soil tracked onto paved roads is normally adequate to reduce impacts from PM10 during construction to less than significant. The CCAPCD has not adopted regulations to control fugitive dust; therefore, this impact is potentially significant without mitigation. To ensure that adequate dust controls are applied to prevent significant impacts, implementation of standard dust control management practices recommended by the neighboring Yolo Solano Air Quality Management District (YSAQMD) under Mitigation Measure AIR-1 are required.

(c) Operation

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

As discussed in above, localized concentrations of PM10, PM2.5, would not exceed the ambient air quality standards with the application of controls to minimize fugitive dust emissions. Therefore, the project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

(d) Carbon Monoxide Hot Spot Analysis

Localized high levels of CO are associated with traffic congestion and idling, or slow-moving vehicles. CO hotspots have become increasingly unlikely due to the success of the State's emission control requirements. The entire State has attained state and federal ambient CO standards. Several air districts have developed screening criteria that if exceeded would require dispersion modeling to determine if a CO hotspot would occur. The SMAQMD screening criteria from its CEQA Guide are as follows:

- Traffic generated by the proposed project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F.

The intersections serving the project would not exceed these criteria; therefore, the project would not significantly contribute to an exceedance of state or federal CO standards.

(e) Toxic Air Contaminants (TAC)

A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The health risk is affected by several factors, such as the amount, toxicity, and concentration of the contaminant; meteorological conditions; distance from the emission sources to people; the distance between emission sources; the age, health, and lifestyle of the people living or working at a location; and the length of exposure to the toxic air contaminant.

The term "risk" usually refers to the chance of contracting cancer as a result of an exposure, and it is expressed as a probability; i.e., chances-in-a-million. The values expressed for cancer risk do not predict actual cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

The CCAPCD does not have an adopted threshold of significance for TAC impacts for development projects. The YSAQMD CEQA Handbook includes the following thresholds that are common to many other air districts that may be applied to the project:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) equals to 10 in one million or more.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index equal to 1 for the MEI or greater.

Construction: Toxic Air Contaminants: Project construction would involve the use of diesel-fueled vehicles and equipment that emit diesel particulate matter (DPM), which is considered a TAC. Most air districts do not currently recommend analysis of TAC emissions from project construction activities, but instead focus on projects with operational emissions that would expose sensitive receptors over a typical lifetime of 70 years. In addition, the project site is over 3,000 feet from the nearest sensitive receptor. At this distance, concentrations of TAC emissions would be reduced by about 80 percent and would be indistinguishable from background concentrations (ARB 2005). Therefore, impacts from TAC emissions during construction would be less than significant.

Construction phase risks would be considered acute health risks as opposed to cancer risks, which are long-term. The State Office of Environmental Health Hazard Assessment (OEHHA) has yet to define acute risk factors for diesel particulates that would allow the calculation of a hazards risk index; thus, evaluation of this impact would be speculative and no further discussion is necessary.

Operation: Toxic Air Contaminants: The ARB Air Quality and Land Use Handbook contains recommendations that will "help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution" (ARB 2005), including recommendations for distances between sensitive receptors and certain land uses. The handbook does not provide specific recommendations for projects that include a truck stop; however, it does have a recommendation for another land use that would have substantial numbers of diesel trucks. According to the ARB and the South Coast AQMD, analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public

exposure downwind of a distribution center. The recommendation is based on distribution centers with more than 100 trucks per day. Although the project is expected to serve approximately 900 trucks per day, the trucks do not idle when refueling and most would be on-site for a limited time. Trucks on-site to obtain other services at the facility or that park overnight are required to idle no longer than 5 minutes in accordance with ARB regulations described in Section 4.3.3.2.

The ARB handbook recommends avoiding new sensitive land uses within 300 feet of a large fueling station (a facility with a throughput of 3.6 million gallons per year or greater). A similar Love's project was expected to sell approximately 3.0 million gallons of gasoline per year. The primary pollutant of concern for fueling stations is benzene from evaporated gasoline. The Project will service gasoline-fueled cars and trucks, but the largest volume of fuels is expected to be provided to diesel-fueled vehicles. Diesel fuel has low volatility and is not a significant source of benzene. The fueling station is over 3,000 feet from the nearest sensitive land use. Therefore, impacts from the fueling operation would be negligible.

A health risk assessment prepared for a Love's project in Madera County with similar volumes of truck trips and fuel throughput estimated the maximum increase in cancer risk to the nearest sensitive receptor (50 feet) was 37 in a million using 2015 OEHHA risk guidance. The DPM concentration and related impact at 1,000 feet would be reduced by approximately 80 percent. At that rate of dispersion, the risk at 1,000 feet would be approximately 7.4 in a million compared with the health risk threshold of 10 in a million increase in cancer risk. Since the sensitive receptors nearest the project site are over 3,000 feet away, the risk would well below the 10 in a million threshold and would produce a less than significant impact from TAC emissions.

Projects with fueling stations and diesel truck emissions that do not exceed the cancer risk threshold also would not exceed the acute hazard index threshold of 1.0. The health risk assessment for the Love's project in Madera County with a sensitive receptor at 50 feet from the project site determined the acute hazard index in that case was 0.326. The nearest sensitive receptor for the Williams Love's project is over 3,000 feet from the project. Therefore, it is reasonable to conclude that acute impacts related to TAC emissions at sites more distant will be less than significant.

(f) Valley Fever

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended period of time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

Colusa County experiences a number of cases of Valley fever each year. Although Valley fever is less of a problem in Colusa County than other areas such as the San Joaquin Valley, it is still a concern in soils that provide habitat for the spores. The average annual number of cases in Colusa County from 2000 to 2007 was 2.1 to 4.9 per 100,000 population (CDC 2009).

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common, suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

- Rodent burrows (often a favorable site for *C. immitis*, perhaps because temperatures are more moderate and humidity higher than on the ground surface);
- Old (prehistoric) Indian campsites near fire pits;
- Areas with sparse vegetation and alkaline soils;
- Areas with high salinity soils;
- Areas adjacent to arroyos (where residual moisture may be available)
- Packrat middens;
- Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils; and or
- Sandy well aerated soil with relatively high water holding capacities.

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

- Cultivated fields;
- Heavily vegetated areas (e.g. grassy lawns);
- Higher elevations (above 7,000 feet);
- Areas where commercial fertilizers (e.g. ammonium sulfate) have been applied;
- Areas that are continually wet;
- Paved (asphalt or concrete) or oiled areas; and
- Soils containing abundant microorganisms.
- Heavily urbanized areas where there is little undisturbed virgin soil (USGS 2000).

The project site is situated in a city growth area. The project includes urbanization of site that is currently developed with previously cultivated land. Therefore, implementation of the project would have a low probability of the site having *C. immitis* growth sites and exposure to the spores from disturbed soil.

Construction activities would generate fugitive dust that could contain *C. immitis* spores. The project will minimize the generation of fugitive dust during construction activities by complying with AIR-1. Therefore, this regulation, combined with the relatively low probability of the presence of *C. immitis* spores would reduce valley fever impacts to less than significant.

During operations, dust emissions are anticipated to be negligible, because most of the project area would be occupied by buildings, pavement, and landscaped areas. This condition would preclude the possibility of the project from providing habitat suitable for *C. immitis* spores and for generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

(g) Naturally Occurring Asbestos

According to a map of areas where naturally occurring asbestos in California are likely to occur (U.S. Geological Survey 2011), there are no such areas in the project area. Therefore, development of the project is not anticipated to expose receptors to naturally occurring asbestos. Impacts would be less than significant.

Mitigation Measures. As discussed above, the Project is consistent with all applicable control measures in the air quality attainment plans. The Project would comply with any CCAPCD rules and regulations that may pertain to implementation of the AQPs. Therefore, impacts would be less than significant with regard to compliance with applicable rules and regulations.

AIR-1

Implement Dust Control Measures sufficient to control fugitive dust during soil disturbing activities and during periods of inactivity to prevent windblown dust. The following measures shall be implemented as needed (frequency of application and need for specific measures are dependent on weather and actual construction activities occurring at any given time:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard, or cover all trucks hauling dirt, sand, or loose materials.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least 4 consecutive days).
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips or mulch, or treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.

Level of Significance after Mitigation: Implementation and adherence to AIR-1 will reduce potential impacts to less than significant.

4.3.8. Cumulative Impacts

No cumulative air quality impacts were identified. Please see section 4.3.6.3.

4.4. Biological Resources

This section evaluates the proposed Project's potential impacts on biological resources. This section provides a detailed discussion of impacts potentially attributable to the proposed Project, and criteria used to determine impact significance to biological resources.

The analysis contained in this section is based on the following reference documents:

- Biological Resources Evaluation (BRE) for the Love's Country Store Project, Williams, California (Sycamore Environmental 2016, see Appendix C)
- City of Williams, 2011 Public Review Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.4.1. Existing Setting

The Project area is a former agricultural field in the Sacramento Valley, within in the City of Williams. The Project is located south of State Route 20 (SR 20) and east of Interstate 5 (I-5). The east side of the Project site abuts the new Margurite Street. Between the Project site and SR-20 is a ditch operated by the Glen-Colusa Irrigation District (GCID). About 0.4 mile to the east is an existing manmade storm water detention basin. Fallow agricultural fields are to the south and west. The larger surrounding area consists of agricultural fields (rice and safflower) Figure 2). Elevation is approximately 69 feet above sea level and the topography is generally flat.

4.4.1.1 Soils

The soil mapping unit present in the Project area is Willows silty clay, 0-1% slopes (NRCS 2006). The Willows series is a very deep, poorly drained soil that formed from fine-textured alluvium derived from mixed rock sources. This soil is classified as saline and sodic within a depth of 40 inches. Accumulations of salts at the surface have been removed through reclamation or ponding for rice production. The soil formed under saturated and frequently flooded conditions (NRCS 2006).

4.4.1.2 Biological Communities

Biological communities are defined by species composition and relative abundance. Biological communities in the Project area are listed in Table 16. These communities correlate where applicable with the list of California terrestrial natural communities recognized by California Department of Fish and Wildlife (CDFW 2010). Descriptions of biological communities present in the Project area are provided below. The biological area is larger than the project site and includes staging areas and off-site improvements.

Table 16. Biological Communities in the Project area

Project Component	Community Acreage				
	Agricultural Field	**Ruderal/ Disturbed**	**Paved Road**	**Detention Basin (HLDET7)**	**Total Acreage**
Project Site	11.15	--	--	--	11.15
Staging	9.97	--	--	--	9.97
Off Site Drainage Alignment	1.11	0.05	0.05	0.21	1.43
Alternate Off Site Drainage Alignment	4.94	0.24	0.05	--	5.22
Total	**27.17**	**0.29**	**0.10**	**0.21**	**27.77**

The ruderal/disturbed community includes dirt farm roads that occur on the eastern portion of the Project area where the proposed temporary ditch is located. The dirt roads provide access through and around the fallow agricultural fields. These areas are mostly devoid of vegetation except for scattered weedy species such as puncture vine (*Tribulus terrestris*) and bindweed (*Convolvulus arvensis*).

The existing manmade detention basin is east of the proposed Love's Country Store. The basin collects storm water from development along Ella Street and E Street via a canal and underground culvert. The GCID drainage canal occurs north and east of the detention basin. The drainage canal can flow into a small wetland that occurs north of the detention basin through a culvert that must be manually opened. The wetland drains into agricultural ditches that flow in both directions around the detention basin and canal. The agricultural ditches likely supplied water to rice fields prior to the construction of Margurite Street. One ditch ends just south of the detention basin and the other ends just north of Ella Street. During periods of high water levels the detention basin may discharge to the GCID drainage canal via overflow pipes.

Double-crested cormorants, snowy egrets, American avocets, black necked stilts, killdeer and mallards were observed foraging in the detention basin during the March and May 2016 field surveys. Several large carp (12+ inches) were observed in the detention basin and associated canal. Dominant plant species on the banks of the detention basin include spurrey (*Spergularia* sp.) and sour clover (*Melilotus indicus*).

Paved roads consist of the newly constructed Margurite Street. The paved roads are east of the proposed Love's Country Store and are devoid of vegetation.

Agricultural fields comprise the majority of the project area. The Love's Country Store, a potential staging area and proposed temporary ditch all occur in agricultural fields. The fields are primarily farmed for either rice or safflower. In 2010 a portion of the northern field in the Project area was used for safflower production. In 2013, the site was used for rice production. The agricultural fields have a business park land use and zoning designations in the 2012 City of

Williams General Plan. While rice was farmed in these fields in 2013, no rice farming has occurred after 2013 to allow for construction of the SR-20 Margurite Street Connection.

4.4.1.3 Existing Level of Disturbance

A review of aerial photographs indicates the Project area has been used for agricultural production since at least 1998 and possibly earlier. Agricultural production consists of periodically tilling the fields with farming equipment. Dirt farm roads within the Project area are used by farm workers and were used by contractors during the SR-20 Margurite Street connection project.

The construction of the underground utilities for the Margurite Street extension required ground water pumping. The ground water was pumped onto the fallow agricultural field in the northern portion of the Project area. The entire site had been disked prior to the May 2016 fieldwork.

4.4.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding biological resources.

4.4.3. Existing Policies and Regulations

4.4.3.1 Federal Regulations

(a) Section 404 Permit - U.S. Army Corps of Engineers (USACE)

The Corps of Engineers (Corps) and the U.S. Environmental Protection Agency regulate the discharge of dredge and fill material into "waters of the United States" under Section 404 of the Clean Water Act (33 U.S.C. 1344). The Corps issues permits for certain dredge and fill activities in waters of the U.S. pursuant to the regulations in 33 CFR 320-330.

(b) Section 401 Water Quality Certification - Regional Water Quality Control Board (RWQCB)

Under Section 401 of the Clean Water Act (33 U.S.C. 1341), applications for a federal permit or license for any activity that may result in a discharge to a water body, require a State Water Quality Certification to ensure that the proposed activity complies with state water quality standards.

(c) Section 402 of the Clean Water Act - NPDES Phase II Permit - Regional Water Quality Control Board

Section 402(p) of Clean Water Act establishes a permit under the National Pollution Discharge Elimination System Permit (NPDES) program for discharges of storm water resulting from ground disturbing construction activities, such as grading. For ground disturbing construction activities in excess of one acre a NPDES Phase II permit from the RWQCB is required. The preparation of a Stormwater Pollution Prevention Plan (SWPPP) is a requirement of the NPDES Phase II permit.

(d) Federal Endangered Species Act (FESA)

FESA defines take (Section 9) and prohibits taking of a federal-listed endangered or threatened animal without an Incidental Take Permit (16 U.S.C. 1532, 50 CFR 17.3). If a federal-listed animal could be harmed, harassed, injured, or killed by a project, a Section 7 consultation is initiated by a federal agency or a Section 10 consultation is initiated by a local agency or private applicant. Formal consultations culminate with a Biological Opinion and may result in the issuance of an Incidental Take Permit.

(e) Federal Migratory Bird Treaty Act (MBTA)

All migratory birds are protected under the federal MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR Part 21). Any construction-related disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

(f) Executive Order 13112 (Invasive Plant Species)

Executive Order 13112, issued 3 February 1999, directs federal agencies, whose actions may affect the status of invasive plant species, to use relevant programs and authorities to prevent the introduction of invasive species, control existing populations of such species, monitor populations of such species, and provide for the restoration of native species. The Federal Highway Administration (FHWA) is ordered to not authorize, fund, or carry out projects that are likely to cause or promote the introduction or spread of invasive species.

4.4.3.2 State Regulations

(a) California Endangered Species Act (CESA)

CESA prohibits take of wildlife and plants listed as threatened or endangered by the California Fish and Game Commission. "Take" is defined under California Fish and Game Code as any action or attempt to "hunt, pursue, catch, capture, or kill." CESA allows exceptions for take that occurs during otherwise lawful activities. Section 2081 of the California Fish and Game Code describes the requirements needed for incidental take applications under CESA. Incidental take of state-listed species may be authorized if an applicant submits a plan that minimizes and mitigates the impacts of take.

(b) California Fish and Game Code

The California Fish and Game Code defines 'take' (Section 86) and prohibits 'taking' of a species listed as threatened or endangered under CESA (California Fish and Game Code Section 2080) or otherwise fully protected, as defined in California Fish and Game Code Sections 3511, 4700, and 5050.

(c) Other Special-Status Species Classifications

Other special-status species classifications evaluated in the Project Biological Resources Evaluation include California Species of Special Concern (SSC), species ranked 1B and 2 by the California Native Plant Society (CNPS 2014), plants listed under the California Native Plant Protection Act, and active raptor nests.

(d) Invasive Plants

The California Invasive Plant Council (Cal-IPC) maintains an inventory of invasive nonnative plants that threaten wildland areas of California (Cal-IPC 2006). The Cal-IPC inventory involves evaluation of ecological impacts, invasive potential, and ecological distribution. Species receive an overall rating of High, Moderate, or Limited. Ratings are defined below (Cal-IPC 2006).

> **High:** "These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically."
>
> **Moderate:** "These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread."
>
> **Limited:** "These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic."

4.4.3.3 Local Regulations

The Open Space and Conservation Element of the City of Williams General Plan defines the policies related to biological resources (Table 17).

Table 17. Open Space and Conservation Element Policies and Actions, Consistency.

Policies & Actions	Consistency
Policy 7.17 The preservation and protection of rare, threatened, or endangered species within the planning area, including candidate species and species of special concern, warrants design consideration when developing new land.	The proposed Project has been designed to avoid impacts to special status species. Mitigation measures to reduce potential impacts to less than significant have been incorporated as applicable.
Policy 7.18. Animal corridors along waterways, tree groves, and grasslands shall be developed to ensure safe animal travel.	The proposed Project site does not occur along a waterway and is not in an area of tree groves or grassland. The proposed Project has been designed to avoid impacts to special status species. Mitigation measures to reduce potential impacts to less than

Policies & Actions	Consistency
	significant have been incorporated as applicable.
Action 7.cc. Designate animal reserves or habitat areas in public parks and open space, effectively limiting recreation activities to provide undisturbed refuges for animal wildlife.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 7.dd. Coordinate with regional authorities to create interconnected wildlife corridors both within and outside the City limits.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 7.ee. Promote and support Habitat Conservation Plans between landowners and the U.S. Fish and Wildlife Service. Habitat Conservation Plans (HCP) are long-term agreements designed to offset any harmful effects that a proposed activity might have on federally-listed threatened and endangered species.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.22. Preservation and replacement measures will be encouraged for existing vegetation, with special emphasis on mature shade trees.	The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Policy 7.23. Open spaces and recreational areas are enhanced by the appearance, shade, and design elements of plants, shrubs, and trees.	The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Policy 7.24. Preference will be given to native and drought-tolerant plant species to reduce water consumption, minimize invasive species, and preserve the appearance of the natural landscape.	The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Policy 7.25. While the zoning regulations mandate landscape requirements for private property, the overall appearance of the City requires upgrades to the private and public domain.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.26. Landscaping in the right-of-way enhances the community appearance, helps to calm traffic, and increases the community's ability to attract tourists and developers.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 7.27. In the removal and relocation of plants and trees, special consideration will be given to endangered species.	Not Applicable. The Project does not propose tree removal or relocation.
Policy 7.28. Use of shade trees reduces radiation heating and encourages outdoor recreation.	Not Applicable.
Action 7.qq. Establish a public advisory committee to develop landscape guidelines, standards, and measures for protecting plant and wildlife communities on public and private properties.	Not Applicable. This action applies to the City and not to individual development projects. The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Action 7.rr. Adopt design practices that are compatible with the environment, including an emphasis on native	Not Applicable. This action applies to the City and not to individual development projects. The Project is

Policies & Actions	Consistency
and drought tolerant species.	consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Action 7.ss. Promote site design practices that reduce the extent of impervious cover (building footprints and paved areas) in favor of natural and/or landscaped areas.	The Love's Country Store Project's 11.15-acre site would be occupied by approximately 0.84 ac (7.6% of total area) of new buildings/ structures and 7.72 ac (69% of total area) of new impervious surface for parking, fueling, canopies, etc. The approximate 2.59 (23.2%) remainder will be used for landscape buffers and plantings.
Action 7.tt. Assess public opinion and consider adopting a tree protection ordinance which requires protection and relocation of mature trees (e.g. 6" diameter or greater).	Not Applicable. This action applies to the City and not to individual development projects.
Action 7.uu. Prohibit the re-location or removal of endangered species unless replacement provisions are in place.	The proposed Project includes measures to reduce potential impacts to special status-species. Active species relocation is not part of the proposed Project.
Action 7.vv. Discourage the introduction of invasive species and prevent the spread of non-native invasive species that have become established.	The Project is consistent with City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering.)
Action 7.ww. Prepare a near-term capital improvement plan and program for right-of-way and publicly owned property that would immediately benefit from landscape improvements, with emphasis on community gateways and arterial roads.	Not Applicable. This action applies to the City and not to individual development projects.
Action 7.xx. Require new commercial, industrial, and multi-family developments to submit landscaping plans that coincide with zoning requirements, as part of the development review process.	Landscape improvement plans, consistent with the City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering) have been prepared for the Project by Thomas H. Phelps, Landscape Architecture.
Action 7.yy. Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.	Landscape improvement plans, consistent with the City Code Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering) have been prepared for the Project by Thomas H. Phelps, Landscape Architecture.
Action 7.zz. Consider provisions in the subdivision regulations may require riparian buffers around all naturally occurring water bodies and wetlands. The standards shall restrict septic systems within the buffer area and include requirements for planting indigenous plants and trees to enhance the buffer's absorption and filtering potential.	Not Applicable, naturally occurring water bodies and wetlands do not occur in the Project area.
Action 7.aaa. Include the use of bio-swales and permanent water features for drainage management to	The stormwater runoff from the proposed Project will drain to the existing detention basin located east of the

Policies & Actions	Consistency
reduce the volume and rate of stormwater runoff from new developments.	Project site.
Action 7.bbb. Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.	Not Applicable. This action applies to the City and not to individual development projects.
Action 7.ccc. The City will identify areas that may accommodate floodwater for the purposes of groundwater recharge and stormwater management.	Not Applicable. This action applies to the City and not to individual development projects.

4.4.4. Methodology

4.4.4.1 Studies Conducted

An evaluation of biological resources was conducted to determine whether any special-status plant or wildlife species, their habitat, or other sensitive habitats occur in the Project area. Data on special-status species and habitats known in the area were obtained from state and federal agencies. Maps and aerial photographs of the Project area and surrounding areas were reviewed. Field surveys were conducted to determine the habitats present. The field survey, map review, and a review of the biology of evaluated species and habitats were used to determine the special-status species and sensitive habitats that could occur in the Project area.

Special-status species in this report are those listed (or candidate or proposed) under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by the California Department of Fish and Wildlife (CDFW), or that are Rank 1 or 2 in the California Native Plant Society's Inventory of Rare and Endangered Plants of California. Special-status natural communities are waters, wetlands, riparian communities, and any natural community ranked S1, S2, or S3 by CDFW.

4.4.4.2 Survey Dates and Personnel

Sycamore Environmental, conducted biological surveys on 9 March and 11 May 2016. Sycamore Environmental biologists also conducted biological surveys in 2013 and 2014 for the preparation of technical studies and a CEQA document for the City's Margurite Street extension project. There is some overlap for the two project study areas.

4.4.4.3 Problems Encountered and Limitations That May Influence Results

No problems or limitations were encountered that may influence the results.

4.4.4.4 Literature Search

An official letter and list were obtained from the U.S. Fish and Wildlife Service (USFWS), Sacramento Field Office. The list identifies federal-listed, candidate, or proposed species that potentially occur in or could be affected by projects on the Williams Quad.

The California Natural Diversity Database (CNDDB) was queried for known occurrences of special-status species near the Project area (Williams Quad and the eight surrounding quads). The California Native Plant Society (CNPS) online inventory of rare and endangered plants was queried for known occurrences of special-status plants in or near the Project area.

4.4.4.5 Field Survey Methods

Biological surveys consisted of walking through the Project area to assess potential habitat for special-status species and sensitive communities. The Glenn-Colusa Irrigation District (GCID) drainage canal, north and outside of the Project area, was surveyed for wildlife species. A survey of areas where potential offsite improvements may be located included 50 feet on both sides of Margurite Street from Ella Street to SR 20, the disturbed area north of Ella Street from Margurite Street to the City storm drainage canal, banks of the canal, the detention basin and a proposed ditch alignment from the detention basin to the Love's site. Plant and animal species and biological communities were identified and recorded.

A floristic botanical survey was conducted in accordance with CDFW (2009) protocol. Approximately 9 person-hours were spent on-site during the two surveys. The botanical surveys consisted of walking through the Project area systematically to look for all vascular plants present. Approximately 3 person-hour was spent keying specimens that were collected in the field, to verify or determine the identification.

4.4.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts to aesthetic resources are based on Appendix G (Environmental Checklist) set forth in the CEQA Guidelines (2016). A project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?
- 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?
- 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?
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

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

4.4.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.4.6.1 Interfere Substantially with Wildlife Movement

Threshold: 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?

The agricultural fields where the Project site is located have a Business Park land use and zoning designation in the City General Plan. Recent commercial development has occurred south of the Project area. SR 20 is located to the north, and I-5 is located immediately west of the site. The recently constructed Margurite Street is adjacent to the Project site on the east. The Project is surrounded by human development, and will not substantially interfere with fish and wildlife movements or impede the use of native wildlife nursery sites. Project impacts are less than significant and no mitigation is needed.

4.4.6.2 Conflict with Any Local Policies or Ordinances

Threshold: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project is consistent with local policies or ordinances protecting biological resources (please see Table 17). Project impacts are less than significant and no mitigation is needed.

4.4.6.3 Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Plan

Threshold: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Project is not located within an area covered under an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact will occur and no mitigation is needed.

4.4.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.4.7.1 Substantial Adverse Effect on Candidate, Sensitive, or other Special Status Species

Threshold: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local

or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact: The proposed project has the potential to impact special status species.

(a) Evaluation of Special Status Wildlife

Giant Garter Snake (*Thamnophis gigas*): Giant garter snakes (GGS) were listed as federally threatened on 20 October 1993 (FR 58:54053). GGS historically inhabited natural wetlands, but now mostly inhabit agricultural wetlands and other waterways, such as irrigation and drainage canals, riceland, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Ideal habitat contains shallow water, deep water, and high ground. This habitat is often found in rice fields, where GGS appear to be the most numerous. GGS inhabit small mammal burrows and other soil crevices above prevailing flood elevations throughout the winter dormancy period (November to mid-March). GGS are most active from spring to mid-fall (approximately April through the end of October). The breeding season begins after emergence from overwintering sites, which occurs approximately March through May, and resumes briefly in September.

GGS are endemic to wetlands in the Central Valley of California, from Red Bluff to Bakersfield. Once common throughout the Central Valley, GGS are currently only found in the Sacramento Valley with isolated populations in the San Joaquin Valley.

The GGS Draft Recovery Plan (USFWS 1999) recognizes 13 separate populations of GGS that coincide with riverine flood basins and tributary streams: Butte Basin, Colusa Basin, Sutter Basin, American Basin, Yolo Basin/Willow Slough, Yolo Basin/Liberty Farms, Sacramento Basin, Badger Creek/Willow Creek, Caldoni Marsh, East Stockton-Diverting Canal and Duck Creek, North and South Grasslands, Mendota, and Burrel/Lanare. These populations occur in Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo counties

Giant garter snakes were observed in the GCID canal in 2015. There are 39 CNDDB records of GGS on the nine quads centered on the Project area. The Husted Lateral Detention Basin 7 (HLDET7), constructed in 2008-2009, created suitable aquatic habitat for GGS. While the water levels in the basin fluctuate seasonally, it is a permanent water source with perennial marsh vegetation. Based on the recent 2015 and earlier CNDDB records, GGS may be present in the detention basin.

The main Project site is located approximately 100 ft south of the GCID canal is not included as upland habitat for GGS. These areas are subject to repeated disturbance on a regular basis. The field was disced in approximately 2010 to facilitate planting of safflower, and in 2013 rice was grown in the field. The field was disced prior to the May 2016 biological fieldwork. Given this episodic disturbance it is unlikely that this area provides suitable higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season.

The detention basin was designed to handle storm water runoff for the business park, including the 11.15 acre project site. The proposed Project considers two stormwater drainage alignments to connect to HLDET7. The first alignment follows the future Wallace Street alignment and

connects directly to the detention basin (Figure 2). The second alignment parallels Margurite Street south to Ella Street where it connects to the existing underground storm drain pipes and infrastructure in Ella Street. The pipes in Ella Street drain east towards Husted Road. Stormwater then flows north via an open ditch into HLDET7.

The first alignment results in construction impacts to suitable upland and aquatic GGS habitat. The first alignment would excavate a temporary ditch to the west side of HLDET7. Two 48" reinforced concrete pipe (RCP) culverts would convey flows under an existing gas line. Culverts would convey flows underneath an existing perimeter farm ditch into the shallow portion of HLDET7. A ditch would be excavated in HLDET7 to direct flows to the deep portion of the basin. The deep section is continuously inundated; the shallow section is seasonally inundated. A back flow device (e.g. flap gate) may be installed in the ditch to prevent high water in the detention basin from backing up into the ditch. The temporary ditch may contain water during some or most of the year. The ditch may become suitable GGS aquatic habitat. As the business park is developed, the wet and dry utilities would be installed in the ditch and the ditch backfilled to make way for construction of future Wallace Street. The length of the ditch in the detention basin is approximately 375 ft long. Only the construction of the ditch in the basin could impact GGS. The use and operation of the ditch will not impact GGS.

The second alignment avoids work in suitable GGS habitat. If selected the second alignment would not result in impact to GGS and no mitigation would be required.

Construction of the first alignment would result in permanent and temporary impact to upland and aquatic GGS habitat. Implementation of mitigation measure BIO-1 below would reduce potential project impact to less than significant.

Mitigation Measure. Giant garter snake is state and federal listed. Incidental take of GGS require take authorization from CDFW and USFWS.

BIO-1

- Prior to the issuance of a grading permit for work in the detention basin, the project proponent shall demonstrate to the City that State and Federal endangered species act compliance has been satisfied. USFWS may authorize take of GGS through the issuance of a Biological Opinion with an Incidental Take Statement at the conclusion of formal endangered species act consultation. Take authorization from CDFW is through one of two processes, through the issuance of a 2080.1. California Endangered Species Act (CESA) Consistency Determination or a 2081 CESA Incidental Take Permit.
- Mitigation for permanent impacts of GGS aquatic and upland habitat will be based on the programmatic biological opinion's mitigation ratios, namely 3:1 for permanent impacts to aquatic habitat and 1:1 for permanent upland impacts. Temporarily affected areas will be restored to their pre-project conditions. Restored habitat will be monitored for a period of one year following implementation. A monitoring report will be submitted to the USFWS one year after completion of the restoration implementation. The project proponent will mitigate impacts to GGS habitat through the purchase of USFWS and CDFW approved GGS mitigation credits.

Level of Significance after Mitigation. Implementation of BIO-1 will reduce potential impacts to less than significant.

Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code: CA Fish and Game Code §3503 protects most birds and their nests. CA Fish and Game Code §3503.5 further protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) also protects most birds and their nests, including most non-migratory birds in California. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

The Project area provides potential nesting sites for birds listed under the MBTA and regulated by CA Fish and Game Code. Depending on the species, birds may nest on trees, shrubs, in or on the ground, and on artificial structures such as buildings, poles, and signs. Implementation of mitigation measure BIO-2 below would reduce potential project impact to less than significant.

Mitigation Measure

BIO-2

Under the MBTA, nests that contain eggs or unfledged young are not to be disturbed during the breeding season. Nesting or attempted nesting by migratory birds and birds-of-prey is anticipated from 15 February to 1 September.

Birds of Prey and Birds Protected by the Migratory Bird Treaty Act

- If construction begins outside the 15 February to 1 September breeding season, there will be no need to conduct a preconstruction survey for active nests.
- If applicable, trees scheduled for removal should be removed during the non-breeding season from 1 September to 31 January.
- If construction is scheduled to begin between 15 February and 1 September, a biologist shall conduct a survey for active bird of prey nests within 250 ft and active MTBA bird nests within 100 ft of the Project area from publicly accessible areas within one week prior to construction. The measures listed below shall be implemented based on the survey results.

No Active Nests Found:

- If no active nest of a bird of prey, MBTA bird, or other CDFW protected bird is found, then no further avoidance and minimization measures are necessary.

Active Nests Found:

- If an active nest of a bird of prey, MBTA bird, or other CDFW protected bird is discovered that may be adversely affected by construction activities or an injured or killed bird is found, immediately:
    1. Stop all work within a 100-ft radius of the discovery.
    2. Notify the Engineer.
    3. Do not resume work within the 100-ft radius until authorized.
- The biologist shall establish a minimum 250-ft Environmentally Sensitive Area (ESA) around the nest if the nest is of a bird of prey, and a minimum 100-ft ESA around the nest if the nest is of an MBTA bird other than a bird of prey.

Bird Species Protection Areas

Protected Bird Type	Size of Protection Area (ESA)
Bird of prey	250 ft no-disturbance buffer
MBTA protected bird (not bird of prey)	100 ft no-disturbance buffer

- Activity in the ESA will be restricted as follows:
    1. Do not enter the ESA unless authorized.
    2. If the ESA is breached, immediately:
        a. Secure the area and stop all operations within 60 feet of the ESA boundary.
        b. Notify the Project Engineer.
    3. If the ESA is damaged, City determines what efforts are necessary to remedy the damage and who performs the remedy.
- No construction activity will be allowed in the ESA until the biologist determines that the nest is no longer active, or unless monitoring determines that a smaller ESA will protect the active nest.
- The size of an ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the active nest is occurring. Reduction of ESA size depends on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific factors.
- Between 15 February and 1 September, if additional trees or shrubs need to be trimmed and/or removed after construction has started, a survey will be conducted for active nests in the area to be affected. If an active nest is found, the above measures will be implemented.
- If an active nest is identified in or adjacent to the construction zone after construction has started, the above measures will be implemented to ensure construction is not causing disturbance to the nest.

Level of Significance after Mitigation. Implementation of BIO-2 will reduce potential impacts to less than significant.

Burrowing owl (*Athene cunicularia*): Burrowing owls primarily inhabit open, dry grassland and desert habitats, such as grasses, forbs, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Main habitat components include burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation. Burrowing owls most commonly use ground squirrel burrows, but may also use badger, coyote, and fox holes or dens; or human-made structures such as culverts, piles of concrete rubble, pipes and nest boxes. Burrowing owls are a semi-colonial species that breed in California from March through August, though breeding can begin as early as February and extend into December. CDFW has designated burrowing owl a State species of special concern, with emphasis on burrow sites, and also winter observations in San Francisco, Ventura, Sonoma, Marin, Napa, and Santa Cruz counties (CDFW 2016).

The Project area provides potential nesting and foraging habitat for burrowing owl. Rodent burrows occur outside the Project area, primarily on farm road margins and the banks of the GCID canal. Farm roads are considered ruderal/disturbed habitat and occur on the southern border of the potential staging area and traverse the proposed drainage ditch alignment. Multiple burrows occurred on the banks of the GCID canal north of the Project area. No sign of burrowing owl was observed on any of the burrows. No burrowing owls were observed during the fieldwork. No burrows were observed in the field. The Project area is not currently occupied by burrowing owl but could become occupied prior to Project construction.

Mitigation Measure

BIO-3

A qualified biologist will conduct Take Avoidance Surveys in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). An initial Take Avoidance Survey will be conducted no less than 14 days prior to initiating ground disturbance activities and a final survey will be conducted within 24 hours prior to ground disturbance.

The preconstruction survey for burrowing owls will include all potential burrowing owl habitat within 500 ft of the project. Portions of the survey area located on private land will be surveyed from all publicly accessible areas.

If active burrowing owl burrows are found, the following measures shall be implemented:

- During the non-breeding season (1 September through 31 January), the biologist shall establish a 160 ft ESA around the burrow. During the breeding season (1 February through 31 August), the biologist shall establish a 250 ft ESA around the burrow in consultation with CDFW.
- The size of the ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the burrowing owl is occurring. Reduction of ESA size depends on the location of the burrow relative to the project, project activities during the time the burrow is active, and other project-specific factors.

- If the burrow is located within the construction zone and it is during the non-breeding season, the burrowing owl can be passively excluded from the burrow using one-way doors, as described in the Exclusion Plan of Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW 2012).
- If the burrow is located within the construction zone and it is during the breeding season, the burrowing owl can only be passively excluded if it has been confirmed that the owl has not begun egg laying and incubation, the clutch was unsuccessful, or juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Level of Significance after Mitigation. Implementation of BIO-3 will reduce potential impacts to less than significant.

Swainson's Hawk (*Buteo swainsoni*): Swainson's hawk is state listed as threatened (CDFW 2016). Swainson's hawks breed from late March to late August, with peak activity late May through July. Between two to four eggs are incubated for 25 to 28 days (CWHR 2016). In a typical year, post-fledging occurs between 10 June and 30 July. Swainson's hawk young are active and visible, and relatively safe without parental protection (Swainson's Hawk TAC 2000).

Throughout its range, Swainson's hawks nest almost exclusively in trees. Nesting habitat includes stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Nests are built on a platform of sticks, bark, and fresh leaves in a tree, bush, or utility pole from 4 to 100 feet above the ground.

Swainson's hawk forage in suitable grain or alfalfa fields, livestock pastures, or grasslands adjacent to nesting areas. They feed on mice, gophers, ground squirrels, rabbits, large arthropods, amphibians, reptiles, birds, and rarely, fish (CWHR 2016). Irrigated agricultural land is preferable foraging habitat to grasslands.

Swainson's hawks is a breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert with very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley (CWHR 2016)

In 2015, Sycamore Environmental conducted a pre-construction survey for nesting birds, including Swainson's hawks, for the SR 20--Margurite Street Connection Project which was adjacent to and overlapping the Project area (Sycamore Environmental 2015). The survey covered the current area of Margurite Street, the eucalyptus trees northwest of the Project area and the GCID canal north of the Project area. No Swainson's hawk were observed.

The Project area does not provide nesting habitat for Swainson's hawk because there are no trees. CDFW is concerned with the potential impacts of projects within 0.5 mile of an active Swainson's hawk nest (Swainson's Hawk TAC 2000). Most of the trees within 0.5 mile of the Project area are adjacent to Interstate 5 and the associated connections to SR 20. The closest CNDDB record (mentioned above) is more than 0.5 miles from the Project area.

The Project area does provide marginally suitable Swainson's hawk foraging habitat. Foraging habitat is suitable because it is part of a large contiguous area of high quality foraging habitat. The Project site has had some disturbance from the construction activities related to the SR 20--

Margurite Street Connection Project. The Project area has not been irrigated since 2013 and provides marginally suitable foraging habitat.

Mitigation Measure

BIO-4

- A preconstruction survey for nesting Swainson's hawk will be conducted and will be timed in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys In California's Central Valley* (Swainson's Hawk TAC 2000). The survey area will include the Project area and a 0.25 mile radius around the Project area. Portions of the survey area located on private land will be surveyed from publicly accessible areas. If a nesting Swainson's hawk is found within 0.25 mile of the Project area, CDFW will be contacted to confirm monitoring and avoidance buffers.

Level of Significance after Mitigation. Implementation of BIO-4 will reduce potential impacts to less than significant.

White-tailed kite (*Elanus leucurus*): White-tailed kite is a fully protected species by CDFW. White-tailed kites occur in herbaceous and open stages of most habitats in cismontane California. Areas with substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. White-tailed kites breed from February to October, with peak activity occurring from May to August. Nests are typically located near the top of dense oak, willow, or other tree stands from 20 to 100 ft above the ground, and are often located near an open foraging area with a dense population of voles (CWHR 2016). Nesting sites are of concern to CDFW (2016).

The Project area does not provide nesting habitat for white-tailed kite as no trees are present. The Project area does provides suitable foraging habitat for white-tailed kite.

Mitigation Measure. Implementation of BIO-2 will reduce potential impact to White-tailed kite also.

Level of Significance after Mitigation. Implementation of BIO-2 will reduce potential impacts to less than significant.

(b) Evaluation of Special Status Plant Species

The Project area contain habitat for the following special status plant species:

- Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*): Annual herb found on often serpentinite soils of chaparral, cismontane woodland, and valley and foothill grassland from 970 to 2,300 ft in elevation. Blooms March through June (CNPS 2016).
- Brittlescale (*Atriplex depressa*): Brittlescale is an annual herb found in alkaline, clay soils of chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools from 3 to 1,050 ft in elevation. This species blooms from April through October (CNPS 2016).
- Pappose tarplant (*Centromadia parryi* ssp. *parryi*): Pappose tarplant is an annual herb found in often alkaline conditions of chaparral, coastal prairie, meadows and seeps,

coastal salt marshes and swamps, and vernally mesic valley and foothill grasslands from 0 to 1,378 ft in elevation. This species blooms from May through November (CNPS 2016).

- Palmate-bracted bird's-beak (*Chloropyron palmatum*): Palmate-bracted bird's-beak is an annual hemiparisitic herb found in alkaline soils of chenopod scrub and valley and foothill grassland from 15 to 510 ft in elevation. This species blooms from May through October (CNPS 2016).
- San Joaquin spearscale (*Extriplex joaquinana*): San Joaquin spearscale is an annual herb found in alkaline soils of chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 3 to 2,740 ft in elevation. This species blooms from April through October (CNPS 2016).
- Water star-grass (*Heteranthera dubia*): Perennial herb found usually in slightly eutrophic waters of marshes and swamps (alkaline, still or slow-moving water) and requires a pH of 7 or higher. Found in elevations between 98 and 4,905 ft. Blooms July through October (CNPS 2016). This species has also been collected and positively identified in May (Jepson eFlora 2016). Water star grass is a perennial herb with distinctly long leaves that grow submerged in water that are evident year round.

Botanical surveys of the Project area were conducted on 9 March and 11 May 2016. A floristic botanical survey was conducted in accordance with CDFW (2009) protocol. Approximately 9 person-hours were spent on-site during the two surveys. The botanical surveys consisted of walking through the Project area systematically to look for all vascular plants present. Approximately 3 person-hour were spent keying specimens that were collected in the field, to verify or determine the identification. No special-status plant species were observed in the Project area. No impact will occur and no mitigation is needed.

4.4.7.2 Substantial Adverse Effect on Riparian Habitat or Other Sensitive Natural Community

Threshold: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

<u>Impact: The proposed Project has the potential to impact a potential sensitive community.</u>

Within HLDET7, the suitable aquatic and upland habitat for GGS is considered to be a sensitive community. As discussed in section 4.4.7.1(a) above, drainage improvements for the Project may follow one of two alignments. The first alignment results in construction impacts to suitable upland and aquatic GGS habitat, a sensitive community. The first alignment would excavate a temporary ditch to the west side of HLDET7. Two 48inch diameter reinforced concrete pipe (RCP) culverts would convey flows under an existing gas line. Culverts would convey flows underneath an existing perimeter farm ditch into the shallow portion of HLDET7. A ditch would be excavated in HLDET7to direct flows to the deep portion of the basin. The second alignment avoids work in suitable GGS habitat and if implemented would not result in impact to GGS and no mitigation would be required.

Construction of the first alignment would result in permanent and temporary impacts to upland and aquatic GGS habitat, a sensitive community. Implementation of mitigation measure BIO-1 for GGS will also mitigate impacts to this sensitive community.

Level of Significance after Mitigation. Implementation of BIO-1 will reduce potential impacts to less than significant.

4.4.7.3 A Substantial Adverse Effect on Federally Protected Wetlands

Threshold: 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?

<u>Impact: Project construction could result in permanent and temporary impact to a potential Section 404, Clean Water Act feature.</u>

The HLDET7, as identified in the Storm Drainage Master Plan (City of Williams 2007), is located partially within the Project area. HLDET7 was constructed in 2008-2009 in an agricultural field. The basin has a surface area of 29.2 ac and a capacity of 101 acre feet. The detention basin is considered to have non-interruptible outlet facilities and have been sized for inflow from a 100-year 24-hour storm (developed conditions) with outflows limited to rates that are consistent with existing conditions.

HLDET7 was excavated in an upland area within an agricultural field in 2008-2009. In 2013 the NRCS determined that the agricultural fields surrounding HLDET7 were non-wetlands in accordance with 7 CFR 12.5-b.

In April 2015 the U.S. Army Corps of Engineers verified that the GCID canal is a Section 404 jurisdictional feature. The GCID canal occurs adjacent to HLDET7. During high capacity periods, HLDET7 would drain to the GCID canal. The basin may be subject to Section 404 of Clean Water Act.

As discussed in section 4.4.7.1(a) above, drainage improvements for the Project may follow one of two alignments. The first alignment results in construction impacts to HLDET7, a potential Section 404 jurisdictional feature. The second alignment avoids work in HLDET7. If implemented, the second alignment would not result in impacts to a potential Section 404, Clean Water Act feature and no mitigation would be required.

Construction of the first alignment would result in permanent and temporary impact to a potential Section 404, Clean Water Act feature.

Mitigation Measure. Implementation of mitigation measure BIO-1 would reduce potential Section 404, Clean Water Act impacts to less than significant.

Level of Significance after Mitigation. Implementation of BIO-1 will reduce potential impacts to less than significant.

4.4.8. Cumulative Impacts

Cumulative impacts refer to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Cumulative projects are identified in section 2.8. The proposed Project would not have potentially significant impacts to special status plant species, habitat fragmentation, wildlife movement, local policies and ordinances, or habitat conservation plans. The long-term value of wildlife corridors is highly dependent on the health of the adjacent landscape and large patches of native vegetation. As previously stated, the Project site is surrounded by developed urban uses, infrastructure and roadways and highly properties to the west and south, and highly managed agricultural lands (mainly rice production) to the north and east.

The Project site contains habitat suitable for sensitive species including:

- Giant Garter Snake (*Thamnophis gigas*)
- Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code:
- Burrowing owl (*Athene cunicularia*)
- Swainson's Hawk (*Buteo swainsoni*)
- White-tailed kite (*Elanus leucurus*)

As discussed in section 4.4.7.1(a) above, drainage improvements for the Project may follow one of two alignments. The first alignment results in construction impacts to HLDET7, a potential Section 404 jurisdictional feature. The second alignment avoids work in HLDET7. If implemented, the second alignment would not result in impacts to a potential Section 404, Clean Water Act feature and no mitigation would be required.

Construction of the first alignment would result in permanent and temporary impact to a potential Section 404, Clean Water Act feature. Implementation of mitigation measure BIO-1 would reduce potential Section 404, Clean Water Act impacts to less than significant.

Although the proposed Project would create a potentially significant impact related to the species listed above, such impacts are reduced to a less than significant level with implementation of mitigation measures BIO-1, BIO-2, BIO-3, and BIO-4. There are no projects that would, in combination with the proposed Project, produce a significant impact to jurisdictional waters or non-listed sensitive species. Therefore, there are no significant cumulative impacts anticipated to occur that are associated with biological resources.

4.5. Cultural Resources

This section evaluates the proposed Project's potential impacts on archaeological, historical, and paleontological resources. Resources of concern include, but are not limited to, prehistoric and historic artifacts, burials, sites of religious or cultural significance to Native American groups, and historic structures. This section provides a detailed discussion of impacts potentially attributable to the proposed project, and criteria used to determine impact significance to cultural resources.

The analysis contained in this section is based on the following reference documents:

- Archaeological Survey Report (ASR) for the Love's Country Store Project, Williams, California (Far Western 2016) (Appendix D Separately Bound Confidential Document)
- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.5.1. Existing Setting

The Project area is entirely on the floor of the western Sacramento Valley. This area was the ethnographic home of the Patwin. This section briefly describes the natural setting of the project area, ethnography of the pre-European occupants of northern Colusa County, prehistoric record of the region, and post-contact history and is taken from Far Western (2016).

4.5.1.1 Vegetation

Non-tidal marshlands in the Sacramento Valley formed a continuous strip along the Sacramento River to approximately the modern town of Willows. In addition to the Sacramento River, all of the major watercourses draining the Sierra Nevada and Cascade Range, including the Cosumnes, American, Yuba, and Feather rivers, were largely or partially flanked by broad gallery forests. Modern estimates suggest that as much as 364,000 acres of the Sacramento Valley was once covered by distinct riparian vegetation including valley oak woodlands and river-bank forests. While these communities would have been found east of the project area, they would have represented the most resource-rich habitats in the region and therefore exerted a strong influence on prehistoric settlement.

Farther from the rivers and streams, oak woodlands formed uniform tracts up to two to four miles wide, consisting almost exclusively of valley oak. These forests were more common on the eastern side of the valley and often created a dense canopy. The underlying savanna was open, carpeted by native bunch and annual grasses including abundant wild rye. A sparse understory in the oak woodland also included poison oak, elderberry, buckeye, and wild rose.

Large expanses of the valley between the oak savanna and the lower foothills were blanketed by open grassland of the California prairie. Covering much of the deep alluvial fans and floodplains along the valley margins, the pristine Central Valley prairie formed a thick mat of annual and perennial grasses.

4.5.1.2 Sacramento Valley Fauna

Among the most prominent mammals in the Sacramento Valley were tule elk, pronghorn, and black-tailed deer. Early historical accounts suggest that elk were common in all habitats on the valley floor. Historically, the valley is estimated to have had one of the largest populations of pronghorn in North America. Black-tailed deer would have been most common in the riparian forests and oak woodlands, but reached highest densities in the chaparral and woodlands of the surrounding foothills.

Grizzly bear were once common throughout the Sacramento Valley, as were black bears. Puma, gray fox, bobcat, and coyote were the principal carnivores, along with badger, spotted skunk, and striped skunk. A host of other smaller mammals were common in the riparian and woodland communities including beaver, weasel, mink, and river otter, as well as raccoon, ringtail, grey squirrel, ground squirrel, woodrat, cottontail rabbit, and brush rabbit.

Marsh, grassland, and riparian habitats were home to resident waterfowl such as duck, coot, cormorant, grebes, herons, cranes, egrets, and gulls. Between about November and February, enormous flocks of waterfowl migrating along the Pacific Flyway arrived in the Sacramento Valley. These included as many as 39 different species of ducks, geese, brants, and swans. Although much reduced from the historic period, modern single season population counts of migratory waterfowl reach as many as 335,000 individuals. In the spring, these species migrate as far north as Alaska and the Bering Strait to breed. A diverse resident avifauna was also present historically in the Sacramento Valley, composed primarily of hawks, eagles, doves, quail, flicker, woodpeckers, various other accipiters, owls, turkey vulture, and numerous passerine (i.e., perching) birds.

Open channels and lentic habitats of the river system each supported different types of fishes. In the open fast-moving waters of the rivers and larger streams were found resident hardhead and sculpins. Sacramento sucker and western pike-minnow were common in both fast- and slow-water habitats, while the calmer waters of the Delta and rivers were home to splittail, hitch, thick tail chub, Sacramento blackfish, Sacramento perch, and tule perch.

While all five species of Pacific west coast salmon are known from the Sacramento Valley, Chinook salmon is the principal species. Four large runs of Chinook occurred annually in the Sacramento-San Joaquin system, with fall and spring runs the most significant. It is estimated that each year, Native American fishers in the Central Valley harvested upwards of 8.5 million pounds of salmon. Other economically important anadromous fishes in the river system included white and green sturgeon, Pacific lamprey, and steelhead rainbow trout. Aquatic environments also supported pond turtle and populations of freshwater mussel including ridged mussel and pearl mussel.

4.5.1.3 Prehistory

The archaeological record of the Sacramento Valley is complicated by a variety of factors, some caused by geomorphic processes and others resulting from the high degree of cultural diversity that characterized much of northern California deep into prehistory. As a result of geomorphic processes in the commonly flooded Sacramento River Valley, there is a lack of appreciable

material pre-dating 4300 calibrated years Before the Present (cal BP) from the lowlands, and information about the post-4300 cal BP record is relatively sparse when compared to the surrounding foothill and mountainous areas. Below is a brief list and summary of the various periods in prehistory:

- **Paleoindian Period (13,500–10,000 cal BP):** The earliest evidence of human occupation in north-central California comes from isolated projectile points found in just a few locations adjacent to the Sacramento Valley.
- **Lower Archaic Period (10,000–7500 cal BP)**: More definitive evidence of human occupation in the Sacramento Valley region emerges after 9000 cal BP, but not within the valley itself.
- **Middle Archaic (7500–2500 cal BP):** Little is known about what Meyer and Rosenthal (2008) call the Early Middle Archaic (7500 to 5000 cal BP), as no sites dating to this interval have ever been excavated in local valley settings.
- **Upper Archaic (2500–1000 cal BP):** Although not matching up precisely with the Middle-Upper Archaic boundary defined by Rosenthal et al. (2007), the Sacramento Valley sequence shows a major break in the archaeological record at about 3000 cal BP.
- **Emergent (Post-1000 cal BP):** Many significant changes took place throughout northern California by the Emergent Period, increasing the cultural complexity and diversity of the region.

4.5.1.4 Ethnography

Several ethno-historical and ethnographic accounts provide descriptions of the Patwin. The Patwin lived in small tribelets consisting of a primary village and several smaller associated hamlets. Each village was under the direction of an ascribed-status, patrilineal chief. Numerous village locations are reported for the Patwin (Johnson 1978). In the Sacramento Valley, villages were along the Sacramento River and its major tributaries along the eastern and southern slopes of the Coast Ranges, including Putah, Ulatis, and Suisun Creeks. The Patwin hunted deer, pronghorn, elk, rabbit, and various species of fish and birds for food. Other animals, including most raptors and carnivores, were not eaten but hunted for their feathers or pelts which were used in ceremonial regalia or for utilitarian purposes. Acorns were a staple and were gathered mainly from valley oak, leached in a sand basin, pulverized in a mortar, and baked into bread in a leaf-lined pit. Freshwater mussels were collected along the banks of major streams, as were blackberries, wild grapes, and tule roots. Brodiaea bulbs were also collected.

4.5.1.5 Historical Context

Early History: The first documented non-native visitors to the Sacramento Valley region were largely sponsored by the Spanish military. An 1808 expedition, led by Spanish Army Lieutenant Moraga, marked one of the earliest contacts between European and Native American cultural groups in the area. In 1821, Captain Luis Antonio Arguello directed one of the first expeditions to what is now Glenn County to confirm the presence of rumored Caucasian settlements in the valley. Both Moraga's and Arguello's travels provide some of the earliest records of the Patwin people prior to outbreaks of disease and Euro-American colonization.

In addition to the Spanish military, several trading and fur trapping parties reached the Sacramento Valley area in the nineteenth century. Jedediah Smith of the Rocky Mountain Fur Company, Ewing Young, and several parties sponsored by the Hudson's Bay Company passed through the region between the late 1820s and early 1830s. Through their movements, the trappers not only succumbed to the malaria and smallpox outbreaks in the 1830s, but they spread the diseases to native communities, decimating Nomlaki, Konkow, and Patwin populations.

Native peoples suffered further atrocities in the 1840s through forced removal and confinement to reservations, and by enduring frequent attacks and raids by early American colonists. In the 1850s, following the transfer of California from the Mexican Government to the United States, the Gold Rush brought a flood of immigrants and Americans to the Sacramento Valley which fueled the development of the new state and establishment of county governments.

Colusa County and the City of Williams: Initial Caucasian settlement in Colusa County was the result of two land grants awarded to John Bidwell by the Mexican Government in 1844, though there were conflicts with these and other grants that had been previously awarded. The City of Colusa was founded in 1869 as an ideal location for the control of river commerce at what was perceived to be the northernmost portion of the Sacramento River that could be used for commercial shipping. Early on, Colusa County was deemed fit only for raising and grazing stock animals. However, by the founding of the City of Colusa, wheat and barley were both grown with regularity. During the 1850s the town of Colusa grew rapidly, serving as a waystation for goods, people, and livestock on their way north to the mines of Shasta County.

Colusi County' was created by the first California Legislature in 1850, but was attached to Butte County for judicial purposes. As originally defined, it included an area now incorporating Glenn, Colusa, and Tehama Counties. Glenn and Tehama Counties were split from the larger Colusi County in 1891, with the remaining area renamed Colusa County.

Williams was founded in the early 1850s as "Central," located south of the current boundaries of the city. It was renamed after W. H. Williams, one of the original white settlers, in 1876. The town began to flourish in 1877 with the construction of the Northern Railroad connecting Williams with Woodland and other cities to the south. Early growth was spurred by the popularity of mineral springs west of town, which drew people throughout the spring and summer. Initially farmers grew barley and wheat, but dry land farming gave way to irrigated crops such as fruit and rice.

Glenn-Colusa Irrigation District: A more detailed history of the Glenn-Colusa Irrigation District is provided here since the lone historic-era property in the study area is a secondary ditch belonging to the district. The irrigation district has its origins in the Central Irrigation District, which was organized in November 1887. This district incorporated 156,550 acres of Colusi County and over the next 20 years there were several attempts to complete the construction of a proposed Central Canal, which was designed to draw water from the Sacramento River near the border of modern day Glenn and Tehama Counties and was to run southwesterly past Willows to Cortina Creek, just south of Williams. The Central Irrigation District never completed the project and the Central Canal and all other Central Irrigation District properties were eventually sold to the Sacramento Valley Irrigation Company, which

completed the project after becoming a public utility. It was not until after the turn of the century that water began to flow through the canal, irrigating sections of Glenn and Colusa Counties close to the Sacramento River. After several court cases regarding water rights issues on and off land owned by the Sacramento Valley Irrigation Company, it was ruled that as a public utility, all farmers in the region had a right to water and that the best solution to ongoing disputes was for the companies to be made into a larger irrigation district. The Glenn-Colusa Irrigation district was the result of this litigation and was formed in 1920 and has continued to operate for nearly a century.

The Williams District Prior to Incorporation: The irrigated lands around Williams were incorporated into the system when the Williams Irrigation District was folded into the larger Glenn-Colusa district in 1924. This system was formed only four years earlier, but unlike many other districts in the area, was nearly completely built at the time of formation. Rather than drawing from the Sacramento River, the water was taken from the Colusa Basin. The system was commissioned when prices for rice were at an early-century peak, but shortly before it opened these prices crashed and the system was shut down in 1923.

4.5.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding cultural resources.

4.5.3. Existing Policies and Regulations

4.5.3.1 Federal Regulations

National Historic Preservation Act (NHPA) of 1966 (as amended), Section 106. The NHPA established the National Register of Historic Places (National Register), State Historic Preservation Offices (SHPOs) and programs, and the Advisory Council on Historic Preservation. The NHPA applies to all properties on or eligible for inclusion in the National Register. The Section 106 review process requires consultation to mitigate damage to "historic properties" (defined per 36 CFR 800.16[1] as places that qualify for the National Register), including Native American traditional cultural places (TCPs). Evaluation of cultural resources consists of determining whether it is significant (i.e., whether it meets one or more of the criteria for listing in the National Register). Eligibility criteria are defined in 36 CFR 60.4 and include:

> National Register Criteria for Evaluation: The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association:
>
> 1. That is associated with events that have made a significant contribution to the broad patterns of our history;
> 2. That is associated with the lives of persons significant in our past;
> 3. That embodies the distinctive characteristics of a type, period or method of construction, or that represents the work of a master, or possesses high artistic values,

or that represents a significant and distinguishable entity whose components may lack individual distinction; and/or

4. That has yielded, or may be likely to yield, information important to prehistory or history.

4.5.3.2 State Regulations

California Environmental Quality Act. A "historical resource" includes, but is not limited to, any object, building, site, area, place, record, or manuscript that is historically or archaeologically significant or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. CEQA mandates that lead agencies consider a resource "historically significant" if it meets the criteria for listing in the California Register of Historical Resources (California Register). The criteria mirror the criteria utilized to determine eligibility for the National Register. Such resources meet this requirement if they:

(1) are associated with events that have made a significant contribution to the broad patterns of California history,

(2) are associated with the lives of important persons in the past,

(3) embody distinctive characteristics of a type, period, region, or method of construction, and/or

(4) represent the work of an important creative individual or possesses high artistic value.

In addition, CEQA Guidelines Section 15064.5(f) recognizes that historical or unique archaeological resources other than potential Native American burials may be accidentally discovered during project construction. Section 15064.5(f) recommends that if any such resources are found, immediate evaluation defined by qualified archaeologists be included in mitigation measures. This guideline also recommends that if the find is determined to be a historical or unique archaeological resource, that contingency funding and time allotments sufficient to allow for implementation and avoidance measures be available.

Senate Bill 18. Signed into law in September 2004, and effective March 1, 2005, Senate Bill 18 (SB 18) permits California Native American tribes recognized by the Native American Heritage Commission (NAHC) to hold conservation easements on terms mutually satisfactory to the tribe and the landowner. The term "California Native American tribe" is defined as "a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC."

The bill also requires that, prior to the adoption or amendment of a city or county's General Plan, the city or county consult with California Native American tribes for the purpose of preserving specified places, features, and objects located within the city or county's jurisdiction. SB 18 also applies to the adoption or amendment of specific plans. This bill requires the planning agency to refer to the California Native American tribes specified by the NAHC and to provide them with opportunities for involvement.

California Health and Safety Code. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority, and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur.

4.5.3.3 Local Regulations

There are no City ordinances related to cultural resources.

4.5.4. Methodology

4.5.4.1 Records Search

A records search of the Northwest Information Center of the California Historic Resources Information System at Sonoma State University, Rohnert Park, was conducted on7 January 2016. The records search included a one-quarter-mile buffer around the Project area. The records search included a review of the following sources:

- National Register of Historic Places
- California Office of Historic Preservation Historic Properties and Archaeological
- Determinations of eligibility Data Files
- California Inventory of Historic Resources
- Caltrans Bridge Survey
- Plat Maps
- 1907 Colusa USGS 15-minute topographic map
- 1942 Colusa USGS 15-minute topographic map

No cultural resources were identified within the Project area or the one-quarter-mile buffer. One previous survey and two regional studies were identified. In addition, Caltrans District 3 has provided information on an archaeological survey that is not on file at the Information Center and documentation of cultural studies from two recent projects that required compliance with CEQA were provided to Far Western by the City of Williams.

(a) Previous Archaeological Studies

Only one previous study included portions of the Project area. This was a cultural resources survey undertaken by Far Western in support of the Margurite Street connector project. Additional studies included a report for a Caltrans improvement project, a survey within one-quarter mile of the project area by True (1980), and three CEQA cultural resources studies for projects to the east and south of the current Project area. Two additional studies included Williams or Colusa County, but neither of these provides any information specific to the project area. None of these studies identify cultural resources within the project area or the records search buffer. Three CEQA studies for projects adjacent to the Project area were carried out in

the past three years, but are not on file at the Information Center. No cultural resources were identified in any of these studies.

(b) Previously Recorded Resources

There are no previously recorded resources within the Project area or the one-quarter-mile records search buffer.

(c) Native American Interested Parties

On January 26, 2016, the Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American sacred lands within the Project area. On February 2, 2016, the Commission responded, indicating that they have no knowledge of Native American resources within the project site and provided a list of individuals/organizations to consult with further. Consultation letters were sent to James Kinter of the Yocha Dehe Wintun Nation, and to the Colusa Indian Community Council, Cachil Dehe Band of the Wintun Nation, on February 22, 2016.

Replies were received from each interested party. The Yocha Dehe representative requested a copy of the final cultural resources report and clarification of whether there has been any subsurface testing. The Cachil Dehe requested a copy of the final cultural resources report, future environmental assessment documents, and to be notified if there are any Native American cultural resources in the area or if any such are discovered.

(d) Other Interested Parties

On February 22, 2016, Far Western sent an email to Mr. Charles Yerxa, president of the Colusi Historical Society, requesting information on the project area. No reply was received.

4.5.4.2 Geoarchaeological Sensitivity Study

The Project area was studied as part of the Caltrans District 3 Transportation Enhancement Act geoarchaeological sensitivity study (Meyer and Rosenthal 2008). This study included a review of background literature on the geologic, paleoclimatic, and hydrological records of Colusa County, the identification of buried soils, and a detailed buried archaeological site sensitivity study.

Review of the geological literature and the results of field studies indicate that the geomorphic landscape in Central California has changed significantly during the span of human occupation. In the Sacramento Valley and lower Coast Range and Sierra-Cascade foothills, major landscape changes during the Holocene have included: (1) partial erosion and truncation of Latest Pleistocene and older surfaces; (2) subsequent burial of Latest Pleistocene and Early Holocene surfaces on fans and floodplains during the Early and Middle Holocene; (3) partial erosion and removal of Early Holocene floodplains; (4) subsequent deposition and periodic stability of floodplains during the Middle and Late Holocene; and (5) deposition of alluvium on portions of most lowland floodplains during the Latest Holocene.

These landscape changes have clearly affected the ability of archaeologists to identify and sample deposits from the Early and Middle Holocene. Two-thirds of the radiocarbon-dated sites from the Sacramento Valley are associated with Late Holocene surface landforms (Meyer and

Rosenthal 2008). As a result, the current record of human occupation is overwhelmed by sites dating no more than a few thousand years old. While sites from earlier time periods are recognized on the surface of older landforms in central California, they are also commonly found associated with buried Middle and Early Holocene-age soils. Late Holocene sites, too, regularly occur in buried contexts, revealing that even the most recent record of human occupation has been partially obscured by changes to the geomorphic landscape. These patterns suggest that a significant portion of the archaeological record in Central California is buried, and will not be identified through pedestrian archaeological surveys. Consequently, a primary goal of this study was to identify those landforms likely to contain buried archaeological deposits and those that are either too old (>13,500 cal BP) or too young (<150 cal BP) to contain these resources.

In acknowledging the results of previous research in Central California, it is recognize that buried archaeological deposits are not distributed randomly throughout the landscape, but occur in specific geoenvironmental settings (Rosenthal and Meyer 2004). For example, fans and floodplains consistently contain buried archaeological deposits, indicating some relationship between these landforms and past settlement activities.

Meyer and Rosenthal (2008) sought to develop a general planning tool that would allow for relatively quick assessment of buried site potential at the scale of the landform. While this approach should be relatively accurate in identifying the types of landforms most likely to yield buried archaeological resources, it is not designed to pin-point where, within those landforms, buried sites will be found. That type of assessment is best undertaken on a project-by-project basis.

(a) Buried Site Potential in the Sacramento Valley

On a large scale, the potential for buried archaeological deposits within the Sacramento Valley was determined based on the mapped distribution of different Quaternary-age landforms. Five categories of buried site potential were identified: Very Low; Low; Moderate; High; and Very High. It is easy to justify a Very Low potential for buried sites in landforms dating from the Latest Pleistocene and earlier; these contexts are too old to harbor subsurface archaeological deposits. The potential for discovery of buried sites within Holocene-age landforms was determined based on the age of a particular landform and the probability that any one spot on that landform was occupied at some time in the past. For example, an Early Holocene surface landform can only contain buried sites dating to the Earliest Holocene or Latest Pleistocene (i.e., the Paleoindian and Paleoarchaic periods). Therefore, Early Holocene surface landforms are considered to have a Low potential for buried sites, not because such sites are absent, but simply because the actual probability of finding a buried site in a landform of this age is low. There was a very short 2,000- or 3,000-year window that humans could have occupied any one spot on the landscape during the Latest Pleistocene, and human population densities are thought to have been comparatively low, resulting in fewer site locations.

The same approach applies to the sensitivity of all subsequent Holocene-age landforms. The younger the age of the landform, the higher the likelihood that buried archaeological deposits will be discovered. This results from two main factors: (1) Holocene-age surface landforms in

the study area commonly contain multiple Holocene-age buried soils (i.e., former land surfaces); and (2) within young surface landforms, the aggregate of time represented by Holocene-age buried soils is greater than the aggregate of time represented by buried soils in older surface landforms. Thus, due to the greater length of time, there is a higher probability that an underlying landform was occupied. Also, archaeological deposits from later time periods may be more common overall due to higher population densities. Soils buried later in time, therefore, have a higher probability of containing archaeological materials.

More detailed modeling of specific project areas incorporates other factors making a location attractive to prehistoric peoples and therefore more likely to contain a buried soil. The most important of these factors is proximity to water—even within Late Holocene soils, the sensitivity may be reduced in areas well away from water as sites tend to cluster around streams, ponds, and lakes.

(b) Geoarchaeological Sensitivity for the Love's Country Store

Although the floodplain in this area is composed of Holocene-age alluvium (Willows silty-clay), the potential for buried archaeological sites within the corridor is estimated to be Low to Very Low because most prehistoric sites are situated within 200 meters or less from a known historic-era watercourse (Salt Creek), and the Project corridor lies more than 800 meters away from the Salt Creek channel. As a result, the sensitivity within the project area is Low to Very Low. Areas with Low sensitivity are entirely within the Caltrans right-of-way along SR 20. No subsurface identification efforts are recommended for the project.

4.5.4.3 Pedestrian Survey

A pedestrian survey of the project area was undertaken on February 19, 2016, and March 7, 2016, by a Far Western cultural resources specialist, who used 10-meter-wide transects across the Project area. The field had recently been tilled and visibility was good, with moderate amounts of vegetative growth visible in some areas. All visible ground surfaces were examined for evidence of cultural resources.

4.5.5. Thresholds of Significance

Appendix G of the CEQA Guidelines recognizes the following significance thresholds related to cultural and paleontological resources. Impacts to cultural and paleontological resources could be considered significant if the proposed project:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or
- Result in any disturbance of human remains, including those interred outside of formal cemeteries.

4.5.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.5.6.1 Historical Resources

Threshold: Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

An intensive pedestrian survey and records search were conducted in support of the ASR. No historic resources were discovered in the Project area (Far Western 2016). No eligible built environment resources occur in the Project area (Far Western 2016). No impact will occur and no mitigation is needed.

4.5.6.2 Archaeological Resources

Threshold: Would the proposed project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

An intensive pedestrian survey and records search were conducted in support of the ASR. No historic resources were discovered in the Project area (Far Western 2016). No eligible built environment resources occur in the Project area (Far Western 2016). No impact will occur and no mitigation is needed.

4.5.6.3 Paleontological Resources

Threshold: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The Project site is located in the Great Valley geomorphic province. The Great Valley is geomorphic province in an alluvial plain about 50 mi wide and 400 mi long in the central part of California. It is composed of the Sacramento Valley in the north and the San Joaquin Valley in the south. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago) (CGS 2002).

The Project site is underlain by quaternary basin deposits (alluvium) as shown on the 2010 Geologic Map of California (CDOC 2016). The geologic legend for the map indicates that the basin deposits are primarily from the Holocene epoch (i.e., less than approximately 10,000 years old). The Colusa County Groundwater Management Plan provides a simplified geologic cross-section of Colusa County (Colusa County 2008). The geologic cross-section extends from the Coast Range in the west to the Sutter Butte in the east. Based on the geologic cross-section and the simplified surface geology and faults map in the Colusa County Groundwater Management Plan the Project area is underlain by recent alluvial deposits that are less than 10, 000 years old and range in depth from 0-200 ft. The geologic cross-section indicates that the Project (located adjacent to Interstate 5) area is where the recent alluvial deposits are at the deeper end of the range. The Tehama formation is located beneath the recent alluvial deposits and extends to a depth of approximately 1,000 ft.

A query of the University of California Museum of Paleontology (UCMP) was run to determine if any Quaternary period fossil (invertebrates, vertebrates, micro fossils, and plants) records are known to occur in or near Project Area. A total of 68 fossil records occur in Colusa County. All the records are from either the Jurassic, Cretaceous, or Tertiary periods (approximately 206 to 1.8 million years ago). No Quaternary (1.8 million years ago to present) period fossil records are known to occur in Colusa County.

In general, scientifically significant paleontological resources are geologic sites or sedimentary deposits containing individual fossils or assemblages of fossils that are unique or unusual, are stratigraphically important, and add to the existing body of knowledge in specific areas stratigraphically, taxonomically, or regionally. Recent alluvium less than 10,000 years old can contain remains of once-living things such as bones, shells, and plants. The remains of these once-living organisms require over 10,000 years mineralize. Therefore, remains found in young alluvium are not considered to be "fossils." The Holocene basin deposits are unlikely to contain paleontological resources based on their age (within the last 10,000 years).

During recent excavations for construction of the adjacent Margurite Street extension no paleontological resources were discovered. Maximum depth of excavation for construction of the adjacent Margurite Street extension was approximately 24 ft. Based on this site specific observation along with the information presented above the potential Project impacts to paleontological are considered less than significant and no mitigation is needed.

4.5.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.5.7.1 Human Remains

Threshold: Disturb any human remains, including those interred outside of formal cemeteries?

<u>Impact: The proposed Project has the potential to impact previously undetected human remains.</u>

No human remains were identified within the project area (Far Western 2016). There is the possibility of accidental discoveries of human remains during construction-related ground-disturbing activities. The procedures identified in State Health and Safety Code Section 7050.5 will reduce potential impact. State Health and Safety Code Section 7050.5 requires that if human remains are found no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98.

Mitigation Measures. Compliance with existing State law (Health and Safety Code § 7050.5, Public Resources Code Section 5097.9, and 5097.5) is required of all development projects regarding the disposition of human remains, however, the following mitigation measures are included so the City can monitor compliance with State law and to ensure that the interests of the MLD are respected and that there are no significant impacts related to buried human remains:

CULTURAL-1

- Implement State Health and Safety Code Section 7050.5. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted.

CULTURAL-2

- Implement Public Resources Code Section 5097.9 *et seq*. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Further provisions of PRC 5097.9 *et seq* are to be followed as applicable.

CULTURAL-3

- Implement Public Resources Code Section 5097.5 *et seq*. Pursuant to Public Resources Code Section 5097.5 no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

Level of Significance after Mitigation. Implementation and adherence to CULTURAL-1, -2, and -3 will reduce potential impacts to less than significant.

4.5.8. Cumulative Impacts

The cultural resources cumulative impact area for is Project is the City of Williams. Implementation of the proposed Project would require measures to identify, recover, and/or record any cultural and/or paleontological resource that may occur within the Project limits (CULTURAL-1, -2, and -3). Although unlikely to occur, potential impacts associated with human remains would be reduced to a less than significant level through adherence to existing State law (CULTURAL-1, -2, and -3). There are no other projects that would, in combination with the proposed project, result in any significant cumulative impacts on historical, archaeological, or paleontological resources, or in impacts to human remains. Therefore, the proposed Project would have no significant cumulative impacts associated with cultural resources.

4.6. Tribal Cultural Resources

4.6.1. Existing Setting

No California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project have requested to be notified by the City of Williams pursuant to Assembly Bill (AB) 52.

On January 26, 2016, the Native American Heritage Commission (NAHC) was asked to review the Sacred Lands file for information on Native American sacred lands within the Project area. On February 2, 2016, the Commission responded, indicating that they have no knowledge of Native American resources within the project site and provided a list of individuals/organizations to consult with further. Consultation letters were sent to James Kinter of the Yocha Dehe Wintun Nation and to the Colusa Indian Community Council, Cachil Dehe Band of the Wintun Nation, on February 22, 2016.

Replies were received from each interested party. The Yocha Dehe representative requested a copy of the final cultural resources report and clarification of whether there has been any subsurface testing. The Cachil Dehe requested a copy of the final cultural resources report, future environmental assessment documents, and to be notified if there are any Native American cultural resources in the area or if any are discovered.

4.6.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding tribal cultural resources.

4.6.3. Existing Policies and Regulations

4.6.3.1 Federal Regulations

No federal regulation are applicable to this discussion.

4.6.3.2 State Regulations

The legislature added new requirements regarding tribal cultural resources in Assembly Bill 52. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and Tribal governments, public agencies, and project proponents would have information available, early in the project planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process.

The Public Resources Code now establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." (Pub. Resources Code, § 21084.2.)

To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. That consultation must take place prior to the determination of whether a negative

declaration, mitigated negative declaration, or environmental impact report is required for a project. (Pub. Resources Code, § 21080.3.1.)

If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources.

4.6.3.3 Local Regulations

No local regulation are applicable to this discussion.

4.6.4. Methodology

City staff reviewed its files to determine if any request from any California Native American tribe has requested consultation under AB 52. No such requests were on file.

4.6.5. Thresholds of Significance

Impacts to tribal cultural resources could be considered significant if the proposed project:

- Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?

4.6.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.6.6.1 Substantial Adverse Change in the Significance of a Tribal Cultural Resource

Threshold: Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074.

No California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project have requested to be notified by the City of Williams pursuant to AB 52. No impact will occur and no mitigation is needed.

4.6.7. Significant Impacts

All potential Project impacts to Tribal Cultural Resources have been determined to be less than significant. No significant Tribal Cultural Resources impact would result from the implementation of the proposed Project.

4.6.8. Cumulative Impacts

No cumulative impacts were identified.

4.7. Geology and Soils

This section describes the location of the proposed project relative to the known geologic features, soil conditions, and seismic activity; and qualitatively evaluates potential impacts. Additionally, this chapter evaluates whether development on the proposed project site would significantly be affected by fault rupture, seismic shaking, erosion or unstable slopes, liquefaction, settlement, expansive soils, or other soil or geologic conditions.

The analysis contained in this section is based in part on the following reference documents:

- City of Williams 2012 General Plan, May 2012;
- California Geological Survey, California Dept. of Conservation, Regulatory Maps (www.conservation.ca.gov/cgs/rghm);
- California Geological Society; California Dept. of Conservation, 2010 Fault Activity Map of California (www.quake.ca.gov/maps);
- Earthquakes in the U.S., January – March 1975, United States Geological Survey, Dept. of Interior, 1977;
- Soil Survey of Colusa County, Natural Resources Conservation Service, Dept. of Agriculture, 1999;
- H.T. Harvey & Associates, Final Colusa Basin Watershed Assessment, December 15, 2008
- Terracon Consultants, Inc., Geotechnical Engineering Report, Love's Travel Stop, Southeast Quadrant I-5 and California State Hwy 20, Williams, California, June 29, 2015 Sacramento, CA; (see Appendix E)
- U.S.G.S. Earthquake Hazards Program, 2014 Seismic Hazard Map

4.7.1. Existing Setting

The State of California has identified five areas of critical seismic concern including surface ruptures, ground shaking, ground failure, tsunamis, and seiches. Each of these is caused by earthquake activity thereby creating hazards for life and property, which has the potential anywhere in California. Williams is not at risk for tsunamis or seiches due to its inland location and the absence of nearby large bodies of water.

Geologic and seismic hazards discussed in this subsection include the following:

- **Surface rupture:** Surface rupture occurs where displacement or fissuring occurs along a fault zone. While primary ground damage due to earthquake fault rupture typically results in a relatively small percentage of the total damage in an earthquake, the location of structures or facilities too close to a rupturing fault can cause profound damage. It is difficult to reduce the hazards of surface rupture through structural design. The primary method to avoid this hazard is to either set structures and facilities away from active faults, or avoid their construction in proximity to an active fault. No active faults are

located within the proposed project site; therefore, ground surface rupture is not an identified seismic hazard within the project limits.

- **Ground shaking:** Ground shaking causes the vast majority of earthquake damage. Source effects include earthquake size, location, and distance. The bigger and closer the earthquake is, the more severe the damage will be. The exact way that rocks move along the fault can also influence shaking, as can the orientation of the fault in the ground.

  Path effects are caused by seismic waves that change direction as they travel through the earth's contrasting layers, just as light bounces (reflects) and bends (refracts) as it moves from air to water. Sometimes this can focus seismic energy at one location, and cause damage in unexpected areas.

  Site effects are brought about by seismic waves that slowdown in the loose sediments and weathered rock at the surface of the earth. As they slow, their energy converts from speed to amplitude, which increases shaking. This is identical to the behavior of ocean waves. As the waves slow down near shore, their crests grow higher. Sometimes, too, seismic waves get trapped at the surface and resonate. Whether resonance will occur depends on the period (the length) of the incoming waves. Waves, soils and buildings all have resonant periods. When these match, tremendous damage can occur.

  Seismic shaking can also cause loose, geologically young deposits to become more tightly packed, resulting in a reduction of the soil column, and differential settlement at the ground surface. Several areas in the City are underlain by unconsolidated, young alluvial deposits and artificial fill that may be susceptible to settlement.

  The primary threat associated with the nearby faults previously identified is the intensity of ground shaking that could be generated at the project site.

- **Liquefaction:** Liquefaction is a mode of ground failure that results from the generation of excess pore-water pressures during earthquake ground shaking, causing loss of shear strength. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow, and loose granular soils or relatively non-plastic fine-grained soils are present. The California Geologic Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones.

  These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the likely presence of a relatively shallow water table. Based on the depth of groundwater, the prevalent cohesive soils, and CGS information, the Terracon Geotechnical Report considers that the potential for liquefaction to occur at the site is low (Terracon, 2015). Additionally, per information contained in Chapter 4 of the City's General Plan, Public Services, Safety Element 2, the proposed project site is not located in an area identified as having liquefaction potential.

  Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low. In the event liquefiable soils are present below the maximum 51½-foot depth of exploration, the consequences of one-dimensional settlement may be largely mitigated by the presence of a thick non-liquefied layer above the liquefied soils.

A 10-foot poorly graded sand layer was encountered at 28 feet bgs with corrected blow counts that are non-liquefiable. Furthermore, Terracon reports that the presence of cohesive clay soils (non-liquefiable layer) found beneath the existing ground surface will act as a bridging layer that redistributes stresses and therefore results in more uniform ground surface settlement if there is a deeper liquefiable soil.

Occurs primarily in saturated, loose, fine-to-medium-grained soils in areas where the groundwater table is within 50 feet of the surface. Shaking suddenly causes soils to lose strength and behave as a liquid. Excess water pressure is vented upward through fissures and soil cracks, and a water-soil slurry bubbles onto the ground surface. The resulting features are called "sand boils," "sand blows," or "sand volcanoes." Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and flow failures or slumping. Based on Chapter 4 of the City's General Plan, Public Services, Safety Element 2, the proposed project site is not located in an area identified as having liquefaction potential.

- **Subsidence and seismic settlement:** Ground subsidence is typically a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures (cracks and separations) are common. Subsidence can range from small or local collapses to broad regional lowering of the surface of the earth. The causes of subsidence include:
    - Dewatering of peat or organic soils;
    - Dissolution in limestone aquifers;
    - First-time wetting of moisture-deficient, low-density soils (hydro compaction);
    - Natural compaction;
    - Liquefaction;
    - Crustal deformation;
    - Subterranean mining; and
    - Withdrawal of fluids (groundwater, petroleum, or geothermal).

  Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface (fracking), or the organic decomposition of peat deposits. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet. The project site is potentially susceptible to subsidence hazards due to the physical characteristics of the soil.

- **Landslides/slope stability:** Significant factors that contribute to slope failure include slope height and steepness, shear strength and orientation of weak layers in the underlying geologic units, and pore water pressures. Due to the lack of any natural extreme variations in topography, the project site is not identified as being susceptible to landslide/slope stability hazards (Chapter 4, Public Services, Safety Element 2). Seismically induced slope failure is a common secondary effect of seismic shaking. There are a very few natural slopes in the City that could be vulnerable to this hazard

(Safety Element 2); however, most of the City, including the project site, is relatively level with only gently sloping terrain.

Tsunamis are powerful ocean waves typically generated by undersea earthquakes. Inundation of the project site by a tsunami will not occur as the project site is located approximately 130 miles inland from Fort Bragg, CA, which is located on the Pacific Ocean.

A seiche is a standing wave in an enclosed body of water that is typically generated by ground shaking from an earthquake. The project site is located approximately 40 miles east of Clear Lake, Lake County, CA. Since Clear Lake is an enclosed body of water, Clear Lake could be subject to a seiche during a seismic event. However, the probability that a seiche event would affect the project site is highly unlikely given the many miles distance away.

- **Expansive Soils:** Generally have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The extent of shrink/swell is influenced by the amount and kind of clay in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be widely dispersed, and they can occur in hillside areas as well as low- lying alluvial basins.

Identified earthquake faults located in proximity to the project site include:

- The Sutter Buttes, located approximately 13 miles east of Williams;
- Bartlett Springs fault, which is located in the Coast Ranges of northern California, about 25 miles northwest of Williams;
- The recently mapped northern section of the Hunting Creek fault, which is located approximately 20 miles west of Williams.

4.7.1.1 Geology

The Project site is located in the Great Valley geomorphic province. The Great Valley is a geomorphic province in an alluvial plain about 50 miles wide and 400 miles long in the central part of California. It is composed of the Sacramento Valley in the north and the San Joaquin Valley in the south. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Period (about 160 million years ago) (CGS 2002).

The Project site is underlain by quaternary basin deposits (alluvium) as shown on the 2010 Geologic Map of California (CDOC 2013). The geologic legend for the map indicates that the basin deposits are primarily from the Holocene Epoch (i.e., less than approximately 10,000 years old). The Colusa County Groundwater Management Plan provides a simplified geologic cross-section of Colusa County (Colusa County 2008). The geologic cross-section extends from the Coast Range in the west to the Sutter Buttes in the east. Based on the geologic cross-section and the simplified surface geology and faults map in the Colusa County Groundwater Management Plan, the Project area is underlain by recent alluvial deposits that are less than 10, 000 years old and range in depth from 0-200 feet. The geologic cross-section indicates that the Project (located adjacent to Interstate 5) is within an area is where the recent alluvial deposits are at the

deeper end of the range. The Tehama formation is located beneath the recent alluvial deposits and extends to a depth of approximately 1,000 ft.

4.7.1.2 Soils

The City is built on an alluvial floodplain formed from sedimentary igneous and metamorphic rocks deposited by the Sacramento River and various channels (City of Williams 2012a). The soil is primarily characterized by finely textured, clay soils with slow water infiltration and transmission rates. Rice production is common in these poor drainage conditions, and is a major agricultural crop for the area. In the past, the proposed project area location was used for rice cultivation.

The soils have been assigned to Group D hydrologic group, or high runoff potential soils, that have a high clay content, high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These attributes partly explain the region's agricultural practices.

Soils in the Project area consist of Willows silty clay. The Willows series is a very deep, poorly drained soil that formed from fine-textured alluvium derived from mixed rock sources. Willows silty clay is identified as having the soil strength and shrink-swell limitations that can adversely affect local road construction (NRCS 2006). At varying depths, ponding, wetness, slope, and shrink-swell potential is possible for small commercial buildings (NRCS 2006).

The new construction on the 11.15 acre project site hardscape and pavement sections will have an underlayment of fill, throughout the site. Without engineered fill, there could be a risk of erosion for concrete and uncoated steel (NRCS 2006).

The site landscape plan was prepared in accordance with the City's Design Review process and site permit application. The plan would comply with the criteria for the water efficient landscape ordinance.

No Prime Farmland, or Additional Farmland of Statewide Importance is located in the project area (NRCS 2006).

The Storie Index (which rates the suitability of a soil for intensive agricultural use) rates Willows silty clay at 21, where 100 is the highest rating. (NRCS 2006).

4.7.1.3 Seismicity

The City of Williams is not included in the Alquist-Priolo Earthquake Fault Zone mapping program (CDOC 2016). No active faults are known to exist in the City of Williams or Colusa County (City of Williams 2012a). The nearest potentially active known faults (showing evidence of surface displacement during Quaternary time, the last 1.6 million years) are at the Sutter Buttes, located approximately 13 miles east of the Project area; the Bartlett Springs fault, which is located in the Coast Ranges of northern California, about 25 miles northwest of Williams, and the recently mapped northern section of the Hunting Creek fault, which is located approximately 20 miles west of Williams (Leinkaemper, 2012).

While there are no active faults near the City of Williams or in Colusa County, the northern Sacramento Valley can expect regular low-intensity shocks from time to time. However,

according to the State Division of Mines and Geology, the possibility of a major earthquake cannot be ruled out. The City takes steps to prepare itself and its residents against such a natural hazard. Other seismic and geologic considerations include landslides, subsidence, expansive soils, erosion, and volcanic eruptions, which have varying degrees of risk for Williams.

The faults that are in the Valley are what are referred to as quaternary, meaning they were active 200,000 years ago, or even pre-quaternary (active two million years ago). Much of the earthquake preparedness efforts conducted in the area to date have considered earthquakes that occur outside of Colusa County. The nearest known fault is at the Sutter Buttes for which the maximum credible earthquake could measure a magnitude of 5.7 on the Richter scale. Ground shaking from this level of earthquake would be felt and observed as to its cause. The damage would be moderate to major, with general damage to foundations, partial to complete collapse of unreinforced masonry structures, partial damage to reinforced masonry structures, and underground pipes broken. Therefore, there are seismic risks in Williams and throughout Colusa County for which preparedness is wise and warranted.

Since 1931, there have been a total of 191 earthquakes in the Williams area. The USGS database indicates that there is a 72.94% chance of a major earthquake within 30 miles of Williams, CA, within the next 50 years. The largest earthquake, with a 5.2 Magnitude on the Richter scale, within 30 miles of Williams occurred in 1975.

4.7.1.4 Sutter Buttes

The Sutter Buttes (formerly known as the Marysville Buttes), are a small circular complex of eroded volcanic lava domes which rise as buttes above the flat plains of the Sacramento Valley in Sutter County, Northern California. The small range forms a rough circle approximately 10 miles from north to south and east to west. The Sutter Buttes are sometimes referred to as the world's smallest mountain range. The Sutter Buttes are located about 20 miles east of the Coast Range, and about 13 miles east of Williams.

The summit of South Butte, at approximately 2,122 ft, is the highest point in Sutter Buttes and the highest point in Sutter County. The Buttes are located just outside Yuba City, California in the Sacramento Valley, the northern part of the Central Valley.

At the center of the Buttes are many small domes of andesite lava, the sediments of a one-time crater lake and red spots marking domes of rhyolite, all of Pleistocene age (1.5 million years old). Uplifted older rocks surround this igneous core, then a nearly circular ring of volcanic deposits and the young sediments of the present valley. In the 1920s, volcanologist Howel Williams named the center the Castellated Core, the upturned rocks around it the Moat, and the outer ring the Rampart (Williams 1977).

The rhyolite domes of the Castellated Core were emplaced first, followed by the andesite domes. Many of these were accompanied by explosive eruptions, creating the Rampart. All this appears to have happened within the space of about 200,000 years. Erosion of the volcano dissected the Rampart and exposed the older upturned soft shales, which eroded easily forming the Moat.

The larger tectonic story of the Buttes is still problematic. Dr. Brian Hausback, Professor of Geology at California State University Sacramento, favors the explanation that the Buttes are

cousins of a string of volcanics that progressed northward with the change in the relationship of the Pacific and North American plates from subduction to transcurrent motion. This change created the San Andreas fault, and the former subducting slab, cut off at its top, and opened a "window" to the hotter mantle as it continued to sink. Scientists hypothesize that the slab window exposed a particularly fertile piece of the mantle that yielded an upwelling of magma here.

Other slab-window volcanics are in the San Francisco Bay area and include the Clear Lake and Sonoma Volcanics, the lavas of the Oakland Hills, and the Quien Sabe Volcanics near Gilroy.

4.7.1.5 Topography

Topography in the Project area consists of flat ground located in the Great Valley geomorphic province. The Great Valley is a geomorphic province in an alluvial plain about 50 miles wide and 400 miles long in the central part of California. It is composed of the Sacramento Valley in the north and the San Joaquin Valley in the south. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic Period (about 160 million years ago) (CGS 2002).

In the Sacramento Valley, the lowest geographical areas are the basins. Along with others, the Willows soils series are in these basins. These soils are now partially drained by ditches, but during their formation, they all had a high water table at some time of the year. The water in the soils contained large amounts of soluble salts, which were deposited in the upper part of the soils through the process of evapotranspiration. The resulting soils, which have an accumulation of salts, have required extensive reclamation to remove the excess salts in irrigation water or displace them below the root zone.

The City of Williams generally slopes from southwest to northeast. The terrain is mostly flat with gradient averages in the range of about 0.05 percent to 0.5 percent. Land elevations across the area range from 110 feet above mean sea level (msl) to approximately 60 feet above msl. As a result, there is limited means of alleviating flooding during high volume storm events. A 100-year flood-event would inundate the whole undeveloped northern portion of the City, extending into town in a few low-lying “finger” areas. The tributaries of the Freshwater Creek Basin include the City’s most significant natural drainage corridor, Salt Creek, together with Spring Creek and Freshwater Creek that both merge into Salt Creek. The project site is in the FEMA Flood Zone AH which is defined as “Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet.”

The project area occurs on flat ground in an area identified as having a low susceptibility to landslides (City of Williams 2012a). The Project area is not in the vicinity of steep, tall, or unstable slopes.

4.7.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding cultural resources.

4.7.3. Existing Policies and Regulations

4.7.3.1 Federal Regulations

Uniform Building Code: The Uniform Building Code (UBC) is a model building code that provides the basis for the California Building Code (CBC). The UBC defines different regions of the United States (U.S.) and ranks them according to their seismic hazard potential. There are four types of these regions, which include Seismic Zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest seismic potential. The project area is located in Seismic Zone 2.

Clean Water Act: The Clean Water Act (CWA) was designed to restore and maintain the chemical, physical, and biological integrity of the waters of the U.S. The CWA also directs states to establish water quality standards for all waters of the U.S. and to review and update such standards on a triennial basis.

The U.S. Environmental Protection Agency has delegated responsibility for implementation of portions of the CWA in California to the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB), including water quality control programs such as the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program is a set of permits that apply to various activities that generate pollutants with potential to impact water quality.

The NPDES permit system was established in the CWA to regulate both point-source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint-source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the U.S. For nonpoint-source discharges, the NPDES program establishes a comprehensive storm water quality program to manage urban storm water and minimize pollution of the environment to the Maximum Extent Practicable. Construction activities subject to NPDES regulations must obtain coverage under the State-wide Construction General Permit (NPDES No. CAS000002 and Order No. 2009-0009-DWQ) issued by the SWRCB.

4.7.3.2 State Regulations

California Building Code: California law provides a minimum standard for building design through the CBC. The CBC is based on the UBC, with amendments for California conditions. Chapter 23 of the CBC contains specific requirements for seismic safety. Chapter 29 of the CBC regulates excavation, foundations, and retaining walls. Chapter 33 of the CBC contains specific requirements pertaining to site demolition, excavation and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapter 70 of the CBC regulates grading activities, including drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in California Occupational Safety and Health Administration regulations (Title 8 of the California Code of Regulations) and in Section A33 of the CBC.

Alquist-Priolo Earthquake Fault Zoning Act of 1972: Seismically active areas in California are subject to special requirements under the Act. The purpose of this Act is to ensure that urban development and certain habitable structures do not cross active faults, and to thereby mitigate

the hazard of earthquake fault rupture. Under the Act, a series of "Earthquake Fault Zones/Special Study Zones" based on the corresponding topographic maps have been prepared by the CGS showing the location of known active faults in California that are regarded as posing significant seismic hazards. Cities and counties must withhold development permits within these zones until geologic investigations demonstrate that the project sites are not threatened by surface displacement from future faulting.

The Seismic Hazards Mapping Act: Passed in 1990, the Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The California Geological Survey (CGS) is the principal State agency charged with implementing the 1990 SHMA. Pursuant to the SHMA, the CGS is directed to provide local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The goal is to minimize loss of life and property by identifying and mitigating seismic hazards. The seismic hazard zones delineated by the CGS are referred to as "zones of required investigation." Site-specific geotechnical hazard investigations are required by SHMA when construction projects fall within these areas.

Natural Hazards Disclosure Act: Effective June 1, 1998, the Natural Hazards Disclosure Act requires that sellers of real property and their agents provide prospective buyers with a "Natural Hazard Disclosure Statement" when the property being sold lies within one or more State-mapped hazard areas. If a property is located in a Seismic Hazard Zone as shown on a map issued by the State Geologist, the seller or the seller's agent must disclose this fact to potential buyers.

Construction Storm Water Permits: In California, storm water runoff from construction activities that result in soil disturbances of one or more acres (and projects that meet other specific criteria) is governed by the SWRCB under NPDES No. CAS000002 and Order No. 2009-0009-DWQ. The Central Valley RWQCB enforces the Construction General Permit for projects located in the city, including the project area. The NPDES General Permit No. CAS000002 applies to all construction activities Statewide and includes clearing, grading, or excavation that results in the disturbance of at least one acres of total land area, or activity which is part of a larger common plan of development of one acre or greater. The Construction General Permit outlines the requirements for preparation of a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) and monitoring programs if there is a failure of BMPs, or if the site discharges directly to a water body listed on the 303(d) list for sediment. The approved SWPPP shall address erosion-control BMPs for both construction and long-term operations on the development site, as required by the Construction General Permit.

4.7.3.3 Local Regulations

City of Williams Storm Drainage Master Plan, 2007: The SDMP is intended to be utilized as a guideline document for the identification of storm drainage facilities needed to serve future land development projects and reduce flooding in existing developed areas. New development projects will be required to provide site-specific or project-specific storm drainage solutions that

are consistent with the overall infrastructure approach presented in this SDMP. The City may allow for a reasonable degree of flexibility to be incorporated into specific design approaches as a part of achieving effective solutions. Any significant modifications to the elements of this SDMP must be approved by the City and may require that a formal "Supplement" be adopted by the City Council.

City of Williams General Plan, May 2012: Table 18 list the General Plan policy's related to geology and soils.

Table 18. General Plan Policy's and Consistency; Geology and Soils

Policy	Consistency
4.16: The City will continue to coordinate with the Colusa County Office of Emergency Services and the California State Office of Emergency Services to collect, account for, and distribute geologic data for use in preparedness and hazard mitigation planning.	**Consistent.** The project applicant is required to submit to the City's Building Department building plans for review and approval. The City's building plan check process will ensure that the buildings built are consistent with the latest City adopted building standards.
4.17: Geotechnical investigation will be required by the City for any development proposed to occur in an area of known subsidence for which engineering modifications may be necessary to mitigate or eliminate adverse impacts.	**Consistent.** The geotechnical engineer provided recommendations (Terracon 2015). The site will be underlain with an engineered fill to mitigate areas where subsidence could occur.
4.18: The City supports the Williams Fire Protection Authority (WFPA), efforts to continuously seek to lower its fire insurance rating Public Protection Classification (PPC) by improving the availability of water & the adequacy of fire flows.	**Consistent.** The project will provide a minimum 50,000 gallon fire water storage tank and fire pump to meet the City's requirements for the availability of water and the adequacy of fire flows.
4.19: The City will comply with state seismic and building standards in the design and citing of its critical emergency response facilities, and coordinate with other local agencies, such as the Williams Unified School District, to facilitate their compliance	**Consistent.** All federal, state, and local health and safety requirements will be met by the Applicant, and enforced by the City.

Colusa County Groundwater Management Plan, 2008: In preparing the Groundwater Management Plan, it was the intent of Colusa County that it be applicable countywide and serve the following purposes:

- To be responsible stewards of the water resources in Colusa County;
- To be eligible for grant funding to increase the understanding of the groundwater basins underlying[space]Colusa County; and
- To retain local control of water management decisions.

Colusa County Operational Area Local Hazard Mitigation Plan: In 2004, the City adopted a resolution approving the Colusa County Operational Area Local Hazard Mitigation Plan. This plan was required by Federal law as a prerequisite for the receipt of Federal grant funds, and

establishes parameters of Office of Emergency Services (O.E.S.) to carry out post disaster mitigation activities. The goals of the plan are to provide the basis for funding pre-mitigation priorities for projects that save lives and reduce damage. This plan includes a series of mitigation strategies that are applicable to the City of Williams. These primarily relate to enforcing earthquake preparedness activities and inspections based on city and county codes, public education and preparedness drills, bringing buildings to code, preparing to reduce flood damage, and enforcing wild fire defensible zones around homes. Specifically related to Williams, the mitigation measure identified is to maintain the integrity of stream banks to protect against flooding. This plan was updated in 2010, and is the responsibility of the Colusa County Office of Emergency Services.

4.7.4. Methodology

The analysis of potential geologic and soil-related impacts is based upon the City's Safety Element of the General Plan, literature prepared by the CDMG, information from the NRCS, mapping published by the USGS, and other documents such as the City's Building Code, and the City's Standard Design Guidelines, which were reviewed and summarized to establish existing conditions. In determining the level of significance, the analysis assumes that construction and operation of the proposed project would comply with relevant federal and state laws and regulations, as well as City General Plan policies.

4.7.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts to aesthetic resources are based on Appendix G (Environmental Checklist) set forth in the CEQA Guidelines (2016). A project would have a significant impact related to geology and soils if it would result in any of the following:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - 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 CDMG Special Publication 42).
    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction.
    - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial risks to life or property; and/or

- 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.

4.7.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.7.6.1 Risk of Loss, Injury, or Death Involving Geologic Hazards

Threshold: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

- *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 CDMG Special Publication 42).*
- *Strong seismic ground shaking.*
- *Seismic-related ground failure, including liquefaction.*
- *Landslides.*

(a) Rupture of a Known Earthquake Fault

Surface rupture occurs where displacement or fissuring occurs along a fault zone. While primary ground damage due to earthquake fault rupture typically results in a relatively small percentage of the total damage in an earthquake, the location of structures or facilities too close to a rupturing fault can cause profound damage. It is difficult to reduce the hazards of surface rupture through structural design. The primary method to avoid this hazard is to either set structures and facilities away from active faults, or avoid their construction in proximity to an active fault. State law prohibits the construction and placement of habitable structures within 50 feet of an active fault pursuant to the Alquist-Priolo Act.

The site is not located within the boundaries of an earthquake fault zone for fault-rupture hazard as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, there are no known active, inactive, or potentially active faults that traverse the project site. The nearest earthquake faults to the project site are the Bartlett Springs fault, which is located in the Coast Ranges of Northern California, about 25 miles northwest of Williams, and the recently mapped northern section of the Hunting Creek fault, approximately 20 miles west of Williams (Leinkaemper, 2012). As such, the potential for fault ground rupture at the site is considered low; therefore, no impact related to this issue would occur and no mitigation is required.

(b) Strong seismic ground shaking

The project area in the Northern Central Valley is not located in a seismically active area and, therefore, would not be subject to ground shaking resulting from seismic activity on regional faults. Although there are faults located within 40 miles of the project area; ground shaking from earthquakes associated with these faults is not expected to routinely occur during the lifetime of the project.

(c) Seismic-Related Ground Failure

The proposed Project site is located within Seismic Zone 2 as originally defined by the Uniform Building Code (UBC). The project site is not located in an area that has a high and or very high risk of liquefaction. Furthermore, Chapter 4 of the City's General Plan, Public Services, Safety Element indicates that the project site is not located in an area susceptible to landslides and slope instability. No steep topographical features are located on site.

The proposed Project does not include any activity known to cause damage by subsidence (e.g., fracking of oil, gas, or groundwater extraction). Settlement generally occurs within areas of loose, granular soils with relatively low density. The proposed project site is underlain by relatively dense alluvial material and sedimentary bedrock, so the potential for seismic settlement is considered low. Because the proposed project site does not exhibit characteristics of a high potential for subsidence or settlement, impacts are considered less than significant and no mitigation is required.

(d) Landslides

Landslides and other forms of mass wasting, including mud flows, debris flows, soil slips, and rock falls occur as soil or rock moves down slope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking. Because the site is relatively flat and is not in close proximity to a susceptible hillside, the risk of landslide, mud flow, or other mass wasting affecting the site is considered low. Additionally, Chapter 4 of the City's General Plan, Public Services, Safety Element indicates that the project site is not located in an area susceptible to landslides and slope instability. No steep topographical features are located on site.

In addition, the project will not manufacture any slopes that would create risks associated with landslides. Therefore, impacts associated with the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides are considered less than significant and no mitigation is required.

4.7.6.2 Soil Erosion or Loss of Topsoil

Threshold: Result in substantial soil erosion or the loss of topsoil.

Prior to the issuance of grading permits, the Project proponent would be required to prepare and submit detailed grading plans for the project site, along with the Landscape Design Plan per the Business Park Zoning District Regulations. These plans must be prepared in conformance with applicable standards of the City's Grading Ordinance.

Development of the site would involve the disturbance of more than one acre; therefore, the proposed project is required to obtain a National Pollutant Discharge Elimination System (NPDES) permit. Development projects in the City require preparation of a Storm Water Pollution Prevention Plan (SWPPP) to address short-term erosion and discharge impacts associated with the proposed onsite grading.

Development projects are required to prepare and submit to the City a project-specific Water Quality Management Plan (WQMP) to identify long-term operational measures to treat and/or limit the entry of contaminants into the storm drain system. The WQMP is required to be

incorporated by reference or attached to the project's SWPPP as the Post-Construction Management Plan.

As soils covering the project site have an erosion hazard potential and because the project would be required to adhere to the City's Grading Ordinance, obtain an NPDES Permit, prepare an SWPPP and a WQMP, construction and operational impacts associated with soil erosion hazards are considered to be less than significant.

Section 4.9, Hydrology and Water Quality, contains a discussion of potential issues associated with soil erosion during construction and project operations, and addresses impacts related to soil erosion attributable to storm water flows.

4.7.6.3 Septic Systems

Threshold: 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.

The proposed project will include the construction of habitable structures and will be connected to existing wastewater facilities owned and operated by the City of Williams. A septic system or alternative wastewater disposal systems will not be used. No impacts would occur and no mitigation is required.

4.7.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.7.7.1 Expansive Soils

Threshold: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial risks to life or property?

<u>Impact: Soils in the Project area are expansive and have the potential to create a substantial risk to property.</u>

Expansive soils generally have a substantial amount of clay particles, which can give up water (shrink) or absorb water (swell). The change in the volume exerts stress on buildings and other loads placed on these soils. The extent or range of the shrink/swell is influenced by the amount and type of clay present in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be widely dispersed and they can occur in hillside areas as well as low-lying alluvial basins.

Onsite soils (Willows silty clay) are assigned to Group D hydrologic group, which have: high runoff potential; a high clay content; high swelling potential; a permanent high water table; a clay pan or clay layer at or near the surface; and shallow soils over nearly impervious material.

In accordance with the City's General Plan Safety Element, development of a project site requires a geological and geotechnical investigation by State-licensed professionals. Terracon Consultants, Inc., prepared a *Geotechnical Engineering Report* that addresses siting, site

preparation, and construction standards based on the characteristics of the proposed development (Terracon 2015).

Clay soils at the project site are expansive and also prone to settlement with increases in loading conditions. The Terracon report provides recommendations to help mitigate the effects of settlement from increased loads as well as soil shrinkage and expansion on buildings underlain by expansive clay soil. However, even if these procedures are followed, some movement and at least minor cracking in the structures should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if more effective, although costly, measures are used during construction. Some of these options include chemical treatment and replacement of expansive soils.

Mitigation Measures. The California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code, contains building design and construction requirements relating to fire and life safety, and structural safety. The California Building Code (CBC) includes standards designed to ensure that structures within California are built to withstand expected levels of seismic activity for each earthquake region throughout the State. The Code is published in its entirety every three years with supplements published on the intervening years. The following measure is recommended to ensure that impacts are reduced to less than significant levels:

GEOLOGY-1

- Prior to the issuance of a grading permit for the 11.15- acre project, the project proponent shall demonstrate to the City that the siting, design and construction of all structures and facilities within the project limits are in accordance with the recommendations provided in the site-specific *Terracon Consultants Geotechnical Engineering Report* (2015), as well as regulations established in the California Building Code. These California Building Codes are specifically designed to ensure structural safety in the event of a seismic event.

Level of Significance after Mitigation. Implementation and adherence to GEOLOGY-1, will reduce potential impacts to less than significant.

4.7.7.2 Unstable Geologic Unit or Soil

Threshold: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

<u>Impact: Groundwater and soils characteristics of the site could result in on-site soil instability.</u>

The Terracon Report provides a summary or geotechnical site considerations and construction recommendations including:

- The near-surface soils are expansive and prone to significant volume change with variations in moisture content. For this reason, we recommend either a 24-inch thick low

volume change zone or a 12 to 18-inch thick lime treated section below pavement sections and floor slabs. Both options are discussed in the body of this report.

- Groundwater at the site is shallow and the underlying clays are subject to settlement under additional loading. Prior to construction, the site will require surcharging to induce settlement to reduce post-construction movement of pavement sections.
- Due to the presence of soft, compressible clays and shallow groundwater the proposed building should be founded on deep foundations such as drilled piers or a geopier foundation system may be implemented. Recommendations are included in the Foundations section of the report.
- The presence of shallow groundwater will require underground storage tanks be anchored and weighted to resist buoyant forces.
- The site is generally underlain by lean to fat clays with variable sand to the maximum depth of exploration of 51½ feet bgs. Clayey sand to poorly graded sand was encountered in multiple borings at variable depths throughout the site.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support.

Mitigation Measures. Implementation of mitigation measure GEOLOGY-1 will mitigate potential impact to less than significant.

Level of Significance After Mitigation. With implementation of GEOLOGY-1 potential impacts related to liquefaction, or collapse will be reduced to less than significant levels.

4.7.8. Cumulative Impacts

The cumulative area for geologic issues is the City of Williams and Colusa County, within the larger context of northern California due to regional seismicity, and proximity to the Sutter Buttes. Because it is reasonable to conclude that all development within seismically active areas will be required to adhere to applicable State regulations, CBC standards, and the design and siting standards required by local agencies, a less than significant cumulative impact would occur with implementation of the proposed Project.

4.8. Greenhouse Gas Emissions

4.8.1. Existing Setting

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases (GHGs) needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007a). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

An individual project cannot generate enough GHG emissions to effect a discernible change in global climate. However, the project participates in the potential for global climate change by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on global climate change.

(a) Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from California Climate Change Center 2006 and Moser et al. 2009).

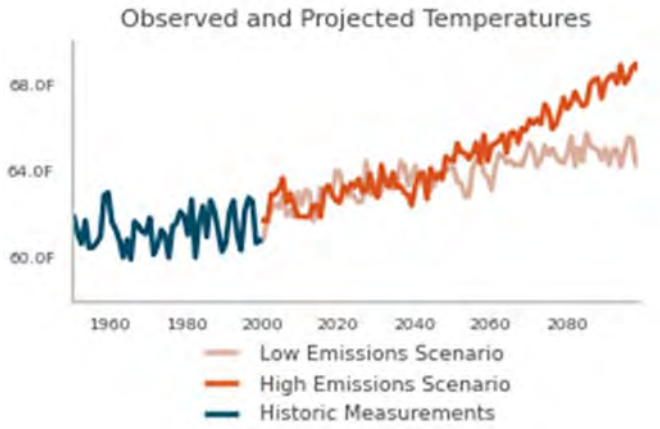
- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.

- **Exacerbation of air quality problems.** Because of this climate warming, the frequency, duration, and intensity of conditions conducive to forming air pollution events are also likely to increase. It is widely recognized that maintaining safe atmospheric levels of various pollutants such as ozone (O3), carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM) and other toxic chemicals depends on both emissions and meteorological conditions (ARB 2010a). If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

(b) Consequences of Climate Change in the Williams Area

Figure 6 shows a chart of measured historical and projected annual average temperatures in the Williams area. As shown in the figure, temperatures are expected to rise in the low and high greenhouse gas emissions scenarios. The results indicate that temperatures are predicted to increase by 3.6 °F under the low emission scenario and 6.2°F under the high emissions scenario (CalAdapt 2016).

Figure 6. Observed and Projected Temperatures for Climate Change in the Williams Area



Source: CalAdapt 2016

Water Supply: The City of Williams Utilities Department would provide water for the project. The City relies on groundwater and treated surface water for potable water supplies. The availability of surface water and the rate of groundwater recharge could decline if climate change results in reduced snowpack in the Sierra Nevada and southern Cascades.

Wildfires: The project site is located on the edge of the Williams urban area on land currently used for agriculture. Agricultural land provides limited fuels that would be subject to a wildfire. Cultivated agricultural areas surround the project to the northwest, north, east, and south. The potential for increased temperatures and drought conditions due to climate change would result in increased risk from wildfire in those areas if farmland is taken out of production and returns to natural vegetation.

Human Health Effects of GHG Emissions: Greenhouse gas emissions from development projects would not result in concentrations that would directly impact public health. However, the cumulative effects of GHG emissions on climate change have the potential to cause adverse effects to human health.

The U.S. Global Change Research Program, in its report, Global Climate Change Impacts in the U.S. (2009), has analyzed the degree to which impacts on human health are expected to impact the United States.

Potential effects of climate change on public health include:

- **Direct Temperature Effects:** Climate change may directly affect human health through increases in average temperatures, which are predicted to increase the incidence of heat waves and hot extremes.
- **Extreme Events:** Climate change may affect the frequency and severity of extreme weather events, such as hurricanes and extreme heat and floods, which can be destructive to human health and well-being.

- **Climate–Sensitive Diseases:** Climate change may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.
- **Air Quality:** Respiratory disorders may be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution (EPA 2009a).

Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (CDC 2010 and OSHA 2003).

(c) Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, nitrous oxide (NOx), chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the earth's temperature. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO2.

Individual GHG compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide (CO2), the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. To describe how much global warming a given type and amount of GHG may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO2. For example, methanes (CH4's) warming potential of 21 indicates that CH4 has 21 times greater warming effect than CO2 on a molecule-per-molecule basis. A carbon dioxide equivalent is the

mass emissions of an individual GHG multiplied by its global warming potential. GHGs defined by AB 32 include CO2, CH4, NOx, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 19. A seventh GHG, nitrogen trifluoride (NF3), was added to Health and Safety Code section 38505(g)(7) as a GHG of concern.

Table 19. Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless GHG. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural GHG. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960. The lifetime of a single CO2 molecule in the atmosphere is approximately 5 years.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100. The lifetime of a chlorofluorocarbon in the atmosphere can range from approximately 50 to 140 years.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydrofluorocarbons	Hydrofluorocarbons are a group of GHGs containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700. The lifetime of a hydrofluorocarbons in the atmosphere can range from approximately 1 to 260 years.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.

Greenhouse Gas	Description and Physical Properties	Sources
Nitrogen trifluoride	Nitrogen trifluoride (NF_3) was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. It has a high global warming potential of 17,200. The lifetime of a Nitrogen trifluoride in the atmosphere can range from approximately 480 to 550 years.	This gas is used in electronics manufacture for semiconductors and liquid crystal displays.
Compiled from various sources, primarily Intergovernmental Panel on Climate Change 2007a and 2007b.		

The State of California has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill 605, approved by the Governor on September 14, 2014 requires the ARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. ARB will complete an emission inventory of these pollutants, identify research needs, identify existing and potential new control measures that offer co-benefits, and coordinate with other state agencies and air districts to develop measures. The draft emission inventory and strategy were released on September 30, 2015. No date for final adoption was given.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases (Hydrofluorocarbons Perfluorocarbons, Sulfur hexafluoride, and Nitrogen trifluoride) and methane are described in Table 19 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, ARB will include it in its comprehensive strategy (ARB 2015a).

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NOx) on a regional scale and CH4 on a hemispheric scale will be subject of the strategy (ARB 2015a).

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, as opposed to other GHGs that can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation. Indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100 year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by the ARB, and air district criteria pollutant and

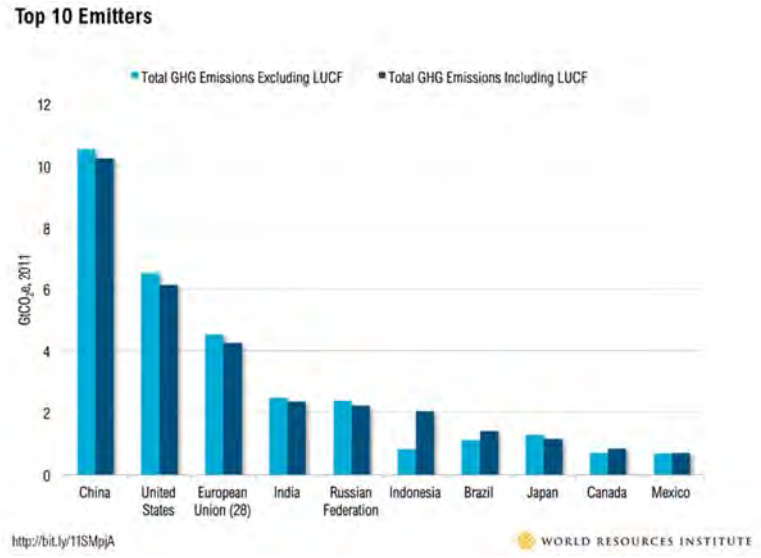
toxic regulations that control fine particulate emissions from diesel engines and other combustion sources (ARB 2015b). Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other greenhouse gases, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere (NASA 2015b).

4.8.2. Emissions Inventories

An emissions inventory is a database that lists, by source, the amount of air pollutants discharged into the atmosphere of a geographic area during a given time period. Emissions worldwide were approximately 43,286 million metric tons of carbon dioxide equivalents (MMTCO2e) in 2012. As shown in Figure 7, China was the largest GHG emitter with over 10 billion metric tons of CO2e, and the United States was the second largest GHG emitter with over 6 billion metric tons of CO2e (WRI 2014).

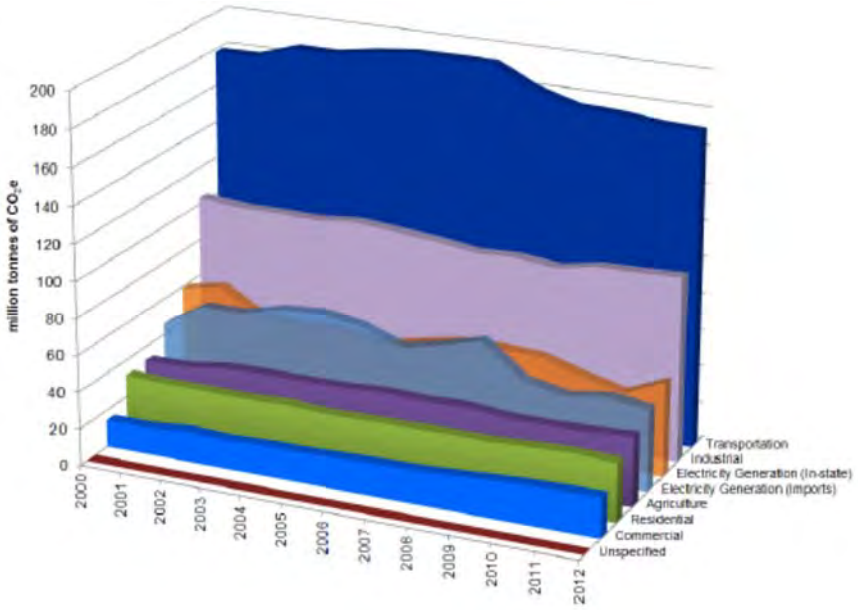
Figure 7. Greenhouse Gas Emissions Trends



LUCF = Land Use Change and Forestry
Source: WRI 2014.

Figure 8 shows the contributors of GHG emissions in California between years 2000 and 2012 by economic sector. The main contributor was transportation. The second highest sector was industrial, which includes sources from refineries, general fuel use, oil and gas extraction, cement plants, and cogeneration heat output. The ARB reported that California's GHG emissions inventory was 459 MMTCO2e in 2012 (ARB 2014a).

Figure 8. Greenhouse Gas Emission Trends by Sector in California



Source: ARB 2014b.

4.8.3. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding greenhouse gas emissions.

4.8.4. Existing Policies and Regulations

4.8.4.1 International Policies and Efforts

International organizations such as the ones discussed below have made substantial efforts to reduce GHGs. Preventing human-induced climate change will require the participation of all nations in solutions to address the issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five percent against 1990 levels over the five-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2104 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;

- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC.

4.8.4.2 Federal Regulations

Prior to the last decade, there were no concrete federal regulations of GHGs or major planning for climate change adaptation. Since then, federal activity has increased. The following are actions regarding the federal government, GHGs, and fuel efficiency.

Greenhouse Gas Endangerment. Massachusetts v. EPA (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases-carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride-in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section

"Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling upholding the EPA Administrators findings (EPA 2009b).

Clean Vehicles: Congress first passed the Corporate Average Fuel Economy Law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO2 level solely through fuel economy improvements. Together, these standards would cut CO2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the Phase 1 program (model years 2012–2016). In August 2012 the EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 (EPA 2012b). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by the 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO2 emissions from the 2014 to 2018 model years.

Mandatory Reporting of Greenhouse Gases: The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit

25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review: The EPA issued a final rule on May 13, 2010 that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

> 'This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.'

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters-power plants, refineries, and cement production facilities.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. On March 27, 2012 the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units. New sources greater than 25 megawatt would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Examples in the United States include the Acid Rain Program and the NOx Budget Trading Program and Clean Air Interstate Rule in the northeast. The Clean Air Interstate Rule (CAIR) and the Acid Rain Program (ARP) are both cap and trade programs designed to reduce emissions of sulfur dioxide (SO2) and nitrogen oxides (NOx) from power plants. The ARP, established under Title IV of the 1990 Clean Air Act (CAA) Amendments, requires power plants to make major emission reductions of SO2 and NOx, the primary precursors of acid rain. CAIR addresses regional interstate transport of soot (fine particulate matter) and smog (ozone) pollution. CAIR

requires certain eastern states to limit annual emissions of SO2 and NOx, which contribute to the formation of fine particulate matter. It also requires certain states to limit ozone season NOx emissions, which contribute to the formation of ozone during the summer ozone season (May through September). There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap and trade program.

4.8.4.3 State Regulations

(a) Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006, was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32: The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide (NOx), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The ARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> 'Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.'

The ARB approved the 1990 GHG emissions level of 427 MMTCO2e on December 6, 2007 (ARB 2007). Therefore, to meet the State's target, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a business-as-usual (BAU) scenario were estimated to be 596 MMTCO2e, which do not account for reductions from AB 32 regulations (ARB 2008a). At that rate, a 28 percent reduction was required to achieve the 427 MMTCO2e 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 MMTCO2e. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010). The ARB also revised the global warming potential used in the most recent inventories to reflect AR4 rates which resulted in slightly lower emissions in 2020 and a reduction from BAU of 20 percent.

(b) Progress in Achieving AB 32 Targets and Remaining Reductions Required

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by the ARB for 2000 through 2012 to show progress achieved to date (ARB 2014a). The State has also achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target. Also shown are the average reductions needed from all statewide sources (including all existing sources) to reduce GHG emissions back to 1990 levels.

- 1990: 427 million MTCO2e (AB 32 2020 Target)
- 2000: 463 million MTCO2e (an average 8-percent reduction needed to achieve 1990 base)
- 2010: 450 million MTCO2e (an average 5-percent reduction needed to achieve 1990 base)
- 2020: 545 million MTCO2e BAU (an average 21.7-percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target-each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions (ARB 2008).

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050.

The ARB currently has no legislative mandate to set a target beyond the 2020 target from AB 32 or to adopt additional regulations to achieve a post-2020 target. The Update estimates that reductions averaging 5.2 percent per year would be required after 2020 to achieve the 2050 goal. With no estimate of future reduction commitments from the State, identifying a feasible strategy including plans and measures to be adopted by local agencies is not currently possible (ARB 2014b).

Cap and Trade Program: The Cap and Trade Program is a key element of the Scoping Plan. It sets a statewide limit on sources responsible for 85 percent of California's greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program

conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Quebec's cap and trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015 (ARB 2015c).

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by the ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> 'The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the

Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).'

SB 375—the Sustainable Communities and Climate Protection Act of 2008: Senate Bill (SB) 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

- Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;
- Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
- Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards: California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011 (ARB 2013c).

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant (ARB 2013d).

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars

program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California (ARB 2011).

SB 1368—Emission Performance Standards: In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds (lbs) of CO2 per megawatt-hour (MWh).

SB 1078-Renewable Electricity Standards: On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution No. 10-23.

SBX 7-7—The Water Conservation Act of 2009: The legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

(c) Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the State and guide the actions of state agencies.

Executive Order S-3-05: Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order B-30-15: On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late in 2015. The executive order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of MMTCO2e. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

Executive Order S-01-07 Low Carbon Fuel Standard: The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was subject to legal challenge in 2011. Ultimately, on August 8, 2013, the Fifth District Court of Appeal (California) ruled that the ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal directed that Resolution 09-31 and two executive orders of the ARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the court tailored its remedy to protect the public

interest by allowing the LCFS regulations to remain operative while the ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, the ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing for the new LCFS regulation took place on September 24, 2015. The Final Rulemaking Package was filed with the Office of Administrative Law (OAL) on October 2, 2015. OAL approved the regulation on November 16, 2015 (ARB 2015d).

Executive Order S-13-08: Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

(d) California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations: California Code of Regulations, Title 20; Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations-regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards: California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest version of Title 24 was adopted by the California Energy Commission (CEC) on May 31, 2012. The standards became effective on July 1, 2014. The CEC has completed the process of preparing the 2016 Building Energy Efficiency Standards that are scheduled to go into effect on January 1, 2017 (CEC 2016).

Title 24 California Green Building Standards Code: California Code of Regulations Title 24, Part 11 is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that became effective January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2013 California Green Building Code Standards that became effective January 1, 2014. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11) requires:

- **Short-term bicycle parking:** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- **Long-term bicycle parking:** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- **Designated parking:** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- **Recycling by Occupants:** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling. (5.410.1).
- **Construction waste:** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 80 percent for new homes and 80-percent for commercial projects. (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- **Wastewater reduction:** Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures or
    - Using nonpotable water systems (5.303.4).
- **Water use savings:** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions (5.303.2, A5303.2.3 [nonresidential]).

- **Water meters:** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- **Irrigation efficiency:** Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- **Materials pollution control:** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard (5.404).
- **Building commissioning:** Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

Model Water Efficient Landscape Ordinance: The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed the Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

Section 21097 was also added to the Public Resources Code, which provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze

adequately the effects of GHGs would not violate CEQA. The Natural Resources Agency completed the approval process and the Amendments became effective on March 18, 2010.

The 2010 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a "good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project." The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines Section 15130(f)).

4.8.4.4 Local Regulations

(a) Colusa County Transportation Commission

The Colusa County Transportation Commission is the Regional Transportation Planning Agency for the County. Rural areas such as Colusa County do not have regional targets under SB 375. Only areas of California with Metropolitan Planning Organizations (MPO) were required to set targets and to prepare Sustainable Communities Strategies.

(b) City of Williams

The City of Williams does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects. However, the General Plan includes goals and policies to reduce GHG emissions that are listed below.

General Plan: The 2012 General Plan includes the following applicable goals and policies related to improving air quality that may also co-benefit climate change impacts:

Land Use and Character:

- **Policy 3.25:** The City's Auto-Urban areas will be improved by better standards for the arrangement of buildings and parking, site landscaping and screening, and sign control, among others.
- **Policy 3.43:** Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.
- **Policy 3.48:** Resources will be protected and integrated as amenities into development.
- **Policy 3.62:** Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.

Open Space and Conservation

- **Policy 7.12:** A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.
- **Policy 7.13:** The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.

- **Policy 7.14:** The creation of linear greenways will serve as a vehicle to protect natural resources and provide for natural scenic corridors.
- **Policy 7.15:** The local trail system will connect local residents to regional, state, and federal trail systems.
- **Policy 7.16:** Pedestrian paths will adhere to ADA accessibility guidelines, including possible redesign of existing sidewalks, sidewalk curb cuts, ramps, and trails.
- **Policy 7.21:** Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment control, and structural foundations.
- **Action 7.yy:** Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.
- **Action 7.bbb:** Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.

Circulation

- **Policy 8.1:** Coordinate transportation planning with regional and local plans.
- **Action 8.l-2:** The City shall evaluate regional impacts of proposed local improvements.
- **Action 8.l-4:** The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities.
- **Policy 8.n:** Protect natural features.
- **Action 8.n-6:** The City shall evaluate circulation improvements and traffic control as to their effect on air and noise pollution and greenhouse gas emissions.
- **Policy 8.o:** Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.

4.8.5. Methodology

This analysis is restricted to GHGs identified by AB 32, which include carbon dioxide, methane, NOx, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The Project would generate a variety of GHGs, including several defined by AB 32 such as carbon dioxide, methane, and NOx.

The project may emit GHGs that are not defined by AB 32. For example, the project may generate aerosols through emissions of diesel particulate matter (DPM) from the vehicles and trucks that would access the project site. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Black carbon is a component of aerosol. The ARB is in the

process of developing a plan to address these emissions; however, black carbon is a component of DPM that is addressed as a toxic air contaminant.

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities.

The Project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain GHGs defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

4.8.6. Thresholds of Significance

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

4.8.7. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.8.7.1 Generate Greenhouse Gas Emissions

Thresholds: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- **Consideration #1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #3:** The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be

adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The City of Williams has not adopted its own GHG thresholds or prepared a Climate Action Plan that can be used as a basis for determining project significance. In the absence of an adopted threshold, the City may assess project GHG impacts by whether the project would conflict with the State's goal of achieving the GHG targets of AB 32. AB 32 requires the State to reduce GHG emissions to 1990 levels by 2020. This amount constitutes the State's fair-share contribution to reducing the global impacts of climate change. The ARB was tasked with preparing the 2008 Scoping Plan that identifies the sources of GHG in California in an emission inventory and provides a strategy to reduce emissions to the extent needed to reach the target accounting for projected growth in population and economic activity predicted for 2020. In 2008, the ARB estimated that the State would need to reduce its emissions by 28.3 percent from the 2020 business-as-usual (BAU) inventory. BAU represents the emissions that would occur if no regulations were adopted after the base year. For the purposes of the Scoping Plan, the ARB used three-year average emissions, by sector, for 2002-2004 to forecast emissions to 2020. This allowed the ARB to more accurately estimate the amount of reductions needed from growth in all sources in the emission inventory.

The ARB issued an updated inventory in 2010 that reflected slower population and economic growth during the years after the 2008 recession. The new BAU inventory was reduced from 596 MMTCO2e to 545 MMTCO2e. The new GHG reduction level for the State to reach 1990 emission levels by 2020 is 21.7 percent (ARB 2010). The First Update to the Climate Change Scoping Plan adopted in May 2014 provided another revised inventory projection that used updated global warming potentials for the greenhouse gases from IPCC AR4. The 2014 update revised the 1990 baseline inventory to 431 MMTCO2e and the 2020 BAU inventory to 539 MMTCO2e which results in a required reduction from BAU of 20.0 percent. The First Update to the Climate Change Scoping Plan also confirmed that the State is on track to achieve the 2020 target and to maintain and continue reductions beyond 2020 as required by AB 32 (ARB 2014b). The models used to estimate project emissions have not been updated for IPCC AR4 GWPs; therefore, the reduction from the 2010 inventory provides the most consistent BAU comparison.

A number of Air Districts and lead agencies adopted GHG thresholds for project GHG significance based on applying the amount needed by the State to achieve the 2020 target to project emission sources. Under this approach, if emissions from project emission sources were reduced by the percentage required by the State to achieve the target, the project would be considered to have less than significant GHG impacts. GHG emissions from most residential and commercial development projects are generated by mobile sources (cars and trucks) and from energy consumption from project buildings from electricity and natural gas use. These sources comprise the vast majority of the State's emission inventory (approximately 72 percent), so a threshold based on the overall reduction required by the State to achieve its target was considered a reasonable threshold. The application of a BAU threshold as a project threshold

was challenged in court and was the subject of a recent ruling of the California Supreme Court in the Center for Biological Diversity vs. California Department of Fish and Wildlife (commonly referred to as Newhall Ranch case).

On November 30, 2015, the California Supreme Court issued its decision in Newhall Ranch invalidating the GHG analysis for a large master planned residential development in Los Angeles County consisting of over 20,000 residential dwelling units and other uses. In particular, the Court upheld: (1) use of the statewide emissions reduction goal in AB 32 as a significance criterion (pp. 15-19), (2) use of the Scoping Plan's BAU model "as a comparative tool for evaluating efficiency and conservation efforts" of the Project (pp. 18-19), and (3) a comparison of the project's expected emissions to a BAU model rather than a baseline of pre-project conditions (pp.15-19.). The Court invalidated the GHG analysis on the grounds that the "administrative record discloses no substantial evidence that the Newhall Ranch's project-level reduction of 31 percent in comparison to [BAU] is consistent with achieving AB 32's statewide goal of a 29 percent reduction from [BAU] The Court indicated that A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location. (p. 25.) A lead agency "might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities."

The substantial evidence needed to support a project BAU threshold can be derived from data used to develop the Scoping Plan inventory and control strategy and from analysis conducted by the ARB to track progress in achieving the AB 32 2020 target. The critical factor in determining the appropriate project threshold is whether the State requires additional reductions beyond that achieved by regulations to achieve its target. If no additional reductions are required from individual projects, no nexus exists to require a project to mitigate its emissions. In that case, the percentage reductions achieved by projects is the amount needed to reach the AB 32 target.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked for their effectiveness after implementation. The combined effect of this successful effort is that the State now projects that it will meet the 2020 target and achieve continued progress toward meeting post-2020 targets. Governor Brown in the introduction to Executive Order B-30-15 states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)".

The Supreme Court was concerned that new development may need to do more than existing development to reduce greenhouse gases to demonstrate that it is doing its fair share of reductions. As will be shown below, new development does do more than existing development and, due to the nature of the sources of GHG emissions related to development, existing

development is equally responsible for reducing emissions from the most important sources of emissions. It is important to note that most of the State's regulatory program applies to new and existing development.

The Scoping Plan reduction from BAU accounts for growth projected in the State, and assumes that existing development would continue to emit GHGs at the same rate that occurred in the base year (2002-2004 average). The California Department of Finance (DOF) Report E-5 predicts that population growth in California from 2005 to 2020 will be 13.2 percent. This means that development that existed in 2005 will produce nearly 87 percent of the State's emissions in 2020. Conversely, new development is only responsible for about 13 percent of the emissions generated during this timeframe. If measures to reduce emissions from existing development were not available, new development could not provide sufficient reductions to reach the 2020 target even if their emissions were reduced to net zero.

The State's regulatory program is able to target both new and existing development because the two most important strategies, motor vehicle fuel efficiency, and emissions from electricity generation obtain reductions equally from existing sources and new sources. This is because all vehicle operators use cleaner low carbon fuels and buy vehicles subject to the fuel efficiency regulations and all building owners or operators purchase cleaner energy from the grid that is produced by increasing percentages of renewable fuels. This includes regulations on mobile sources such as the Pavley standards that apply to all vehicles purchased in California, the Low Carbon Fuel Standard (LCFS) that applies to all fuel used in California, and the Renewable Portfolio Standard and Renewable Energy Standard that apply to utilities providing electricity to all California homes and businesses. The reduction strategy where new development is required to do more than existing development is building energy efficiency and energy use related to water conservation regulations. For example, new projects are subject to Title 24 Energy Efficiency standards and CalGreen Code and Model Water Efficiency Landscape Ordinance (MWELO) water conservation requirements. Buildings constructed to the 2013 Title 24 standards use 30 percent less energy than buildings complying with the 2008 standards. New buildings and landscapes are much more energy efficient and water efficient than development that has been built over the past decades and will require much less energy.

As described above, the State requires an average reduction from all sources of the emission inventory of about 22 percent. The Scoping Plan strategy will achieve more than average reductions from energy and mobile source sectors that are the primary sources related to development projects and lower than average reductions from other sources such as agriculture. The amount of reduction estimated for each sector was based on technical feasibility and cost effectiveness. Review of the Scoping Plan inventory and strategy shows that the reduction from all development related sources is approximately 29 percent from BAU in order to make up for the below average sectors and achieve the required 22 percent average reduction.

As suggested by the Court, a project BAU analysis was prepared for this project that assesses "consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities." The analysis shows the extent to which the project complies with adopted regulations and the additional

amount that will be achieved through project design features. At this point in time, no additional reductions are required from new development beyond regulations for the State to achieve its target. Therefore, this analysis meets the consistency test described by the Supreme Court.

The analysis prepared for the project also includes a qualitative assessment of compliance with Scoping Plan and General Plan measures to support GHG significance findings. There are no measures that identify specific requirements on development projects, but the analysis shows how the applicable measures affect project emission sources.

Construction: Total GHG emissions generated during all phases of construction were combined and are presented in Table 20. Although construction-related emissions would occur prior to the year 2020, which is the year the State is required to reduce its GHG emissions to 1990 levels, construction emissions have been included since they may remain in the atmosphere for years after construction is complete. In order to account for the construction emissions, the total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions.

Table 20. Construction Greenhouse Gas Emissions

Year	Total MTCO2e per year
Construction 2016	336.16
Construction 2017	164.13
Total	500.29
Amortized over 30 years	16.68
Notes: Due to rounding, total $MTCO_2e$ may be marginally different from CalEEMod output. $MTCO_2e$ = metric tons of carbon dioxide equivalents Source: CalEEMod output (Appendix A).	

Operation: Operational or long-term emissions occur over the life of the project. Sources of emissions may include motor vehicles and trucks, energy usage, water usage, waste generation, and area sources, such as landscaping activities. Operational GHG emissions associated with the project were estimated using CalEEMod 2013.2.2.

(a) Business-as-Usual Operational Emissions

Operational emissions under the BAU scenario were modeled using CalEEMod 2013.2.2. Modeling assumptions for the year 2005 were used to represent 2020 BAU conditions (without the benefit of regulations adopted to reduce GHG emissions). The San Joaquin Valley Air Pollution Control District (SJVAPCD) guidance recommends using emissions in 2002-2004 in the baseline scenario to represent conditions as if regulations had not been adopted to allow the effect of projected growth on achieving reduction targets to be clearly defined. CalEEMod defaults were used for project energy usage, water usage, waste generation, and area sources (architectural coating, consumer products, and landscaping). The vehicle fleet mix was revised to reflect the residential fleet mix approved by SJVAPCD for the year 2020. The year 2020 was chosen because it is the AB 32 target year.

(b) 2020 Operational Emissions

Operational emissions for the year 2020 were modeled using CalEEMod. CalEEMod assumes compliance with some, but not all, applicable rules and regulations regarding energy efficiency, vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies, as described in the CalEEMod User's Guide (CAPCOA 2013). The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

Emissions Accounting for Applicable Regulations: The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I motor vehicle emission standards
- Low Carbon Fuel Standard (LCFS)
- 2005 and 2008 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Pavley II (LEV III) Advanced Clean Cars Program
- 2013 Title 24 Energy Efficiency Standards
- Renewable Portfolio Standards (RPS)
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)
- ARB Refrigerant Management Program

Pavley II/LEV III standards have not been incorporated in the latest version of CalEEMod. Reductions from standards are calculated by adjusting the CalEEMod GHG passenger car and light truck emission factors by the ARB's estimated three percent reduction expected from the vehicle categories subject to the regulation by 2020 (ARB 2010).

Title 24 reductions for 2013 are not accounted for in the current version of CalEEMod. The California Energy Commission (CEC) estimates that 2013 Title 24 standards would result in an increase in energy efficiency of 30 percent in commercial buildings compared with 2008 Title 24 standards(CEC 2014). The benefits of 2013 Title 24 are applied in the CalEEMod mitigation component to correctly allocate the reductions only to building components subject to the regulation.

Renewable Portfolio Standards (RPS) is not accounted for in the current version of CalEEMod. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the projected utility energy intensity factor provided by the utility.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations (CDWR 2013).

CalGreen requires a 20 percent reduction in indoor water use. Benefits of the water conservation regulations are applied in the CalEEMod mitigation component.

The reductions from each regulation, project applicability, and where the credit for the regulation is obtained is provided in Table 21.

Table 21. Reductions from Greenhouse Gas Regulations

Regulation	Project Applicability	Reduction Source	Percent Reduction from BAU in 2020
Pavley Low Emission Vehicle Standards	Light duty cars and trucks accessing the site are subject to the regulation	CalEEMod defaults (Pavley I)I	25.1[1]
		Adjusted GHG emission factor (Pavley II/LEV III) in CalEEMod.	3%[2]
Low Carbon Fuel Standard (LCFS)	Vehicles accessing the site will use fuel subject to the LCFS	CalEEMod defaults	10%[1]
Title 24 Energy Efficiency Standards	Project building components will be constructed to meet the latest version of Title 24 (currently 2013). Energy reductions taken apply only to energy consumption by building components subject to the regulation.	CalEEMod defaults (2008) and CalEEMod mitigation component (2013)	30%[3]
Green Building Code Standards	The project will include water conservation features required by the standard	CalEEMod mitigation component	20%[4]
Water Efficient Landscape Ordinance	The project landscaping will comply with the regulation	CalEEMod mitigation component	20%[5]
Renewable Portfolio Standard (RPS)	Electricity purchased for use at the project site is subject to the 33% RPS mandate	CalEEMod adjusted energy intensity factors from PG&E	23.3%[6]
Solid Waste	The solid waste service provider will need to provide programs to increase diversion and recycling to meet the mandate.	CalEEMod mitigation component	25%

Notes:
The source of the percentage reductions from each measure are from the following sources:
[1] Pavley 1 + Low Carbon Fuel Standard Postprocessor Version 1.0 User's Guide (ARB 2010c).
[2] ARB Staff Report for LEV III Amendments (ARB 2013)
[3] 2013 Title 24 Building Energy Efficiency Standards Adoption Hearing Presentation (CEC 2013)
[4] 2013 California Green Building Standards Code Section 5.303.2
[5] California Water Plan Update 2013 (CDWR 2013).
[6] PG&E Default Emission Factor for BAU adjusted to reflect 33 percent RPS in 2020)
[7] CalRecycle 75 Percent Initiative: Defining the Future (2016).

In addition to rules and regulations, the project would incorporate design features and would obtain benefits from its location and infrastructure that would reduce project vehicle miles traveled (VMT) compared with default values. This development is intended to serve the

traveling public and would not be expected to attract customers using alternative transportation modes.

Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions. Results of this analysis are presented in Table 22.

Table 22. Project Operational Greenhouse Gases

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	**2020**	**Percent Reduction (with Regulation and Design Features)**
Area	0.00414	0.00398	3.9
Energy	148.66	114.65	22.9
Mobile-Local Area	641.53	460.46	28.2
Mobile-Diverted Trips	1,255.23	837.81	33.3
Waste	34.67	26.01	25.0
Water	6.72	4.45	33.8
Amortized Construction Emissions	16.68	16.68	0
Total	2,103.49	1,460.05	30.6
Reduction from BAU		643.43	—
Percent Reduction		30.6%	—
Significance Threshold		29	—
Are emissions significant?		No	—

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the 29 percent required to show consistency with AB 32 targets.
Source of BAU emissions: CalEEMod output using 2005 modeling year to represent emissions in 2020 without regulations
Source of 2020 emissions: CalEEMod output for the year 2020

As shown in Table 22, the project has a reduction of 30.6 percent from BAU to the year 2020 with Regulations and Design features incorporated. This is above the 29 percent reduction that is needed from development related emission sources to achieve AB 32 2020 targets. The impact is less than significant and no mitigation is needed.

The Supreme Court in the Newhall Ranch case indicated that as 2020 gets closer, selection of a new post-2020 threshold will be necessary. The Project is expected to be completed before 2020; therefore, a 2020 target is still appropriate. Nevertheless, without a new Scoping Plan that identifies the State's strategy for achieving a post-2020 target, a new project threshold is premature since the amount of reduction, if any, needed from new development is not known and would be speculative. Regarding goals for 2050 under Executive Order S-3-05, at this time

it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; however, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80-percent reduction below 1990 levels by 2050.

Project impacts are less than significant and no mitigation is needed.

4.8.7.2 Greenhouse Gas Reduction Plans

Thresholds: Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

The City of Williams has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, and goal-setting process required to identify a reduction target and to take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with ARB's adopted Scoping Plan. This would be achieved with an assessment of the project's compliance with Scoping Plan measures.

(a) Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 28.4 percent from BAU emission levels projected for 2020, or about 10 percent from 2008 levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020. As stated earlier, the ARB has updated its emission inventory forecasts and now estimates a reduction of 21.7 percent is required from BAU in 2020 to achieve AB 32 targets.

The Scoping Plan contains a variety of strategies to reduce the State's emissions. As shown in Table 23, the project is consistent with most of the strategies, while others are not applicable to the project.

Table 23. Scoping Plan Reduction Measures Consistency Analysis

Scoping Plan Reduction Measure	Consistency/Applicability Determination
1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.	**Not applicable.** Although the cap-and-trade system has begun, products or services (such as electricity) would be covered and the cost of the cap-and-trade system would be transferred to the consumers.
2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. However, the standards would be applicable to the light-duty vehicles that would access the project site.
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	**Consistent.** This is a measure for the State to increase its energy efficiency standards in new buildings. The project is required to build to the new standards and would increase its energy efficiency through compliance.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. PG&E provided third-party-verified emission factors for its power supply and projections for its emission factors in 2020 based on its expected mix from renewable sources such as solar and geothermal. PG&E would exceed the percentage to 33 percent by the year 2020 pursuant to various regulations. The owners of residences within the project would purchase power that includes a greater amount of renewable sources and could install renewable solar power systems that will assist the utility in achieving the mandate.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the project site.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	**Consistent.** SB 375 has no requirements that apply directly to development projects; however, the development and density proposed by the project will contribute to achieving SB 375 regional targets.
7. Vehicle Efficiency Measures. Implement	**Consistent.** When this measure is initiated, the

Scoping Plan Reduction Measure	Consistency/Applicability Determination
light-duty vehicle efficiency measures.	standards would be applicable to the light-duty vehicles that would access the project site.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	**Not applicable.** The project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
9. Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The project would comply with Title 24, which requires new buildings to be "solar ready." The project would not preclude the implementation of this strategy.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. The standards phase-in over model years 2014 through 2018. Vehicles that access the project site are subject to the regulation.
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.	**Not applicable.** This measure would apply to the direct GHG emissions at major industrial facilities emitting more than 25,000 $MTCO_2e$ per year. Furthermore, the project is not an industrial land use.
12. High Speed Rail. Support implementation of a high-speed rail system.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Consistent.** The project would comply with the California Energy Code, and thus incorporate applicable energy efficiency features designed to reduce project energy consumption.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Not applicable.** This measure is applicable to the high global warming potential gases that would be used by sources with large equipment (such as in air conditioning and commercial refrigerators) that are not part of this residential project.
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	**Consistent**. The project would comply with City of Williams recycling services and comply with construction waste reduction measures required by CalGreen.
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	**Not applicable.** The project site is not forested; therefore, this measure is not applicable.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat	**Consistent.** The project would comply with water-efficient landscaping requirements and Green Building

Scoping Plan Reduction Measure	Consistency/Applicability Determination
water.	Code regulations.
18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	**Not applicable.** The project site is not designated for agriculture purposes. No dairy or feedlot that would generate manure is proposed to be implemented by the project.
Source of ARB Scoping Plan Reduction Measure: California Air Resources Board 2008. Source of Project Consistency or Applicability: FirstCarbon Solutions.	

In summary, the project incorporates a number of features that would minimize GHG emissions. These features are consistent with project-level strategies identified by the ARB's Scoping Plan. As demonstrated in the impact analysis above, the Project would achieve an approximately 30.6 percent reduction from the BAU inventory and, therefore, would not significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32 or conflict with implementation of the Scoping Plan. The Project promotes the goals of the Scoping Plan through implementation of regulations that apply to Project sources that reduce energy consumption, water consumption, and reduction in VMT. Therefore, the project does not conflict with any plans to reduce GHG emissions. The impact is less than significant and no mitigation in needed.

4.8.8. Significant Impacts

All potential Project impacts to greenhouse gas emissions have been determined to be less than significant. No significant greenhouse gas emissions impacts would result from the implementation of the proposed Project.

4.8.9. Cumulative Impacts

The proposed project would generate greenhouse gas (GHG) emissions during construction and operation. GHG emissions were estimated using the CalEEMod 2013.2.2 software program. Detailed results are included in Appendix B. The analysis of GHG emissions is cumulative because the proposed Project would not and cannot generate enough GHG emissions to influence global climate change on its own. However, the proposed Project would contribute to the environmental impact by its incremental contribution of GHG emissions that, when combined with the cumulative increase of all other anthropogenic sources of GHGs, affects global climate change.

All potential Project impacts to greenhouse gas emissions have been determined to be less than significant. As demonstrated in the impact analysis above, the Project would achieve an approximately 30.6 percent reduction from the BAU inventory and, therefore, would not significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32 or conflict with implementation of the Scoping Plan. The Project promotes the goals of the Scoping Plan through implementation of regulations that apply to project sources that reduce energy consumption, water consumption, and reduction in VMT. While the project does not require GHG emissions mitigation, the proposed project would be required to comply with the 2013 California Green Building Standards Code (CALGreen Code), which includes measures to

increase the energy efficiency of buildings and other measures that would help reduce GHG emissions. Cumulative impacts would be less than significant.

4.9. Hazards and Hazardous Materials

This section evaluates the potential impact to human health and the environment due to the exposure to hazardous materials or conditions that could be encountered as a result of the development and operation of the proposed project. Potential impacts associated with air contaminants that could be emitted during construction and operation of the project are addressed in Section 4.3, Air Quality, while the potential hazardous material effects on groundwater are addressed in Section 4.9, Hydrology and Water Quality.

The analysis contained in this section is based on the following reference documents:

- Initial Site Assessment/ Phase I Environmental Site Assessment (ISA/ESA) (Hanover 2013, see Appendix F)
- City of Williams, 2011 Public Review Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

Initial Site Assessment/ Phase I Environmental Site Assessment (ISA/ESA) report prepared for the recently completed Margurite Street Extension Project (Hanover 2013)

4.9.1. Existing Setting

The City of Williams had an Initial Site Assessment/ Phase I Environmental Site Assessment (ISA/ESA) report prepared for the recently completed Margurite Street Extension Project (Hanover 2013). The ISA/ESA evaluated the public right-of-way located at State Route 20 east of the I-5 Interchange between PM 22.2 and PM 22.8, and portions of the following Colusa County Assessor Parcel Numbers (APNs 016-070-044, -053, -055 and -113). Following construction of the Margurite Street extension APN 016-070-044 was split to include APN 016-070-119 and APN 016-070-120. The current Project occurs on the 11.15 ac APN 016-070-119. The majority of APN 016-070-119 was evaluated in the 2013 ISA/ESA.

A search of Federal and State databases containing known and suspected sites of environmental contamination was conducted. The Federal and State databases searched include.

Standard Environmental Record Sources*	Additional Environmental Record Sources
Federal NPL Site List	State and Local HIST CAL-SITES
Federal Proposed NPL Site List	State and Local CA BOND EXP PLAN List
Federal Delisted NPL Site List	State and Local SCH List
Federal NPL Liens Site List	State and Local WDS List
Federal LIENS2 List	State and Local NPDES List
Federal CORRACTS List	State and Local Cortese List
Federal US ENG CONTROLS List	State and Local HIST CORTESE List
Federal US INST CONTROL List	State and Local SWRCY List
Federal DOT OPS List	State and Local LEAKING UNDERGROUND STORAGE TANK Sites

Federal US CDL List	State and Local CA FID UNDERGROUND STORAGE TANK Sites
Federal US BROWNFIELDS List	State and Local SLIC List
Federal Department of Defense Site	State and Local UST Sites
Federal Formerly Used Defense Sites	State and Local HIST UST Sites
Federal LUCIS List	State and Local SWEEPS UST List
Federal CONSENT List	State and Local CHMIRS List
Federal ROD List	State and Local ABOVEGROUND STORAGE TANK Sites
Federal UMTRA Sites	State and Local NOTIFY 65 List
Federal DEBRIS REGION 9 List	State and Local VCP List
Federal ODI List	State and Local DRYCLEANERS Sites
Federal MINES List	State and Local RESPONSE List
Federal TSCA List	State and Local HAZNET List
Federal FTTS List	State and Local EMI List
Federal HIST FTTS List	State and Local ENVIROSTAR List
Federal SSTS List	State and Local HWP List
Federal ICIS List	State and Local PROC List
Federal PADS List	State and Local EDR PROPRIETARY RECORDS List
Federal MLTS List	State and Local Toxic Pits List
Federal RADINFO List	State and Local SWF/LF List
Federal RAATS List	State and Local WMUDS/SWAT List
Federal SCRD DRYCLEANERS Sites	State and Local LIENS List
Federal UST HIST CDL List	State and Local LDS List
Federal PCB TRANSFORMER List	State and Local MCS List
Federal Facility Site Information List	State and Local DEED List
Federal COAL ASH DOE List	State and Local WIP List
Federal FEMA UST List	State and Local CDL List
Federal COAL ASH EPA List	State and Local ENF List
Federal CERCLIS List	State and Local HAULERS List
Federal CERCLIS NFRAP List	State and Local MWMP List
Federal RCRA TSDF List	State and Local HWT List
Federal RCRA Large Quantity Generators List	Tribal INDIAN RESERV List
Federal RCRA Small Quantity Generators List	Tribal INDIAN ODL List
Federal RCRA CESQG List	Tribal INDIAN LUST List
Federal RCRA NONGEN List	Tribal INDIAN UST List
Federal ERNS List	Tribal INDIAN VCP List
Federal HMIRS List	
Federal TRIS List	
Federal FINDS List	

*Acronyms and abbreviations are provided in the ISA/ESA (Hanover 2013).

The following is a list of additional local environmental and historic record sources contacted/reviewed in the ISA/ ESA:

- City of Williams / County of Colusa Building Department
- Colusa County Department of Environmental Health
- Colusa County Assessor
- State Water Resources Control Board GeoTracker® Database

4.9.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding hazards or hazardous materials.

4.9.3. Existing Policies and Regulations

4.9.3.1 Federal Regulations

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Discovery of environmental health damage from disposal sites prompted the U.S. Congress to pass CERCLA, also known as "Superfund". The purpose of the CERCLA is to identify and clean up chemically contaminated sites that pose a significant environmental health threat. The Hazard Ranking System is used to determine whether a site should be placed on the National Priorities List for cleanup activities.

Superfund Amendments and Reauthorization Act (SARA): Pertains primarily to emergency management of accidental releases. It requires formation of state and local emergency planning committees, which are responsible for collecting, material handling, and transportation data for use as a basis for planning. Chemical inventory data are made available to the community at large under the "right-to-know" provision of the law. In addition, SARA also requires annual reporting of continuous emissions and accidental releases of specified compounds. These annual submissions are compiled into a nationwide Toxics Release Inventory (TRI).

Resource Conservation and Recovery Act (RCRA): Addresses hazardous waste generation, handling, transportation, storage, treatment, and disposal. It includes requirements for a system that uses hazardous waste manifests to track the movement of waste from its site of generation to its ultimate disposition. The 1984 amendments to the RCRA created a national priority for waste minimization. Subtitle D establishes national minimum requirements for solid waste disposal sites and practices. It requires states to develop plans for the management of wastes within their jurisdictions. Subtitle I requires monitoring and containment systems for underground storage tanks that hold hazardous materials. Owners of tanks must demonstrate financial assurance for the cleanup of a potential leaking tank.

Hazardous Materials Transportation Act: This is the statutory basis for the extensive body of regulations aimed at ensuring the safe transport of hazardous materials on water, rail, highways, in the sky, or in pipelines and includes provisions for materials classification, packaging, marking, labeling, placarding, and shipping documentation.

4.9.3.2 State Regulations

California Code of Regulations: The California Code of Regulations (CCR), Title 22, Division 4.5 contains the detailed compliance requirements for hazardous waste generators,

transporters, treatment, storage, and disposal facilities. Because California is a fully authorized state according to RCRA, most RCRA regulations (those contained in 40 Code of Federal Regulations [CFR] 260, et seq.) have been duplicated and integrated into Title 22.

The Department of Toxic Substance Control (DTSC) regulates hazardous waste more stringently than the U.S. EPA, and subsequently federal hazardous waste regulations that make up Title 22 do not contain as many exemptions or exclusions as does 40 CFR 260. Title 22 also regulates a wider range of waste types and waste management activities than do the RCRA regulations in 40 CFR 260.

To aid the regulated community, California compiled the hazardous materials, waste and toxics-related regulations contained in CCR, Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 into one consolidated CCR, Title 26 "Toxics." However, the California hazardous waste regulations are still commonly referred to as Title 22. For the purposes of clarity, because of the extensive reach of Title 22 and Title 26, many common household products sold in grocery stores and home improvement warehouses qualify as hazardous materials. These items include household cleaners, detergents, paint, motor oil, lubricants, glues, pesticides, etc. The term "hazardous materials" is also defined to include many on site materials as well, such as lubricants, fuel, etc. Thus, when this section of the EIR discusses the transport and storage of "hazardous materials," it is referring to the potential transport of bulk products to the project locations and to the temporary storage of such materials at the project sites prior to re-package and transport to subsequent destinations.

Cortese List: Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to develop at least annually an updated Hazardous Waste and Substances Sites list (Cortese List). The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites, include the following:

- All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
- All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
- All information received by the Department of Toxic Substances Control pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
- All sites listed pursuant to Section 25356 of the Health and Safety Code.
- All sites included in the Abandoned Site Assessment Program

California Hazardous Material Management Act (HMMA): Requires that businesses handling or storing certain amounts of hazardous materials prepare a Hazardous Materials Business Emergency/Contingency Plan (HMBEP), which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an

employee training program. An HMBEP is a written set of procedures and information created to help minimize the effects and extent of a release or threatened release of a hazardous material. The intent of the HMBEP is to satisfy Federal and State Community Right-to-Know laws and to provide detailed information for use by emergency responders.

Per the California Health and Safety Code (HSC), Chapter 6.95, Section 25500–25532, an HMBEP must be submitted by any business that handles a hazardous material or a mixture containing a hazardous material in quantities equal to, or greater than:

- A total weight of 500 pounds or a total volume of 55 gallons;
- 200 cubic feet of a compressed gas at standard temperature and pressure; and/or
- A radioactive material handled in quantities for which an emergency plan is required pursuant to Parts 30, 40, or 70 of Chapter 10, Title 10, CFR, or equal to or greater than the amounts specified above, whichever amount is less.

An HMBEP must be prepared prior to facility operation. Any business subject to HMBEP requirements shall submit an amendment of their HMBEP to the local implementing agency when there is:

- A 100 percent or more increase in the quantity of a previously disclosed hazardous material;
- Any handling of a previously undisclosed hazardous material subject to the inventory requirements;
- Change of business address;
- Change of ownership;
- Change of business name; and/or
- Change of contact information.

Further, any business subject to HMBEP requirements is also required to certify the inventory of hazardous materials handled at the business every year. Businesses are also required to review their HMBEP at least once every three years to determine if a revision is necessary. Once the review has been conducted, the business must certify in writing to the local implementing agency that a review has been completed and necessary changes were made.

California Hazardous Waste Control Law (HWCL): The HWCL requires a hazardous waste generator, which stores or accumulates hazardous waste for periods greater than 90 days at an on- site facility or for periods greater than 144 hours at an off-site or transfer facility, which treats, or transports hazardous waste, to obtain a permit to conduct such activities. The HWCL implements RCRA as a “cradle-to-grave” waste management system in the State of California. HWCL specifies that generators have the primary duty to determine whether their wastes are hazardous and to ensure their proper management. The HWCL also establishes criteria for the reuse and recycling of hazardous wastes used or reused as raw materials. The HWCL exceeds federal requirements by mandating source reduction planning and a much broader requirement

for permitting facilities that treat hazardous waste. HWCL regulates the number of types of wastes and waste management activities that are not covered by federal law with RCRA.

State Aeronautics Act (Public Utilities Code Section 21670, et seq.): The Public Utilities Code (PUC) requires the creation of airport land use commissions for every county in which there is located an airport that is served by a scheduled airline. Additionally, these sections of the Code mandate the preparation of Comprehensive Land Use Plans (CLUP) to provide for the orderly growth of each public airport and the area surrounding the airport.

California Emergency Services Act: Government Code 8550-8692 provides for the assignment of functions to be performed by various agencies during an emergency so that the most effective use may be made of all manpower, resources, and facilities for dealing with any emergency that may occur.

State Fire Plan: The State Board of Forestry and the California Department of Forestry and Fire Protection have drafted a comprehensive update of the State Fire Plan for wildland fire protection in California. The planning process defines a level of service measurement, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis.

4.9.3.3 Local Regulations

The Public Safety Element of the City of Williams General Plan defines the policies related to hazards and hazardous materials (Table 24).

Table 24. General Plan Policy's and Consistency; hazards and hazardous materials

Policy	Consistency
4.35: The City will coordinate with appropriate federal, state, and regional agencies to address local sources of groundwater and soil contamination, including underground storage tanks, septic tanks, agriculture, and industrial uses.	Not Applicable. This policy applies to the City and not to individual development projects.
4.36: The Williams Fire Protection Authority will assume responsibility for hazardous materials incidents that occur within the City limits, and provide assistance, as needed, in the instance of an incident in proximity to yet outside of the City.	Not Applicable. This policy applies to the City and not to individual development projects.
4.37. The City will work with the Colusa County Office of Emergency Services to coordinate their response to any hazardous materials incidents.	Not Applicable. This policy applies to the City and not to individual development projects.
4.38. The City will continue to cooperate with Colusa County in the acceptance of household hazardous wastes at the Road Department in Williams.	Not Applicable. This policy applies to the City and not to individual development projects.
4.39. The City will support the WFPA's efforts to train its firefighters in basic hazardous materials fire training.	Not Applicable. This policy applies to the City and not to individual development projects.
4. 40. The City will establish hazardous materials routes, which should be listed in the National Hazardous Materials Registry managed by the U.S. Department of Transportation Federal Motor Carrier Safety Administration (FMCSA).	Not Applicable. This policy applies to the City and not to individual development projects.
4.41. The City will establish designated truck routes	Not Applicable. This policy applies to the City and

Policy	Consistency
through and around the City via an ordinance adopted by the City Council.	not to individual development projects.
4.42. The City will establish safeguards for the aerial spraying of pesticides and other agricultural chemicals within or in near proximity to the City limits.	Not Applicable. This policy applies to the City and not to individual development projects.
4.43. New development adjacent to areas of ongoing agricultural development shall provide agricultural buffers that are adequate to protect residents from the harmful effects of agricultural chemical use.	Consistent. The project does not include residential development
4.44. The City will educate the public as to the types of household hazardous waste and the proper means of disposal.	Not Applicable. This policy applies to the City and not to individual development projects.
4.45. The City will require that development project proposals address existing hazardous materials concerns, particularly past agricultural uses, through preparation of Phase I or Phase II hazardous materials studies.	Consistent. The Project evaluates potential hazardous materials concerns in this document.

4.9.4. Methodology

An evaluation of potential hazards and hazardous material impacts associated with the proposed Project included an analysis of potential future use, generation, management, transport, and disposal of hazardous or potentially hazardous materials on the Project site.

When contemplating the level of significance determinations, this analysis assumes that construction and operation of the proposed project would be in compliance with relevant local, state, and federal laws and regulations pertaining to the use, storage, and disposal of hazardous materials.

4.9.5. Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed project would result in a significant adverse impact with regard to hazards if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- 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 create a significant hazard to the public or the environment;
- 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, result in a safety hazard for people residing or working in the project area;

- For a project located within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation; and/or
- Result in the exposure of 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.

4.9.6. No Impact or Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.9.6.1 Significant Hazard to the Public: Routine Transport or Reasonably Foreseeable Upset and Accident Conditions

Thresholds: Create a significant hazard to the public or the environment through the, use, or disposal of hazardous materials; or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Potentially hazardous materials such as petroleum products, pesticides, fertilizer, and other household hazardous products such as paint products, solvents, and cleaning products may be stored and transported in conjunction with the proposed Project uses. These potentially hazardous materials are expected only to be stored and transported to and from the site. Manufacturing and other chemical processing are not expected to occur as a part of the Project uses. Exposure to hazardous materials during the operation of the proposed on-site uses may result from: (1) the improper handling or use of hazardous substances; (2) transportation accident; or (3) an unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type and amount of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

The proposed project will dispense diesel and gasoline fuel to trucks and passenger cars that utilize the travel center. The proposed Project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. Of the 22 fueling positions, 14 pumps would dispense gasoline, and the remaining eight would dispense diesel fuel. The 22 fueling positions would be supplied by: two underground auto fuel storage tanks consisting of one 20,000 gallon and one 30,000 gallon tank; five 12,000-gallon above ground truck diesel fuel storage tanks; and one 20,000-gallon underground Diesel Exhaust Fluid (DEF) tank. The completed Project will also house a 1,000 gallon propane tank.

All project-related underground fuel storage tanks will be double walled and all above ground fuel storage tanks will be surrounded by eight-foot high fencing. The seven fuel storage tanks will be installed during Project construction, and the fuel tank storage area will have appropriate

safety design, equipment, and signage to protect public health and safety from leaks, fires, or spills involving vehicle fuel if any were to occur on the Project site.

As described in Title 49 of the Code of Federal Regulations and implemented by Title 13 of the CCR, the United States Department of Transportation (USDOT) Office of Hazardous Materials Safety has established strict regulations for the safe transportation of hazardous materials. Appropriate documentation for all hazardous waste that is transported in connection with project-site activities would be provided as required for compliance with existing hazardous materials regulations. Hazardous wastes produced on site are subject to requirements associated with accumulation time limits, proper storage locations and containers, and proper labeling. Additionally, for removal of hazardous waste from the site, hazardous waste generators are required to use a certified hazardous waste transportation company, which must ship hazardous waste to a permitted facility for treatment, storage, recycling, or disposal.

Compliance with applicable regulations would reduce impacts associated with the use, transport, storage, and sale of hazardous materials. As previously stated, both the federal government and the State of California require all businesses that handle more than a specified amount of hazardous materials or extremely hazardous materials, to submit an HMBEP to its local Certified Unified Program Agency (CUPA). The CUPA with responsibility for the City of Williams is the Colusa County Department of Environmental Health.

The HMBEP must include an inventory of the hazardous materials used in the facility, and emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. The HMBEP must include the Material Safety Data Sheet for each hazardous and potentially hazardous substance used. The Material Safety Data Sheets summarize the physical and chemical properties of the substances and their health impacts. The plan also requires immediate notification to all appropriate agencies and personnel of a release, identification of local emergency medical assistance appropriate for potential accident scenarios, contact information of all company emergency coordinators of the business, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel.

HMBEPs are designed to be used by responding agencies, such as the City of Williams Fire Department during a hazardous materials release to allow for a quick and accurate evaluation of each situation for an appropriate response. HMBEPs are also used during a fire to quickly assess the types of chemical hazards that fire-fighting personnel may have to deal with, and to make decisions as to whether or not the surrounding areas need to be evacuated.

Compliance with existing law will ensure that no significant impacts pertaining to the creation of hazards affecting the public will occur. The handling of hazardous materials in accordance with the HMBEP as required by applicable local, state, and federal standards, ordinances, and regulations would ensure that impacts associated with environmental and health hazards related to an accidental release of hazardous materials are less than significant. No mitigation is required.

4.9.6.2 Existing or Proposed School

Thresholds: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No existing or proposed schools occur within 0.25 mile of the Project site. The Woodland Community College, Colusa County Outreach Facility, and the Colusa County Department of Education, Alternative Education School and Special Education/Severely Handicapped School occur south of the proposed Project site. The Alternative Education School is located just south of the Outreach Facility. The proposed Project is a minimum of approximately 0.4 mile north of the Outreach Facility. No impact will occur and no mitigation in needed.

4.9.6.3 Located on a List of Hazardous Materials Sites

Thresholds: Create a significant hazard to the public or the environment through the, use, or disposal of hazardous materials; or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No mapped sites were found in the databases searched of available ("reasonably ascertainable ") government records either on the Project property or within the search radius around the target property. The subject property was not listed in any of the database reports. During a site reconnaissance on 27 August 2013 the following items were noted:

- Structures: No structures occur in the Project area.
- Hazardous Substances: No hazardous substances were identified on the subject property during the site reconnaissance.
- Petroleum Products: No petroleum products were observed on the subject property at the time of the inspection.
- USTs: No underground storage tanks (USTs) were recorded to exist historically or currently on the subject property.
- ASTs: No aboveground storage tanks (ASTs) were recorded to exist historically or currently on the subject property.
- Other Suspect Containers: No suspect containers were identified on the subject property at the time of the inspection.
- Equipment Likely to Contain PCBs: No transformers were observed on subject property at the time of the inspection.
- Interior Staining/Corrosion: No interior and exterior staining/corrosion was observed on the subject property.
- Discharge Features: No discharge features (floor drains, catch basins, oil/water separators, etc.) were observed on the subject property during the site inspection.
- Pits, Ponds, and Lagoons: No pits, ponds or lagoons were observed on the subject property during the site reconnaissance.

- Solid Waste Dumping/Landfills: No readily apparent evidence of solid waste dumping, suspect material, or landfill was identified on the subject property during the site inspection.
- Stained Soil/Stressed Vegetation: No stressed vegetation was observed on the subject property during the site reconnaissance.
- Wells: No wells were observed on the subject property during the site reconnaissance.

Aerially Deposited Lead (ADL) refers to lead deposited along highway shoulders from past leaded fuel vehicle emissions. While leaded fuel has been prohibited in California since the 1980's, ADL can still be found along highways that were in use prior to that time. Ella Street and Margurite Street was constructed in 2008-2009 and Margurite Street was constructed in 2015. In approximately 1971 Interstate 5 was constructed thought the City of Williams and Highway 20 was constructed in its current alignment through the Project Area. ADL would not be expected in significant quantities along Ella Street or along the recently constructed Margurite Street. No impact will occur and no mitigation in needed.

4.9.6.4 Within an Airport Land Use Plan or Within Two Miles of a Public Use Airport

Thresholds: Create a significant hazard to the public or the environment through the, use, or disposal of hazardous materials; or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Williams is not located within the boundaries of an airport land use plan or within two miles of a public airport. No impact will occur and no mitigation in needed.

4.9.6.5 Vicinity of a Private Airstrip

Thresholds: Create a significant hazard to the public or the environment through the, use, or disposal of hazardous materials; or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The Williams Soaring Center is a small private glider airport located immediately east of Husted Road north of its intersection with E Street. The private use airstrip is located approximately 3,300 ft (.62 mile) east of the Project site. The Project would not result in a hazard for people residing or working near an airport or landing strip. No impact will occur and no mitigation in needed.

4.9.6.6 Conflict with an Emergency Response Plan

Thresholds: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed Project will be designed, constructed, and maintained in accordance with applicable standards associated with vehicular access, ensuring that vehicular access will provide for adequate emergency access and evacuation. No road closures are anticipated from

construction of the proposed Project. Construction activities including utility hook ups and drainage infrastructure could cause temporarily lane closures on Margurite Street. The proposed project would not restrict access to any nearby residences or businesses. Project construction activities would be coordinated with local law enforcement and emergency services providers. Compliance with existing regulations for emergency access and evacuation will ensure impacts are less than significant, and no mitigation is required.

4.9.6.7 Wildland Fire Risks

Thresholds: 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?

Williams is surrounded by cultivated farmland, used primarily for growing rice. The threat of wildland fires is considered to be minimal. No impact will occur and no mitigation in needed.

4.9.7. Significant Impacts

All potential Project impacts related to hazards and hazardous materials have been determined to be less than significant. No significant hazards and hazardous materials impact would result from the implementation of the proposed Project.

4.9.8. Cumulative Impacts

The cumulative area for hazards and hazardous materials is the City of Williams and Colusa County. Significant cumulative impacts associated with the routine transport, use, and disposal of hazardous materials could occur as the proposed Project would increase the amount of truck traffic in the area. The proposed Project when viewed in combination with other similar projects has the potential to create a significant cumulative impact related to routine transport, use, and disposal of hazardous materials. It is reasonable to assume that with an increase in vehicles transporting hazardous materials, the potential for accidents would be increased.

It is anticipated that the availability of vacant property in the City would lead to the new development in the City and surrounding area. While project-specific hazardous material impacts of individual development projects would be addressed separately in future CEQA documents, anticipated future development will contribute, through increases in population and the number of outlets that transport, or dispose of hazardous materials, to a cumulative increase in risk for hazardous material incidents. While each project has unique hazardous materials considerations, it is anticipated that future cumulative projects would comply with the local, state, and federal regulations and requirements as these are required for all development projects. Subsequently the cumulative impacts associated with hazardous materials would be less than significant.

4.10. Hydrology and Water Quality

This section describes the hydrologic conditions in and adjacent to the Project site and evaluates potential impacts to surface and groundwater resources associated with the proposed Project. The analysis contained in this section is based on the following reference documents:

- Storm Drainage Master Plan (SDMP, City of Williams 2007).
- City of Williams Municipal Service Review (Colusa LAFCO 2013).
- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.10.1. Existing Setting

The City of Williams extends from both sides of Interstate 5 in Colusa County. The City generally slopes from southwest to northeast with a very flat to relatively flat gradient that averages in the range of about 0.05 % to 0.5%. Land elevations range from about 110 feet above mean sea level (msl) to about 60 feet above msl.

4.10.1.1 Surface Water

The City is located in the 1,850 square mile Sacramento-Stone Corral (18020104) watershed. The City's SDMP divides the City into seven local watersheds and 115 sub-basins ranging in size from 5.5 acres to 293 acres (City of Williams 2007). The Project site is located in 'Northeast Watershed (NE)' and more specifically in the 101 acre NE16 sub basin.

The approximately 446 acre NE Watershed is predominantly located east of 9th Street and Zumwalt Road, north of Theater Road and west of I-5. The west portion of this watershed (west of the Union Pacific Transportation Company railroad) mainly consists of existing single family residential and commercial uses. The east portion (between the railroad and I-5) includes a combination of agricultural, industrial, and commercial land uses under existing conditions. Storm water runoff in the western portion of this watershed flows from south to the north as surface drainage with several underground siphons crossing streets at intersections. The downstream point of concentration is at the eastern terminus of "B" Street at I-5. Storm water runoff at this location is conveyed underneath I-5 via a 2-cell 5'x2' reinforced concrete box culvert and discharges into a drainage canal that runs to the north along the east side of Interstate 5. The drainage canal is lined with concrete for approximately 200 feet, passing over a larger box culvert that also flows under Interstate 5. The majority of the drainage canal is unlined.

The Husted Lateral Detention Basin 7, as identified in the Storm Drainage Master Plan (City of Williams 2007), is located approximately 0.25 mi east of the Project area. The Husted Lateral Detention Basin 7 was constructed in 2008-2009. The basin has a surface area of 29.2 ac and a capacity of 101 acre feet. The detention basin is considered to have non-interruptible outlet facilities and has been sized for inflow from a 100-year 24-hour storm (developed conditions) with outflows limited to rates that are consistent with existing conditions.

Just south of State Route 20, the channel turns to the east and flows on the south side of State Route 20 and joins the Husted Lateral south of the intersection of State Route 20 and Husted Road, eventually draining to the Colusa Trough several miles downstream to the east.

4.10.1.2 Groundwater

The City of Williams is part of the 918,380 ac (1,434 square miles) Colusa Subbasin (basin no. 5-21.5) within the Sacramento Valley Groundwater Basin. Groundwater exists at shallow levels within the study area, and is generally estimated to be at depths as shallow as 5 or 6 feet below ground surface (City of Williams 2007). The actual depth to groundwater varies across the overall study area and is subject to seasonal fluctuations.

The Colusa Subbasin aquifer system is composed of continental deposits of late Tertiary to Quaternary age (City of Williams 2013). Quaternary deposits include Holocene stream channel and basin deposits and Pleistocene Modesto and Riverbank formations. The Tertiary deposits consist of the Pliocene Tehama Formation and the Tuscan Formation.

The City provides potable water to residences and business, including approximately 2,100 meters. The City system includes a 100,000 gallon elevated water storage tank, together with three active and two standby groundwater wells. The three active wells include numbers 8, 9 and 10, which collectively pump approximately 2,800 gallons per minute (GPM). The two standby wells have a total pump capacity of 820 GPM, although they each have poor water quality. The wells draw ground water from depths ranging from 120 feet to as deep as 500 feet. The source of groundwater is recharge from the hills to the west. Each well pumps directly to the distribution system, which largely includes eight inch water lines.

Groundwater Level Trends: Review of hydrographs for long-term comparison of spring-spring groundwater levels indicates a slight decline in groundwater levels associated with the 1976-77 and 1987-94 droughts, followed by recovery to pre-drought conditions of the early 1970's and 1980's. Some wells increased in levels beyond the pre-drought conditions of the 1970's during the wet season of the early 1980's. Generally, groundwater level data show an average seasonal fluctuation of approximately 5-feet for normal and dry years. Overall there does not appear to be any increasing or decreasing trends in groundwater levels (City of Williams 2013).

Groundwater Storage: The storage capacity of the subbasin was estimated based on estimates of specific yield for the Sacramento Valley as developed by the California Department of Water Resources (DWR). Estimates of specific yield, determined on a regional basis, were used to obtain a weighted specific yield conforming to the subbasin boundary. The estimated specific yield for the subbasin is 7.1 percent. The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre feet.

Groundwater Budget: Estimates of groundwater extraction for the Colusa Subbasin are based on surveys conducted by the DWR during 1993, 1994, and 1999. Surveys included land use and sources of water. Estimates of groundwater extraction for agricultural, municipal and industrial, and environmental wetland uses are 310,000, 14,000 and 22,000 acre-feet respectively. Deep percolation from applied water is estimated to be 64,000 acre-feet.

Groundwater Quality

Characterization: Calcium-magnesium bicarbonate and magnesium/calcium bicarbonate are the predominant groundwater types in the subbasin. Calcium bicarbonate waters occur locally from Orland to Artois and near Stony Creek. Mixed character waters for different regions of the subbasin occur as follows: sodium bicarbonate waters from Williams-Colusa south to Grimes; magnesium-sodium bicarbonate or sodium-magnesium bicarbonate waters near Williams-Arbuckle area and locally near Zamora; and magnesium bicarbonate waters locally near Dunnigan. Total dissolved solids (TDS) values range from 120- to 1,220-miligram per liter (mg/L), averaging 391 mg/L.

Impairments: High electrical conductivity (EC), TDS, adjusted sodium absorption ratio (ASAR), nitrate, and manganese impairments occur near Colusa. High TDS and boron occur near Knights Landing. High nitrates occur in Arbuckle, Knights Landing, and Willows. Localized areas have high manganese, fluoride, magnesium, sodium, iron, ASAR, chloride, TDS, ammonia, and phosphorus.

Storm Drainage and Flooding: The City of Williams currently retains only a limited number of underground storm drains for the collection and disposal of storm water runoff. Conveyance of drainage runoff within urbanized portions of the City is predominantly via overland sheet flow from southwest to the northeast, roadside ditches, valley gutters, siphons ("bubble ups"), and surface drainage in streets. The northeastern areas of the City on the east side of Interstate 5 often experience flooding by accumulations of storm runoff and limitations on downstream capacities of facilities crossing Interstate 5 and State Route 20 and beyond. During sustained periods of rainfall, high water levels in Salt Creek to the north and backup from the Colusa Drain to the east also serve to exacerbate local flooding by restricting storm water discharges to the north and the east.

The north portions of the City are also subject to flooding from Salt Creek itself. Salt Creek is the largest drainage feature in the immediate area, flowing from west to east along the north boundary of City. As high flows in Salt Creek pass through culverts under the Union Pacific Transportation Company (UPTC) railroad track located north of SR20, flows exceeding the capacity of the culverts run to the south along the west side of the railroad and cause flooding of the area north of "E" Street. A Letter of Map Revision (LOMR) and associated revised flood hazard map was completed for the geographic area that includes the Project area. The 2 July 2015 effective Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA) depict areas of special flood hazard along Salt Creek and Spring Creek.

The SDMP study area is also traversed or bordered by several irrigation canals owned and operated by the Glenn-Colusa Irrigation District (GCID). The largest of these facilities pass through the northern portions of the SDMP study area and along the south boundary of the study area. According to the staff of GCID, the irrigation canals in this area generally flow at or near capacity throughout a majority of the year to meet the irrigation water demands of agricultural lands.

4.10.1. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding hydrology and water quality.

4.10.2. Existing Policies and Regulations

4.10.2.1 Federal Regulations

Clean Water Act: The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA was amended in 1972 to prevent discharge of pollutants to Waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit.

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the NPDES program, administered by the U.S. Environmental Protection Agency (EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs).

The NPDES program provides both General Permits (those that cover a number of similar or related activities) and Individual Permits. Pursuant to requirements of the State Water Resources Control Board and the NPDES, General Permit No. CAS000002 applies to all construction activities Statewide. Construction activity includes clearing, grading, or excavation that results in the disturbance of at least one acre of total land area, or activity which is part of a larger common plan of development of one acre or greater. On September 22, 2009, the SWRCB adopted a revised NPDES general permit that regulates stormwater quality at construction sites throughout the State ("Permit"). The NPDES general permit has been revised twice. The latest amendment occurred in 2012 via Order 2012-0006-DWQ, effective 17 July 2012. Major components of the Revised Permit include:

- Risk-based Permitting Approach: The Revised Permit includes a three-tiered system for discharges (identified as Risk Levels 1, 2, and 3) that is based on the relative risk the project poses to causing water quality impacts. Specific permit requirements for each risk level are set forth in the Revised Permit and are more onerous the higher the risk level. Risk levels are established by calculating two factors: (i) the project's sediment risk; and (ii) receiving water risk during periods of soil exposure (i.e., grading and site stabilization).
- Numeric Action Levels: Under the Revised Permit, dischargers must meet specific Numeric Action Levels (NALs) for pH and turbidity. Exceedance of a NAL does not constitute a permit violation, but does trigger mandatory follow-up such as implementation of additional BMPs and/or corrective action.
- Post-Construction Standards: The Permit looks not only at construction-related impacts, but also at the direct effects of the construction activities after construction is complete. Under the Permit, all dischargers will be required to replicate the pre-project water balance (i.e., the volume of rainfall that ends up as runoff) for the smallest storms up to

the 85th percentile storm event (or the smallest storm event that generates runoff, whichever is larger). For projects that disturb more than two acres, dischargers will need to ensure that post- project time of runoff concentration is equal to or greater than pre-project time of concentration. Finally, all dischargers will be required to implement BMPs to reduce pollutants in stormwater discharges that are reasonably foreseeable after all construction phases have been completed.

- Best Management Practices: The Permit specifies mandatory, minimum BMPs to prevent stormwater pollution and post-construction impacts.
- Rain Event Action Plan: The Existing Permit requires that during the non-rainy season, dischargers are responsible for ensuring that adequate sediment control materials are available to control sediment discharges in the event of a predicted storm. It further requires that Risk Levels 2 and 3 discharge sites develop and implement a Rain Event Action Plan (REAP) designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event. An REAP, a written document specific for each rain event, will be required whenever there is a 50 percent or greater chance of receiving precipitation in the Project area.
- Monitoring and Reporting Requirements: In addition to visual monitoring of discharges at all sites, the Permit requires the following:
    - Sampling, analysis, and monitoring requirements for non-visible pollutants at all sites subject to the Permit;
    - Effluent and receiving water monitoring for pH and turbidity for all Risk Level 3 sites;
    - Receiving water bio-assessment sampling before and after project completion for larger Risk Level 3 sites; and
    - Submission of an Annual Report no later than September 1 of each year. Each Annual Report must include stormwater monitoring and analysis information.

The NPDES permit deals with both the construction phase and operational phase of development projects. For the construction phase of a project, the NPDES permit identifies the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The Project proponent will be required to obtain a construction NPDES permit prior to site grading.

The implementation of NPDES permits ensures that the state's mandatory standards for the maintenance of clean water and the federal minimums are met. Coverage under with the permit would prevent sedimentation and soil erosion through implementation of an SWPPP. A SWPPP is a written document that describes the construction operator's activities to comply with the requirements in the NPDES permit. The SWPPP is intended to facilitate a process whereby the operator evaluates potential pollutant sources at the site and selects and implements BMPs designed to prevent or control the discharge of pollutants in stormwater runoff.

Stormwater control measures during construction and grading will be outlined in the proposed project's SWPPP. Examples of such BMP control measures include detention basins for containment, use of silt fencing, gravel bags, or straw bales to control runoff, and identification of emergency procedures in case of hazardous materials spills.

Pursuant to Section 404 of the CWA, the United States Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. A project-specific discussion regarding Section 404 issues is provided in Section 4.4 (Biological Resources) of this EIR.

National Flood Insurance Program: The National Flood Insurance Program (NFIP) is a relatively recent federal program. The federal government has been actively involved in flood control since 1927 following major floods on the Mississippi River. Beginning with the Flood Control Act of 1936, Congress assigned the USACE the responsibility for flood control engineering works and later for floodplain information services. Flood control was provided through the construction of dams and reservoirs. Despite these programs and rapidly rising federal expenditures for flood control, flood losses continued to rise. In 1968, Congress passed the National Flood Insurance Act, which created the NFIP. The Flood Disaster Protection Act of 1973, which amended the 1968 Act, required the purchase of flood insurance by property owners who were located in special flood hazard areas and were being assisted by federal programs, or by federally supervised, regulated, or insured agencies or institutions.

National Flood Insurance Program Reform Act of 1994: In 1994, the National Flood Insurance Program Reform Act went through its first major revision since its inception. Included in this revision were provisions that if a lender were to escrow an account and if the structure were in the floodplain, then the lender must escrow for flood insurance. The revised legislation also included increased flood insurance limits and the elimination of the 1962 buy-out program.

Executive Order 11988, Floodplain Management: Executive Order 11988 requires the USACE to provide leadership and to take action to:

- Reduce the hazards and risk associated with floods;
- Minimize the impact of floods on human health, safety, and welfare; and
- Restore and preserve the natural and beneficial values of the current floodplain.

4.10.2.2 State Regulations

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just Waters of the U.S., such as groundwater and surface waters not considered Waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA,

and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

The Health and Safety Code provides for protection of ground and surface waters from hazardous waste and other toxic substances. The Harbors and Navigation Code provides regulations designed to prevent the unauthorized discharge of waste from vessels into surface waters. The Fish and Game Code has provisions to prevent unauthorized diversions of any surface water and discharge of any substance that may be deleterious to fish, plant, animal, or bird life. The Food and Agriculture Code provides for the protection of groundwater that may be used for drinking water supplies.

The California Code of Regulations (CCR) also contains administrative procedures for the state and RWQCBs in Title 23; and for water quality for domestic uses, wastewater reclamation, and hazardous waste management in Title 22. The California Fish and Game Code (§1600 et. seq.) provides the California Department of Fish and Wildlife (CDFW) with authority to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected.

Groundwater Management Act (AB 3030) [Sections 10750–10756 of the California Water Code]: Provides a systematic procedure for an existing local agency to develop a groundwater management plan. The Code provides such an agency with the powers of a water replenishment district to raise revenue to pay for facilities to manage the basin (extraction, recharge, conveyance, quality).

Cobey-Alquist Flood Plain Management Act (California Water Code Section): This Act states that a large portion of land resources of the State of California is subject to recurrent flooding. The public interest necessitates sound development of land use, as land is a limited, valuable, and irreplaceable resource, and the floodplains of the State are a land resource to be developed in a manner that, in conjunction with economically justified structural measures for flood control, would result in prevention of loss of life and of economic loss caused by excessive flooding. The primary responsibility for planning, adoption, and enforcement of land use regulations to accomplish floodplain management rests with local levels of government. It is policy of the State of California to encourage local government to plan land use regulations to accomplish floodplain management and to provide state assistance and guidance.

California Toxics Rule: On May 18, 2000, the EPA promulgated numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to

waters in the State of California. The EPA promulgated this rule based on the Administrator's determination that the numeric criteria are necessary in California to protect human health and the environment. These federal criteria are legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

4.10.2.3 Local Regulations

The Public Facilities section the City of Williams General Plan defines the policies related to hydrology and water quality (Table 25).

Table 25. General Plan Policies and Consistency; Hydrology and Water Quality.

Policies & Actions	Consistency
Policy 5.1: The City of Williams will provide utilities concurrently with development.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.2: The City of Williams will provide utility service in logical order and therefore will not extend trunk facilities through significant expanses of vacant land. Exceptions will be made for industries that will make a significant contribution to the sustainability of the community.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.3: Improvements to the collection, distribution, treatment, and conveyance system will be commensurate with the demands of new development.	The proposed project has been designed to make any needed improvements to the collection, distribution, treatment, and or conveyance systems resulting from the construction and operation of the Project.
Policy 5.4: The City will identify non-development related NPDES permitting requirements to ensure they coordinate with development related regulations. Work to align all NPDES related efforts shall be a continuing effort.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.5: The City's ongoing efforts to improve the drainage system and to coordinate them with parks and recreational needs shall be communicated to all decision makers and City staff to ensure alignment.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.6: The City will amend its Storm Drainage Master Plan to take into consideration the Central Valley Flood Protection Plan and to incorporate design standards that go beyond engineering to incorporate aesthetic features.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.a: Adopt best management practices for piping, manholes, bedding and backfill materials, and incorporate these standards into the City's technical specifications for construction projects. Subsequently, implement additional checklist items related to NPDES compliance.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.b: Continue developing the City's Capital Improvement Program (CIP) to repair and replace aging and deteriorated sewer lines, which will improve the flow efficiency, reduce inflow and infiltration into the collection and treatment systems, and help to mitigate ground water impacts.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.c: Execute plans to install a new water well.	Not Applicable. This policy applies to the City and not to individual development projects.

Policies & Actions	Consistency
Action 5.d: Further develop plans for a second water storage tank	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.e: Amend the zoning ordinance to include ground water protection measures in site development standards. Include open space provisions in the density standards.	The Love's Country Store Project's 11.15-acre site would be occupied by approximately 0.84 ac (7.6% of total area) of new buildings/ structures and 7.72 ac (69.2% of total area) of new impervious surface for parking, fueling, canopies, etc. The approximate 2.59 (23.2%) remainder will be used for landscape buffers and plantings.
Action 5.f: Amend the subdivision ordinance to include ground water protection measures in future subdivisions.	Not Applicable. This action applies to the City and not to individual development projects.
Action 5.g: In accordance with AB 1881, the Water Conservation Landscape Act of 2006, develop water efficient landscaping standards for new development to include: • Requirements for specific species of plantings; • Prohibition of invasive species; • Submittal requirements for landscaping and irrigation plans (and requirement for both to be installed per approved plans); • Landscaping and hardscaping to be designed based on "hydrozone" specifications; • Provision for recirculating and recycling water systems; • Requirements for a soil report with recommendations regarding the most efficient types of planting and irrigation for the specific soil types existing on a site; • Specific "plant factors" in compliance with state standards for high, medium and low water using plantings; and • Irrigation to be designed according to hydrozone needs.	Landscape improvement plans, consistent with the City Code, Subsections 17.02.120.11 (Water efficiency landscape standards) and 17.02.120 (Landscaping and buffering) have been prepared for the Project by Thomas H. Phelps, Landscape Architecture.
Action 5.h: Develop design standards for detention basins based on type – aesthetic design for single use basins and recreational standards (development requirements) for joint use.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.i: For joint use detention basins, on a case-by-case basis, determine the proper cost share between drainage mitigation to be borne by future development versus public benefit of additional recreational infrastructure. Distinguish cost participation depending on the number of dwelling units that will be served by the recreational use. Establish guidelines for parkland dedication credit in future residential areas.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.j: Develop different sets of standards and specifications for drainage features. Draft the standards to correspond with the Land Use Plan character – rural, suburban, auto-urban, and urban.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.k: Incorporate into City standards and specifications means for addressing storm water quality, including a first preference for nonstructure best management practices such as bioretention, vegetated	Stormwater runoff from the proposed Project site will be directed to the existing Husted Lateral Detention Basin 7 located approximately 0.25 mi east of the Project area.

Policies & Actions	Consistency
swales and buffer strips, constructed wetlands, and other environmentally sensitive design and construction practices.	

4.10.1. Methodology

The evaluation of potential hydrology and water quality impacts included a review of the City General Plan and General Plan EIR as well as the Storm Drainage Master Plan (SDMP, City of Williams 2007) and City of Williams Municipal Service Review (Colusa LAFCO 2013).

4.10.2. Thresholds of Significance

The following thresholds of significance regarding potential impacts to hydrology and water quality are based on CEQA Guidelines. A project would have a significant impact on surface hydrology, water quality, and/or groundwater if it would:

- Result in violations of any water quality standards or waste discharge requirements of the City of Williams or the Regional Water Quality Control Board;
- 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;
- 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, siltation on site or off site;
- 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 which would result in onsite or off-site flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- 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;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam; and/or
- Expose people or structures to inundation by seiche, tsunami, or mudflow.

4.10.3. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.10.3.1 Violate Water Quality Standards or Waste Discharge Requirements

Thresholds: Result in violations of any water quality standards or waste discharge requirements of the City of Williams or the Regional Water Quality Control Board.

The proposed Project has been designed to be consistent with the applicable portions of the City of Williams Municipal Code Chapter 13.05 - *Storm Water and Urban Runoff Pollution Control* including:

- 13.05.060 - Best management practices.
- 13.05.070 - Construction storm water measures.

Coverage under the Statewide General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ) will be obtained. The City will require the contractor to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to reduce or minimize discharge of pollutants from construction activities.

The Project design includes operational BMP's that will reduce potential pollutant discharge. Fueling islands would consist of a concrete slab and canopy with a hydraulically isolated drainage system. The drainage system would be a concrete swale directing any stormwater runoff to a perimeter trench drain that discharges into an oil/water separator with an emergency shut-off valve. Any discharge that flows through the oil/water separator and perimeter trench drain would drain to the sanitary sewer system. The Project includes the installation of appropriately sized Jensen Sand-Oil Interceptors and Grease Interceptors (or equivalent) at the following locations:

- Auto Fueling Island (500 gallon capacity Sand-Oil Interceptor)
- Truck Fueling Island (3,000 gallon capacity Sand-Oil Interceptor)
- Tire Shop (500 gallon capacity Sand-Oil Interceptor)
- Convenience Store /Restaurant (Two, 2,000 gallon capacity Grease Interceptors)

The Project will install three underground auto fuel storage tanks and one 20,000-gallon underground Diesel Exhaust Fluid (DEF) tank. All other tanks are above ground installations. Underground Storage Tanks are regulated under the California Code of Regulations, Title 23, Water, Division 3, Chapter 16 ("Underground Storage Tank Regulations") to protect water quality. The tank installations will include a leak detection/continuous monitoring system.

Implementation of water quality BMPs as well as adherence to the Project NPDES Construction General Permit conditions will protect of water quality during construction and operation of the proposed Project. Project impacts are less than significant and no mitigation is needed.

4.10.3.2 Substantially Deplete Groundwater Supplies

Thresholds: 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.

The City system includes a 100,000 gallon elevated water storage tank, together with three active and two standby groundwater wells. The wells draw ground water from depths ranging

from 120 feet to as deep as 500 feet. The source of groundwater is recharge from the hills to the west and local irrigation of crops with surface water. Because of the distances between Williams and other communities in Colusa County, future increases in water supply pumping will not impede the availability of water supplies for other systems. Project impacts are less than significant and no mitigation is needed.

4.10.3.3 Substantially Alter the Existing Drainage Pattern Resulting In Substantial Erosion

Thresholds: 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, siltation on site or off site;

No streams or other natural drainages occur in the Project area. Topography in the Project area is relatively flat. Project grading and construction will modify the existing on-site drainage pattern. The Project plans contain an 'Erosion & Sedimentation Control Plan' that requires the Project to implement various temporary and permanent erosion control BMP's to limit erosion and siltation both on and off site.

The Project will disturb greater than one acre. The Project will be required to obtain coverage under the Statewide General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). The NPDES permit deals with both the construction phase and operational phase of development projects. For the construction phase of a project, the NPDES permit identifies the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The implementation of NPDES permits ensures that the state's mandatory standards for the maintenance of clean water and the federal minimums are met. Coverage under with the permit would prevent sedimentation and soil erosion through implementation of an SWPPP. Project impacts are less than significant and no mitigation is needed.

4.10.3.4 Substantially Alter the Existing Drainage Pattern Resulting In Substantial Flooding

Thresholds: 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 which would result in onsite or off-site flooding;

The Project would add approximately 0.84 acre (7.6% of total area) of new buildings/ structures and 7.72 acres (69.2% of total area) of new impervious surface for parking, fueling, canopies, etc. The approximate 2.59 acre (23.2%) remainder will be used for landscape buffers and plantings. Runoff from the site would be collected in a series of at-grade concrete swales, catch basins, and pipe conveyance system (including water quality BMPs). The collected site runoff would be conveyed and discharged to the existing HLDET7 via a drainage ditch or pipe. The proposed drainage system and landscaping are intended to reduce the post construction runoff peak flows and volumes to be substantially the same as preconstruction conditions. Therefore,

the Project would not result in flooding on- or off-site. Project impacts are less than significant and no mitigation is needed.

4.10.3.5 Exceed the Capacity of Existing or Planned Stormwater Drainage Systems

Thresholds: Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

Runoff water from the proposed Project will drain to HLDET7. The basin has a surface area of 29.2 acres and a capacity of 101 acre feet. The detention basin is considered to have non-interruptible outlet facilities and have been sized for inflow from a 100-year, 24-hour storm (developed conditions) with outflows limited to rates that are consistent with existing conditions. HLDET7 was constructed to address developed conditions in the area including the Project location and as such the proposed Project would not exceed the capacity of HLDET7. Project impacts are less than significant and no mitigation is needed.

4.10.3.6 Place Housing within a 100-Year Flood Hazard Area

Thresholds: 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;

No impact would occur as the Project does not include the construction of housing.

4.10.3.7 Place Structures within a 100-Year Flood Hazard Area

Thresholds: Place within a 100-year flood hazard area structures which would impede or redirect flood;

On 2 July 2015 FEMA issued a 'Letter of Map Revision Determination Document' (LOMR). The LOMR changes the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map. Prior to the 2015 LOMR the Project site was located within the Zone AE a FEMA 'Special Flood Hazard Area', within the base floodplain.

The current FEMA maps designate the Project area (excluding the portion within HLDET7) as Zone X '*0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile*'. Zone X is not considered to be in the base floodplain, and therefore not under FEMA regulatory control.

On the recently constructed Margurite Street Extension Project, the Caltrans District 3 Hydraulics Branch requested a high resolution model be commissioned to perform detailed hydraulic analysis of the Margurite Street Extension Project, surrounding area, and for future buildout conditions. The modeling was performed to verify that the Margurite Street Extension Project would not support incompatible floodplain development. The modeling provides evidence for the record that the Project itself and the hypothetical built out of the adjacent land are:

- Consistent with the City's General Plan; and

- Would not result in incompatible floodplain development.

The hypothetical build-out used assumptions consistent with the City of Williams General Plan (2012) land use designations and zoning for Business Park within the modeled area. The hypothetical build-out included roads and over 40 parcels with more than 60 structures representing more than 3.3 million square feet of development. The 60 structures used in the model included the proposed structures at the Project site.

As part of the Caltrans approval for the Margurite Street Extension Project the City was asked to provide updated model results as development projects occur in the original modeled area. On 1 May 2016 the Project Engineer submitted a letter to Caltrans stating:

> '…The Study analyzed the hypothetical build-out scenario which included over 40 parcels and 60 structures totaling 3,323,000 square feet of building footprint area. We identified seven (7) structures on the Love's parcel with a total area of 31,375 square feet of the noted totals.
>
> The Love's Travel Center would be the first parcel within the Margurite Road Development Area to be constructed. The current site plan has six (6) structures with a total area of 24,991 square feet that would affect overland drainage. This would be 80% of the building area in the study and 0.75% of the hypothetical build-out scenario analyzed in the Hydraulic Study and would not require an updated study.'

The original modeling included seven structures on the Project parcel with more square footage; the current site design has six structures with less square footage than the model. Caltrans responded on 25 November 2015 stating that "We concur that no further modeling is required in order to determine the impacts of the Love's Travel Center proposal upon the existing floodplain."

Project impacts are less than significant and no mitigation is needed.

4.10.3.8 Significant Risk of Loss Injury or Death Involving Failure of a Levee or Dam

Thresholds: Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam

No significant levees or dams occur in the area that would be affected by flooding. The proposed Project does not include any activities that would affect levees or dams. No impact will occur and not mitigation is needed.

4.10.3.9 Seiche, Tsunami, or Mudflow

Thresholds: Expose people or structures to inundation by seiche, tsunami, or mudflow.

These are not factors affecting existing or future development in the City of Williams. The Project site is not located near a coastal area or enclosed body of water of sufficient size to pose a risk of inundation by tsunami or seiche waves. The Project site is located on and surrounded by relatively flat ground and is not subject to mudflows. No impact will occur and no mitigation is needed.

4.10.4. Significant Impacts

All potential Project impacts related to hydrology and water quality have been determined to be less than significant. No significant hydrology and water quality impact would result from the implementation of the proposed Project.

4.10.5. Cumulative Impacts

The cumulative area for hydrology and water quality is the City of Williams. The analysis above concludes the following regarding Project impacts to hydrology and water quality:

- Implementation of water quality BMPs as well as adherence to the Project NPDES Construction General Permit conditions will protect of water quality during construction and operation of the proposed Project. Project impacts are less than significant and no mitigation is needed.
- Because of the distances between Williams and other communities in Colusa County, future increases in water supply pumping will not impede the availability of water supplies for other systems. Project impacts are less than significant and no mitigation is needed.
- The implementation of NPDES permits ensures that the state's mandatory standards for the maintenance of clean water and the federal minimums are met. Coverage under the permit would prevent sedimentation and soil erosion through implementation of a SWPPP. Project impacts are less than significant and no mitigation is needed.
- The proposed drainage system and landscaping are intended to reduce the post construction runoff peak flows and volumes to be substantially the same as preconstruction conditions. Therefore, the Project would not result in flooding on- or off-site. Project impacts are less than significant and no mitigation is needed.
- HLDET7 was constructed to address developed conditions in the area including the Project location and as such the proposed Project would not exceed the capacity of HLDET7. Project impacts are less than significant and no mitigation is needed.
- The project does not cumulatively increase the risk of flooding to housing because the Project does not include the construction of housing.
- On the recently constructed Margurite Street Extension Project, the Caltrans District 3 Hydraulics Branch requested a high resolution model be commissioned to perform detailed hydraulic analysis of the Margurite Street Extension Project, surrounding area, and for future buildout conditions.

  The original modeling included seven structures on the Project parcel with more square footage; the current site design has six structures with less square footage than the model. Caltrans responded on 25 November 2015 stating that "We concur that no further modeling is required in order to determine the impacts of the Love's Travel Center proposal upon the existing floodplain." as it relates to I-5 and SR 20. Project impacts are less than significant and no mitigation is needed.

- The proposed Project does not include any activities that would affect levees or dams. No impact will occur and not mitigation is needed

- The Project site is not located near a coastal area or enclosed body of water of sufficient size to pose a risk of inundation by tsunami or seiche waves. The Project site is located on and surrounded by relatively flat ground and is not subject to mudflows. No impact will occur and no mitigation is needed.

Cumulatively, development within the City would result in an increase in impervious surfaces in addition to changes in land use and associated pollutant runoff characteristics. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all development and future development in the City must obtain coverage under the NPDES permit program.

Although continued growth is anticipated to occur in the City and surrounding areas, new development and significant redevelopment would have to minimize their individual impacts to water quality and pollutant transport through implementation of BMPs. Therefore, it is reasonable to assume that all other developments are required to mitigate their project specific impacts to water quality, a less than significant cumulative impact to water quality would occur.

The cumulative area for groundwater would be the Colusa Subbasin (basin no. 5-21.5) as water for the project site and other cumulative development projects in the area would utilize groundwater from this particular basin. Because of the distances between Williams and other communities in Colusa County, future increases in water supply pumping will not impede the availability of water supplies for other systems. As such, no significant cumulative groundwater supply impacts are anticipated to occur with the development of the proposed project.

The cumulative area for drainage impacts is the City of Williams. The drainage system for the proposed project would be designed so that runoff from the Project site after project development are directed to onsite treatment BMPs and flow volumes are equal to or less than historic conditions at any given discharge location. This same requirement will be placed on all other development in the vicinity of the project site by the City of Williams. The proposed Project will not make a significant contribution to any cumulatively considerable impacts related to drainage or water quality.

4.11. Land Use and Planning

This section of the EIR addresses the consistency of the proposed project with the goals and policies regarding Land Use and Planning, as contained in the City of Williams 2012 General Plan. This General Plan was adopted by the Williams City Council in May of 2012, and serves as the primary planning document for the City for the planning period 2010-2030. This section also identifies and evaluates the compatibility of the proposed project with existing land uses and the potential land use impacts that may result during or subsequent to development of the proposed onsite uses for the Love's Country Store Project.

Information to evaluate and analyze the proposed project's impacts is derived from the following references and studies:

- City of Williams 2012 General Plan, adopted May, 2012;
- City of Williams State Route 20 New Road Connection, Initial Study with Proposed Mitigated Negative Declaration, 2014;
- City of Williams Storm Drainage Master Plan, 2007;
- County of Colusa 2030 General Plan, adopted 2011;
- Valley Ranch Business Park Gateway Portal Plan; 2014;
- Applicable community plans, and compatibility within local and regional plans.

4.11.1. Existing Setting

The proposed Love's Country Store Project is planned for the Valley Ranch Business Park. The Valley Ranch Business Park is located at the southeast corner of I-5 and SR 20. It extends east to Husted Road and south to E Street. The 11.15-acre parcel is Assessor's Parcel Number (APN) 016-070-119. When the City of Williams adopted their updated General Plan in May 2012, several new zoning designations and districts were created to enhance the viability and economic development conditions for the City. Among the zoning designations is the 'Business Park' district described below.

(a) Local Setting

The Official Zoning Map shows the zoning as Business Park in the Project area (City of Williams 2012b). All parcels immediately adjacent to the Project are zoned as Business Park. The parcels north of SR 20 to the City limit are designated as Business Park. No residential uses or active park facilities are identified as existing or proposed adjacent to the Project (City of Williams 2012b). Previously, parcels in the project area were in agricultural production, primarily cultivation of rice or other annual crops including safflower.

The Business Park district is intended for the highly visible areas within I-5 frontage corridor in the City. The zoning allows uses that are traditionally designated as light industrial, including offices and warehousing where operational activities occur mostly indoors, or where provisions are made for a heightened appearance and quality development standard.

The Business Park district allows up to three-story buildings with 20 percent set-aside for common green space. This higher percentage of green space is to create a campus-like setting with ample land for public space, landscaping, and buffering between sites and around the perimeter of the development.

Developed properties to the south include a California Highway Patrol facility, the Colusa County Department of Education, Alternative Education School and Special Education/Severely Handicapped School, and the Woodland Community College, all of which are located within the area shown as 'Institutional' on Map 3.5 in the General Plan (City of Williams 2012b). The I-5 corridor and developed properties occur west of the Project site.

A drainage canal occurs north of the Project area and immediately south of the SR 20 right-of-way. This drainage canal is the primary stormwater runoff outfall for the City's Northeast Watershed. Stormwater runoff from the portion of the 446 acre Northeast Watershed west of I-5 is conveyed under I-5 via a reinforced concrete box culvert. Runoff flows eastward in a City of Williams drainage easement, crossing under the Margurite Street extension to the Husted Lateral south of the intersection of SR 20 and Husted Road (City of Williams 2007). East of Margurite Street, the drainage ditch is owned by the Glenn Colusa Irrigation District (GCID).

The Husted Lateral Detention Basin 7, as identified in the Storm Drainage Master Plan (City of Williams 2007), is located approximately 0.25 mi east of the Project area. The Husted Lateral Detention Basin 7 was constructed in 2008-2009. The basin has a surface area of 29.2 ac and a capacity of 101 acre feet. The detention basin is considered to have non-interruptible outlet facilities and have been sized for inflow from a 100-year 24-hour storm (developed conditions) with outflows limited to rates that are consistent with existing conditions.

City Development Pattern: The existing pattern of development is oriented along the major corridors, including mostly industrial and limited commercial development adjacent to I-5 and the California Northern Railroad (reporting mark CFNR) alignments, downtown retail/office, and public uses along 7th Street, both north and south of E Street, and street-oriented commercial uses along E Street (Business Route 20) extending from 11th Street easterly across I-5 to Husted Road. There are industrial and ag-industrial uses to the southeast along Husted Road. The City is surrounded by agricultural lands. The remaining areas of the City are residentially developed with mostly single family detached dwellings, together with a few attached and multiple family dwellings (including duplexes, senior living, migrant housing, and apartments). Reference Section 4.14, Population, Housing, Employment of this EIR for details.

Open Space: Beyond the suburban and industrial fringe, the City of Williams is characterized by agricultural fields set against the foothills of the Coast Range to the west and the Colusa Basin and Sutter Buttes to the east. As the City experiences urbanization, open space, environmental resources, and recreation areas warrant a level of protection from encroaching development.

4.11.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding land use and planning issues.

4.11.3. Existing Policies and Regulations

4.11.3.1 Federal Regulations

There are no federal regulations applicable to the project with respect to land use.

4.11.3.2 State Regulations

There are no state regulations applicable to the project with respect to land use.

4.11.3.3 Local Regulations

City of Williams 2012 General Plan. The Land Use Element and the Open Space and Conservation Element of the City General Plan define goals and policies related to land use. Specific Goals and Policies for these two Elements relevant to the proposed project and the Project Consistency are discussed below. The Land Use Element of the City of Williams General Plan defines the policies related to land use and planning (Table 26).

Table 26. General Plan Policy's and Consistency; Land Use and Planning.

Policy	Consistency
Land Use (LU) Element: *Goal*: Maintain and enhance the character of existing and future neighborhoods, leading to the formation of new land use regulations.	
LU Policy 3.21. The City will manage the appearance of its gateways and corridors through proactive planning, stepped-up enforcement, and public investment.	The proposed project would be built in the newly designated Business Park. There are no existing uses in operation adjacent to the project site. Therefore, the project would be built in an environment consistent with what is currently envisioned by the General Plan and the future services and uses outlined in the Business Park zone.
LU Policy 3.22. New standards and design guidelines will be developed to achieve quality design throughout the City, and particularly along I-5, SR 20, and each of the City's major corridors.	The proposed project would be consistent with the City's new Business Park zone while enabling the City to be produce additional revenues through the provision of goods and services to residents within the City as well as regional visitors traveling along I-5 and SR 20. Through the addition of the proposed project, the City would also expand its economic competitiveness with other areas in the region. The uses allowed in the Business Park zone are consistent with proposed future uses in the surrounding area.
LU Policy 3.23. The new business park will exemplify the City's commitment to quality development in a campus-like setting.	The proposed project incorporates improved energy efficiency into its design that exceeds title 24 requirements. The Love's Country Store Project's 11.15-acre site would be occupied by approximately 0.84 ac (7.6% of total area) of new buildings/ structures and 7.72 ac (69% of total area) of new impervious surface for parking, fueling, canopies, etc. The approximate 2.59 (23.2%) remainder will be used for landscape buffers and plantings.
LU Policy 3.24. Amend the zoning ordinance to include a Business Park district, which shall cover all or at least the frontage of I-5 & E Street (east of I-5) for the City's new business park development. Standards shall include improved site & building standards, increased landscape surface ratio, better landscaping/ screening requirements, new signage standards to result in a	The proposed Project is consistent with the City's recently approved Sign Ordinance (Ord. No. 212-15, § 1(Exh. A), 1-20-2016). See discussion above regarding the percent of the Project site available for landscaping.

Policy	Consistency
campus-like business setting. It's important to enhance the I-5 frontage & also to compliment the campus of Woodland Community College.	
Open Space and Conservation Element: *Goal*: Complement the City's comprehensive strategy of creating a sustainable, livable community – an outgrowth of Williams' natural history and environmental context.	
Policy OSC 7.1. Zoning regulations will be used to preserve the rural scale and character of the "Agricultural/Rural" zoning district, including adequate transitions and buffering areas between different character types.	The proposed Project occurs in an area zoned Business Park. All adjacent parcels are also zoned Business Park. The closest "Agricultural/Rural" zoning district is located west of I-5 approximately 0.34 mile west to the Project site.
Policy OSC 7.19. Subdivision regulations and design guidelines shall be used as a tool to promote sustainable land planning and development practices.	Not Applicable. This policy applies to the City and not to individual development projects.

City of Williams Design Review Manual (2012): Design Review is one of several procedures the City uses to guide development in the interest of the public's health, safety and general welfare. It assures that the community develops according to the City's aesthetic and functional expectations provided under the General Plan and Zoning Code. Design Review in Williams was originally created in 1987 to be distinct from other City project reviews, such as a use permit, a rezoning or a building permit.

A Design Review Manual has been developed and approved by the Williams City Council (City of Williams 2012c). Chapter 5 provides design context recommendations that include a pictorial catalogue of preferred designs. Chapter 6 consists of more specific design guidelines for designing new buildings, signs and related improvements. The Appendix section includes 1) a glossary of terms used throughout the Manual, more specific details on the City's Design Review Procedures, 2) a summary of a community image survey conducted in 2011 used as a basis for the Manual's design preferences, and 3) specific design standards, such as parking lot, landscaping, irrigation, trash enclosure and mail delivery facility design requirements. The Manual has been developed as a standalone document that design/development community, public, and the City can use to design and approve new development and sign projects.

The Manual is designed to meet the needs of many users: property owners, merchants, real estate interests, architects, designers and building contractors, Planning Commission, Design Review Committee, City Council, City staff, and other interested organizations and persons in the community. The Manual's objective is to engender creative approaches and solutions within a workable framework, rather than laying out detailed and rigid standards.

The Design Review Manual implements a number of 2012 General Plan policies as follows:

- Unique standards will be prepared for the original town neighborhoods to retain the existing patterns and forms of development and to avoid inappropriate infill development or use conversions.
- Neighborhood conservation standards will be used to ensure a conforming status of all existing neighborhoods and to regulate new construction or property improvements in a manner consistent with the existing character.

- New neighborhood development standards will be created to ensure livable and sustainable living environments. Such standards will prevent monotony and promote innovation and quality.
- Utilize the guidelines also to ensure the architectural appropriateness of newly constructed buildings.
- The City will continue to facilitate developments that offer a variety of living options and environments provided they contribute positively to the intended community character.
- New development that occurs within or immediately adjacent to the boundaries of the Traditional Residential land use district must be cohesive in their design and suitably transitioned.

The Design Review Manual is legally enabled under Section 17.05.270 of the Zoning Code. By creating design criteria of what is expected from the designer/developer the Design Review Manual becomes an essential tool to steer future development and improve community development.

4.11.4. Methodology

The focus of the land use analysis is on land use impacts that would result from implementation of the proposed Project. Land use conflicts are identified and evaluated based on existing uses, uses proposed as part of the project, use designations, and standards and policies related to land use. Land use compatibility is based on the intensity and patterns of land use to determine whether a project would result in incompatible uses or nuisance impacts to sensitive receptors (e.g., residences, medical facilities, or schools).

4.11.5. Thresholds of Significance

Appendix G of the CEQA Guidelines recognizes the following significance thresholds related to land use. Based on these significance thresholds, potential impacts to land use could be considered significant if the proposed project would result in the following:

- Physically divide an established community;
- 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; and/or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.11.6. No Impact or Less than Significant Impacts

4.11.6.1 Physically Divide a Community

Thresholds: Physically divide an established community?

The proposed Project would not physically divide an established community. Properties adjacent to the Project site are undeveloped. The institutional uses to the south, including the Colusa County Community Education (Woodland Community College) campus and California

State Highway Patrol facility do not constitute an established community. Residential uses are located approximately one mile south and are separated from the Project site by undeveloped properties and E Street. No impact would occur and no mitigation is required.

4.11.6.2 Conflict with any Applicable Land Use Plan

Thresholds: 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?

Section 15125 (d) of the CEQA Guidelines requires EIRs to "discuss any inconsistencies between the proposed project and applicable general plans and regional plans." The objective of such a discussion is to find ways to modify a project, if warranted, to eliminate any identified inconsistencies with relevant plans and policies and thereby avoid creating an impact to the environmental that consistency with the plan would otherwise mitigate. Pursuant to CEQA Section 15125 (d), this EIR section includes an evaluation of the consistency of the proposed Project with pertinent goals and policies of relevant adopted local and regional plans. Because certain plans are more specifically tailored to other issue areas, such as air quality, transportation, biological resources, hazards, water quality, and water supply, they are discussed in other sections of this EIR, as applicable. Table 26 presents an evaluation of the Project's consistency with applicable General Plan policies.

The proposed Project site is currently consists of undeveloped land in a recently zoned and designated Business Park. Regional access to the City and project area is provided from I-5, which runs from south to north and from SR 20, which runs east to west. The development of the proposed project would occur in an area where commercial and institutional development already exists, is under construction, or has been previously approved. The existing roadway system and infrastructure surrounding the project site has recently been constructed, upgraded and improved. As required, the proposed Project will install additional improvements and pay necessary fees to facilitate the continuation of satisfactory operation.

The applicable local land use plan is the City General Plan. The proposed Project is consistent with the City's General Plan policies. The proposed Project components are also consistent with the City's Design Review Manual (City of Williams 2012c) which assures that the community develops according to the City's aesthetic and functional expectations provided under the General Plan and Zoning Code. Project impacts are less than significant and no mitigation is needed.

4.11.6.3 Conflict with Applicable Habitat or Natural Community Conservation Plan

Thresholds: Conflict with any applicable habitat conservation plan or natural community conservation plan?

There are no adopted Habitat Conservation Plans or Natural Community Conservation Plans applicable to the City of Williams. No impact will occur and no mitigation is needed.

4.11.7. Significant Impacts

All potential Project impacts related to land use and planning have been determined to be less than significant. No significant land use and planning impact would result from the implementation of the proposed Project.

4.11.8. Cumulative Impacts

As discussed in this section, the proposed Project would not result in a significant impact on land use and planning. While implementation of the proposed project represents establishment of new land uses within the currently undeveloped Project site, the character and overall intensity of the proposed development is consistent with and comparable to existing land uses within the City. Furthermore, as indicated by the land use consistency analysis, the proposed Project would not conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Because each cumulative Project would be required to identify and mitigate any inconsistencies among the various land use plans, it can be anticipated that these projects would have a less than significant cumulative impact.

4.12. Mineral Resources

This section addresses potential impacts related to the loss of the availability of known mineral resources that may result from the proposed project and is based on the City of Williams General Plan EIR (City of Williams 2011).

4.12.1. Existing Setting

The State Mining and Geology Board (SMGB) prioritizes areas to be classified as containing significant mineral resources and areas to be designated as containing mineral deposits of regional or statewide significance. Mineral Resource Zone (MRZ) categories are used to identify areas of identified, undetermined, and unknown mineral resource significance. No MRZ designations have been applied to the City of Williams or Colusa County.

4.12.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding mineral resources.

4.12.3. Existing Policies and Regulations

4.12.3.1 Federal Regulations

There are no federal regulations regarding mineral resources that are applicable to the proposed project.

4.12.3.2 State Regulations

Surface Mining and Reclamation Act. The Surface Mining and Reclamation Act of 1975 (SMARA) requires classification of land into mineral resource zones (MRZs) according to the known or inferred mineral potential of the area. Construction aggregate resources (sand and gravel) deposits were the first commodity selected for classification by the State Mining and Geology Board. Once mapped, the State Mining and Geology Board is required to designate for future use those areas that contain aggregate deposits that are of prime importance in meeting the region's future need for construction-quality aggregates. There are three key objectives of SMARA regulations:

- Adverse environmental effects are prevented or minimized, and mined lands are reclaimed to a usable condition that is readily adaptable for alternative uses;
- The production and conservation of minerals are encouraged, while consideration is given to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and
- Residual hazards to the public health and safety are eliminated.

Colusa County is listed as one of the 'Counties within Which No SMARA Classification Has Occurred' as per the '*Publications of the SMARA Mineral Land Classification Project Dealing with Mineral Resources in California*' (CDOC 2013).

4.12.3.3 Local Regulations

There are no goals or policies in the City's General Plan that area applicable to the Project with respect to mineral resources.

4.12.4. Methodology

The evaluation of potential mineral resource impacts included a review of the City General Plan and General Plan EIR as well as the '*Publications of the SMARA Mineral Land Classification Project Dealing with Mineral Resources in California*' (CDOC 2013).

4.12.5. Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would result in a significant adverse impact with regard to mineral resources if it:

- Resulted in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State; and/or
- Resulted 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 plans.

4.12.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.12.6.1 Loss of Availability of a Known Mineral Resource

Thresholds: Resulted in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State; and/or loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plans?

The proposed Project will not change the existing availability of minerals in the region. Existing mining operations do not occur in the Project vicinity.

Colusa County is listed as one of the 'Counties within Which No SMARA Classification Has Occurred' as per the 'Publications of the SMARA Mineral Land Classification Project Dealing with Mineral Resources in California' (CDOC 2013). There are no mapped mineral resources in the City of Williams General Plan area (City of Williams 2011). No impacts will occur and no mitigation is needed.

4.12.7. Significant Impacts

All potential Project impacts related to mineral resources have been determined to be less than significant. No significant mineral resources impact would result from the implementation of the proposed Project.

4.12.8. Cumulative Impacts

The cumulative area for mineral resources is the City of Williams. As population levels increase in the region, greater demand for aggregate and other mineral materials will occur. Similarly, development pressures in areas where these materials are known or expected to occur would

result in the loss of availability of these mineral resources. However, because the Project site is not identified as a significant source of sand/gravel deposits and development subsequent to the adoption of the proposed land use actions on any of the sites would not decrease the local or regional availability of mineral resources, potential future development of any of the sites would have no significant cumulative mineral resources impact.

4.13. Noise

This section evaluates short-term and long-term potential noise impacts of the proposed Project on sensitive uses adjacent to the proposed Project site. In addition to general information on noise in the City's General Plan and General Plan EIR, the following analysis is based on the following technical study:

- Environmental Noise Assessment, Love's Country Store, Williams, California (Bollard Acoustical Consultants 2016, see Appendix G)

4.13.1. Existing Setting

4.13.1.1 Acoustical Fundamentals and 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 designated as sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or 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. 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 sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting 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.

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 (Leq). The Leq is the foundation of the day/night average noise descriptor (Ldn), and shows very good correlation with community response to noise.

The Day-night Average Level (Ldn) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to mask short-term variations in the noise environment.

It is commonly understood that sound decreases with distance. But the propagation of sound is dependent on considerably more variables than distance alone. Those variables include the type of noise source (point, moving point, or line sources), the directionality of the noise source, the frequency content of the source (low frequency sound is absorbed in the atmosphere at a slower rate than high-frequency sound and therefore "carries" farther), atmospheric conditions (wind, temperature, humidity, gradients), ground type (dirt, grass fields, concrete, etc.), shielding (structures, noise barriers, topography), and vegetation.

4.13.1.2 Existing Land Uses in the Project Vicinity

The Project site and surrounding parcels are zoned Business Park. Existing land uses surrounding the Project site consist solely of agricultural fields currently zoned Business Park. Residential land uses are located in excess of 3,300 feet from the project property. School land uses are located approximate 2,500 feet to the southeast of the project property. These uses may be affected by increased project-related traffic noise on local area roadways and on-site noise sources.

4.13.1.3 Existing Ambient Noise Environment

The existing noise environment within the overall project area is primarily defined by traffic noise emanating from I-5 and SR 20. To quantify the existing ambient noise environment at the Project site, short-term ambient noise level measurements were conducted at four (4) locations within the proposed project area on the afternoon of January 28, 2016. The results of the short-term ambient noise measurement survey is summarized in Table 27.

Table 27. Measured Baseline Noise Levels at Short-Term Monitoring Sites – January 28, 2016

Site	Location	Time of Day	Measured Baseline Noise Levels2 (dB)			
			L_{eq}	L_{max}	L_{50}	L_{90}
1	NE corner of project area	12:17 PM	57	77	50	44
2	SE corner of project area	12:35 PM	45	52	45	43
3	SW corner near project area	12:57 PM	57	75	52	49
4	NW corner near project area	1:12 PM	65	86	55	50

Notes: Noise level measurements were 15 minutes in duration. Source: Bollard Acoustical Consultants, Inc. (BAC)
L_{eq}= average sound level, L_{max} = maximum sound level, L_{50}= noise level exceeded for 50% of the measurement period, L_{90}= noise level exceeded for 90% of the measurement period,

The Table 27 data indicate that existing noise levels within the project area vary depending on location of the noise monitoring site relative to SR 20. Inspection of the data showed that monitoring locations with the most direct view of SR 20 recorded the highest noise levels during sampling. The noise monitoring locations on the project site were exposed to existing traffic noise levels ranging from 45 to 65 dB Leq. Site 4 was exposed to the highest traffic noise levels due to its proximity to I-5 and SR 20.

4.13.1.4 Existing Roadway Traffic Noise

Table 28 shows the existing traffic noise levels in terms of Ldn at a reference distance of 100 feet from the centerlines of existing project-area roadways. This is considered to be the baseline condition. The table also includes the distances to existing traffic noise contours.

Table 28. Existing (Baseline) Traffic Noise Levels and Distances to Traffic Noise Contours

Roadway	Segment	Distance (Feet)			
		L_{dn} (dB) 100 feet	70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
Interstate 5	North of State Route 20	73	154	332	715
Interstate 5	South of State Route 20	74	172	371	798
State Route 20	West of Interstate 5 South Bound (S.B.) Ramps	64	40	86	186
State Route 20	Interstate 5 to Margurite Street	64	38	81	175
State Route 20	Margurite Street to Husted Road	64	38	81	175
State Route 20	East of Husted Road	66	52	113	243
Margurite Street	South of State Route 20	N/A	N/A	N/A	N/A
Husted Road	South of State Route 20	58	15	33	71
Freshwater Road	North of State Route 20	51	5	11	23

Notes: Noise level measurements were 15 minutes in duration. Source: Bollard Acoustical Consultants, Inc. (BAC)

4.13.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding noise.

4.13.3. Existing Policies and Regulations

The City of Williams General Plan Noise Element and CEQA provide regulations regarding noise exposure relevant to the proposed project. The following provides a general overview of the existing regulations established by the City of Williams General Plan and by CEQA.

4.13.3.1 Federal Regulations

No specific federal noise regulations are applicable to the proposed Project.

4.13.3.2 State Regulations

No specific state noise regulations are applicable to the proposed Project.

4.13.3.3 Local Regulations

The Noise Element of the City of Williams General Plan defines the goals, policies, and actions related to biological resources (Table 29).

Table 29. General Plan Consistency

Policy	Consistency
Noise Element	
Policy 6.1: All noise analyses prepared to determine compliance with the noise level standards contained	The Project's Environmental Noise Assessment Report is consistent with this policy.

Policy	Consistency
within this Noise Element shall be prepared as described in Action 6.	
Policy 6.2. The City should have the flexibility in its ordinance and policies to consider the application of the 5 dB less restrictive exterior noise standards than those prescribed in Table 30 (Table 6.2 of the General Plan), Noise Guidelines for New Uses Affected by Transportation Noise Sources, and Table 31 (Table 6.4 of the General Plan), Non-Transportation Noise Guidelines, in cases where it is impractical or infeasible to reduce exterior noise levels within infill projects to a state of compliance with their standards. In such cases, the rationale for such consideration should be clearly presented and disclosure statements and noise easements should be included as conditions of project approval.	This action applies to the City and not to individual development projects.
Action 6.a. The City of Williams shall adopt an ordinance requirement for an acoustical analysis to be prepared with subdivision processes and site plan applications. This analysis shall include the following provisions: 1. Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics. 2. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. 3. Estimate projected future (20 year) noise levels, and compare those levels to the adopted policies of this general plan and adopted ordinance standards. 4. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of this general plan and ordinance standards. 5. Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented. The City of Williams shall adopt a local amendment to the Building Code to address interior noise standards.	This action applies to the City and not to individual development projects.
Action 6.b: Any extreme noise producer not specifically exempt shall be discouraged or prohibited by City Codes and policies.	The Project is not an extreme noise producer.
Policy 6.3: For City projects that involve capacity enhancing roadways, or the construction of new roadways, an acoustical analysis shall be prepared. If the project would result in a significant noise level increase as defined below, or if the project would cause noise levels to exceed the noise standards of Table 30 (Table 6.2 of the General Plan), Noise Guidelines for New Uses Affected by Transportation Noise Source, noise mitigation measures should shall be considered to reduce traffic noise levels to a state of compliance with Table 30 (Table 6.2 of the General Plan). A significant increase is defined as follows: **Pre-Project Noise Environment (Ldn)** — **Significant Increase** Less than 60 dB — 5+ dB	The Project does not involve capacity enhancing roadways, or the construction of new roadways.

Policy	Consistency
60 – 65 dB 3+ dB Greater than 65 dB 1.5 dB There are various factors which may affect the feasibility or reasonableness of the mitigation which shall be considered including the following: 1. The severity of the impact; 2. The cost and effectiveness of the mitigation; 3. The number of properties which would benefit from the mitigation; and 4. Aesthetic, safety, and engineering considerations.	
Policy 6.4: If noise-reducing pavement is to be utilized in conjunction with a roadway improvement project, the acoustical benefits of such pavement shall be included in the noise analysis prepared for the project.	The Project does not include a roadway improvement project.
Policy 6.5: The City of Williams shall work with the State to mitigate noise levels to within acceptable levels as described in this chapter when the State expands or extends roadways that impacts existing residential development.	This action applies to the City and not to individual development projects.
Action 6.c. The City of Williams shall adopt an ordinance regulations to require implementation of noise mitigation to newly constructed roadways in new subdivision developments.	This action applies to the City and not to individual development projects.
Policy 6.9. Prevent the introduction of new noise-producing uses in noise-sensitive areas.	This action applies to the City and not to individual development projects.
Policy 6.10. Prevent the encroachment of noise-sensitive uses upon existing noise-producing facilities.	This action applies to the City and not to individual development projects.
Action 6.f. Adopt noise performance standards for new noise-producing uses.	This action applies to the City and not to individual development projects.
Action 6.g. Adopt noise mitigation measures that will apply to new noise-sensitive uses if placed in proximity to noise producing facilities.	This action applies to the City and not to individual development projects.
Action 6.h. Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element (Table 31), development standards for new commercial sites shall require the use of setbacks and site design, and thereby keep use of noise barriers at a minimum.	Not applicable.

Table 30. Noise Guidelines for New Uses Affected by Transportation Noise Sources City of Williams General Plan Noise Element.

New Land Use	Sensitive[1] Outdoor Area (dBA CNEL)	Sensitive Interior Area[2] (dBA CNEL)	Notes
Residential	60	45	5
Residences in Ag. Zones	65	45	6
Transient Lodging	65	45	3, 5
Hospitals & Nursing Homes	60	45	3, 4, 5
Theaters & Auditoriums	--	35	3
Churches, Meeting Halls	60	40	3

Schools, Libraries, etc.			
Office Buildings	65	45	3
Commercial Buildings	65	50	3
Playgrounds, Parks, etc.	70	--	--
Industry	65	50	3

Notes:

1. Sensitive areas are defined acoustic terminology section.
2. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
3. Where there are no sensitive exterior spaces proposed for these uses, only the interior noise level standard shall apply.
4. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5. If this use is affected by railroad or aircraft noise, a maximum (Lmax) noise level standard of 70 dB shall be applied to all sleeping rooms with windows closed to reduce the potential for sleep disturbance during nighttime noise events.
6. Due to the noise-generating nature of agricultural activities, it is understood that residences constructed on agriculturally-designated land uses may be exposed to elevated noise levels. As a result, a 65 dB CNEL exterior noise level standard is applied to noise-sensitive outdoor areas of these uses.

Table 31. Noise Guidelines for New Uses Affected by Transportation Noise Sources City of Williams General Plan Noise Element.

	Average (Leq) / Maximum (Lmax)			
	Outdoor Area[2] (dB)		**Interior[3] (dB)**	
Receiving Land Use	**Daytime**	**Nighttime**	**Day & Night**	**Notes**
All Residential	55/75	50/70	35/55	--
Transient Lodging	55/75	--	35/55	4
Hospitals & Nursing Homes	55/75	--	35/55	5, 6
Theaters & Auditoriums	--	--	30/50	6
Churches, Meeting Halls Schools, Libraries, etc.	55/75	--	35/60	6
Office Buildings	60/75	--	45/65	6
Commercial Buildings	55/75	--	45/65	6
Playgrounds, Parks, etc.	65/75	--	--	6
Industry	60/80	--	50/70	6

Notes:

1. The standards in this table shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds these standards, then the noise level standards shall be increased in 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the Acoustic Terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and exterior doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.

4.13.4. Methodology

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the short-term ambient noise level measurement survey. The meter was calibrated before use with an LDL Model CAL200 acoustical calibrators to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute.

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to predict existing noise levels due to traffic in the project vicinity. The Model is based on the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks – with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the project site. The model is generally considered to be accurate within 1.5 dB if the input variables are properly accounted for.

The FHWA Model was developed to predict hourly Leq values for free-flowing traffic conditions. A day/night traffic distribution of 83%/17% was factored into the Model calculations to estimate 24-hour average noise exposure (Ldn). Traffic volumes for existing conditions were obtained from the project traffic study. Specifically, average daily traffic volumes along the project roadway segments were estimated by conservatively multiplying the sum of the AM and PM peak hour traffic movements provided by the transportation consultant by a factor of 5. Truck volume percentages were obtained from the published 2014 Caltrans annual average daily truck traffic report.

4.13.5. Thresholds of Significance

A Project would have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas or if it would conflict with adopted environmental plans and goals of the community in which it is located.

4.13.5.1 CEQA Guidelines

The applicable noise standards governing the project site are the criteria that are contained within the Noise Element of the City of William General Plan. Based on Appendix G of the CEQA Guidelines, the proposed Project would result in a significant noise impact if it resulted in:

- 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?
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

- 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?
- 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?

4.13.5.2 Significance of Project-Related Noise Level Increases

Table 32 is based on recommendations made in August 1992 by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these criteria have been applied to other sources of noise similarly described in terms of cumulative noise exposure metrics such as the Ldn.

Table 32. Significance of Changes in Cumulative Noise Exposure.

Ambient Noise Level Without Project (Ldn)	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

4.13.6. No Impact or Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.13.6.1 Noise Levels in Excess of Standards

Thresholds: 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?

The identified, primary noise-producing elements associated with the project are increased traffic on the local roadway network, on-site noise sources associated with truck stop activities, and construction activities.

Project-Related Traffic Noise Increases: To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were predicted at a representative distance (100 feet from the roadway centerlines) for the existing, existing plus project, cumulative, and cumulative plus project scenarios. The traffic noise levels were predicted using the same modeling methodology used for the existing scenario. Results of the traffic noise analyses are summarized in Tables 31 and 32.

As indicated in Tables 33 and 34, traffic noise level increases due to the project were calculated to range from 0 to 2.3 dB. Relative to the significance criteria presented in Table 34, substantial traffic noise level increases were not identified along any of the studied roadways. This impact is less than significant and no mitigation is needed.

On-site Operation Noise: Noise sources associated with daily operations on the Project will include truck hitching, fueling, idling, and departure. Reference data for truck noise collected at a comparable facility was used to predict noise levels at the proposed facility.

The Project proposes on-site parking for 97 truck stalls. Based on a worst-case hour, it is assumed that no more than 50 trucks would depart the project site during a given daytime or nighttime hour. Noise exposure from these operations is calculated based on the following equation.

$$Hourly\ Leq = SEL + 10Log(N) - 35.6 - A$$

Here, the SEL is the sound exposure level produced by a truck event (83 dB SEL at 50 feet); N is the number of operations in a given hour (50); 35.6 is ten times the log of the number of seconds in an hour; and A is the attenuation due to distance (spherical spreading loss, -6 dB per doubling of distance). For this project, primary truck movements in the parking area of the project site would be expected to produce unmitigated hourly noise exposure of 64 dB Leq at 50 feet. The nearest noise-sensitive land uses are located approximately 3,300 feet from the project site. At that distance, truck movements in the parking area would be expected to be less than 30 dB Leq. This impact is less than significant and no mitigation is needed.

In addition to the truck stalls, the project proposes 68 passenger vehicle stalls. The SEL produced by a passenger vehicle event is 70 dB at 50 feet. Because the SEL of a passenger vehicle event is significantly lower than the SEL produced by a truck event (-13 dB), only truck events were considered in this analysis. Furthermore, because there is a difference of more than 10 dB from truck and passenger vehicle SEL's, due the logarithmic nature of sound, the addition of the two events would result in an increase of less than 1 dB.

Table 33. Existing vs. Existing Plus Project Traffic Noise Levels

Roadway	Segment	Existing	Existing + Project	Change	Substantial Increase?
Interstate 5	North of State Route 20	72.8	72.9	0.1	No
Interstate 5	South of State Route 20	73.5	73.6	0.1	No
State Route 20	West of Interstate 5 SB Ramps	64.0	64.0	0.0	No
State Route 20	Interstate 5 to Margurite Street	63.7	65.9	2.2	No
State Route 20	Margurite Street to Husted Road	63.7	63.8	0.1	No
State Route 20	East of Husted Road	68.5	65.8	0.1	No
Margurite Street	South of State Route 20	N/A	57.2	NA	NA
Husted Road	South of State Route 20	57.7	57.8	0.1	No
Freshwater Road	North of State Route 20	50.5	50.5	0.0	No

Sources: FHWA-RD-77-108, Fehr& Peers 2016, and Bollard Acoustical Consultants, Inc.

Table 34. Cumulative vs. Cumulative Plus Project Traffic Noise Levels

Roadway	Segment	Cumulative	Cumulative + Project	Change	Substantial Increase?
Interstate 5	North of State Route 20	76.1	76.1	0.0	No
Interstate 5	South of State Route 20	76.6	76.6	0.0	No
State Route 20	West of Interstate 5 SB Ramps	66.4	66.4	0.0	No
State Route 20	Interstate 5 to Margurite Street	68.0	69.0	1.0	No
State Route 20	Margurite Street to Husted Road	67.0	67.1	0.1	No
State Route 20	East of Husted Road	68.8	68.9	0.1	No
Margurite Street	South of State Route 20	58.5	60.8	2.3	No
Husted Road	South of State Route 20	62.5	62.6	0.1	No
Freshwater Road	North of State Route 20	60.8	60.8	0.0	No

Sources: FHWA-RD-77-108, Fehr& Peers 2016, and Bollard Acoustical Consultants, Inc.

4.13.6.2 Excessive ground-borne vibration or noise

Thresholds: Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

In contrast to airborne noise, ground-borne vibration is not a common environmental problem. 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 ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment. The effects of ground-borne vibration include feelable movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings (Federal Transit Administration 2006).

The Project includes grading and earthwork that could result in ground-borne vibration. However given that the nearest sensitive land uses are located approximately 2,500 feet from the project site any ground-borne vibration generated from the Project would be minor. Project impacts are less than significant and no mitigation is needed.

4.13.6.3 Substantial Permanent Increase in Ambient Noise

Thresholds: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

As described in section 4.13.6.1 no substantial change to noise levels was identified for the Project. Impacts are less than significant and no mitigation is needed.

4.13.6.4 Project Located Within an Airport Land Use Plan or Within Two Miles of a Public Airport or Public Use Airport

Thresholds: 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?

The Williams Soaring Center is a small private glider airport located immediately east of Husted Road north of its intersection with E Street. No other private or public airports or public use airports occur in the City of Williams or the surrounding area. The soaring center has a 2,300 foot paved runway that parallels Husted Road. This unattended private use glider port is identified by the Federal Aviation Administration as ‘CN12’. The private use airstrip is located approximately 3,000 ft east of the Project site. Use of the private glider port 3,000 ft east of the Project site is not an activity expected to generate excessive noise levels for patrons of people working at the Loves’ facility. Project impacts are less than significant and no mitigation is needed.

4.13.6.5

Thresholds: 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?

Please see response to 4.13.6.4. Project impacts are less than significant and no mitigation is needed.

4.13.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.13.7.1 *Substantial Temporary or Periodic Increase in Ambient Noise*

Threshold: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact: Activities associated with the Project construction would result in elevated noise levels, with maximum noise levels as high as 89 dB at 50 ft from the noise source.

Project Construction Noise: During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project site would also vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used for this work.

The range of maximum noise levels for various types of construction equipment at a distance of 50 ft from the noise source is provided in Table 35. The noise values represent maximum noise generation, or full power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

Activities associated with the project construction would result in elevated noise levels, with maximum noise levels as high as 89 dB at 50 ft from the noise sourceas shown in Table 35. However, the nearest identified noise-sensitive receivers are located in excess of 2,500 feet from the project area. Construction noise levels may be audible at the nearest existing residences (3,300 feet from the Project site), but they would be temporary in nature and would likely occur during normal daytime working hours. Construction at night could occur if it would alleviate traffic congestion, safety hazards, and is consistent with the General Plan Policy. However because construction activities would result in periods of elevated noise levels, this impact would be a potentially significant impact. Implementation of measure NOISE-1 will reduce potential Project impact to less than significant.

Table 35. Construction Equipment Noise Emission Levels

Construction Equipment Noise Emission Levels	
Equipment	**Typical Sound Level (dBA) 50 Feet from Source**
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: Federal Transit Administration, 2006.

Mitigation Measures.

NOISE-1

- Construction operations will be restricted to the hours of 7:00 AM to 7:00 PM Monday through Sunday. Exceptions to the hours may be approved by the City Manager if necessary to alleviate traffic congestion or minimize safety hazards.
- All equipment will have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.

Level of Significance after Mitigation. Implementation and adherence to NOISE-1 will reduce potential impacts to less than significant.

4.13.8. Cumulative Impacts

The cumulative area for noise impacts is the City of Williams. Cumulative Projects are identified in Table 3. Implementation of the proposed Project would result in the introduction of new noise sources and levels. Construction crew commutes and the transport of construction equipment, and materials to the site for the proposed Project would incrementally increase noise

levels on access roads leading to the site. Construction sources of noise would include noise generated during excavation, grading, and building construction on the project site. The net increase in Project site noise levels generated by these activities and other sources has been quantitatively estimated and compared to the applicable noise standards and thresholds of significance. At present there are no known development applications on the adjacent contiguous properties nor are any of the Projects listed in Table 3 contiguous with the Project parcel. Therefore it is unlikely that adjacent properties will be developed at the same time as the proposed Project. The noise analysis contained in this section provides an assessment of onsite operational noise level impacts onto adjacent sensitive uses, both existing and future. Onsite operational noises are individual noise occurrences and are not additive in nature. In the unlikely event that adjacent properties are developed at the same time as the proposed project, adherence to the City's development standards would render the cumulative impacts of the proposed Project to less than significant levels.

4.14. Population and Housing

This section identifies population and housing conditions within the City of Williams and addresses potential impacts that may result from the construction and operation of the proposed Project. The analysis is based in part on population and housing projections identified by the California Department of Finance (DOF), as well as information contained in the City's General Plan and the City of William's Municipal Services Review (MSR), August 2013.

4.14.1. Existing Setting

Population Characteristics: For the most recent year data is available (2015), the California DOF estimated the City's population to be 5,316 persons (Table 36). The City's 2015 population estimate of 5,316 shows a 44.85% percent increase in the fifteen year period of 2000 to 2015. There was a 3.76 percent increase from the population recorded during the latest 2010 Census to 2015.

Table 36. City of Williams Population, 2000, 2010, and 2015

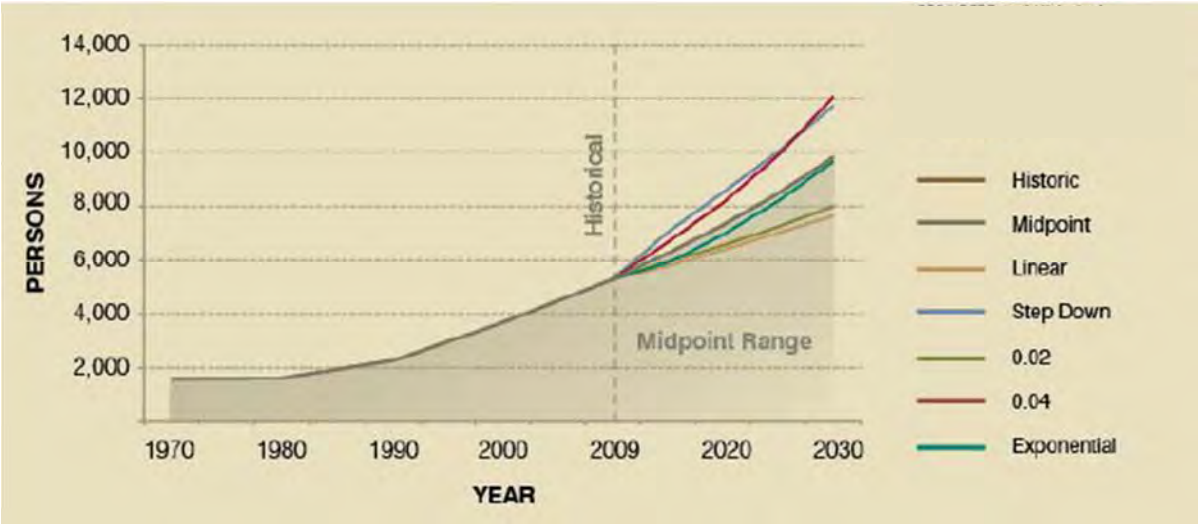
Year	Population	Increase (%)
2000	3670[1]	–
2010	5123[1]	39.59%
2015	5316[2]	44.85%

[1] Department of Finance. Table E-8: Historical Population and Housing Estimates, Revised November, 2012. http://www.dof.ca.gov/research/demographic/reports/estimates/e-8/2000-10/documents/E8_2000-2010_Report_ByYear_Final_EOC.xls, website accessed April 4, 2016.

[2] Department of Finance. Table E-5: City/ County Population and Housing estimates, January 2011-2015, with 2010 Benchmark. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, website accessed April 4, 2016.

Tables 37 and 38 illustrate the projected population of the City of Williams in both tabular and graphic formats. Figure 9 includes a map showing the future land use and growth for the City of Williams as per the 2012 General Plan.

Table 37. City of Williams and Colusa County Population Projection Graph



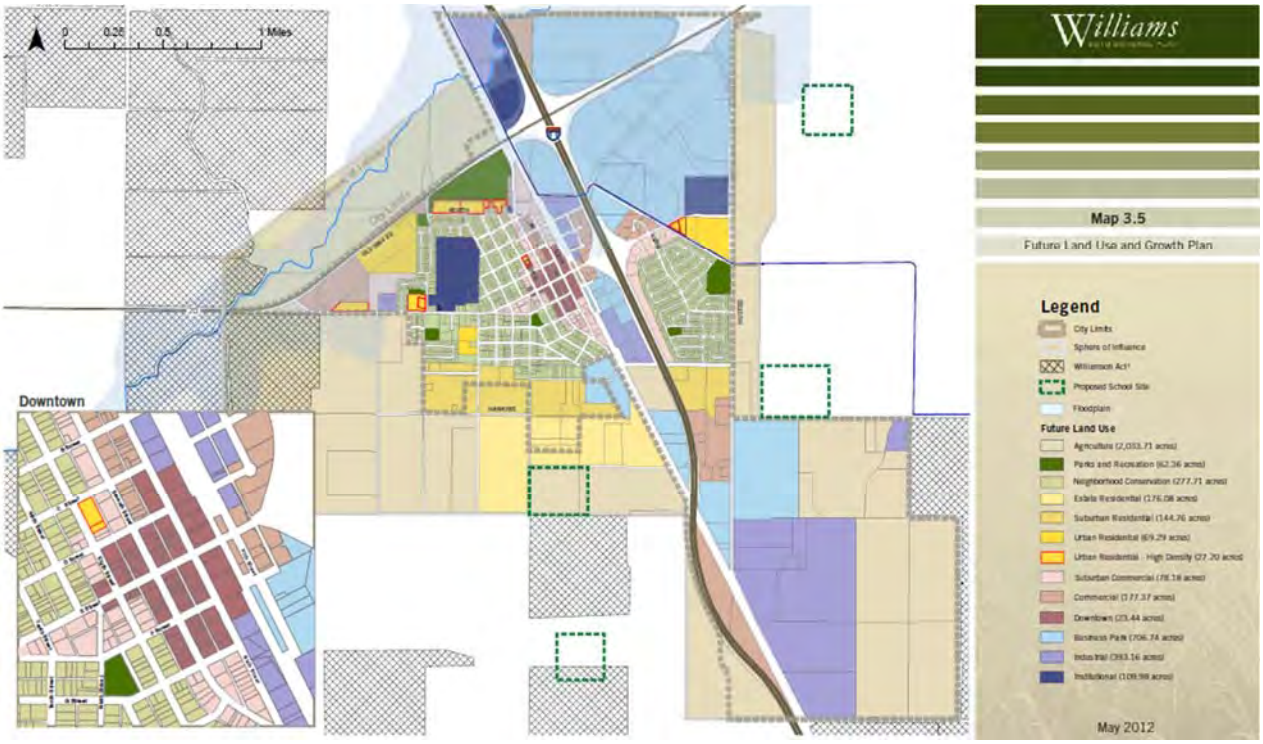
Sources: Kendig Keast Collaborative, California State Department of Finance (Population Estimates for Cities, Counties and State, 2001-2009 and Historical Census Populations of Places, Towns, and Cities in California, 1850-2000), U.S. Census Bureau (Population and Housing Units: 1940 to 1990

Table 38. City of Williams and Colusa County Population Projection Table

	Colusa County	Williams	Midpoint	Linear	Step Down	0.02	0.04	Exp
Year 1970	12,430	1,571						
1980	12,791	1,658						
1990	16,275	2,297						
2000	18,804	3,670						
2009	21,997		5,287	5,287	5,287	5,287	5,287	5,287
2015	26,616		6,279	5,776	7,062	5,954	6,690	5,913
2020	29,588		7,322	6,406	8,525	6,574	8,139	6,966
2025	32,070		8,487	7,035	10,034	7,258	9,902	8,207
2030	34,488		9,822	7,664	11,717	8,013	12,048	9,669

Sources: Kendig Keast Collabrative, California State Department of Finance (Population Estimates for Cities, Counties and State, 2001-2009 and Historical Census Populations of Places, Towns, and Cities in California, 1850-2000), U.S. Census Bureau Housing Units: 1940 to 1990

Figure 9. City of Williams Future Land Use and Growth



Source: *City of Williams General Plan May 2012*

Housing Characteristics. The number of dwelling units in the City has increased to accommodate the City's growing population (Table 39). Currently, the DOF identifies that approximately 73 percent of the existing housing units in the City are single-family detached units (Table 40). Multiple-unit dwellings comprise approximately 22 percent of the City's current housing stock.

Table 39. City of Williams Housing Units, 2000, 2010, and 2015

Year	Housing Units	Increase (%)
2000	968[1]	–
2010	1487[1]	
2015	1564[2]	

[1] Department of Finance. Table E-8: Historical Population and Housing Estimates, Revised November, 2012.. http://www.dof.ca.gov/research/demographic/reports/estimates/e-8/2000-10/documents/E8_2000-2010_Report_ByYear_Final_EOC.xls, website accessed April 4, 2016.

[2] Department of Finance. Table E-5: City/ County Population and Housing estimates, January 2011 and 2012, with 2010 Benchmark. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, website accessed April 4, 2016.

Table 40. Composition of Housing Stock in City of Williams, 2015

Housing Type	City of Williams	
	Number of Units	Percentage
Single-Family, Detached	1,138	**72.8%**
Single-Family, Attached	17	**1.1%**
2- to 4-Unit Structure/ 5- or More Unit Structure	348	**22.3%**
Mobile Home	61	**3.9%**
Total	**1,564**	**100%**

Source: Department of Finance. Table E-5: City/ County Population and Housing estimates, Revised May, 2015. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/documents/E-5_2015_InternetVersion.xls website accessed April 4, 2016.

Employment Characteristics: As identified in Table 41, 2,846 jobs were located within the City. Four employment sectors accounted for nearly 60% of the jobs in the City, including: Management, Business and Financial (10.8%); Sales (15.7%); Farming, Fishing and Forestry (20.1); and Production (13.0%).

Table 41. City of Williams 2014 Employment by Sector

Job Sector	Number of Employees	% of Employees
Management, Business, and Financial	307	10.8%
Computer, Engineering, and Science	28	1.0%
Education, Legal, Community Service, Arts, and Media	113	4.0%
Healthcare Practitioner and Technical	9	0.3%
Healthcare Support	67	2.4%
Protective Service	19	0.7%
Food Preparation and Serving Related	87	3.1%
Building and Grounds Cleaning/Maintenance	139	4.9%
Personal Care and Service	26	0.9%

Sales	446	15.7%
Office and Administrative	186	6.5%
Farming, Fishing, and Forestry	573	20.1%
Construction and Extraction	95	3.3%
Installation, Maintenance, and Repair	161	5.7%
Production	370	13.0%
Transportation	104	3.7%
Material Moving	116	4.1%
Total Employment	**2,846**	**100%**

Source: U.S. Census Bureau: American Factfinder. Data derived from Occupation by Sex and Median Earnings 2010-2014 American Community Survey 5-year Estimates

4.14.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding population or housing.

4.14.3. Existing Policies and Regulations

4.14.3.1 Federal Regulations

There are no federal regulations applicable to the project with respect to population, housing, and employment.

4.14.3.2 State Regulations

There are no state regulations applicable to the project with respect to population, housing, and employment. California State Law requires the Colusa Local Agency Formation Commission (LAFCo) to consider whether or not an area is a Disadvantaged Unincorporated Community (DUC). The Median Household Income in the State of California is $60,833. A DUC is an area where the Median Household Income is less than 80% of the State of California Median Household Income or $48,666.

Disadvantaged unincorporated communities (DUCs) are defined as "a territory that constitutes all or a portion of a 'disadvantaged community' including 12 or more registered voters or some other standard as determined by the commission." In California Government Code Section 65302.30 (a) "Community" means an inhabited area within a city or county that is comprised of no less than 10 dwellings adjacent or in close proximity to one another.

The City's Median Household income for 2010 was $43,185, which is less than $48,666 or 80% of the State Median Household income. Therefore, the City of Williams, an incorporated city, is a Disadvantaged Community.

4.14.3.3 Local Regulations

City of Williams General Plan: The City of Williams General Plan specific goals, policies, and/or programs of the Land Use Element indicated in Table 42 are relevant to the project. The General Plan specifically addresses the intention of the Business Park District:

Business Park: The Business Park District is intended for the Valley Ranch nonresidential development (known as "Valley Ranch Business Park Gateway Portal"), as well as other highly visible areas with I-5 frontage. The purpose of this district is to result in a planned environment with a higher standard of development. It may include uses that are traditionally designated as "light" industrial including offices and warehousing where operational activities occur mostly indoors, or where provisions are made for a heightened appearance and quality development standard. The Business Park District allows up to three-story buildings with 20 percent set-aside for common green space. A higher percentage of green space is to create a campus-like setting with ample land for public space, landscaping, and buffering between sites and around the perimeter of the development. A floor area ratio of 0.88 would allow a building of approximately 172,500 square feet on a 4.5 acre site, for instance.

Table 42. General Plan Consistency

Policy	Consistency
3.43. Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.	Consistent. The project will adhere to the planning and implementation in regards to the physical environment and appropriate siting of the development.
3.56. Potential adverse impacts on adjacent land use types shall be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.).	Consistent. The project meets the City's land use type and zoning for the Business Park District specifications.
3.57. New development or redevelopment on "in-fill" parcels in developed areas shall maintain compatibility with existing uses and the prevailing land use pattern in the area.	Consistent. The project meets the City's land use type and zoning for the Business Park District specifications.
3.58. Land uses with unusual characteristics or a higher likelihood of raising compatibility issues shall be subject to more focused review and approval through a special approval process. Reasonable conditions or permit provisions shall be applied to mitigate potential adverse impacts on nearby properties and uses.	Consistent. The project meets the City's land use type and zoning for the Business Park District specifications.
3.63. Development along I-5 and the City's primary arteries will be designed with an increased standard of quality and appearance.	Consistent. The project will adhere to the planning and implementation in regards to the quality and appearance.
3.67. Smaller-scale commercial development shall be accommodated at selected locations within or at the edge of residential neighborhoods to address retail and personal service needs of nearby residents in a convenient and accessible manner, subject to restrictions and performance standards to ensure a compatible character.	Consistent. The project meets the City's land use type and zoning for the Business Park District specifications.

4.14.4. Methodology

To determine the potential for impacts related to population, housing and employment, the current uses, overall condition of the project site, historic and current population and housing characteristics, and future projections for population, housing, and employment were identified.

This analysis is based on data published by the DOF as well as information presented in the City's General Plan and the County of Colusa General Plan.

4.14.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts related to population and housing are based on Appendix G of the CEQA Guidelines. A project would have a significant impact on population and housing if it would:

- 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);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.14.6. No Impact or Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.14.6.1 Displace Substantial Housing/People

Thresholds: Would the proposed project displace substantial amounts of existing housing and people, necessitating the construction of replacement housing elsewhere?

The 11.15 acre project site is currently undeveloped, designated as 'Business Park' under the City's General Plan and zoning district. The proposed project location is marketed as "Valley Ranch Business Park Gateway Portal" (www.californianorthern.com). The project site has not been historically utilized for residential uses. As no residential structures are currently located within the project limits, the construction and operation of the proposed onsite uses would neither displace existing housing or residents, nor would require the construction of replacement housing elsewhere in the City. The facility would operate 24 hours a day, 365 days per year. The Project is anticipated to employ a total of 40 to 45 full-time employees; approximately 12 employees would be on-site at any one time. Therefore, no significant impacts associated with this issue would occur and no mitigation is required.

4.14.6.2 Population Growth

Thresholds: Would the proposed project induce substantial population growth in an area, either directly (e.g., new homes and businesses) or indirectly (e.g., extension of roads and infrastructure)?

CEQA requires that an EIR discuss how a proposed project could induce growth. CEQA Guidelines identify a project as growth-inducing if it would foster economic or population growth or the construction of additional housing either directly or indirectly, in the surrounding

environment (CEQA Guidelines §15126.2(d)). New employees of commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. Direct employment impacts reflect the initial or first-round increases in jobs and wages which occur directly on the project site. Indirect impacts are secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts, and can occur elsewhere within the project area. These indirect impacts may result from: the production of goods and services required to support the proposed onsite uses, and/or the production of goods and services required to meet consumer demand generated by wages paid to direct employees.

A project could also indirectly induce growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. Under CEQA, growth inducement is not necessarily considered detrimental, beneficial, or of little significance to the environment. Typically, the growth inducing potential of a project would be considered significant if it fosters growth or a concentration of population in excess of what is assumed in pertinent master plans or in land use plans. The proposed project is consistent with both the City of Williams General Plan and the Valley Ranch Business Park Gateway Portal Plan. Therefore, the proposed project will not be growth inducing.

Significant growth impacts could also occur if the Project provides infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way. The proposed Project will utilize existing infrastructure improvements in the Project area. The City has received Community Development Block Grant matching funds for improvements and upgrades to the City core water and wastewater infrastructure (West Williams Community Sewer and Water Rehabilitation Project); however, the Valley Ranch Business Park Gateway Portal infrastructure is not included. Therefore, the proposed project will not be growth inducing.

As identified in Table 37, the City's population has grown steadily over the past decades. Population projections in the City of Williams General Plan estimate the City's population will reach nearly 9,822 persons by 2030 (Tables 37 and 38).

4.14.7. Significant Impacts

All potential Project impacts related to population and housing have been determined to be less than significant. No significant population and housing impact would result from the implementation of the proposed Project.

4.14.8. Cumulative Impacts

The cumulative area for the discussion of population and housing impacts is the City of Williams. The project would not contribute to population growth and therefore would not result in an increased demand on the current or future housing in the region. The project would not require an influx of new workers who would need to locate temporarily or permanently in the

area. Implementation of the proposed project would not result in a cumulatively significant population or housing impact, nor would the proposed use significantly induce growth in areas where growth was not previously anticipated.

4.15. Public Services

This EIR chapter discusses potential impacts to the environment that would result from new or expanded police, fire, and school facilities resulting from increased demand on these services attributable to the proposed project. The analysis considers existing public services and facilities within the project's vicinity and evaluates the impacts to service providers that will result from the construction and operation of the proposed on-site uses.

Information to evaluate and analyze the proposed project's impacts on public services and facilities is derived from the following references and studies:

- City of Williams 2012 General Plan, adopted May, 2012;
- City of Williams State Route 20 New Road Connection, Initial Study with Proposed Mitigated Negative Declaration, 2014;
- City of Williams Storm Drainage Master Plan, 2007;
- City of Williams Municipal Service Review, Colusa LAFCo, August 1, 2013
- County of Colusa General Plan, adopted 2011;

4.15.1. Existing Setting

4.15.1.1 Fire Protection

The City of Williams cooperates with the Williams Rural Fire Protection District to provide joint fire protection services through the Williams Fire Protection Authority (WFPA). It is the mission of the Williams Fire Protection Authority to serve and protect the citizens of the City of Williams and the Williams Fire Protection District from all disasters, natural or man-made; and to respond to all calls at all hours of the day and night with the highest professional level of service. The WFPA covers over 320 square miles in Western Colusa County that includes 15 miles of Interstate 5 and 35 miles of State Highway 20.

The authority is managed by a full-time Fire Chief and a five person board, which includes two City Council members, two rural fire district board members, and one volunteer firefighter. The Williams Fire Protection Authority/Williams Volunteer Firefighters Association have a long history of being a volunteer fire department since 1906. In 2006 the citizens passed an assessment that provides for 24/7 staffing. The department is now staffed with one firefighter 24/7 and supplemented by 40+ trained volunteers and a duty officer. All full-time staff and volunteers are trained as Firefighter I and First Responder (basic life support), which includes wild land, structural, confined space (12 rescue technicians), extraction, and basic hazardous materials fire training. There is no hazardous materials team within Colusa County, which depends on the master mutual aid system for any hazardous materials incidents. The authority operates from a single fire station located at 810 E Street, with plans for a future substation on the east side of I-5.

The department responds to over 600 incidents on a yearly basis that includes basic life support (BLS) medical, vehicle extrication, wildland, confined space rescue, and structural firefighting.

The WFPA is proud to have an Insurances Services Organization (ISO) rating of 4/6. A 4 rating within the city limits and hydrant areas, and 6 rating in the rural area up to 5 miles from the fire station.

4.15.1.2 Police Protection

The General Plan describes the Police Department as follows (City of Williams 2012 General Plan, Pages 2.33 and 2.34):

Police protection services within the City of Williams are handled by the City's Police Department. The department is managed by the Police Chief, plus two sergeants and one detective. There are 11 sworn officers within the department and three non-sworn authorized positions. The non-sworn positions include a police services manager and two police services technicians; one for records and the other for code enforcement. Given this level of staffing, there are approximately 2.08 sworn officers per 1,000 residents. The Federal Bureau of Investigation (FBI) advises a ratio of sworn officers at 2.0 per 1,000 residents. To maintain this ratio, by the year 2030, the sworn officer staffing should be at 20 officers.

All peace officers have an Advanced Certificate (minimum 40 hours of officer training) issued by the California Commission on Police Officer Standards & Training (POST). This certificate recognizes the officer's achievement in education, training, and experience.

The service area of the Department is the City limits, which is approximately 4.2 square miles, or 2,688 acres. Outside of the City limits, patrol is provided by the Colusa County Sheriff's Department. The California Highway Patrol (CHP) is responsible for highway patrol along I-5 and SR 20. The City has an unwritten mutual aid agreement with Colusa County for patrol and response. The Department contracts with Colusa County for animal control services.

Police Headquarters are located at 700 North Street. This 5,400 square foot facility was constructed in 2008 with general fund dollars. It was designed to allow expansion as the City grows in the future. The building includes five offices, conference room, records storage, an interview room and audiovisual observation room, squad room, locker room, and an armory. There are no holding cells onsite as all offenders are transported to the Colusa County Jail located approximately ten miles northeast in Colusa. The Colusa County Sheriff's Department handles the City's dispatch services.

The Department is active in teaching Drug Abuse Resistance Education (D.A.R.E) and Gang Resistance Education and Training (G.R.E.A.T) to the students of the Williams Unified School District. They also sponsor a bicycle rodeo for second and third graders, participate in health fairs, and conduct K-9 demonstrations.

D.A.R.E. is a police officer-led series of classroom lessons that teaches children from kindergarten through 12th grade how to resist peer pressure and live productive drug and violence-free lives.

The G.R.E.A.T. Program is a school based, law enforcement officer instructed classroom curriculum. With prevention as its primary objective, the program is intended as an immunization again delinquency, youth violence, and gang membership.

4.15.1.3 Schools

The Williams Unified School District (WUSD) Facilities Needs Study and Master Plan was developed in 2007. The existing 52 acre school complex in Williams is located approximately one air mile west of the Project site and houses all of the City's public schools.

The 2007 study anticipated that the City's high rate of growth over the prior years would continue, and that the population would reach a total of over 22,000 by 2026. That growth assumption resulted in recommendations for expansion of the existing facilities with additional needs for future school sites.

The projections for population growth were adjusted in the 2010-2030 General Plan to roughly half of the population that was anticipated at the time of the 2007 WUSD facilities needs study and master plan. Since there is enough facility expansion capacity at the existing school complex to accommodate 100% growth according to the 2007 Master Plan, the new population projection of 9,822 by 2030 should not necessitate further expansion until after 2030. During the 2014-2015 school year, there were approximately 1,377 students accommodated at the site, which has room to roughly double the enrollment by expanding the schools on-site.

The Colusa County Outreach Facility for Woodlands Community College was opened in 2011 and is located at the intersection of Margurite Street and Ella Street. Affiliated with the Yuba Community College District, the facility offers a two year degree program to all adults, including college preparatory classes for low-income students. The site has room for possible future expansion.

In 2013 the Colusa County Office of Education completed the Education Village project located at the intersection of Marguerite Street and E Street. This facility serves special education, alternate education, adult transition, and preschool services.

4.15.1.4 Parks

The City Parks and Recreation Department oversees a system of five parks, a municipal pool, and the Sacramento Valley Museum. City facilities accommodate a wide range of activities, including softball, soccer, volleyball, basketball, and tennis.

Park and recreation facilities in the City of Williams are as follows:

- ***Redinger Park (2.2 acres)*** *9th Street/G Street*
  - Playground, soccer field, picnic tables and benches, and restrooms.
- ***Venice Park (3.26 acres)*** *Venice Boulevard between E Street and Westgate Drive*
  - Playground area, baseball field, horse shoe pits, picnic tables, lighted tennis courts, large open play area, and restrooms.
- ***Valley Vista Park*** *(11 acres) Husted Road*
  - Six full-size basketball courts, walking/jogging trail, and nature pond area.

- ***Park "B"*** *(7.72 acres) White Oak Drive*
    - Undeveloped.
- ***Downtown Park*** *(0.13 acres) 7th and E Streets*
    - Park benches.
- ***Municipal Pool*** *Located at the western end of D Street*
    - Amenities include a 105-foot long pool, diving board, slide, and restrooms.
- ***Williams Gymnasium*** *1491 E Street, 3 Acre site*
    - Located at the Old Williams High School.
- ***Sacramento Valley Museum*** *E Street / Venice Boulevard*
    - Offers regional exhibits and features items from the 19th and 20th centuries.
- ***North View Park (2.3 acres)*** *Located at the northern end of Virginia Way*
    - Playgrounds, basketball court, soccer field, volleyball court, picnic tables and benches, barbeques, gazebo, dog run, and restrooms.
- ***Valley Ranch Playground (2 acres)*** *White Oaks Drive / Sierra Oaks Drive*
    - Soccer fields, basketball courts, playground equipment, and restrooms.

4.15.1.5 Other Public Facilities and Services

(a) Water Service

The General Plan describes the City of Williams Water Service as follows:

> "The City provides potable water to residences and business. The limits of service are mostly the same as the wastewater service, providing service to the developed portions of the City limits. The system includes a 100,000 gallon elevated water storage tank, together with three active and two standby groundwater wells. The three active wells include numbers 8, 9 and 10, which collectively pump approximately 2,800 gallons per minute (GPM). The two standby wells have a total pump capacity of 820 GPM, although they each have poor water quality and are not now permitted by the State Board of Public Health."

According to the City's 2012 General Plan the water supply serves two principal functions – drinking water and fire suppression. The City's General Plan states, "Water quality has been generally good due to its source from underground – minor deficiencies will be addressed in the 2010- 2011 budget year."

(b) Wastewater Collection and Treatment

The City of Williams Wastewater Treatment Plant (WWTP) is owned by the City of Williams as part of a municipal wastewater collection, treatment, and disposal system that provides sewerage service to residential and commercial users within the City of Williams.

The wastewater Collection System includes 0.6 miles of force mains, 4 lift stations, 23 miles of gravity sewers, and 15 miles of laterals. The City normally inspects 2 miles of sewer line per year. The City cleans 3.6 miles of sewer line per year.

Wastewater from the City of Williams collection system flows into the WWTP and receives tertiary level treatment before it's discharged to Salt Creek. The WWTP is designed to pump, screen, and equalize a peak flow rate of 4.5 million gallons per day (MGD). The plant's rated treatment capacity is based on an average day max month flow rate of 1.08 MGD and a peak flow rate of 2.32 MGD (Colusa LAFCO 2013).

(a) Storm Drainage

In 2007, the City prepared a Storm Drainage Master Plan. The Master Plan area includes approximately nine square miles, encompassing all of the City Limits and its Sphere of Influence (SOI), with the exception of the area north of SR 20. The study area also included acreage to the east and to the south that would likely be included in the City's future SOI. The study resulted in the design of a Drainage Master Plan which includes detention basins, basin outlets, culverts, interconnected storm drains, and a number of open channels connecting some of the detention basins.

In 2008, the City adopted an amendment to add a storm drainage fee for all new development. This fee goes to a separate fund, to be used "solely for the construction or reimbursement for funds of local drainage within the local drainage area". The Storm Drainage Master Plan includes an implementation strategy where new development will include installation of the drainage elements that are shown on the Plan. Those developments that do not encompass drainage features shown on the Plan may include temporary onsite detention basins if feasible.

Full implementation of the plan will result in the installation of 29 detention ponds of a size ranging from 2.3 to 29.2 acres, for a total of 358 acres. This total represents 4.5 percent of the total acreage within the nine square mile study area.

(b) City Offices and Facilities

The existing City buildings and grounds include: three buildings that house City staff, including the Police Department, City Hall, and the Public Works facility. In recent years, a new annex building was purchased near City Hall on 8th Street to provide new offices for the relocation of the Building and Planning Department and Finance staff. The City has 35 employees distributed in 11 departments.

(c) Health Services

The medical facilities that are available to the Williams' community are presently limited to local provision of doctors' offices and clinic space. The larger facilities that offer a wider choice of services are located outside of the City in other municipalities. As the City grows, it will come to a point where it will reach the critical mass to attract larger facilities to it which is a community goal identified during the public consultation for the General Plan.

(d) Growth Path

The areas within the City limits that remain undeveloped include acreage for the recently designated Business Park, and institutional uses to the north and southeast of I-5. West of I-5, future residential is anticipated to the south with future commercial to the north. There are a total of approximately 2,688 acres in the City limits of which approximately 1,000 acres are developed and 1,688 acres are vacant (City of Williams 2012a). There are several tentative plat

maps that have been approved to the south, west of I-5. Areas outside of the City's Sphere of Influence (SOI) in the acreage to the east are also within the City's growth path.

(e) Future Housing Needs

According to the projected population scenarios, the City is expected to reach a population of 9,822 persons by the Year 2030. To accommodate the additional people, an additional 1,100 dwelling units are required, which would mean construction of an average of 55 dwelling units annually. The City is currently reviewing a revised Housing Element 2014-2019 to the 2012 General Plan.

4.15.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding public services.

4.15.3. Existing Policies and Regulations

4.15.3.1 Federal Regulations

There are no federal regulations applicable to the Project with respect to public services.

4.15.3.2 State Regulations

There are no federal regulations applicable to the project with respect to public services.

4.15.3.3 Local Regulations

The Public Safety and Circulation Elements of the City of Williams General Plan defines the policies related to public services (Table 43).

Table 43. General Plan Policy's and Consistency; hazards and hazardous materials

Policy	Consistency
4.31: The City will coordinate with other City departments to conduct a review of both public and private development plans to ensure crime prevention is adequately addressed.	Not Applicable. This policy applies to the City and not to individual development projects.
4.32: The City will consider the adoption and administration of a building security ordinance.	Not Applicable. This policy applies to the City and not to individual development projects.
4.21. The City will continue to coordinate with Colusa County OES to identify and establish evacuation routes and operational plans to be used in case of fire (or other) public safety hazard.	Not Applicable. This policy applies to the City and not to individual development projects.
4.26. The City will support the WFPA investigations of constructing a second fire station on the east side of I-5.	Not Applicable. This policy applies to the City and not to individual development projects.

4.15.1. Methodology

The determination of potential impacts associated with the proposed project on public services included an evaluation of existing police and fire response time; and valuation of the length of time for police and fire to arrive at the project site based on average travel time; and an evaluation of potential needs for schools, parks, and other public facilities.

4.15.2. Thresholds of Significance

The following thresholds of significance regarding potential impacts to public services are based on questions contained in the CEQA Guidelines.

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:

- Fire protection?
- Police protection?
- Schools?
- Parks?
- Other public facilities?

4.15.3. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.15.3.1 Fire Protection

Thresholds: 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: Fire Protection?

The proposed Project would be designed, constructed, and operated per applicable fire prevention/protection standards established by the WFPA, the City, and/or State. Standards include provisions for smoke alarms; sprinklers; building and emergency access; adequate emergency notification; and hydrant sizing, pressure, and siting. The development of the proposed Project would not cause fire staffing, facilities, or equipment to operate at a deficient level of service. Additionally, because the proposed Project would be required to pay development impact fees to fund future fire facilities and services, impacts associated with fire protection services and facilities would not occur. The construction/operation of the proposed Project would not necessitate the construction of new or expanded fire facilities because the site is located with the current service area of the WFPA. Impacts are a less than significant impact and no mitigation is required.

4.15.3.2 Police Protection

Thresholds: 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: Police Protection?

The construction/operation of the proposed project would not necessitate the construction of new or expanded law enforcement facilities because the site is located with the City's current service area. The proposed Project would be designed and operated per applicable standards required by the City for new development in regard to public safety. In addition, the project would be required to pay development fees used to fund capital costs associated with constructing new public safety structures and purchasing equipment for new public safety structures. Therefore, impacts to the environment resulting from new or expanded police facilities would not occur, resulting in a less than significant impact and no mitigation is required. The construction/operation of the proposed Project would not necessitate the construction of new or expanded police facilities because the site is located with the current service area. Impacts are a less than significant impact and no mitigation is required.

4.15.3.3 Schools

Thresholds: 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: Schools?

It is anticipated that most of the new employment opportunities (both temporary construction and permanent jobs) generated by the proposed Project will be filled by persons already residing in the community and surrounding areas. Because employees of the proposed on-site uses likely would be drawn from the local area, no substantial increase in population or corresponding increase in students attending local schools will occur. In addition, the project proponent would be required to pay these development fees in accordance with Government Code 65995 and Education Code 17620.

No residential development is proposed as part of the Project. Consequently, the proposed Project would not cause a significant increase in the local population that would increase the number of students attending local schools. Since payment of the school impact fees is required of all projects within WUSD boundaries, impacts to school services and facilities would not occur. Impacts are a less than significant impact and no mitigation is required.

4.15.3.4 Parks

Thresholds: 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: Parks?

It is anticipated that most of the new employment opportunities (both temporary construction and permanent jobs) generated by the proposed Project will be filled by persons already residing in the community and surrounding areas. No residential development is proposed as part of the Project. Because employees of the proposed on-site uses likely would be drawn from the local area, no substantial increase in population or corresponding increase in demand for park facilities would occur. Impacts are a less than significant impact and no mitigation is required.

4.15.3.5 Other Public Facilities

Thresholds: 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: Other Public Facilities?

It is anticipated that most of the new employment opportunities (both temporary construction and permanent jobs) generated by the proposed Project will be filled by persons already residing in the community and surrounding areas. No residential development is proposed as part of the Project. The proposed Project will not result in the need to any other public or governmental facilities.

4.15.4. Significant Impacts

All potential Project impacts related to public services have been determined to be less than significant. No significant public services impact would result from the implementation of the proposed Project.

4.15.5. Cumulative Impacts

The cumulative areas for police and fire protection services are the service areas for the City of Williams Police and Williams Fire Protection Agency (WFPA). As additional development occurs in the City of Williams and Northern Sacramento Valley region, there may be an overall increase in the demand for law enforcement and fire protection services, including personnel, equipment, and/or facilities. Increases in demand are routinely assessed by these agencies as part of the annual monitoring and budgeting process. New development within the service areas of the City and WFPA would be required to adhere to conditions established by fire and police service providers, and pay the applicable fees to ensure adequate staffing and equipment levels. Accordingly, cumulative impacts to the environment resulting from new or expanded police and fire protection facilities are less than significant and no mitigation is required.

The cumulative area for school-related issues are the school district that may provide school services/facilities in the project area. As stated in Section 4.15.3.1, school services and facilities in the project area are provided by the Williams Unified School District (WUSD) and the Yuba Community College District for the Woodlands Community College. While no significant population growth in the City or region is anticipated to result from the construction and operation of the proposed project, future development (especially residential development)

forecasted in the City's General Plan will increase the demand for school facilities and services. The WUSD has determined there is adequate space available at the existing Williams campus in anticipation of future local and regional growth. Each district requires the payment of development fees to provide for new school services and/or facilities. As every new development is mandated to provide the fees applicable to the school district affected, there would be no cumulative impact on school services in the City. Accordingly, cumulative impacts to the environment resulting from new or expanded school facilities would not occur.

4.16. Recreation

This section of the EIR analyzes the impact of the proposed project on existing local and regional recreational services or the need to construct or expand additional recreational facilities due to the implementation of the proposed project. Information to evaluate and analyze the proposed project's impacts to recreation and parks is derived from the following references and studies:

- City of Williams 2010-30 General Plan, City of Williams, adopted May, 2012;
- Williams Park and Recreation Master Plan, 2006

4.16.1. Existing Setting

Parks and recreation facilities are an essential part of a healthy and sustainable community environment. They provide necessary components in human existence for events outside of the home, work place, and beyond school activities. Whether for passive or active use, park areas and recreation facilities are an important part of everyday active living. Much like basic municipal infrastructure, such as streets and sidewalks, water and wastewater lines, storm drainage facilities, and police and fire protection services, parks are integral components of a viable community. Parks reflect the quality of life enjoyed by citizens, incorporating social, scenic, historic, and cultural values. They require a significant level of attention and commitment of resources to be adequately acquired, constructed, operated, and maintained. Unlike other infrastructure, they can create community and family memories to be cherished over generations.

The City Parks and Recreation Department oversees a system of five parks, a municipal pool, and the Sacramento Valley Museum. City facilities accommodate a wide range of activities, including softball, soccer, volleyball, basketball, and tennis.

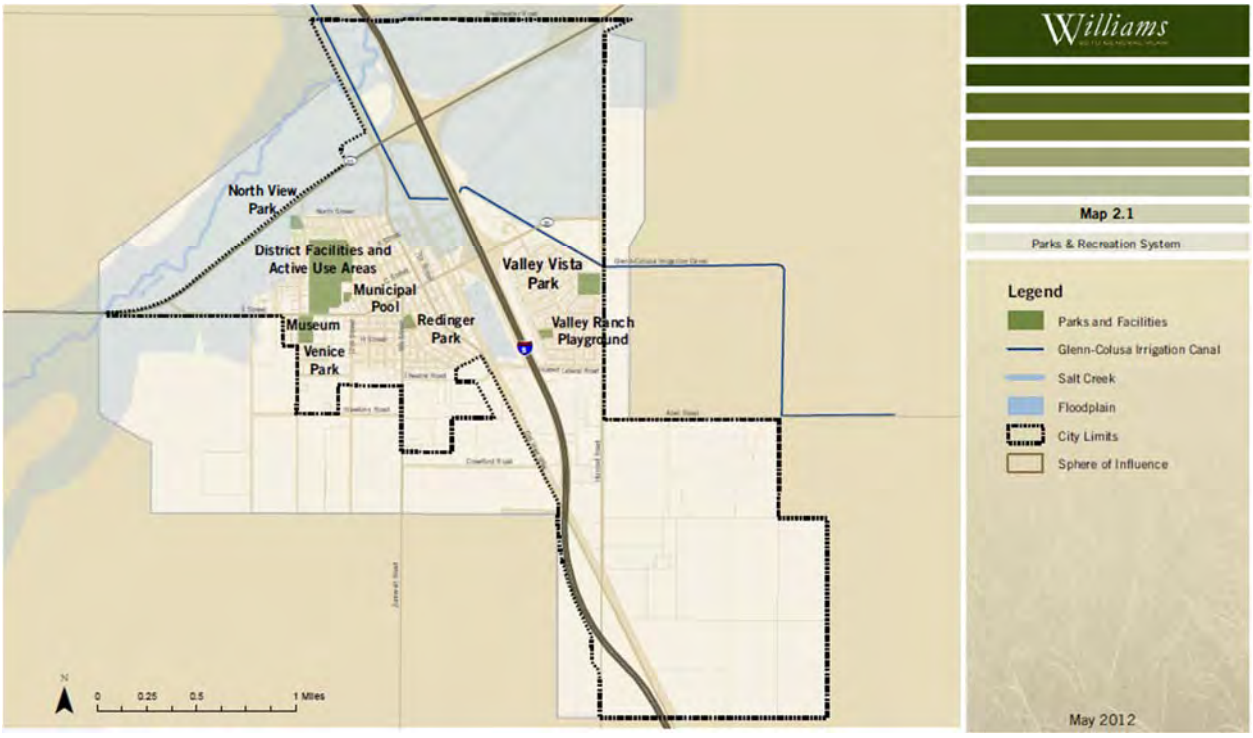
Park and recreation facilities in the City of Williams are as follows:

- ***Redinger Park (2.2 acres)*** *9th Street/G Street*
    - Playground, soccer field, picnic tables and benches, and restrooms.
- ***Venice Park (3.26 acres)*** *Venice Boulevard between E Street and Westgate Drive*
    - Playground area, baseball field, horse shoe pits, picnic tables, lighted tennis courts, large open play area, and restrooms.
- ***Valley Vista Park*** *(11 acres) Husted Road*
    - Six full-size basketball courts, walking/jogging trail, and nature pond area.
- ***Park "B"*** *(7.72 acres) White Oak Drive*
    - Undeveloped.
- ***Downtown Park*** *(0.13 acres) 7th and E Streets*
    - Park benches.
- ***Municipal Pool*** *Located at the western end of D Street*

- Amenities include a 105-foot long pool, diving board, slide, and restrooms.

- ***Williams Gymnasium*** *1491 E Street, 3 Acre site*
  - Located at the Old Williams High School.
- ***Sacramento Valley Museum*** *E Street / Venice Boulevard*
  - Offers regional exhibits and features items from the 19th and 20th centuries.
- ***North View Park (2.3 acres)*** *Located at the northern end of Virginia Way*
  - Playgrounds, basketball court, soccer field, volleyball court, picnic tables and benches, barbeques, gazebo, dog run, and restrooms.
- ***Valley Ranch Playground (2 acres)*** *White Oaks Drive / Sierra Oaks Drive*
  - Soccer fields, basketball courts, playground equipment, and restrooms.

Figure 10. Location of Park and Recreation Facilities



Source: *City of Williams General Plan, May 2012*

4.16.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding recreation or parks.

4.16.3. Existing Policies and Regulations

4.16.3.1 Federal Regulations

There are no federal regulations applicable to the project with respect to recreational facilities.

4.16.3.2 State Regulations

Quimby Act (California Government Code 66477): This State policy requires the dedication of land and/or imposes a requirement of fees for park and recreational purposes as a condition of approval for a tentative subdivision map or parcel map.

4.16.3.3 Local Regulations

City of Williams General Plan: The City's General Plan includes incorporation of passive recreational elements into portions of the City water and wastewater detention facilities (Table 44).

Chapter 16.36 of the City of Williams Zoning Ordinance delineates Parks and Recreation Facilities Dedication Fees.

Table 44. General Plan Consistency

Policy	Consistency
7.6. The City will continue to expand its parks and recreational facilities and services in proportion to population growth and state and national standards.	Consistent. Although not directly contributing to population growth, the proposed project will benefit the City's Business Park image, as defined in the General Plan 2012.
7.7. Parks and recreation facilities and services will be integrated with the City's storm drainage improvement planning and other public facilities, allowing for dual benefit among municipal functions.	Consistent. The proposed project will be in close proximity to the City's walking trails, near the Woodlands Community College.

4.16.4. Methodology

Potential impacts of the proposed Project on recreation and park resources were evaluated based on whether implementation of the proposed Project could result in increased use of existing recreation and park resources, or whether implementation of the proposed Project could necessitate the construction or expansion of recreation and park facilities.

4.16.5. Thresholds of Significance

The following thresholds of significance regarding potential impacts to recreational facilities and resources are based on questions contained in the CEQA Guidelines. The proposed project would result in a significant impact on recreation resources if any of the following occurs:

- The project increases 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; and/or
- The project includes recreational facilities or requires the construction or expansion of recreational facilities that have an adverse physical effect on the environment.

4.16.6. No Impact or Less than Significant Impacts

The following potential impacts were determined to have no impact or a less than significant impact.

4.16.6.1 Increased Use of Existing Recreational Facilities

Thresholds: Would the project result in increased use of existing neighborhood and regional parks or other recreational facilities where substantial physical deterioration would occur or be accelerated?

The proposed Love's Country Store Project does not include recreational amenities or parkland. The Project is anticipated to employ 40-45 full time employees; approximately 12 employees would be on-site at any one time. Because the proposed Project does not include the construction of any housing, and because any new employment opportunities created would likely be filled by current residents of the community, there would be no significant increase in population associated with the proposed project. In the absence of a significant increase in population, the proposed project would not cause an increase in the use of existing neighborhood or regional parks or other recreational facilities in the area. Therefore, no impacts to recreational facilities will occur with implementation of the proposed Project and no mitigation is needed.

4.16.6.2 New or Physically Altered Recreation and Park Facilities

Thresholds: Would the project result in construction or expansion of recreational facilities that would have an adverse physical effect on the environment?

The proposed Project includes development of a Love's Country Store on an 11.15-ac parcel and does not include the construction or expansion of a recreational facility, nor would it create a substantial demand on recreational facilities. A less than significant increase in population would result from the proposed project, so no new demand on existing park facilities would occur that would require the need for the expansion of existing parks or the construction of new parks. No impacts to recreational facilities would occur with implementation of the proposed Project and no mitigation is required.

4.16.7. Significant Impacts

All potential Project impacts related to recreation have been determined to be less than significant. No other significant recreation impact would result from the implementation of the proposed Project.

4.16.8. Cumulative Impacts

Implementation of the proposed Project would not increase the use of existing parks and recreation facilities. However, in combination with cumulative projects in the area (which include residential uses), there would be an increase in use of existing parks and recreation facilities. As future residential development is proposed, the City will require developers to provide the appropriate amount of parkland or payment of in-lieu fees, which will contribute to future recreational facilities. Payment of these fees and/or implementation of facilities on a project-by-project basis would offset cumulative parkland impacts by providing funding for new and/or renovated parks equipment and facilities. The cumulative impact associated with the

implementation of the proposed project when considered with cumulative projects in the area would be less than significant and no mitigation is required.

4.17. Transportation/ Circulation

This section analyzes the potential traffic and circulation impacts of the proposed project and is based on the following report:

- Traffic Operations Report –Love's Travel Stop, City of Williams, CA, Prepared by Fehr & Peers (2016, see Appendix H)

4.17.1. Existing Setting

The existing conditions analysis presents information regarding the physical and operational characteristics of the existing roadway system near the proposed project. This information establishes a baseline for project evaluation.

4.17.1.1 Study Area

(a) Interstate 5

Interstate 5 (I-5) is a facility of interregional significance extending the length of California into Oregon and Washington. It is used extensively by local and regional commuters and for goods movement throughout northern California. In the study area, I-5 has four lanes north of SR 20 and six lanes between SR 20 and E Street (four lanes with a northbound and southbound weaving lane between the interchanges). Interchanges exist at the SR 20 junction and at E Street.

(b) State Route 20

State Route (SR) 20 is generally an east-west state highway that begins in Fort Bragg to the west and ends at Interstate 80 approximately 25 miles west of Truckee, California. Most of SR 20, including through the project study area, is a two lane facility. Access to SR 20 from I-5 is provided by a tight-diamond configuration interchange with side-street stop control (SSSC) at the ramp terminals.

(c) Husted Road

Husted Road is a north-south, two-lane roadway that borders the east side of Williams. Husted Road serves agricultural land uses north and south of SR 20 and is a designated truck route according to the Williams 2010 General Plan. The Husted Road/ SR 20 intersection has a SSSC intersection.

(d) Margurite Street

Margurite Street is a north-south, two-lane roadway that connects E Street and SR 20. It was recently extended from Ella Street north to connect with SR 20. Margurite Street contains both sidewalks and bike lanes and would provide direct access to the project site via two full-access driveways, one for passenger vehicles (the northernmost driveway) and one for trucks (the southernmost driveway). The Margurite Street / SR 20 intersection has side-street stop control (SSSC). Margurite Street was designated as an official 'Truck Route' by City Ordinance 214-16 in February 2016.

4.17.1.2 Existing Pedestrian and Bicycle facilities

Pedestrian and bicycle facilities are not provided on SR 20. However, Margurite Street between SR 20 and E Street does include sidewalks and on-street Class II bike lanes. Since adjacent properties are either undeveloped or consist of agricultural uses, the demand for pedestrian and bicycle travel in the area is limited. None of the existing study intersections have crosswalks.

4.17.1.3 Existing Transit Service

The public transit is administered by Colusa County Transit Agency (CCTA). The bus system provides regional connectivity to residents of Williams, Colusa, and Arbuckle. Currently, there is no public transit system that serves the project site. However, riders may call the Colusa County Transit Agency to schedule a ride.

The transit system operates the following service:

- County Hopper Deviated Fixed Route Bus Service: Connects Williams with Arbuckle, Colusa, Grimes, Maxwell, Princeton, Sties, and Stonyford. Each bus can deviate from its normal route in order to accommodate the general population as well as ADA passengers.

4.17.1.4 Existing Rail

The study area includes a Union Pacific Railroad (UPRR) track that runs through Williams west of I-5. SR 20 has a grade-separated crossing of the railroad. There is no existing commuter rail service within the study area.

4.17.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding transportation or circulation.

4.17.3. Existing Policies and Regulations

4.17.3.1 Federal Regulations

There are no Federal regulations applicable to the project with respect to transportation.

4.17.3.2 State Regulations

There are no State regulations applicable to the project with respect to transportation.

4.17.3.3 Local Regulations

The Circulation Elements of the City of Williams General Plan defines the policies related to transportation (Table 45).

Table 45. General Plan Consistency

Policies and Actions	Consistency
Policy 8.a. Create/Update Citywide Circulation Master Plan.	Not Applicable.
Action 8.a.-1. The City shall maintain the Citywide Traffic Model to help forecast future travel, identify	This action applies to the City and not to individual development projects. The Project applicant has

Policies and Actions	Consistency
circulation deficiencies and recommend improvements and coordinate this model with other agencies, such as the Colusa County Transportation Commission, Colusa County, and Caltrans.	provided a Traffic Report that analyzes the Project potential impacts on the circulation system and provides mitigation for potential significant impacts.
Action 8.a.-2. The City shall pursue funding to construct improvements identified in the Circulation Master Plan, including seeking Federal and State grants and updating the traffic impact fee program on a timely basis.	This action applies to the City and not to individual development projects. The Applicant has proposed to pay a fair share cost to construct signalization improvements for Project impacts to the SR 20/I-5 SB Ramps (Intersection 1), SR 20/I-5 NB Ramps (Intersection 2), and SR 20/Husted Rd/Freshwater Rd (Intersection 4).
Policy 8.b: Establish Complete Street Subdivision Criteria for new development and improve convenience, energy efficiency, and safety for multi-modal travel in existing neighborhoods.	The Project is the first to be constructed in an area zoned Business Park. Residential neighborhoods do not occur in or immediately adjacent to the Project area.
Action 8.b.-1. The City will develop Complete Street Subdivision Development Standards. These standards shall include provisions for cul-de-sac designs, required stubbing of streets to adjacent planned development areas, block lengths and neighborhood connectivity.	This action applies to the City and not to individual development projects.
Action 8.b.-2. New development shall incorporate connected street and pedestrian/bicycle networks, with many connections between new and older neighborhoods and between neighborhood and commercial and downtown areas.	The proposed Project is located immediately adjacent to the recently constructed Margurite Street extension. Margurite Street has both sidewalks and bike lanes. Per California Green Building Standards (C.G.B.S.) section 5.106.4 bicycle parking, the Project well provide a total of (2) bike rack/bollards (4 total bikes accommodated). This shall meet or exceed the 5% requirement for short-term bicycle parking as required in C.G.B.S. section 5.106.4.1.1.
Action 8.b.-3. The City shall control and coordinate with adjacent jurisdictions major access points.	This action applies to the City and not to individual development projects.
Action 8.b.-4. The City shall consider restriction of on-street parking on major and secondary arterials when needed to provide additional street capacity and/or, accommodate bicycle lanes.	This action applies to the City and not to individual development projects.
Action 8.b.-5. Upon signalization improvements, the City shall optimize traffic signal performance to increase traffic flow and reduce vehicular emissions.	This action applies to the City and not to individual development projects.
Action 8.b.-6. On an ongoing basis, the City will identify priority transportation improvements in existing developed portions of the City consistent with this Circulation Element and include such improvements in grant applications, capital improvements planning, and through other funding mechanisms as appropriate.	This action applies to the City and not to individual development projects.
Action 8.b.-6. The City shall coordinate bicycle and pedestrian paths to logically link to the County's plans for bicycle and pedestrian travel.	This action applies to the City and not to individual development projects.
Policy 8.c: Monitor the operation and performance of the multi-modal circulation system. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This action applies to the City and not to individual development projects.
Policy 8.d: Maintain roadways and circulation improvements to ensure safe, energy efficient and convenient daily travel for pedestrians, bicyclists, transit users and drivers as Williams grows.	This action applies to the City and not to individual development projects.

Policies and Actions	Consistency
Action 8.d.-1. Establish a City transportation impact fee program that addresses impacts to City transportation facilities. Following adoption of the 2010 General Plan, the City will revise its development impact fees based on a Nexus Study. The City will collaborate with Caltrans in considering incorporation of State Highway Facilities into these programs.	This action applies to the City and not to individual development projects.
Action 8.d.-2. New development shall construct and dedicate streets that accommodate the full range of locally available travel modes.	The proposed Project is located immediately adjacent to the recently constructed Margurite Street extension. Margurite Street has both sidewalks and bike lanes. The proposed Project does not propose to construct any streets.
Action 8.d.-3. New development shall construct and dedicate and/or contribute to a connected bicycle/pedestrian network that is designed to promote travel to schools, parks, and other major destinations.	The proposed Project is located immediately adjacent to the recently constructed Margurite Street extension. Margurite Street has both sidewalks and bike lanes. Per California Green Building Standards (C.G.B.S.) section 5.106.4 bicycle parking, the Project well provide a total of (2) bike rack/bollards (4 total bikes accommodated). This shall meet or exceed the 5% requirement for short-term bicycle parking as required in C.G.B.S. section 5.106.4.1.1.
Action 8.d.-4. Bicycle parking should be provided as a part of all non-residential development.	See response for Action 8.d.-3.
Action 8.d.-5. Through the Capital Improvement Program, the City shall develop a priority system for physical improvements based on demonstrated needs according to the collected data on physical conditions, traffic volumes and safety reports. CIP improvements shall be made consistent with the City's Circulation Master Plan.	This action applies to the City and not to individual development projects.
Action 8.d.-6. The City shall maintain and update a Bikeway Master Plan to guide the orderly provision of bikeway facilities throughout the City.	This action applies to the City and not to individual development projects.
Action 8.d.-7. The City shall integrate local bikeway planning with regional plans.	This action applies to the City and not to individual development projects.
Action 8.d.-8. The City shall seek State Bicycle Lane Account funds and other funding to help pay for the completion of a comprehensive bikeway system within in the City.	This action applies to the City and not to individual development projects.
Action 8.d.-9. Limit driveway intersections and curb cuts along arterial and collector roadways in order to provide improved mobility and public safety.	The Project proposes the minimum number of driveway intersections and curb cuts along Margurite Street necessary to complete and operate the proposed Project.
Action 8.d.-10. Encourage the widening of State highways to allow the safe movement of farm vehicles and equipment.	This action applies to the City and not to individual development projects.
Action 8.d.-11. Provide dedicated pedestrian and bike lanes on the E Street overpass of I-5, as recommended in Chapter 5, Open Space and Conservation.	This action applies to the City and not to individual development projects.
Action 8.d.-12. Collect fair share cost of all feasible transportation improvements necessary to reduce the severity of cumulative transportation impacts (including public transit, pedestrian and bicycle mobility, safety and level of service-related impacts).	The Project proposes to mitigate potential significant project related traffic impacts through payment of a fair share cost (see measure TRAFFIC-1).
Action 8.d.-13. Work with Caltrans and Colusa County	This action applies to the City and not to individual

Policies and Actions	Consistency
to fund necessary improvements to Interstate 5 and SR 20 that would maintain acceptable level of service.	development projects.
Action 8.d.-14. Require new development to enter into an agreement with the City that establishes circulation improvements to be constructed and/or fair share cost to be the responsibility of the project applicant.	The Project proposes to mitigate potential significant project related traffic impacts through payment of a fair share cost (see measure TRAFFIC-1).
Policy 8.e. Improve travel safety, accessibility and energy efficiency. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.f. Provide for truck and emergency vehicle traffic. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.g. The planning, alignment, and improvement of the street network will reflect the proposed land use pattern of the General Plan. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.h. Provide for desirable and safe alternative access to schools, parks, and shopping areas from residential areas within the City. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	Not Applicable. The Project occurs in an area zoned as business park.
Policy 8.i. Encourage the continued development and expansion of local and regional public transit systems.	This policy applies to the City and not to individual development projects.
Policy 8.j. Improve and maintain the system of sidewalks and crosswalks to promote a pedestrian-friendly community. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.k. Publicize major transportation issues and solicit public input. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.l. *Coordinate transportation planning with regional and local plans.* (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.m: Designate local scenic routes and enhance and protect their scenic qualities. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.n. Protect natural features. (*Note: The actions under this policy are not listed here as they are not applicable to the proposed Project.*)	This policy applies to the City and not to individual development projects.
Policy 8.o. Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.	This policy applies to the City and not to individual development projects.
Policy 8.p: The City will strive to maintain Level of Service D or better for roadway and intersections except as specified below: • LOS E is acceptable in the Historic Downtown	Based on the criteria from Caltrans, LOS D was used as the evaluation criteria for intersections on SR 20 and LOS E was used as the evaluation criteria for I-5 freeway facilities.

Policies and Actions	Consistency
Area. • Utilize Caltrans LOS standards for Caltrans' facilities Exceptions to the LOS standards above may be considered by the City Council where reducing level of service would result in clear public benefit. Such circumstances include, but are not limited to if improvements necessary to achieve the LOS standard result in impact to a unique historic resource, a highly sensitive environmental area, requires infeasible right-of-way acquisition, or some other unusual physical constraint exists and or overriding economic or social circumstances.	
Action8.p-1. The City shall develop and adopt transportation impact study (TIS) guidelines that consider modes of travel and define, at a minimum, the need for transportation impact studies, analysis methodology and environmental significance criteria. Development of the TIS guidelines shall include coordination with Caltrans.	This action applies to the City and not to individual development projects.
Action8.p-1. The City shall prepare, adopt, and periodically update a Streets and Roadways Master Plan to establish the scope and timing of intersection and roadway improvements to accommodate planned development and to support the update of the Citywide Development Impact Fee program.	This action applies to the City and not to individual development projects.
Policy 8.q. Define level of service consistent with the latest edition of the Highway Capacity Manual and calculated using the methodologies contained in that manual.	Based on the criteria from Caltrans, LOS D was used as the evaluation criteria for intersections on SR 20 and LOS E was used as the evaluation criteria for I-5 freeway facilities. The Projects operational traffic analysis was conducted using the procedures and methodologies contained in the Highway Capacity Manual (HCM, 2010).

4.17.4. Methodology

The methodologies for conducting the traffic operations analysis and for developing cumulative and "cumulative plus project" traffic volume forecasts are summarized below.

4.17.4.1 Operations Analysis

(a) Intersections

All intersections were analyzed for weekday AM and PM peak hour conditions using procedures and methodologies contained in the Highway Capacity Manual (HCM) 2010 (Transportation Research Board, 2010) for calculating delay at intersections. These methodologies were applied using the SimTraffic microsimulation software, which considers the effects of lane utilization, turn pocket storage lengths, and upstream/downstream queue spillbacks on intersection queuing and delays. A SimTraffic microsimulation model of the SR 20 study corridor, including the I-5/SR 20 interchange, and the SR 20/Margurite Street and SR 20/Husted Drive intersections was built. SimTraffic was chosen as the operations tool to more accurately estimate intersection

delay, LOS, and vehicle queues by simulating SR 20 intersection operations as a system rather than as isolated intersections.

Per standard practice for micro-simulation models, SimTraffic models are calibrated to match volume served and observed vehicle queue lengths. In this case, volumes on SR 20 are so low that existing queues on side-street stops are minimal. The average of 10 runs was used to represent the reported conditions.

The following procedures and assumptions were applied in the development of the SimTraffic model:

- Roadway geometric data were gathered using aerial photographs, project files, and field observations.
- Peak hour traffic volumes were entered into the model according to the corridor-wide peak hour of the study intersections.
- Corridor-wide AM and PM peak hour factors (PHF) were calculated using count data. This allows for proper volume balancing in the SimTraffic model. These PHFs were used in analyzing existing and existing plus project conditions.
- The PHF utilized in the cumulative conditions analysis was 0.92, which represents an increase in PHF due to the increase in volumes under cumulative conditions.
- Heavy vehicle percentage was calculated for each movement under every scenario and time period.
- Speeds for the model network were based on the posted speed limits or engineering judgment.
- Due to the high-speed and rural nature of SR 20 and the lack of pedestrian and bicycle facilities, zero bicycle and pedestrian traffic was assumed under all scenarios and peak hours. This assumption was supported by field work performed during a weekday PM peak hour in the City of Williams.

(b) Level of Service

Level of service is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions. Table 46 presents the intersection LOS thresholds as defined in the HCM 2010. For signalized intersections, LOS is determined by comparing the average control delay for all vehicles approaching the intersection to the delay thresholds in the third column. The LOS at un-signalized, all way stop controlled intersections is determine by comparing the average delay experienced on all approaches to the thresholds in the last column. At side street stop controlled intersections, LOS is calculated for the stopped movements and the left-turn movement from the major street.

Signal warrant analysis was conducted for all study intersections using the rural peak hour signal warrant from the *California Manual on Uniform Traffic Control Devices* (2014).

Table 46. Intersection Level of Service Definitions

Level of Service	General Description	Average Control Delay (sec/veh)[1]	
		Signalized Intersections	Unsignalized Intersections
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	> 10 to 20	> 10 to 15
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	> 20 to 35	> 15 to2
D	Represents high-density, but stable flow.	> 35 to 55	> 25 to 35
E	Represents operating conditions at or near the capacity level.	> 55 to 80	> 35 to 50
F	Represents forced or breakdown flow.	> 80	> 50

Sources:
[1] *Highway Capacity Manual 2010*, Chapter 16, Signalized Intersections – Average control delay in seconds per vehicle (sec/veh)
[2] *Highway Capacity Manual 2010*, Chapter 17, Unsignalized Intersections – Average control delay in seconds per vehicle (sec/veh)

(c) Freeway Facilities

The traffic operations analysis addresses four freeway facilities on I-5 from just north of E Street to north of the SR 20 interchange. Merge and diverge sections were analyzed using the HCM 2010 procedures, and weave sections were analyzed using the Leisch Method (*Highway Design Manual* Section 504.7). If the analysis under the Leisch Method showed that a weave segment was "out of the realm of weaving," then the weave segment was analyzed as a basic segment, per the January 2013 errata to the HCM 2010 procedures.

The following input parameters were applied to the I-5 study freeway facilities analysis:

- Freeway mainline and on- and off-ramp peak hour factors (PHFs) were calculated based on existing AM and PM peak period counts of I-5 and at the I-5/SR 20 interchange ramp-terminal intersections. For cumulative conditions, the PHFs were set to a value of 0.92 to account for increased volumes in the future that will likely increase the PHF. If the PHF of a given mainline or ramp was already 0.92 or higher, then it was not altered.
- Heavy vehicle percentages for freeway facilities were based on existing vehicle classification counts on the I-5 mainline (collected between the on- and off-ramps at the E Street interchange) and turning movement counts at the SR 20/I-5 ramp-terminal intersections. For cumulative conditions, heavy vehicle percentages were adjusted to maintain volume balancing.
- Free Flow Speed (FFS) – 70 mph for the freeway mainline; 45 mph for the ramps
- Recreational Vehicle (RV) Percentage – 0% (Accounted for in heavy vehicle percentage)

- Passenger Car Equivalent – 1.5 (Leisch Method)
- Weave Section Length – 1,485 feet southbound; 1,590 feet northbound

Tables 47 and 48 present the LOS thresholds for freeway mainline sections and ramp merge and diverge sections, respectively.

Table 47. Freeway Mainline Level of Service Criteria

Level of Service	Description	Density (pcpmpl)[1]
A	Represents free flow. Vehicles are almost completely unaffected in their ability to maneuver within the traffic stream.	≤ 11
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 to 18
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 to 35
E	Operation at capacity. Virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45
F	Represents forced or breakdown flow.	> 45

Notes: 1 pcpmpl = passenger cars per mile per lane
Source: Highway Capacity Manual 2010, Chapter 10, Freeway Facilities

Table 48. Ramp Merge and Diverge Level of Service Criteria

Level of Service	Description	Density (pcpmpl)[1]
A	Represents free flow. Vehicles are almost completely unaffected in their ability to maneuver within the traffic stream.	< 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 28 to 35

Level of Service	Description	Density (pcpmpl)[1]
E	Operation at capacity. Virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 43
F	Represents forced or breakdown flow.	> 43

Notes: 1 pcpmpl = passenger cars per mile per lane
Source: Highway Capacity Manual 2010, Chapter 13, Freeway Merge and Diverge Segments

Table 49 presents the LOS thresholds for weave sections.

Table 49. Freeway Weaving Level of service Criteria Based on Leisch Method

Level of Service	Service Flow (pcpmpl)[1]		
	2 Lanes	3 Lanes	4 Lanes
A	750	800	850
B	1,000	1,100	1,200
C	1,250	1,350	1,450
D	1,550	1,450	1,650
E	1,900	1,900	1,900
F	Demand Exceeds Capacity	Demand Exceeds Capacity	Demand Exceeds Capacity

Notes: 1 pcpmpl = passenger cars per mile per lane
Source: Highway Design Manual (HDM), 5th Edition, Caltrans

4.17.4.2 Analysis Evaluation Criteria

Since the study intersections are all located on SR 20 and there are two I-5 ramp terminal intersections, all of the study intersections fall under the evaluation criteria of Caltrans. The *Transportation Concept Report State Route* 20 document (Caltrans, 2013) gives a 20-year concept LOS of D for the section of SR 20 that lies in the study area. Additionally, the *Transportation Corridor Concept Report Interstate 5* document (Caltrans, 2010) gives a 20-year concept LOS of D for the section of I-5 that lies in the study area. However, Caltrans also provided analysis evaluation criteria in their January 12, 2012 comment letter on the City of Williams General Plan Draft EIR. In that letter, Caltrans identified LOS E or better operations on freeways and LOS D or better operations on highways as acceptable.

Based on the criteria from Caltrans, LOS D was used as the evaluation criteria for intersections on SR 20 and LOS E was used as the evaluation criteria for I-5 freeway facilities.

4.17.4.3 Data Collection

Freeway mainline and SR 20 intersection turning movement counts were collected at the study intersections during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods in February 2016. Traffic counts were collected midweek (Tuesday through Thursday), during a non-holiday week with clear and dry weather conditions and when school was in session. The traffic counts also included vehicle classification. Lane configurations, speed limits, and traffic controls were verified during field visits.

Collision records in the study area were obtained from the Traffic Accident Surveillance and Analysis System (TASAS) for the most recent three year period available (January 2012 through December 2014).

4.17.5. Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed project would create potentially significant traffic impacts if it would:

- 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,1 streets, highways, and freeways, pedestrian and bicycle paths, and mass transit.
- 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.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, which results in substantial safety risks.
- Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

4.17.6. No Impact or Less than Significant Impacts

The following impacts were determined to be less than significant. In each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.17.6.1 Change in Air Traffic Patterns

Threshold: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, which results in substantial safety risks.

The Williams Soaring Center is a small private glider airport located immediately east of Husted Road north of its intersection with E Street. The private use airstrip is located approximately 2,000 ft east of the Project site. The Project will not be affected nor will it affect the private use airstrip. No impact will occur and no mitigation is needed.

4.17.6.2 Substantially Increase Hazards

Threshold: Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The Project does not include any activities or components that would increase a transportation design feature hazard. The proposed Project is located in an area zoned as Business Park and is a consistent with that zoning designation. No impact will occur and no mitigation is needed.

4.17.6.3 Inadequate Emergency Access

Threshold: Result in inadequate emergency access.

The Proposed project has been designed in conformance with the applicable portion of Section 3.2 (Vehicle Access and On-Site Circulation) of the City of Williams Design Review Manual (City of Williams 2012c). Subsection 3.2.c states On-site vehicle circulation should be designed to discourage speeding throughout parking areas to minimize the potential conflict with pedestrians and parked vehicles. Radii for turns shall be designed to facilitate emergency vehicles to the satisfaction of the Fire Department. Operation of the proposed Project will not impact emergency access.

Project construction could require temporary lane closure on Margurite Street to complete various Project components. Any lane closure would be temporary and likely restricted to one lane only. Project construction activities would be coordinated with local schools, law enforcement, and emergency services providers. Project impacts are less than significant and no mitigation is needed.

4.17.6.4 Conflict with Adopted Public Transit, Bicycle, or Pedestrian Facilities Policies

Threshold: Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Table 45 lists the applicable General Plan policies and actions and describes the Project consistency with the City policies and actions. No impact will occur and no mitigation is needed.

4.17.7. Significant Impacts

The following potential impacts were determined to be potentially significant. For each of the thresholds, mitigation measures have been recommended to reduce the significance of impacts.

4.17.7.1 Conflict with an applicable plan ordinance or policy establishing measures of effectiveness for the performance of the circulation system

Threshold: 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.

Impact: The cumulative conditions analysis results indicate that the addition of the Project would, with other cumulative growth, result in unacceptable operations at three study intersections.

- SR 20/I-5 SB Ramps (Intersection 1) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour.
- SR 20/I-5 NB Ramps (Intersection 2) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour.
- SR 20/Husted Rd/Freshwater Rd (Intersection 4) – This intersection will operate at LOS F under cumulative conditions during the AM and PM peak hours.

(a) Traffic Operations – Level of Service Results Existing Conditions

Intersections: As shown in Table 50, all of the study intersections have side-street stop control and operate at LOS A. The worst movements' level of service and delay are shown in parenthesis.

Table 50. Intersection Level of Service Results – Existing Conditions

Intersection	Control Type[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	SSSC	2 (6)	A (A)	2 (3)	A (A)
2. SR 20/I-5 NB Ramps	SSSC	2 (5)	A (A)	2 (6)	A (A)
3. SR 20/Margurite Street	SSSC	1 (1)	A (A)	1 (1)	A (A)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	2 (9)	A (A)	2 (9)	A (A)

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement) for side street stop control intersections.

AM and PM peak hour signal warrant analyses were performed for the four study intersections under existing conditions. The AM and PM peak hour signal warrants were not satisfied due to low traffic volumes near study intersections.

Freeway Segments: Freeway segment operations were analyzed for I-5 north of SR 20 and for the weaving sections (northbound and southbound) between the E Street and SR 20 interchanges. The volume in the weaving section is out of the realm of weaving according to the Leisch Method Weaving Analysis; therefore, they were analyzed as basic freeway segments. As shown in Table 51, all study facilities operate acceptably.

Table 51. Freeway Operations – Existing Conditions

Ramp Junction	Facility Type	Minimum Acceptable LOS	AM Peak Hour		PM Peak Hour	
			Density (pcplpm)[1]	LOS	Density (pcplpm)[1]	LOS
I-5 NB E St to SR 20	Weave/Basic[2]	E	6	A	8	A
I-5 NB on-ramp from SR 20	Merge	E	7	A	9	A
I-5 SB off-ramp to SR 20	Diverge	E	9	A	10	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	6	A	8	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment fell outside of the realm of weaving and was analyzed as a basic segment

Traffic Safety: Table 52 summarizes the three-year collision history at the study intersections. The section of I-5 from Freshwater Road to the E Street interchange has the highest collision rate, with all of the reported collisions along this freeway segment being injury-related. The I-5 NB ramps/SR 20 intersection had the second greatest number of collisions; both collisions involved automobile right-of-way issues.

At all study intersections, the most common collision type was between automobiles; the second most common collision type was between automobiles and fixed objects. The majority of primary collision factors were related to automobile right-of-way and improper turning. These accident patterns are typical on major arterials that accommodate heavy volumes of through traffic and experience stop-and-go conditions.

Table 52. Collision History at Study Intersections

Location	Number of Collisions					Most Common Collision Type	Most Common Primary Collision Factor (PCF)	Collision Rate[2]
	3-Year Total[1]	Average Per Year	Total Injury Collisions	Total Fatal Collisions	Total Involving Peds or Bicyclists			
Husted Road / SR 20	1	0.33	1	0	0	Fixed Object	Driving Under the Influence of Alcohol or Drug	0.59
I-5 Freeway (Freshwater Road to E Street)	9	3	28	0	0	Other Motor Vehicle	Improper Turning	0.33
I-5 NB Ramps/SR 20	2	0.66	2	0	0	Other Motor Vehicle	Automobile Right-of-Way	0.66

Notes: [1] Total number of collisions from January 2012 through December 2014
[2] The collision rate is expressed as accidents per million vehicles entering the intersection.

Queueing: Table 53 displays the queueing results for existing conditions. During both the AM and PM peak hours, queueing at the I-5 off-ramps is minor and does not exceed the storage length.

Table 53. Intersection Queue Lengths – Existing Conditions

Intersection	Approach - Movement	Storage Length	Maximum Queue Length (ft)[1]	
			AM Peak Hour	PM Peak Hour
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	75	50
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	75	75

Notes: [1] All queues rounded up to the nearest 25 feet.

(b) Project Travel Characteristics

This section presents the project and describes the Project's expected travel characteristics including the anticipated number of vehicle trips, expected trip distribution, and expected travel routes.

Project Traffic Characteristics: Traffic generated by the Proposed Project is assigned to the roadway network using the following three-step process:

1. Trip Generation – estimates the amount of traffic generated by the proposed plans based on the planned land uses
2. Trip Distribution – distributes project trips based on origins and destinations in the region
3. Trip Assignment – assigns project trips to the roadway network based on the proposed project's trip generation and distribution

Trip Generation: Traffic generated by the proposed project was estimated using trip rates contained in the *Institute of Transportation Engineer's (ITE) 9th Edition Trip Generation Manual* (2012) for project-specific land uses. Love's Country Store has advised that the actual trip generation for the tire shop is lower than the resulting trip generation using ITE rates. However, in the absence of empirical data quantifying trip generation specific to tire shops on Love's property, use of ITE rates will result in a conservative (i.e. on the high side) analysis. Given the location of the project and mix of proposed land use, project trips can be categorized as follows:

- New external trips: trips that are added to the transportation network due to the project. These trips have either their origin or destination outside the project.
- Internal trips: trips generated by the project that have both their origin and destination within the project. Since these trips stay within the project, they do not affect the external transportation network. Accounting for trip internalization is necessary because ITE trip generation rates reflect gross trips and not internal capture that occurs due to complimentary land uses, such as the restaurant and retail being proposed by the project.

ITE's standard methodology for estimating internalization was applied to calculate the amount of internalization.

- Diverted-linked trips: existing trips on the transportation network (i.e. I-5) that are diverted to the project due to the project's proposed land use and proximity to I-5. Since these trips already exist on I-5, they do not add traffic to the I-5 mainline; these trips, however, do add traffic to the I-5 ramps and SR 20 because these facilities provide access to the project. A diverted-link trip adjustment of 75% was applied to the total trips at the project driveways to estimate the number of diverted-linked trips. The diverted-linked reduction was estimated based on data contained in the ITE Trip Generation User's Guide and Handbook 2nd Edition (2012).

As shown in Table 54, the project would generate 4,307 daily gross project trips. Of these daily gross project trips, 406 trips would be internal to the project and 2,926 trips would be existing trips on I-5 the roadway network that are diverted to the project. After accounting for internal trips and diverted-linked trips, the project would generate 975 daily new external trips; of these daily new external trips, 65 would occur during the AM peak hour and 83 would occur during the PM peak hour.

Table 54. Love's Country Store (Williams, CA) Trip Generation

Land Use (ITE Code)	**Quantity**	**Unit**	**Daily**		**AM Peak Hour**			**PM Peak Hour**		
			Rate	**Trips**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Gasoline/Service Station with Convenience Market (945)	22	Fueling Stations	162.78	3,581	224	112	112	298	149	149
High-Turnover (Sit-Down) Restaurant (932)	4.53	KSF	127.15	576	49	27	22	45	27	18
Tire Shop (848)	6.04	KSF	24.87	150	17	11	6	25	11	14
Gross Project Trips:				4,307	290	150	140	368	187	181
Internal Trip Reduction:				-406	-32	-16	-16	-30	-15	-15
Total Trips at Site Driveways:				**3,901**	**258**	**134**	**124**	**338**	**172**	**166**
Diverted-Link Trip Adjustment:				-2,926	-193	-100	-93	-255	-130	-125
Net New External Trips:				**975**	**65**	**34**	**31**	**83**	**42**	**41**

Trip Distribution: This study relies on a review of travel characteristics within the study area to estimate the distribution of project trips. The Project is likely to attract trips travelling along I-5 and SR 20. Existing counts collected at the ramp terminals were used to estimate the directional split of Project trips on these two main facilities.

(c) Existing Plus Project Conditions

This section analyzes the potential traffic impacts of the proposed Project on the surrounding roadway system under existing plus project conditions.

Traffic Volume Forecasts: Existing plus project traffic volume forecasts were developed using the trip generation summarized in Table 54. The assignment of Project trips was unique for each trip type.

- New external trips: Project trips not already on the roadway network were manually added to existing volumes.
- Diverted-linked trips: Project trips that are already on the existing roadway network and are re-routed to the project.
- Internal trips: Project trips that stay on-site. These trips do not use the external roadway network.

Traffic Operations – Level of Service Results: The following sections summarize the results of the existing plus project operations analysis.

Intersection: AM and PM peak hour intersection level of service analysis was performed using SimTraffic software, which utilizes HCM 2010 methodology. As shown in Table 55, all of the study intersections would continue to operate at LOS A under existing plus project conditions. The worst movements' level of service and delay are shown in parenthesis.

AM and PM peak hour signal warrant analyses were performed for the four study intersections under existing plus project conditions. The AM and PM peak hour signal warrants were not satisfied due to low traffic volumes near study intersections.

Freeway Segments: Table 56 summarizes AM and PM peak hour freeway operations. As shown in Table 56, I-5 would continue to operate at acceptable levels of service under existing plus project conditions. The existing plus project traffic volumes within the weaving section are out of the realm of weaving according to the Leisch Method Weaving Analysis; therefore, these sections were analyzed as basic freeway segments.

Table 55. Intersection Level of Service Results – Existing Plus Project Conditions

Intersection	Control Type[1]	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay[2]	LOS	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	SSSC	AM	2 (6)	A (A)	3 (7)	A (A)
		PM	2 (3)	A (A)	3 (9)	A (A)
2. SR 20/I-5 NB Ramps	SSSC	AM	2 (5)	A (A)	4 (8)	A (A)
		PM	2 (6)	A (A)	4 (9)	A (A)
3. SR 20/Margurite Street	SSSC	AM	1 (1)	A (A)	4 (7)	A (A)
		PM	1 (1)	A (A)	4 (7)	A (A)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	AM	2 (9)	A (A)	2 (9)	A (A)
		PM	2 (9)	A (A)	2 (7)	A (A)

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement).

Table 56. Freeway Operations – Existing Plus Project Conditions

Ramp Junction	Facility Type	Minimum Acceptable LOS	Peak Hour	Existing Conditions		Existing Plus Project	
				Density (pcplpm)[1]	LOS	Density (pcplpm)[1]	LOS
I-5 NB E St to SR 20	Weave/Basic[2]	E	AM	6	A	6	A
			PM	8	A	8	A
I-5 NB on-ramp from SR 20	Merge	E	AM	7	A	7	A
			PM	9	A	9	A
I-5 SB off-ramp to SR 20	Diverge	E	AM	9	A	9	A
			PM	10	B	10	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	AM	6	A	6	A
			PM	8	A	8	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment fell outside of the realm of weaving and was analyzed as a basic segment

Queuing: Table 57 displays the queueing results for existing plus project conditions. As shown, the maximum vehicle queues during the AM and PM peak hours would not exceed available storage. The southern leg of the SR 20/Margurite Street intersection is currently not open to traffic, so no queues are reported under existing conditions.

Table 57. Intersection Queue Lengths – Existing Plus Project Conditions

Intersection	Approach - Movement	Storage Length	Peak Hour	Maximum Queue Length (ft)	
				Existing Conditions	Existing Plus Project
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	AM	75	100
			PM	50	100
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	AM	75	125
			PM	75	125
3. SR 20/Margurite Street	EB Right	480	AM	0	25
			PM	0	25
	NB Left	225	AM	0	125
			PM	0	100
	NB Right	3,100	AM	0	75
			PM	0	75
	WB Left	390	AM	0	25
			PM	0	50

Notes: [1] All queues rounded up to the nearest 25 feet.

(d) Cumulative Conditions

This section presents the development and analysis of the Project under cumulative conditions.

Forecast Development: Cumulative (year 2035) no project traffic volume forecasts were developed through the difference method process. For this study, the difference method relies on *SR 20 Connection* (2013) traffic forecasts to apply incremental growth to existing volumes using the following formula:

Cumulative Forecasts = Existing Traffic Count +
(SR 20 Connection Study Cumulative Volume – SR 20 Connection Study Base Year Volume)

Following the development of cumulative no project traffic forecasts, cumulative plus project traffic forecasts were developed by manually adding project trips assigned to the network according to a cumulative project distribution shown.

The City of Williams General Plan identifies the following transportation system improvements in the study area under buildout conditions.

- Widen SR 20 from two lanes to four lanes from I-5 to Margurite Street
- Install traffic signals on SR 20 at the following intersections:
    - I-5 NB and SB Ramps
    - Husted Road

Since the above improvements are not programmed, the cumulative operations analysis assumes the existing roadway network.

(e) Traffic Operations – Level of Service Results: Cumulative Conditions

The following sections summarize the results of the cumulative conditions operations analysis.

Intersections: Table 58 displays the intersection level of service results for cumulative conditions. As shown, the SR 20/Husted Road intersection would operate unacceptably at LOS F during both the AM and PM peak hours under cumulative no project and cumulative plus project conditions. The Project would cause LOS F operations at the SR 20/I-5 SB Ramp and SR 20/I-5 NB Ramp intersections during the PM peak hour. The SR 20/Margurite Street intersection would operate acceptably during both peak hours.

Intersection geometry at SR 20/Margurite Street differs from the three other study intersections as follows:

- Turn pockets on all approaches
- A channelized eastbound right turn that yields to westbound left turn movement
- Dedicated eastbound and westbound acceleration lanes to receive traffic turning on to SR 20 from Margurite Street

As a result of the above features, the intersection of SR 20/Margurite Street would operate acceptably with side street stop control under cumulative plus project conditions.

Table 58. Intersection Level of Service Results – Cumulative Conditions

Intersection	Control Type[1]	Peak Hour	Cumulative Conditions		Cumulative Plus Project	
			Delay[2]	LOS	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	SSSC	AM	6 (17)	A (C)	9 (23)	A (C)
		PM	7 (23)	A (C)	**16 (73)**	**C (F)**
2. SR 20/I-5 NB Ramps	SSSC	AM	9 (23)	A (C)	**20 (60)**	**C (F)**
		PM	9 (28)	A (D)	**20 (77)**	**C (F)**
3. SR 20/Margurite Street	SSSC	AM	6 (9)	A (A)	10 (27)	B (D)
		PM	5 (11)	A (B)	11 (25)	B (D)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	AM	**20 (58)**	**C (F)**	**23 (66)**	**C (F)**
		PM	**35 (130)**	**D (F)**	**35 (110)**	**D (F)**

Notes: [1] All queues rounded up to the nearest 25 feet.

Freeway Segments: Table 59 summarizes AM and PM peak hour freeway operations. The cumulative traffic volumes within the weaving section were analyzed according to the Leisch Method Weaving Analysis. As shown in Table 57, I-5 would continue to operate at acceptable levels of service under both cumulative no project and cumulative plus project conditions.

Table 59. Freeway Operations – Cumulative Conditions

Ramp Junction	Facility Type	Minimum Acceptable LOS	Peak Hour	Cumulative Conditions		Cumulative Plus Project	
				Density (pcplpm)[1]	LOS	Density (pcplpm)[1]	LOS
I-5 NB E St to SR 20	Weave/Basic[2]	E	AM	-	A	-	A
			PM	-	A	-	A
I-5 NB on-ramp from SR 20	Merge	E	AM	14	B	14	B
			PM	16	B	16	B
I-5 SB off-ramp to SR 20	Diverge	E	AM	18	B	19	B
			PM	16	B	16	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	AM	-	A	-	A
			PM	-	A	-	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment analyzed using Leisch Method (pcplpm not provided)

Queuing: Table 60 displays the queueing results for cumulative conditions. During both the AM and PM peak hours, queueing at the I-5 off-ramps and at the SR 20/Margurite Street intersection does not exceed the storage length.

Table 60. Intersection Queue Lengths – Cumulative Conditions

Intersection	Approach - Movement	Storage Length	Peak Hour	Maximum Queue Length (ft)	
				Cumulative Conditions	Cumulative Plus Project
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	AM	125	200
			PM	125	250
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	AM	300	475
			PM	300	600
3. SR 20/Margurite Street	EB Right	480	AM	75	100
			PM	25	100
	NB Left	225	AM	75	175
			PM	100	225
	NB Right	3,100	AM	75	100
			PM	75	150
	WB Left	390	AM	50	75
			PM	25	50

Notes: [1] All queues rounded up to the nearest 25 feet.

(f) Impacts

The cumulative conditions analysis results presented in Table 59 indicate that the addition of the project would, with other cumulative growth, result in unacceptable operations at three study intersections. Table 61 summarizes the AM and PM peak hour intersection operations under cumulative plus project conditions with proposed mitigation.

Table 61. Intersection Level of Service Results – Cumulative Conditions with Mitigation

Intersection	Peak Hour	Cumulative Plus Project			Cumulative Plus Project with Mitigation		
		Control Type[1]	Delay[2]	LOS	Control Type	Delay	LOS
1. SR 20/I-5 SB Ramps	AM	SSSC	8 (18)	A (C)	Signal	19	B
	PM	SSSC	**13 (52)**	**B (F)**	Signal	24	C
2. SR 20/I-5 NB Ramps	AM	SSSC	12 (30)	B (D)	Signal	19	B
	PM	SSSC	**16 (60)**	**C (F)**	Signal	27	C
3. SR 20/Margurite Street	AM	SSSC	7 (14)	A (B)	Signal	11	B
	PM	SSSC	8 (19)	A (C)	Signal	13	B
4. SR 20/Husted Rd/Freshwater Rd	AM	SSSC	**19 (58)**	**C (F)**	Signal	32	C
	PM	SSSC	**26 (83)**	**D (F)**	Signal	33	C

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement).

Mitigation: The proposed Project would cause a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection. Mitigation for this impact will entail payment of the Project's fair share cost for the signalization improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections. *NOTE: The fair share cost for the Project's cumulatively considerable impact to the three State controlled intersections is separate and independent from the Projects payment of the City's 'Commercial Building Impact Fees'. Resolution 11-23 established the City's Commercial Building Impact Fees which include a traffic fee.*

The developers will be responsible for the Project's fair share of all feasible physical improvements necessary and available to reduce the severity of the Project's significant transportation-related impacts, based on cumulative plus project conditions consistent with the policies and exceptions set forth in the Transportation and Circulation Element of the 2010 City of Williams General Plan. Improvements will include installation of traffic signal control and associated improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections.

An approximate cost needed to complete the necessary intersection improvements is $500,000 per intersection and assumes no major widening is required. The Project's approximate fair

share contribution (per intersection) to the required intersection improvements under cumulative plus project conditions is based on the following equation from the Caltrans' Guide for the Preparation of Traffic Impact Studies:

$P=T/(T_B - T_E)$

Where:

- P = The fair share cost for the Proposed Project
- T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour.
- T_B = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible).
- T_E = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened

Using the equation above an approximate range of fair share costs was developed for both:

- Cumulative Plus Project conditions where the traffic volumes are based on market-level forecasts of the expected population and employment growth over a 20year horizon; and
- General Plan Buildout conditions where the traffic volumes are based on the theoretical buildout of the City's General Plan.

The approximate fair share cost percentages were calculated to include and exclude existing traffic. By excluding existing traffic from the fair share calculation the full cost of the future improvement is allocated to future development and produces a higher proportional share. Including existing traffic in the fair share calculation produces a lower proportional share. Including existing traffic is an acceptable method if there is a reasonable expectation that outside funding would be available to cover the existing traffic's share (e.g. State sources as SR-20 and I-5 are State transportation facilities). Since there is no assurance of funding to cover the share of existing development, existing traffic is excluded from the fair share cost percentage. However, if other funding sources can contribute to the payment share of existing development, the fair share calculation may be revised to include existing traffic.

Based on these parameters and using the above equation the following approximate range fair share costs percentages were calculated for the Project (Table 62).

Table 62. Approximate Fair Share Costs Percentages.

Existing Traffic	**Cumulative Plus Project conditions**	**Buildout Conditions**
SR 20/I-5 Northbound Ramp Intersection		
Excluded	23%	10%
Included	14%	8%
SR 20/I-5 Southbound Ramp Intersection		
Excluded	23%	10%
Included	14%	8%

SR 20/Husted Road/Freshwater Road Intersection		
Excluded	1.3%	0.6%
Included	0.8%	0.5%

Based on the information in Table 62 the City has determined the approximate fare share cost range for the Love's Project will be calculated using cumulative plus Project conditions and will exclude existing traffic.

The SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection improvements are listed in Appendix B of the adopted City General Plan (Circulation Improvements) with the following note "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*" The City is currently in the process of updating its Capital Improvement Program (CIP). The CIP update will include an engineer's cost estimates to complete the intersection improvements.

TRAFFIC-1(a)

Prior to the issuance of a Certificate of Occupancy the Applicant will either:

- Pay its fair share cost for each of the three intersections requiring signalization/ improvement. The fair share cost will be based on the City's updated CIP and be calculated using cumulative plus Project conditions, excluding existing traffic.

OR

- Enter into an agreement with the City of Williams to pay a fair share cost based on an engineer's estimate acceptable to the City Engineer for the design and construction of the intersections signalization improvements. The fair share cost will be calculated using cumulative plus Project conditions, excluding existing traffic.

TRAFFIC-1(b)

- Regardless of which option is selected under measure TRAFFIC-1(a) the fair share payment would be held in an escrow account until such time as Caltrans implements the required signalization/ improvements. If within 10 years of construction of the Love's Country Store, Caltrans and the City have not yet completed the required signalization/ improvements Love's will be reimbursed the fair share cost paid.

Level of Significance after Mitigation. Implementation of TRAFFIC-1(a) and 1(b) will not reduce potential impacts to less than significant for the following reasons:

- The improvements are to a State road system the construction of which the City has no control;

- The City cannot guarantee the improvement will be constructed by the time the cumulative impact occurs.

The City of Williams does not own and control the Project intersections which will need improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs.

Even with implementation of TRAFFIC-1 the Project will have a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. This impact is significant and unavoidable.

4.17.7.2 Conflict with an applicable plan ordinance or policy establishing measures of effectiveness for the performance of the circulation system

Threshold: 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.

Impact: The cumulative conditions analysis results indicate that the addition of the Project would, with other cumulative growth, result in unacceptable operations at three study intersections.

See section 4.17.7.1 for a detailed discussion of Project impacts and proposed mitigation.

Level of Significance after Mitigation. See section 4.17.7.1.

4.17.8. Cumulative Impacts

The proposed Project would cause a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection. Mitigation for this impact will entail payment of the Project's fair share cost for the signalization improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections.

The City of Williams does not own and control the Project intersections which will need improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs.

Even with implementation of TRAFFIC-1 the Project will have a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. This impact is significant and unavoidable.

4.18. Utilities/ Service Systems

This section describes the utilities/ service systems in and adjacent to the Project site and evaluates potential impacts to utilities/ service systems associated with the proposed Project. The analysis contained in this chapter is based on the following reference documents:

- Storm Drainage Master Plan (SDMP, City of Williams 2007).
- City of Williams Municipal Service Review (Colusa LAFCO 2013).
- City of Williams, 2011 Draft Environmental Impact Report for the Williams 2012 General Plan (City of Williams 2011)
- City of Williams, 2012 General Plan (City of Williams 2012a)

4.18.1. Existing Setting

(a) Project Utilities

Utilities and Providers for the Project include the following:

- **Gas and Electric:** Pacific Gas & Electric (PG&E)
- **Telephone:** Frontier Communications
- **Cable Television:** Comcast
- **Water-Sewer-Drainage:** City of Williams

The Project will connect to existing stub outs in Margurite Street for gas, electric, and sanitary sewer. Runoff from the site would be collected in a series of at-grade concrete swales, catch basins, and pipe conveyance system (including water quality BMPs). The collected site runoff would be conveyed and discharged to the existing HLDET7 via a new drainage ditch or pipe. Project signage would be placed primarily on-site. The Project includes the installation of a hi-rise sign placed off-property, west of the Project site near the I-5 northbound off ramp. Electrical power for the hi-rise sign would be provided by power from the Love's site and will be installed in a new utility easement on APN 016-070-120.

(b) Water Service

The General Plan describes the City of Williams Water Service as follows:

> "The City provides potable water to residences and business. The limits of service are mostly the same as the wastewater service, providing service to the developed portions of the City limits. The system includes a 100,000 gallon elevated water storage tank, together with three active and two standby groundwater wells. The three active wells include numbers 8, 9 and 10, which collectively pump approximately 2,800 gallons per minute (GPM). The two standby wells have a total pump capacity of 820 GPM, although they each have poor water quality and are not now permitted by the State Board of Public Health."

According to the City's 2012 General Plan the water supply serves two principal functions – drinking water and fire suppression. The City's General Plan states, "Water quality has been generally good due to its source from underground …"

(c) Wastewater Collection and Treatment

The City of Williams Wastewater Treatment Plant (WWTP) is owned by the City of Williams as part of a municipal wastewater collection, treatment, and disposal system that provides sewerage service to residential and commercial users within the City of Williams.

The wastewater Collection System includes 0.6 mile of force mains, four lift stations, 23 miles of gravity sewers, and 15 miles of laterals. The City normally inspects two miles of sewer line per year.

Wastewater from the City of Williams collection system flows into the WWTP and receives tertiary level treatment before it's discharged to Salt Creek. The WWTP is designed to pump, screen, and equalize a peak flow rate of 4.5 million gallons per day (MGD). The plant's rated treatment capacity is based on an average day-maximum month flow rate of 1.08 MGD and a peak flow rate of 2.32 MGD (Colusa LAFCO 2013).

(d) Storm Drainage

In 2007, the City prepared a Storm Drainage Master Plan. The Master Plan area includes approximately nine square miles, encompassing all of the City Limits and its Sphere of Influence (SOI), with the exception of the area north of SR 20. The study area also included acreage to the east and to the south that would likely be included in the City's future SOI. The study resulted in the design of a Drainage Master Plan which includes detention basins, basin outlets, culverts, interconnected storm drains, and a number of open channels connecting some of the detention basins.

In 2008, the City adopted an amendment to add a storm drainage fee for all new development. This fee goes to a separate fund, to be used "solely for the construction or reimbursement for funds of local drainage within the local drainage area". The Storm Drainage Master Plan includes an implementation strategy where new development will include installation of the drainage elements that are shown on the Plan. Those developments that do not encompass drainage features shown on the Plan may include temporary onsite detention basins if feasible.

Full implementation of the plan will result in the installation of 29 detention ponds of a size ranging from 2.3 to 29.2 acres, for a total of 358 acres. This total represents 4.5 percent of the total acreage within the nine square mile study area.

4.18.2. NOP/Scoping Comments

No comments were received during the NOP period or at the scoping meeting regarding utilities or service systems.

4.18.3. Existing Policies and Regulations

4.18.3.1 Federal Regulations

Federal Water Pollution Control Act: The Federal Water Pollution Control Act requires discharges (from point and non-point sources) into navigable waters to meet stringent National Pollutant Discharge Elimination System (NPDES) permit standards. The U.S. Environmental Protection Agency (EPA) has published regulations establishing requirements for application of stormwater permits for specified categories of industries, municipalities, and certain construction

activities. The regulations require that discharges of stormwater from construction activity of 1.0 acre or more must be regulated and covered by an NPDES permit. When a construction area exceeds 1.0 acre in size, the applicant must develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to control non-point pollution.

4.18.3.2 State Regulations

Sections 13550-13556 of the State Water Code: These sections of the State Water Code state that local, regional, or State agencies shall not use water from any source of quality for non-potable uses if suitable recycled water is available as provided in Section 13550 of the Water Code.

4.18.3.3 Local Regulations

The City of Williams General Plan defines the policies related to utilities and service systems (Table 63).

Table 63. General Plan Policy's and Consistency; utilities and service systems.

Policies & Actions	Consistency
Policy 5.1: The City of Williams will provide utilities concurrently with development.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.2: The City of Williams will provide utility service in logical order and therefore will not extend trunk facilities through significant expanses of vacant land. Exceptions will be made for industries that will make a significant contribution to the sustainability of the community.	Not Applicable. This policy applies to the City and not to individual development projects.
Policy 5.3: Improvements to the collection, distribution, treatment, and conveyance system will be commensurate with the demands of new development.	The proposed project has been designed to make any needed improvements to the collection, distribution, treatment, and or conveyance systems resulting from the construction and operation of the Project.
Policy 5.4: The City will identify non-development related NPDES permitting requirements to ensure they coordinate with development related regulations. Work to align all NPDES related efforts shall be a continuing effort.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.a: Adopt best management practices for piping, manholes, bedding and backfill materials, and incorporate these standards into the City's technical specifications for construction projects. Subsequently, implement additional checklist items related to NPDES compliance.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.b: Continue developing the City's Capital Improvement Program (CIP) to repair and replace aging and deteriorated sewer lines, which will improve the flow efficiency, reduce inflow and infiltration into the collection and treatment systems, and help to mitigate ground water impacts.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.c: Execute plans to install a new water well.	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.d: Further develop plans for a second water storage tank	Not Applicable. This policy applies to the City and not to individual development projects.
Action 5.j: Develop different sets of standards and	Not Applicable. This policy applies to the City and

Policies & Actions	Consistency
specifications for drainage features. Draft the standards to correspond with the Land Use Plan character – rural, suburban, auto-urban, and urban.	not to individual development projects.
Action 5.k: Incorporate into City standards and specifications means for addressing storm water quality, including a first preference for nonstructure best management practices such as bioretention, vegetated swales and buffer strips, constructed wetlands, and other environmentally sensitive design and construction practices.	Stormwater runoff from the proposed Project site will be directed to the existing Husted Lateral Detention Basin 7 located approximately 0.25 mi east of the Project area.

4.18.4. Methodology

The evaluation of potential utility and service system impacts included a review of the City General Plan and General Plan EIR as well as the Storm Drainage Master Plan (SDMP, City of Williams 2007) and City of Williams Municipal Service Review (Colusa LAFCO 2013)

4.18.5. Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed project would create potentially significant utilities/ service system impacts if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- 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?
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
- Comply with federal, state, and local statutes and regulations related to solid waste?

4.18.6. No Impact or Less than Significant Impacts

The following impacts were determined to be less than significant. For each of the following issues, either no impact would occur (therefore, no mitigation would be required) or adherence to established regulations, standards, and policies would reduce potential impacts to a less than significant level.

4.18.6.1 Exceed Wastewater Treatment Requirements

Threshold: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

The City of Williams Wastewater Treatment Plant (WWTP) is owned by the City of Williams as part of a municipal wastewater collection, treatment, and disposal system that provides sewerage service to residential and commercial users within the City of Williams.

Wastewater from the City of Williams collection system flows into the WWTP and receives tertiary level treatment before it's discharged to Salt Creek. The WWTP is designed to pump, screen, and equalize a peak flow rate of 4.5 million gallons per day (MGD). The plant's rated treatment capacity is based on an average day max month flow rate of 1.08 MGD and a peak flow rate of 2.32 MGD (Colusa LAFCO 2013).

The proposed Project would result in a connection to the existing sewer system that connects to the WWTP. All wastewater generated in the City is currently treated by the WWTP. Because the WWTP facility is considered to be a Publicly Owned Treatment Works (POTW), operational discharge flows treated at the WWTP would be required to comply with waste discharge requirements (WDRs) contained within the WDRs for the facility. Compliance with conditions or permit requirements established by the City, and waste discharge requirements at the WWTP facility would ensure that discharges into the wastewater treatment facility system from the operation of the proposed project would not exceed applicable Central Valley Regional Water Quality Control Board wastewater treatment requirements. Therefore, no significant impact related wastewater treatment would occur and no mitigation is needed.

4.18.6.2 Require New or Expanded Wastewater Treatment Facilities

Threshold: 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?

In 2010 - 2011 the City of Williams made significant improvements to the WWTP facility. The upgrades were implemented to comply with Order No. 5-01-049, NPDES Permit No. CA 0077933 and to increase the capacity at the wastewater treatment plant to accommodate future planned growth within Williams. The current WWTP capacity is sufficient to serve the wastewater needs of the proposed Project. No significant impact would occur and no mitigation is needed.

4.18.6.3 Require New or Expanded Storm Water Drainage Facilities

Threshold: Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The proposed Project will require construction of a drainage ditch or pipe to convey stormwater from Love's Country Store facility to the existing Husted Lateral Detention Basin 7 (HLDET7) located east of the Project site. The proposed Project considers two stormwater drainage alignments to connect to HLDET7. The first alignment follows the future Wallace Street

alignment and connects directly to the detention basin. The second alignment parallels Margurite Street south to Ella Street where it connects to the existing underground storm drain pipes and infrastructure in Ella Street. The pipes in Ella Street drain east towards Husted Road. Stormwater then flows north via an open ditch into HLDET7. The open ditch is located in a future road alignment.

The first alignment results in construction impacts to suitable upland and aquatic giant garter snake (GGS) habitat. The first alignment would excavate a temporary ditch to the west side of HLDET7. Two 48" reinforced concrete pipe (RCP) culverts would convey flows under an existing gas line. Culverts would convey flows underneath an existing perimeter farm ditch into the shallow portion of HLDET7. A ditch would be excavated in HLDET7 to direct flows to the deep portion of the basin. The deep section is continuously inundated; the shallow section is seasonally inundated. A back flow device (e.g. flap gate) may be installed in the ditch to prevent high water in the detention basin from backing up into the ditch.

The second alignment avoids work in suitable GGS habitat. If selected the second alignment would not result in impact to GGS and no mitigation would be required.

Construction of the first alignment would result in permanent and temporary impact to upland and aquatic GGS habitat. Implementation of mitigation measure BIO-1 would reduce potential project impact to less than significant.

4.18.6.4 Sufficient Water Supplies

Threshold: Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The City system includes a 100,000 gallon elevated water storage tank, together with three active and two standby groundwater wells. The wells draw ground water from depths ranging from 120 feet to as deep as 500 feet. The source of groundwater is recharge from the hills to the west and local irrigation of crops with surface water. Per the City General Plan EIR, the existing supply for Williams' water distribution system has been determined to be adequate for current needs and can be expanded to meet future requirements without harming the aquifer. Project impact are less than significant and no mitigation is needed.

4.18.6.5 Determination by the Wastewater Treatment Provider That It Has Adequate Capacity

Threshold: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

See discussion under 4.18.6.1 and 4.18.6.2. No impact will occur and no mitigation is needed.

4.18.6.6 Be Served By a Landfill With Sufficient Permitted Capacity

Threshold: Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Refuse collection and disposal in the City is provided by Recology, a private company that serves many communities throughout northern California. Services include weekly garbage pickup, biweekly recycling waste pickup, and biweekly yard waste pickup. Refuse is hauled to a transfer station in Maxwell and then to Recology's Ostrem Road Landfill, approximately 11 miles southeast of Yuba City.

The Ostrem Road Landfill has been recognized as one of the most modern landfills in California, and it was the first facility to be built to meet current federal requirements for landfill liner systems to protect subsurface aquifers and other resources. Ostrem Road Landfill is permitted to accept 3,000 tons of municipal solid waste per day. The site has an expected closure date of 2084 with a total design capacity of over 41 million cubic yards. Recology has reported that the Ostrem Road Landfill will have sufficient capacity for the next 61 years.

The Project is anticipated to employ 40 to 45 full-time employees; approximately 12 employees would be on-site at any one time. The average person generated approximately 4.40 pounds per person per day in 2013 (EPA 2016). On a daily basis the 12 employees would generate an estimated 53 lbs per day (0.024 ton per day) or approximately 8.6 tons per year. The Projects estimated daily contribution to the 3,000 tons of per day municipal solid waste limit at Ostrem Road Landfill is approximately 0.024 ton or 0.0008%. Project impacts are less than significant and no mitigation is needed.

4.18.6.7 Comply With Regulations Related to Solid Waste

Threshold: Comply with federal, state, and local statutes and regulations related to solid waste?

The proposed Project would be required to coordinate with the waste hauler to develop collection of recyclable materials from the Project site on a common schedule as set forth in applicable local, regional, and state programs. Materials that would be recycled by the project include paper products, glass, aluminum, and plastic. Additionally, the proposed Project would be required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, state, and federal solid waste disposal standards, thereby ensuring that the solid waste stream to the Ostrem Road Landfill are reduced in accordance with existing regulations. Project impacts are less than significant and no mitigation is needed.

4.18.7. Significant Impacts

No significant impacts related to utilities/ service systems have been identified for construction and operation of the proposed Project.

4.18.8. Cumulative Impacts

Water Supply: The cumulative area for water supply-related issues is the City of Williams. Existing and future development within the City of Williams would demand additional quantities of water. Increases in population, square footage, and intensity of uses would contribute to increases in the overall regional water demand. Per the City General Plan EIR, the existing supply for Williams' water distribution system has been determined to be adequate for

current needs and can be expanded to meet future requirements without harming the aquifer. The cumulative impacts of the proposed project on water supplies are less than significant.

Wastewater: Because the proposed project would not require the expansion of existing infrastructure, only connections to existing infrastructure, the contribution of the proposed Project would not have a cumulatively significant impact on wastewater infrastructure.

Drainage: The cumulative area for drainage-related issues is the Project study area. Cumulative population increases and development within the area would increase the amount of impervious surfaces and therefore the amount of storm water runoff generated within the area. All projects in the area are required to handle drainage without increasing downstream flows and velocities. Since all projects would similarly be required to control runoff and drainage features, the cumulative increase in development would not create a cumulatively significant increase in runoff and cumulative development would not exceed the capacity of the planned drainage system. Because the proposed Project would be required to construct the proposed drainage infrastructure that would accommodate Project related and cumulative development storm flows in the area, the proposed Project would not contribute to a cumulatively significant drainage impact.

Solid Waste: The cumulative area for solid waste-related issues is the Ostrem Road Landfill service area. Recology has reported that the Ostrem Road Landfill will have sufficient capacity for the next 61 years.

On a daily basis the 12 employees would generate an estimated 53 lbs per day (0.024 ton per day) or approximately 8.6 tons per year. The Projects estimated daily contribution to the 3,000 tons of per day municipal solid waste limit at Ostrem Road Landfill is approximately 0.024 ton or 0.0008%. Project impacts are less than significant and no mitigation is needed.

The proposed Project is not expected to generate significant volumes of solid waste due to the type of uses planned onsite (vehicle fueling, small retail sales, etc., and large refuse such as used tires will be recycled through established programs). Therefore, the proposed Project would not contribute to cumulatively significant solid waste disposal impacts.

5. Other CEQA Topics

Section 15126 of the *CEQA Guidelines* requires that all aspects of a project must be considered when evaluating its impacts on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify:

- Significant environmental effects of the proposed project;
- Significant environmental effects that cannot be avoided if the proposed project is implemented;
- Growth-inducing impacts.

5.1. Significant Environmental Effects which Cannot be Avoided if The Proposed Project is Implemented

Table 64 lists the significant unavoidable impacts anticipated to result from the proposed Project, even with implementation of the project-specific mitigation measures identified in analyses in Section 4.1 through 4.18 of the EIR.

Table 64. Significant Environmental Effects Which Cannot Be Avoided

Resource Category	Impact Type	Impact
Transportation/ Circulation	Significant and Unavoidable	The cumulative conditions analysis results presented in Table 59 indicate that the addition of the Project would, with other cumulative growth, result in unacceptable operations at three study intersections. The City of Williams does not own and control the Project intersections which will need improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Even with implementation of mitigation measure TRAFFIC-1 the Project will have a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. This impact is significant and unavoidable.

5.2. Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented

Section 15126(c) of the CEQA Guidelines mandates that the EIR must address any significant irreversible environmental changes which would be involved in the proposed action should it be implemented. An impact would fall into this category if it resulted in any of the following:

- The project would involve a large commitment of non-renewable resources;

The primary and secondary impacts of the project would generally commit future generations of people to similar uses (e.g., a highway provides access to a previously remote area);

- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The project will consume large amounts of energy that are produced from non-renewable fossil fuels, although the proposed uses will efficiently consume energy and water resources.

The proposed Project would likely result in, or contribute to, the following irreversible environmental changes: irreversible consumption of goods and services associated with the future employees and consumers; irreversible consumption of energy and natural resources associated with the future employees and consumers; increased emissions of air pollutants; and increased ambient noise. Furthermore, the project would result in increased emissions of air pollutants and increased ambient noise, both due to construction and operation of the project.

5.3. Growth Inducing Impacts

CEQA requires that an EIR discuss how a proposed project could induce growth. CEQA Guidelines identify a project as growth-inducing if it would foster economic or population growth or the construction of additional housing either directly or indirectly, in the surrounding environment (CEQA Guidelines §15126.2(d)). New employees of commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. Direct employment impacts reflect the initial or first-round increases in jobs and wages which occur directly on the project site. Indirect impacts are secondary and other additional rounds of economic activity that occur as a consequence of the direct impacts, and can occur elsewhere within the project area. These indirect impacts may result from: the production of goods and services required to support the proposed onsite uses, and/or the production of goods and services required to meet consumer demand generated by wages paid to direct employees.

A project could also indirectly induce growth by reducing or removing barriers to growth or by creating a condition that attracts additional population or new economic activity. Under CEQA, growth inducement is not necessarily considered detrimental, beneficial, or of little significance to the environment. Typically, the growth inducing potential of a project would be considered significant if it fosters growth or a concentration of population in excess of what is assumed in pertinent master plans or in land use plans. The proposed project is consistent with both the City

of Williams General Plan and the Valley Ranch Business Park Gateway Portal Plan. The proposed Project is not growth inducing.

Significant growth impacts could also occur if the Project provides infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way. The proposed Project will utilize existing infrastructure improvements in the Project area. The proposed Project is not growth inducing.

5.4. Energy Consumption

CEQA Guidelines Appendix F, Energy Conservation, requires consideration of project impacts on energy and focuses particularly on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100[b][3]). The potentially significant energy implications of a project must be considered in an EIR to the extent relevant and applicable to the project.

Regulatory Background: Federal and state agencies regulate energy use and consumption through various means and programs. Federal agencies influence and regulate transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, funding of energy-related research and development projects, and funding for transportation infrastructure improvements. At the state level, the California Public Utilities Commission and the California Energy Commission are two agencies with authority over different aspects of energy. California is exempt under federal law from setting state fuel economy standards for new on-road motor vehicles.

The California Green Building Standards Code, CALGreen, was adopted as part of the California Building Standards Code (California Code of Regulations, Title 24, Part 11) and became effective January 1, 2011. Part 11 establishes voluntary standards on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.

The California Energy Commission recently adopted changes to the 2013 Building Energy Efficiency Standards contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code) and associated administrative regulations in Part 11 (collectively referred to here as the standards). The 2013 Building Energy Efficiency Standards are 25 percent more efficient than previous standards for residential construction. The standards offer builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

Project Energy Consumption and Conservation: The proposed Project would introduce energy usage on a site that is currently undeveloped and thus uses no energy. The Project would consume energy in both the short term during Project construction and in the long term during Project operation.

Construction Phase: Construction activities would require the use of gasoline, diesel fuel, and other fuels. Energy use during construction typically involves the use of motor vehicles both for transportation of workers and equipment and for direct construction actions such as the use of cranes or lifts. Additional energy would be used for power tools and equipment used on-site, including but not limited to gas generators, air compressors, air handlers and filters, and other typical direct construction energy uses.

The demand for fuel and other energy resources would not result in the need for new or altered facilities given the temporary nature of construction. Furthermore, construction activities are not anticipated to result in an inefficient use of energy, as construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would conserve the use of their supplies to minimize costs to the individual project.

Operational Phase: The proposed commercial gasoline-dispensing facility would consume energy. In addition, traffic generated by new development would also consume energy.

The project would be required to comply with Title 24 Building Energy Efficiency Standards, which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting.

Implementation of the Title 24 standards significantly reduces energy usage, and it is generally assumed that compliance with Title 24 ensures projects will not result in the inefficient, wasteful, or unnecessary consumption of energy. Furthermore, the electricity provider in the City of Williams, Pacific Gas and Electric (PG&E), is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020. Renewable energy is generally defined as energy that comes from resources that are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. The increase in reliance on such energy resources further ensures projects will not result in the waste of finite energy resources.

The proposed project would dispense automotive fuel and truck and auto diesel daily to paying customers. However, this dispensed fuel would not be used for Project operations but rather for those buying and using the fuel. Additionally, the Project would provide a commercial land use in close proximity to an existing major highway interchange (I-5 and SR 20) that will serve the traveling public and local residents with a fueling facility, convenience store, restaurant, and tire shop. Due to the project's location adjacent to the I-5/ SR 20 interchange, the Project would predominantly serve travelers already traveling to, from, or through the City of Williams. In other words, Project components would mostly serve travelers who would travel through the area regardless of Project implementation.

For the reasons described above, the proposed project would not place a substantial demand on regional energy supply or require significant additional capacity, or significantly increase peak and base period electricity demand, or cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance, or preempt future energy development or future energy conservation. Impacts would be less than significant.

6. Alternatives to the Proposed Project

6.1.Introduction

An environmental impact report (EIR) must evaluate a reasonable range of alternatives to the proposed project or to the location of the proposed project that could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. The EIR must evaluate the comparative merits of the alternatives (California Environmental Quality Act [CEQA] Guidelines Section 15126.6). The EIR need not evaluate the environmental effects of alternatives in the same level of detail as the proposed project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed project.

The primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained while substantially reducing or avoiding the significant environmental impacts of the proposed project. The objectives of the proposed Project and environmental impacts requiring mitigation are listed below.

Alternatives included and evaluated in the EIR must be feasible alternatives. However, the Public Resources Code and the CEQA Guidelines direct that the EIR need "set forth only those alternatives necessary to permit a reasoned choice." The CEQA Guidelines provide a definition for "a range of reasonable alternatives" and thus, limit the number and type of alternatives that need to be evaluated in a given EIR. An EIR is not required to analyze alternatives when the effects of the alternative "cannot be reasonably ascertained and whose implementation is remote and speculative" (CEQA Guidelines Section 15126.6(f)(3)).

The City of Williams, as the CEQA Lead Agency, is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives addressed in an EIR is governed by a "rule of reason," which requires that the EIR set forth and evaluate only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR need examine in detail only those the Lead Agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. Per CEQA Guidelines Section 15364, "feasible" has been defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

6.1.1. Summary of the Proposed Project

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, CA (Figure 1). Love's Country Stores of California proposes to construct a Love's Country Store on approximately 11.15 acres located near the southwest corner of the Margurite Street and State Route 20 (SR 20) intersection (Figure 2) just east of the Interstate 5 (I-5)/SR 20 intersection. The proposed Project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The Project would include a 13,582 square- foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop (Figure 3). The proposed travel center

will function as a "one stop shop" for freeway travelers and truckers including minor vehicle repairs and tire sales. The facility would operate 24 hours a day, 365 days per year. The Project is anticipated to employ 40 to 45 full-time employees; approximately 12 employees would be on-site at any one time. The Project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.

6.1.2. Project Objectives

The general objective of the proposed Project is to construct a Love's Country Store location to serve existing travelers and truck traffic on SR 20 and I-5 and other potential customers within nearby areas along these major thoroughfares. Specifically, the objectives include:

- To create a high-quality travel center development near Interstate 5 and State Route 20, which are major transportation corridors, with access to a federal Surface Transportation Assistance Act (STAA) National Network road/ Terminal Access and/or California Legal Route as shown on the official Caltrans Truck Route Map.
- To develop a regional travel center on commercially-designated land within the City of Williams that is consistent with City General Plan policy and zoning.
- To develop a property of sufficient size to accommodate a truck and auto fuel dispensing area, emergency tire repair and replacement services, convenience store, and fast-food restaurant to create a regional travel stop.
- To provide a travel stop facility of sufficient size to accommodate overnight truck parking.
- To provide a travel stop facility that maximizes its proximity to Interstate 5 for all buildings and tenants.
- To construct a facility near a major freeway interchange in order to minimize traffic generation on local streets.
- To construct a facility with access to adequate existing or anticipated utility infrastructure to support planned operations.

6.1.3. Summary of Proposed Project Significant Impacts

Alternatives should provide a means of avoiding altogether or reducing the significant environmental impacts that would otherwise result from implementation of the Project. The technical analysis in Sections 4 identified the following significant/ potentially significant impacts. To satisfactorily provide the CEQA-mandated alternatives analysis, the alternatives considered must reduce any of the following project-related significant impact(s):

- Air Quality Impact: The grading and site preparation activities have the potential to emit fugitive dust (PM10) from soil disturbance.
- Biological Impact: The proposed Project has the potential to impact special status species.
- Biological Impact: The proposed Project has the potential to impact a potential sensitive community.

- Biological Impact: Project construction could result in permanent and temporary impact to a potential Section 404, Clean Water Act feature.
- Cultural Impact: The proposed project has the potential to impact previously undetected human remains.
- Geology and Soils Impact: Soils in the Project area are expansive and have the potential to create a substantial risk to property.
- Geology and Soils Impact: Groundwater and soils characteristics of the site could result in on-site soil instability.
- Noise Impact: Activities associated with the Project construction would result in elevated noise levels, with maximum noise levels as high as 89 dB at 50 feet.
- Transportation and Circulation Impact (*significant and unavoidable*): The cumulative conditions analysis results indicate that the addition of the Project would, with other cumulative growth, result in unacceptable operations at three study intersections.

With the exception of the Transportation and Circulation Impact each of these impacts can be mitigated to a less than significant level by mitigation measures identified in Section 4 of this EIR. The analysis provided in Section 4.0 determined that despite implementation of mitigation measures, significant and unavoidable traffic and circulation impacts would result from the construction and operation of the proposed Project.

6.2.Project Alternatives

The following alternatives have been identified and evaluated to provide decision-makers with a reasonable range of alternatives that would eliminate or reduce the impacts of the proposed Project. Factors considered in selecting alternatives include site suitability, availability of infrastructure, other plans or regulatory limitations, economic viability, and whether the project proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote or speculative. As per the CEQA Guidelines, alternatives considered in this EIR include those that:

- could accomplish most of the basic objectives of the project;
- are reasonably feasible given the nature of the project and surrounding land uses; and
- could avoid or substantially lessen one or more of the significant effects of the project.

Table 64 summarizes the alternatives that are evaluated in this EIR. Each alternative is described further below.

Table 65. Alternatives Evaluated

Alternative	Description
No Project/No Build	Assumes the site remains in its present condition (i.e., vacant and undeveloped).
No Project/ Existing Zoning	This alternative would develop the site according to the current General Plan zoning designation
Reduced Build Alternative on APN 016-070-119	This alternative would allow construction of a reduced footprint Project on APN 016-070-119.
Alternative Sites	This alternative would relocate development to another site in the surrounding vicinity. This analysis included potential sites in the City of Williams in the general project area. For this project, a feasible alternative site would have to have at least 11 acres of developable land, commercial, industrial, or business park zoning, and freeway frontage or immediate access to one or both freeways (i.e., I-5 and SR 20) via a designated truck route per City Code 10.40.040.

6.2.1. No Project/ No Build Alternative:

CEQA Guidelines Section 15126.6(e)(1) requires that a No Project Alternative shall be analyzed. The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the impacts of approving the proposed Project with the impacts of not approving the proposed Project. Under the No Project/No Build Alternative, the 11.15 ac site would remain in its existing, vacant, and undeveloped condition. There would be no impacts. This alternative would not achieve any of the proposed Project's objectives.

6.2.2. No Project/ Existing Zoning

The No Project/Existing Zoning alternative considers what would be reasonably expected to occur in the foreseeable future if based on current plans and consistent with available infrastructure and community services, the project were not approved. Section 17.01.030 of the City of Williams Zoning Code establishes a range of nonresidential uses permitted in the business park district, including: colleges and universities, emergency shelters, hospital, walk-in clinic, surgical facility, general professional medical office, heavy retail, home center, wholesale, indoor recreation/ personal fitness, outdoor recreation, light industry, power generation/ renewable fuel, research/ testing laboratory, animal boarding facilities, commercial stables, large animal veterinarian, impound yard, distribution centers, and attached wireless

telecom facilities. The No Project/Existing Zoning alternative would not achieve any of the proposed Project's objectives.

It is unlikely many of the permitted uses could be developed on the parcel and also provide the required amount of parking and landscaping in addition to the building footprint. Some uses could generate more traffic/turning movements while other uses could result in less traffic at the following Project intersections:

- SR 20/I-5 SB Ramps (Intersection 1)
- SR 20/I-5 NB Ramps (Intersection 2)
- SR 20/Husted Rd/Freshwater Rd (Intersection 4)

6.2.3. Reduced Build Alternative on APN 016-070-119

Under the Reduced Build Alternative, only the fueling component would be constructed at the project site. Project components eliminated under this alternative include the 6,322 square-foot tire shop, 13,582 square- foot convenience store with an attached restaurant space, and both auto and truck parking including overnight truck parking. Similar to the Project evaluated in Section 4 on-site and off-site stormwater drainage improvements would be needed.

6.2.4. Alternative Sites:

Table 64 list the minimum site requirements for the Project. Table 65 lists the alternative sites, the minimum site requirements, and indicates if the alternative site meets the requirements. Table 65 lists 17 properties that were evaluated as alternative sites to the Project evaluated in Section 4 of this EIR. The list was generated by reviewing the City General Plan land use diagram and identifying unoccupied parcels located in the City zoned as Commercial Business Park, or Industrial.

Table 66. List of Potential Alternative Sites.

Alternate Site APN	Gross Area (acre)	Zoning	Minimum Alternative Site Requirements			
			I-5 and/ or SR 20 Frontage or Immediate Access to One or Both	Sufficient Area (ac)	Commercial, Industrial [1], or Business Park Zoning	Meets All Site Requirements
005-201-025	66.55	Commercial, Urban Residential, Commercial Suburban, Urban Residential High Density	Yes	Yes	Yes	**Yes**
005-270-002	0.78	Commercial	Yes	No	Yes	**No**
005-270-003	1.49	Commercial	Yes	No	Yes	**No**
005-270-005[2]	1.23	Commercial	Yes	Yes[2]	Yes	**Yes**
005-270-006[2]	1.83	Commercial	Yes	Yes[2]	Yes	**Yes**
005-270-026[2]	8.22	Commercial	Yes	Yes[2]	Yes	**Yes**
005-260-002	2.23	Commercial	Yes	No	Yes	**No**
005-260-017	6.47	Business Park	Yes	No	Yes	**No**
016-320-022	10.99	Business Park	Yes	No	Yes	**No**
016-320-033	6.47	Business Park	Yes	No	Yes	**No**
016-320-024[3]	5.76	Commercial	Yes	Yes[3]	Yes	**Yes**
016-320-035[3]	1.56	Commercial	Yes	Yes[3]	Yes	**Yes**
016-320-034[3]	3.82	Commercial	Yes	Yes[3]	Yes	**Yes**
016-320-083	18.36	Commercial	No	Yes	Yes	**No**
017-050-012	103.0	Business Park	No	Yes	Yes	**No**
016-320-125	11.76	Business Park	Yes	Yes	Yes	**Yes**
017-090-049	11.37	Commercial	Yes	Yes	Yes	**Yes**

[1] All APN's zoned Industrial as per the Official Zoning Map are currently occupied.

[2] These 3 APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included here.

[3] These 3 APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included here.

6.3.Alternatives Analysis

6.3.1. No Project/ No Build Alternative:

Under the No Project/No Build Alternative no development would occur within the Project limits. No ground- disturbing activities would take place, nor would any commercial structures or facilities be constructed. The No Project/No Build Alternative would not result in any physical environmental effects. This alternative does not meet any of the Project objectives listed in section 6.1.2 (Project Objectives).

6.3.2. No Project/ Existing Zoning:

Pursuant to CEQA (§15126.6[e][2]), the No Project Alternative should discuss what would reasonably be expected to occur, based on current plans and consistent with available infrastructure and community services, in the foreseeable future. It is reasonable to assume that in the event the proposed Project were not approved, the site would be developed in accordance with the existing General Plan designation of Business Park. The Business Park zoning designation allows a maximum building size of 0.88 times the area of the lot and requires 20% of the site be open space. Therefore, this alternative would result in development of approximately 341,928 square feet of business park uses and 97,138.8 square feet of open space on 11.15 gross acres of the Project site, consistent with the Business Park designation of the General Plan. The following impact analysis for this alternative evaluates the same environmental topics addressed for the proposed Project evaluated in Section 4.0 of this EIR. This alternative does not meet any of the Project objectives listed in section 6.1.2 (Project Objectives)

6.3.2.1 Aesthetics

The No Project/ Existing Zoning alternative could result in would likely result in similar size buildings being constructed on-site. Construction of a different type of building on-site would be required to adhere to comply with the lighting standards as per Section 6.2 (Lighting) of the City Design Review Manual. Visual impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant aesthetic impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.2 Agricultural and Forestry Resources

The current zoning of the 11.15 gross acre Project site s Business Park. Development of the site under the existing zoning would not change or lessen any impact to agricultural and forestry resources. Agricultural and forestry resource impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant agricultural and forestry resource impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.3 Air Quality

Operational and construction air emissions from the under this alternative could be greater or less that the Proposed Project evaluated in Section 4 of this EIR. Air quality impacts of the proposed

Project evaluated in Section 4 of this EIR were determined to be less than significant with implementation of AIR-1. AIR-1 includes implementation of common dust control measures sufficient to control fugitive dust during soil disturbing activities and during periods of inactivity to prevent windblown dust. These measures would very likely be required by any project constructed on the Project site or in the City. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant air quality impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.4 Biological Resources

The No Project/ Existing Zoning alternative would likely result in similar size buildings being constructed on-site. Impacts to biological resources would be similar under the No Project/ Existing Zoning alternative compared to the Project evaluated in Section 4 of this EIR. Biological impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant with implementation of BIO-1 through BIO-4. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant biological impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.5 Cultural Resources

Impacts to cultural resources would be similar under the No Project/ Existing Zoning alternative compared to the Project evaluated in Section 4 of this EIR. Cultural resource impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant with implementation of CULTURAL-1 through CULTURAL-4. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant cultural resource impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.6 Tribal Cultural Resources

Impacts to tribal cultural resources would be similar under the No Project/ Existing Zoning alternative compared to the Project evaluated in Section 4 of this EIR. Tribal cultural resource impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant tribal cultural resource impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.7 Geology and Soils

Impacts to geology and soil resources would be similar under the No Project/ Existing Zoning alternative compared to the Project evaluated in Section 4 of this EIR. Clay soils at the project site are expansive and also prone to settlement with increases in loading conditions. Geology and soil resource impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant, with implementation of GEOLOGY-1 and GEOLOGY-2. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant geologic and soils resource impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.8 Greenhouse Gas Emissions

Greenhouse gas emission impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant greenhouse gas emission impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.9 Hazards and Hazardous Materials

Hazards and hazardous materials impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant hazards and hazardous materials impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.10 Hydrology and Water Quality

Use of the site to construct and operate a different use under the No Project/ Existing Zoning alternative could have slightly greater or lesser impacts to hydrology and water quality resources. Hydrology and water quality resources impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant hydrology and water quality impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.11 Land Use and Planning

Land use and planning impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant land use and planning impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.12 Mineral Resources

Mineral resource impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant mineral resource impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.13 Noise

Use of the site to construct and operate a different use under the No Project/ Existing Zoning alternative could have slightly greater or lesser noise impacts. Noise impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant with implementation of NOISE-1. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant noise impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.14 Population and Housing

Population and housing impacts of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not

avoid or substantially lessen significant population and housing impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.15 Public Services

Impacts to public services from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant public service impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.16 Recreation

Impacts to recreation from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant recreation impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.17 Transportation/ Circulation

Even with implementation of TRAFFIC-1 the proposed Project evaluated in Section 4 of this EIR will have a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. This impact is significant and unavoidable.

It is unlikely many of the permitted uses could be developed on the parcel and also provide the required amount of parking and landscaping in addition to the building footprint. Some uses could generate more traffic/turning movements at the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections. While some uses could result in less traffic.

The SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection improvements are listed in Appendix B of the adopted City General Plan (Circulation Improvements) with the following note "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*"

Under the existing zoning designation for the Project area the City General Plan assumes that the SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection improvements are necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service. Development of the site under a different permitted 'Business Park' use would result in the same need for the intersection improvements listed above.

The City of Williams does not own and control the Project intersections which will need improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road

intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. The cooperative agreement discussed above would be needed regardless of which permitted 'Business Park' use is implemented on the site. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant transportation/ circulation impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.2.18 Utilities/ Service Systems

Impacts to utilities/ service systems from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. The No Project/ Existing Zoning alternative would not avoid or substantially lessen significant utilities/ service systems impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.3. Reduced Build Alternative on APN 016-070-119

Even with implementation of TRAFFIC-1 the proposed Project evaluated in Section 4 of this EIR will have a cumulatively considerable impact to the SR 20/ I-5 southbound ramp, SR 20/ I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. This impact is significant and unavoidable. The City has considered a reduced build alternative with the intent of avoiding or substantially reducing this significant impact. All other potential Project impacts evaluated in Section 4 of this EIR were determined to be less than significant or less than significant with mitigation included.

Implementation of the reduced build alternative on APN 016-070-119 would have the same or similar impacts to 17 of the 18 CEQA resources topics described under 6.3.2. An evaluation of the Reduced Build Alternative's potential to avoid or substantially lessen significant transportation/ circulation impacts in comparison to the proposed Project evaluated in Section 4 of this EIR is presented below.

6.3.3.1 Transportation/ Circulation

Under the Reduced Build Alternative only the fueling component would be constructed at the Project site. Project components eliminated under this alternative include the 6,322 square-foot tire shop, 13,582 square- foot convenience store with an attached restaurant space, and both auto and truck parking including overnight truck parking. Similar to the Project evaluated in Section 4 on-site and off-site stormwater drainage improvements would be needed.

The removal of Project components listed above could result in a reduction of vehicles using the facility. However as per Appendix B of the City General Plan the SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection improvements are identified as "… *necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*"

The City of Williams does not own and control the Project intersections which will need improvement as identified in the City General Plan. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections there

is no guarantee the improvements will be constructed by the time the cumulative impact occurs. The Reduced Build Alternative would not avoid or substantially lessen significant transportation/ circulation impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.4. Alternative Sites

As per Table 65 a total of 9 sites met the minimum requirements for the Project including: I-5 and/ or SR 20 frontage or immediate access to one or both via a designated truck route per City Code 10.40.040, sufficient area of 11 ac or more available, and commercial, industrial (*All APN's zoned Industrial as per the Official Zoning Map are currently occupied*) or business park zoning. Table 66 lists the sites the meet the minimum requirements.

Table 67. List of Potential Alternative Sites Meeting Minimum Requirements.

Alternate Site APN	Gross Area (acre)	Zoning	Meets All Site Requirements
005-201-025	66.55	Commercial, Urban Residential, Commercial Suburban, Urban Residential High Density	**Yes**
005-270-005[1]	1.23	Commercial	**Yes**
005-270-006[1]	1.83	Commercial	**Yes**
005-270-026[1]	8.22	Commercial	**Yes**
016-320-024[2]	5.76	Commercial	**Yes**
016-320-035[2]	1.56	Commercial	**Yes**
016-320-034[2]	3.82	Commercial	**Yes**
016-320-125	11.76	Business Park	**Yes**
017-090-049	11.37	Commercial	**Yes**

[1] These 3 APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included here.

[2] These 3 APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included here.

6.3.4.1 APN 005-201-025

This parcel is located approximately 1 mile west of the SR20 and I-5 interchange. SR 20 boarders the northern parcel boundary and is a designated truck route per General Plan Map 8.3 (Designated Truck Routes). The majority of the parcel is in active agriculture. Adjacent land uses include residential to the east, SR 20 the Salt Creek Overflow Area and agriculture to the north, E Street and agriculture to the south and west.

A review of aerial photos of the site indicates the potential wetlands may occur in the southwest portion of the parcel. Multiple years of aerial imagery indicate a small area of standing water is present in the southwest portion of the parcel. Two irrigation or drainage canals/ ditches occur on the parcel and appear to drain to Salt Creek north of the site. The entire parcel is located in FEMA special flood hazard area Zone AH as per the FEMA Letter of Map Revision effective 2

July 2015 to Firm panel 06011C0516F. Zone AH is a special flood hazard where the base flood elevation is known.

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that wastewater collection and water distribution infrastructure is not present on APN 005-201-025. City General Plan Map 2.2 (Proposed Storm Drainage System) shows a portion of APN 005-201-025 being occupied by a future detention pond/ storm drainage system.

Implementation of the Project on APN 005-201-025 would have the same or similar impacts to the following CEQA resources topics described under 6.3.2.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Cultural Resources
- Tribal Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation

(a) Biological Resources

APN 005-201-025 appears to provide habitat for the federal listed giant garter snake (GGS) similar to the proposed Project site evaluated in Section 4 of this EIR. Based on the amount and location of GGS habitat on APN 005-201-025 it is likely that implementation of the Project on this site would have greater impacts to GGS than the Project site evaluated in Section 4 of this EIR. A review of aerial photos of the site indicates the potential wetlands may occur in the southwest portion of the parcel. Use of this alternative site would not avoid or substantially lessen significant biological resources impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(b) Hydrology and Water Quality

The entire parcel is located in FEMA special flood hazard area Zone AH as per the FEMA Letter of Map Revision effective 2 July 2015 to Firm panel 06011C0516F. Zone AH is a special flood hazard where the base flood elevation is known. Construction of the Project on APN 005-201-025 would place structures in the 100 year flood hazard area and is a potentially significant impact that could require mitigation. The Project site evaluated in Section 4 of this EIR is not within the 100 year flood hazard area. Use of this alternative site would not avoid or substantially lessen hydrology and water quality potential significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(c) Transportation/ Circulation

SR 20 north of the APN 005-201-025 is a 2 lane highway with no center median. No formal access exists from SR20 to APN 005-201-025. Use of APN 005-201-025 would require some type of access be provided from SR 20 to the site. This could include installation of a stop sign

controlled or signalized intersection. Acceleration and deceleration lanes would likely be needed. It is likely that the addition of the Project would, with other cumulative growth, result in unacceptable operations at the SR 20/ I-5 southbound ramp and SR 20/ I-5 northbound ramp.

The City of Williams does not own and control the SR 20/ I-5 southbound ramp and SR 20/ I-5 northbound ramp intersections that would potentially require improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; SR 20/ I-5 southbound ramp and SR 20/ I-5 northbound ramp intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Use of this alternative site would not avoid or substantially lessen transportation/ circulation significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(d) Utilities/ Service Systems

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that wastewater collection and water distribution infrastructure is not present on APN 005-201-025. City General Plan Map 2.2 (Proposed Storm Drainage System) shows a portion of APN 005-201-025 being occupied by a future detention pond/ storm drainage system. Implementation of the Project on APN 005-201-025 could require construction of water and waste water infrastructure that could result in other environmental impacts. The Project evaluated in Section 4 of this EIR would require construction of a drainage ditch/ or pipe to convey stormwater to HLDET7. Impacts to utilities/ service systems from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. Use of this alternative site would not avoid or substantially lessen utilities/ service system significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.4.2 APN 005-270-005, APN 005-270-006, and APN 005-270-026

These three APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included and evaluated. If these parcels cannot be acquired together they do not meet the minimum requirement for size and would not be suitable.

These parcels are located adjacent to the I-5/ E Street interchange at the Vada Ct., a cul-de-sac. Vada Ct. connects Vann Street to E Street via an un-signalized four way intersection. Vann Street has stop sign control at the intersection. No stop control occurs on E Street. Map 8.3 of the Cite General Plan shows Vann Street as a designated truck route north of its intersection with E Street. E. Street is also a designated truck route. These parcels consist of vacant disturbed land. Adjacent land uses include agriculture and the GCID canal to the north and east, commercial and residential uses to the south, and I-5 to the west. A review of aerial photos of the site indicates these parcels have been graded. No wetland or waters appear to occur on-site.

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that wastewater collection and water distribution infrastructure are present on or near these parcels.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following street improvements, noting "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*"

- **E Street between the I-5 Southbound Ramps and Husted Road:** Expand the roadway segment to a four lane major arterial road.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following intersection improvements, noting "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*"

- **E Street / I-5 SB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: One through lane and one shared through right lane
    - Westbound Approach: Two through lanes and one left turn lane
- **E Street / I-5 NB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: Two through lanes and one left turn lane
    - Westbound Approach: One through lane and one shared through right lane
- **E Street / Vann Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Southbound Approach: One right turn lane and one shared through left lane
    - Eastbound Approach: One left turn lane, two through lanes, and one right turn lane.
    - Westbound Approach: One left turn lane, one through lane, and one shared through-right lane.

Implementation of the Project on these three APNs would have the same or similar impacts to the following CEQA resources topics described under 6.3.2.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal 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
- Utilities / Service systems

(a) Transportation/ Circulation

The City General Plan recommends intersection improvements required to mitigate circulation impacts from anticipated growth in the General Plan. The proposed Project intersections evaluated in Section 4 of this EIR are listed in the General Plan as needing improvements to mitigate circulation impacts. It is reasonable to assume the implementation of the Project on these APNs would result in the same or similar cumulative traffic impacts.

The City of Williams does not own and control the E Street / I-5 SB and E Street / I-5 NB intersections that would need improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; E Street / I-5 south bound and E Street / I-5 north bound intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Use of this alternative site would not avoid or substantially lessen transportation/ circulation significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.4.3 APN 016-320-024, APN 016-320-035, and APN 016-320-034

These three APNs are contiguous with one another. If combined they exceed the required 11 ac and were therefore included and evaluated. If these parcels cannot be acquired together they do not meet the minimum requirement for size and would not be suitable.

These parcels are located adjacent to the I-5 approximately 0.8 mile north of the I-5-Husted Road interchange and approximately 1.9 miles south of the I-5-E Street interchange. Crawford Road, adjacent to and south of APN 016-320-034 is the closest public access point to these three parcels. Crawford Road is a single lane road with little to no road shoulders that provides access to a church and the Viking Pools production facility. Crawford Road is not a designated truck route per Map 8.3 of the Cite General Plan. Crawford Road intersect Husted Road approximately 500 ft east of these parcels. Husted Road is a designated truck route per Map 8.3 of the City General Plan.

These parcels consist of vacant land currently in agricultural production. Adjacent land uses include agriculture and residential to the north and east, industrial use to the south, and I-5 to the west. A review of aerial photos of the site indicates no wetland or waters appear to occur on-site.

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure are not present on or near these parcels.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following street improvements, noting *"The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service..."*

- **Husted Road from Freshwater Road to I-5 Southbound Ramps:** Expand the roadway segment to a four lane major arterial road.

- **E Street between the I-5 Southbound Ramps and Husted Road:** Expand the roadway segment to a four lane major arterial road.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following intersection improvements, noting *"The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service..."*

All intersection improvements that occur between the 3 parcels and the I-5-Husted Road and I-5-E Street interchanges are listed below.

- **E Street / I-5 SB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: One through lane and one shared through right lane
    - Westbound Approach: Two through lanes and one left turn lane
- **E Street / I-5 NB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: Two through lanes and one left turn lane
    - Westbound Approach: One through lane and one shared through right lane
- **E Street / Vann Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Southbound Approach: One right turn lane and one shared through left lane
    - Eastbound Approach: One left turn lane, two through lanes, and one right turn lane.
    - Westbound Approach: One left turn lane, one through lane, and one shared through-right lane.
- **E Street/ Margurite Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / E Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.

- **Husted Road / Husted Road Lateral:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / Abel Road:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: Two through lanes and one left turn lane.
    - Southbound Approach: One through lane and one shared through right lane.
- **Husted Road / Crawford Road:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / Old Highway 99:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / I-5 South Bound Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.

The City's General Plan Map 8.2 (New Signalized Intersections) shows improvements to the Husted Road / I-5 North Bound Ramps but these improvements are not mentioned in General Plan Appendix B.

Implementation of the Project on these three APNs would have the same or similar impacts to the following CEQA resources topics described under 6.3.2.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal 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

(a) Transportation/ Circulation

The City General Plan recommends intersection improvements required to mitigate circulation impacts from anticipated growth in the General Plan. The proposed Project intersections evaluated in Section 4 of this EIR are listed in the General Plan as needing improvements to mitigate circulation impacts. It is reasonable to assume the implementation of the Project on these APNs would result in the same or similar cumulative traffic impacts.

The City of Williams does not own and control the Husted Road / I-5 South Bound ramp intersections that would potentially require improvement as per the City General Plan. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; Husted Road / I-5 South Bound ramp intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Use of this alternative site would not avoid or substantially lessen transportation/ circulation significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(b) Utilities/ Service Systems

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure is not present on these parcels. Implementation of the Project on these parcels could require construction of water and waste water infrastructure that could result in other environmental impacts. The Project evaluated in Section 4 of this EIR would require construction of a drainage ditch/ or pipe to convey stormwater to HLDET7. Impacts to utilities/ service systems from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. Use of this alternative site would not avoid or substantially lessen utilities/ service system significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.4.4 APN 016-320-125

This parcel is located adjacent to I-5 approximately 0.5 mile north of the I-5-Husted Road interchange and approximately 2.1 miles south of the I-5-E Street interchange. Husted Road is

immediately adjacent to the eastern side of the parcel and is the closest public access point. No formal public assess occurs on this parcel. Husted Road is a designated truck route per Map 8.3 of the City General Plan.

This parcel consists of vacant land that is currently fallow. Adjacent land uses include the Viking Pools production facility to the north, the Union Pacific Railroad (UPRR), Old Highway 99/ Frontage Road, and I-5 occur to the west, agriculture to the west, and Williams Ready Mix to the south. A review of aerial photos of the site indicates that wetlands have the potential to occur on-site.

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure are not present on or near these parcels.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following street improvements, noting *"The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service..."*

- **Husted Road from Freshwater Road to I-5 Southbound Ramps:** Expand the roadway segment to a four lane major arterial road.
- **E Street between the I-5 Southbound Ramps and Husted Road:** Expand the roadway segment to a four lane major arterial road.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following intersection improvements, noting *"The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service..."*

All intersection improvements that occur between the parcel and the I-5-Husted Road and I-5-E Street interchanges are listed below.

- **E Street / I-5 SB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: One through lane and one shared through right lane
    - Westbound Approach: Two through lanes and one left turn lane
- **E Street / I-5 NB Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Eastbound Approach: Two through lanes and one left turn lane
    - Westbound Approach: One through lane and one shared through right lane
- **E Street / Vann Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Southbound Approach: One right turn lane and one shared through-left lane

    - Eastbound Approach: One left turn lane, two through lanes, and one right turn lane.
    - Westbound Approach: One left turn lane, one through lane, and one shared through-right lane.
- **E Street/ Margurite Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / E Street:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / Husted Road Lateral:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / Abel Road:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: Two through lanes and one left turn lane.
    - Southbound Approach: One through lane and one shared through right lane.
- **Husted Road / Crawford Road:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.

- **Husted Road / Old Highway 99:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / I-5 South Bound Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.

City General Plan Map 8.2 (New Signalized Intersections) shows improvements to the Husted Road / I-5 North Bound Ramps but these improvements are not mentioned in General Plan Appendix B.

Implementation of the Project at this location would have the same or similar impacts to the following CEQA resources topics described under 6.3.2.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal 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

(a) Transportation/ Circulation

The City General Plan recommends intersection improvements needed to mitigate circulation impacts from anticipated growth in the General Plan. The proposed Project intersections evaluated in Section 4 of this EIR are listed in the General Plan as needeing improvements to mitigate circulation impacts. It is reasonable to assume the implementation of the Project on this APNs would result in the same or similar cumulative traffic impacts.

The City of Williams does not own and control the E Street / I-5 SB Ramps, E Street / I-5 NB Ramps, and Husted Road / I-5 South Bound Ramp intersections that would potentially require

improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; E Street / I-5 SB Ramps, E Street / I-5 NB Ramps, and Husted Road / I-5 South Bound ramp intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Use of this alternative site would not avoid or substantially lessen transportation/ circulation significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(b) Utilities/ Service Systems

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure is not present on these parcels. Implementation of the Project on this parcel could require construction of water and waste water infrastructure that could result in other environmental impacts. The Project evaluated in Section 4 of this EIR would require construction of a drainage ditch/ or pipe to convey stormwater to HLDET7. Impacts to utilities/ service systems from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. Use of this alternative site would not avoid or substantially lessen utilities/ service system significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.3.4.5 APN 017-090-049

This parcel is located adjacent to I-5 and the I-5 Husted Road interchange. Husted Road and Old Highway 99/ Frontage Road abut this parcel and are the closest public access point. Husted Road and Old Highway 99/ Frontage Road are designated truck routes per Map 8.3 of the City General Plan. An existing driveway stub-out occurs along the eastern side of the parcel approximately 300 ft south of the intersection of Husted Road and Old Highway 99/ Frontage Road. An existing overhead power line occurs along the east side of the parcel.

This parcels consists of vacant land that is currently fallow. This parcel appears to be disced to control weeds on a regular basis based on a review of aerial images. Adjacent land uses include the agriculture and transportation to the north, the UPRR and Old Highway 99/ Frontage Road occur to the east, the I-5 northbound ramp and I-5 to the west, and I-5 to the south. A review of aerial photos of the site indicates wetland have the potential to occur on-site.

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure are not present on or near these parcels.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following street improvements, noting *"The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service..."*

- **Husted Road from Freshwater Road to I-5 Southbound Ramps:** Expand the roadway segment to a four lane major arterial road.

Appendix B of the adopted City General Plan (Circulation Improvements) lists the following intersection improvements, noting "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service...*"

- **Husted Road / Old Highway 99:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.
- **Husted Road / I-5 South Bound Ramps:** This intersection is expected to operate at unacceptable LOS F during peak hour buildout conditions. The following improvements are recommended:
    - Signalize the intersection
    - Northbound Approach: One left, one through, and one shared through right lane.
    - Southbound Approach: One left, one through, and one shared through right lane.
    - Eastbound Approach: One left turn lane and one shared through right lane.
    - Westbound Approach: One left turn lane and one shared through right lane.

General Plan Map 8.2 (New Signalized Intersections) shows improvements to the Husted Road / I-5 North Bound Ramps but these improvements are not mentioned in General Plan Appendix B.

Implementation of the Project at this location would have the same or similar impacts to the following CEQA resources topics described under 6.3.2.

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Tribal 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

(a) Transportation/ Circulation

The City General Plan recommends intersection improvements needed to mitigate circulation impacts from anticipated growth in the General Plan. The proposed Project intersections evaluated in Section 4 of this EIR are listed in the General Plan as needed improvements to

mitigate circulation impacts. It is reasonable to assume the implementation of the Project on this APN would result in the same or similar cumulative traffic impacts.

The City of Williams does not own and control the Husted Road / I-5 South Bound Ramp intersections that would potentially require improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the following State controlled facilitates; Husted Road / I-5 South Bound Ramp intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Use of this alternative site would not avoid or substantially lessen transportation/ circulation significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

(b) Utilities/ Service Systems

City General Plan Map 2.3 (Wastewater Collection and Treatment System) and Map 2.4 (Water Storage and Distribution System) indicate that City wastewater collection and water distribution infrastructure is not present on these parcels. Implementation of the Project on this parcel could require construction of water and waste water infrastructure that could result in other environmental impacts. The Project evaluated in Section 4 of this EIR would require construction of a drainage ditch/ or pipe to convey stormwater to HLDET7. Impacts to utilities/ service systems from implementation of the proposed Project evaluated in Section 4 of this EIR were determined to be less than significant. Use of this alternative site would not avoid or substantially lessen utilities/ service system significant impacts in comparison to the proposed Project evaluated in Section 4 of this EIR.

6.4.Comparison of Project Alternatives

Table 67 compares the Proposed Project evaluated in Section 4 with the alternatives discussed in Section 6.3 of this EIR.

Table 68. Comparison of Project Alternatives

Environmental Issue	Proposed Project	Alternatives							
		No Project		Reduced Build	Alternative Sites (Assessor's Parcel Numbers)				
		No Build	Existing Zoning		005-201-025	005-270-005, 005-270-006, 005-270-024	016-320-024, 016-320-035, 016-320-034	016-320-125	017-090-049
Aesthetics	LTS	NI	=	=	=	=	=	=	=
Agricultural & Forest Resources	LTS	NI	=	=	=	=	=	=	=
Air Quality	LTS/mit	NI	=	=	=	=	=	=	=
Biological Resources	LTS/mit	NI	=	=	→	=	=	=	=
Cultural Resources	LTS/mit	NI	=	=	=	=	=	=	=
Tribal Cultural Resources	NI	NI		=	=	=	=	=	=
Geology and Soils	LTS/mit	NI	=	=	=	=	=	=	=
Global Climate Change	LTS	NI	=	=	=	=	=	=	=
Hazards & Hazardous Materials	LTS	NI	=	=	=	=	=	=	=
Hydrology & Water Quality	LTS	NI	=	=	→	=	=	=	=
Land Use & Planning	LTS	NI	=	=	=	=	=	=	=
Mineral Resources	NI	NI	=	=	=	=	=	=	=
Noise	LTS/mit	NI	=	=	=	=	=	=	=
Population, Housing, & Employment	LTS	NI	=	=	=	=	=	=	=
Public Services (police, fire, schools, parks)	LTS	NI	=	=	=	=	=	=	=
Transportation & Traffic	SIG (cum)	NI	=	=	=	=	=	=	=
Utilities and Service Systems	LTS	NI	=	=	→	=	→	→	→

Proposed Project

NI: No Impact
LTS: Less than Significant Impact
LTS/mit Less than Significant Impact with Mitigation
SIG: Significant Impact with or without Mitigation (c) cumulative impact

Project Alternatives

= Compared with the proposed project, no change in the significance of impact will occur.
→ Compared with the proposed project, the significance of the impact is increased.

6.5.Environmentally Superior Alternative

As detailed above in Table 67, the No Project/ No Build, No Project/ Existing Zoning Alternative, the Reduced Build Alternative, and the Alternative Sites do not reduce any of the significant impacts associated with the proposed project to less than significant levels. According to CEQA Guidelines (Section 15126.6 (e[2]), there is no environmentally superior alternative to the proposed project. In addition, the evaluated alternatives do not generally meet the major project objectives to the same or nearly the same degree as the Proposed Project. For these reasons, all of the alternatives are rejected in favor of the Proposed Project.

7. List of Preparers

7.1.Report Preparation

City of Williams– CEQA Lead Agency

Monica Stegall	Assistant Planner

Sycamore Environmental Consultants, Inc.

Jeffery Little	Vice President, Principal In Charge, Project Manager, Supervising Planner
Adam Forbes	Planner
Aramis Respall	CAD/GIS Analyst

Baracco & Associates

Bruce Baracco, AICP	Principal
Mary Ann Mix	Planner

Fehr & Peers

Neil Smolen	Transportation Engineer/Planner
David Robinson	Project Engineer

First Carbon

Dave Mitchell	Senior Air Quality Scientist

Bollard Acoustical

Paul Bollard	Principal

Far Western Archaeological Consultants, Inc.

Andrew Ugan, Ph.D.	Principal Investigator
Adie Whitaker, Ph.D.	Principal Investigator

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8. Acronyms and Abbreviations

AB	Assembly Bill
ac	acre(s)
ADA	Americans with Disabilities Act
ADL	Aerially Deposited Lead
APN	Assessor's Parcel Number
AQMD	Air Quality Management District
AQP	Air Quality Plan
AR	Assessment Report
ARB	California Air Resources Board
ARP	Acid Rain Program
APA	Administrative Procedure Act
APN	Assessor's parcel number
ASAR	Adjusted sodium absorption ratio
ASR	Archaeological Survey Report
AST	Aboveground storage tank
BAU	Business as usual
BLS	Basic life support
BMP	Best Management Practices
BRE	Biological Resources Evaluation
°C	Degrees Celsius
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAIR	Clean Air Interstate Rule
cal BP	calibrated years Before the Present
Cal-IPC	California Invasive Plant Council
CalEEMod	California Emissions Estimator Model
California Register	California Register of Historical Resources
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CalGreen Code	California Green Building Standards Code
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCAPCD	Colusa County Air Pollution Control District
CCR	California Code of Regulations
CCTA	Colusa County Transit Agency
CDFW	California Department of Fish and Wildlife (formerly Fish and Game)
CDMG	California Department of Mines and Geology
CDOC	California Department of Conservation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations

C.G.B.S.	California Green Building Standards
CGS	California Geologic Survey
CHP	California Highway Patrol
CIP	Capital Improvement Program
City	City of Williams
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CLUP	Comprehensive Land Use Plans
Convention	United Nations Framework Convention on Climate Change
Corps	U.S. Army Corps of Engineers
Cortese List	Hazardous Waste and Substances Sites list
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
D.A.R.E.	Drug Abuse Resistance Education
dB	decibels
dBA	A-weighted sound levels
DEF	Diesel Exhaust Fluid
DEIR	Draft Environmental Impact Report
DOF	California Department of Finance
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substance Control
DUC	Disadvantaged Unincorporated Community
DWR	Department of Water Resources
EC	Electrical conductivity
EIR	Environmental Impact Report
EMFAC	Emission Factors mobile source emissions model
EPA	U.S. Environmental Protection Agency
ESA	Environmentally sensitive area
ºF	Degrees Fahrenheit
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FFS	Free flow speed
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMMP	Farmland Mapping and Monitoring Program
ft	foot/feet
GCID	Glenn-Colusa Irrigation District
GGS	Giant Garter Snake
GHG	Greenhouse gases
GPM	Gallons per minute
GPU	General Plan Update
G.R.E.A.T.	Gang Resistance Education and Training
GWP	Global Warming Potential
HAP	Hazardous air pollutants

HCM	Highway Capacity Manual
HLDET7	Husted Lateral Detention Basin 7
HMBEP	Hazardous Materials Business Emergency/Contingency Plan
HMMA	California Hazardous Material Management Act
HSC	Health and Safety Code
HWCL	California Hazardous Waste Control Law
Hz	hertz
I-5	Interstate 5
IPCC	United Nations Intergovernmental Panel on Climate Change
ISA/ESA	Initial Site Assessment/ Phase I Environmental Site Assessment
ISO	Insurances Services Organization
ITE	Institute of Transportation Engineer
LAFCo	Colusa Local Agency Formation Commission
lbs/MWh	pounds per megawatt hour
LCFS	Low Carbon Fuel Standard
LDL	Larson Davis Laboratories
Ldn	Day/night average noise level
Leq	Average or equivalent sound level
Lmax	Maximum sound level
L50	Noise level exceeded for 50% of the measurement period
L90	Noise level exceeded for 90% of the measurement period
LEV	Low-Emission Vehicle
LOMR	Letter of Map Revision
LOS	Level of Service
LTS	Less than significant impact
LTS/mit	Less than significant impact with mitigation
MEI	Maximally Exposed Individual
MBTA	Federal Migratory Bird Treaty Act
Mg/L	Milligram per liter
MGD	Million gallons per day
mi	mile(s)
MLD	Most likely descendent
MMRP	Mitigation Monitoring Reporting Program
MMTCO2e	million metric tons of carbon dioxide equivalents
mpg	Miles per gallon
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MSR	City of William's Municipal Services Review
MWELO	Model Water Efficient Landscape Ordinance
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAL	Numeric Action Level
National Register	National Register of Historic Places
NB	Northbound
NDCs	Nationally determined contributions
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Plan
NHPA	National Historic Preservation Act
NI	No Impact

NO_x	Nitrogen oxides (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5)
NO2	Nitrogen dioxide
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
OAL	Office of Administrative Law
OEHHA	Office of Health Hazard Assessment
OES	Office of Emergency Services
Ordinance	Model Water Efficient Landscape Ordinance
PCB	Polychlorinated biphenyls
PG&E	Pacific Gas & Electric Company
PHF	Peak hour factors
PM	Particulate matter
PM10	Inhalable coarse particles
PM2.5	Fine particulate matter
POST	California Commission on Police Officer Standards & Training
POTW	Publically Owned Treatment Works
ppm	Parts per million
Project/ Proposed Project	Love's Country Store Project
PUC	Public Utilities Code
quad	USGS topographic quadrangle
RCP	Reinforced concrete pipe
RCRA	Resource Conservation and Recovery Act
REAP	Rain Event Action Plan
ROG	Reactive organic gases
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
S.B.	southbound
Scoping Plan	State Air Resources Board Climate Change Scoping Plan
SDMP	City of Williams Storm Drainage Master Plan
SEL	Sound exposure level
SHMA	Seismic Hazards Mapping Act
SHPOs	State Historic Preservation Offices
SIG	Significant impact with or without mitigation
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SMGB	State Mining and Geology Board
SO_x	Sulfur oxides (sulfur dioxide and sulfur trioxide)
SO2	Sulfur dioxide
SOI	Sphere of Influence
SR 20	State Route 20
SSSC	Side-street stop control
STAA	Surface Transportation Assistance Act
SVAB	Sacramento Valley Air Basin

SWPPP	Stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TASAS	Traffic Accident Surveillance and Analysis System
TDS	Total dissolved solids
TIS	Transportation Impact Study
TMDL	Total Maximum Daily Load
TRI	Toxics Release Inventory
UBC	Uniform Building Code
UNFCCC	U.N. Framework Convention on Climate Change
UPRR	Union Pacific Railroad
UPTC	Union Pacific Transportation Company
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground storage tank
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
WDR	Waste Discharge Requirements
WFPA	Williams Fire Protection Authority
WQMP	Water Quality Management Plan
WUSD	Williams Unified School District
WWTP	City of Williams Wastewater Treatment Plant
YSAQMD	Yolo Solano Air Quality Management District

Appendix A: Notice of Preparation (NOP) and NOP Responses

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City of Williams Planning & Zoning Department

P.O. Box 310
Williams, CA 95987
www.cityofwilliams.org

TO: State, Federal, and Local Agencies and Interested Parties

FROM: Monica Stegall, Assistant City Planner, City of Williams

SUBJECT: NOTICE OF PREPARATION (NOP) Environmental Impact Report (EIR) for the construction of a Love's Country Store facility at the intersection of Margurite Street and State Route 20 in the City of Williams.

DATE: 14 January 2016

Attached find the Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for the construction of a Love's Country Store facility at the intersection of Margurite Street and State Route 20 in the City of Williams.

In accordance with the California Environmental Quality Act (CEQA) Guidelines Section 15082, the City of Williams requests that you provide any applicable comments concerning this NOP. The review period for this document is from 15 January 2016 through 15 February 2016.

A public scoping meeting is scheduled for 9 February 2016, at William City Hall, 810 E St from 6:00 – 7:30 pm. Representatives from all State, Federal and Local Agencies and other interested parties are invited to attend the scoping meeting to become familiar with this project prior to providing comments. All inquiries and comments (please include a contact person) may be directed:

Monica Stegall, Assistant City Planner
City of Williams
P.O. Box 310
Williams, CA 95987
email: mstegall@cityofwilliams.org
website: www.cityofwilliams.org
Phone: (530) 473-2955 Fax: (530) 473-2445

The City of Williams is the CEQA Lead Agency and will prepare an Environmental Impact Report (EIR) for the construction of a Love's Country Store facility at the intersection of Margurite Street and State Route 20 in the City of Williams. The project description, location, and potential environmental effects are described below. The public is invited to provide comments in writing on issues to be addressed in the Draft EIR. Public agencies with views on the scope of the Draft Supplemental EIR as per the project description, or issues that are germane to your agency's statutory responsibilities in connection with the proposed project are invited to provide comments. Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but no later than 15 February 2016, 30 days from the publication date of this NOP.

Project Name:
Love's Country Store

Project Location:
The Project site is located approximately 1,100 ft southeast of the intersection of I-5 and SR 20 in the City of Williams, CA, Colusa County. The site will be located immediately southwest of a new connection between SR 20 and Margurite street (under construction in 2015). The Project is comprised of Assessor's Parcel Number (APNs) 016-070-119. The Project is located on the Williams quad (T15N, R3W, Section 12) and is in the Sacramento-Stone Corral Hydrologic Unit (hydrologic unit code 18020104). The centroid of the Project is located at 39.167402° north, 122.144405° west (WGS84). UTM is 573,910 m E 4,335,700 m N (UTM Zone 10N, WGS84). Figures 1 and 2 show the regional location and aerial photograph of the site.

Lead Agency:
City of Williams
Contact: Monica Stegall, Assistant City Planner
P.O. Box 310
Williams, CA 95987
email: mstegall@cityofwilliams.org
www.cityofwilliams.org
Phone: (530) 473-2955
Fax: (530) 473-2445

Project Sponsor:
Love's Country Stores of California
Contact: Rick Shuffield
10601 N. Pennsylvania Ave
Oklahoma City, OK 73120
Phone: (405) 302-6646

Project Description:

Overview

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, CA. Love's Country Stores of California submitted an application for a Design Review and Site Plan Permit for a proposed Love's Country Stores to be sited on approximately 11.15 acres located near the southeast of the Interstate 5 (I-5) and State Route 20 (SR 20) intersection. The proposed Project would include a fuel dispensing area with 23 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The Project would include a 13,582 square- foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop. The Project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.

Objectives

The general objective of the proposed Project is to construct a Love's Country Store location to serve existing travelers and truck traffic on SR 20 and I-5 and other potential customers within nearby areas along these major thoroughfares. Specifically, the objectives include:

- To create a high-quality travel center development near Interstate 5 and State Route 20, which are major transportation corridors, with access to a federal Surface Transportation Assistance Act of 1982 (STAA) and/or California Legal Route as shown on the official Caltrans Truck Route Map.
- To develop a regional travel center on commercially-designated land within the City of Williams that is consistent with City General Plan policy and zoning.

- To develop a property of sufficient size to accommodate a truck and auto fuel dispensing area, emergency tire repair and replacement services, convenience store, and fast-food restaurant to create a regional travel stop.
- To provide a travel stop facility of sufficient size to accommodate overnight truck parking.
- To provide a travel stop facility that maximizes its proximity to Interstate 5 for all buildings and tenants.
- To construct a facility near a major freeway interchange in order to minimize traffic generation on local streets.
- To construct a facility with access to adequate existing or anticipated utility infrastructure to support planned operations.

Background

The 1988 General Plan, designated the area east of I-5, south of SR 20, west of Husted Rd, and north of E Street as Light Manufacturing (M-L), Heavy Manufacturing (M-H), and Commercial Heavy (CH), with Highway Commercial (HC) north of E Street. The project site was in the area designated for Heavy Manufacturing. The current General Plan (Williams 2012) redesignated and rezoned the M-L, M-H, and CH in the area described to Business Park (BP). The land north of SR 20 within the City limits was changed from agricultural to Business Park. The proposed Project site is zoned as Business Park. Much of the area had previously been in rice production.

The Margurite Street extension to a new intersection with SR 20 is currently under construction. The road extension includes underground water, sewer, and storm drain facilities. A Glenn-Colusa Irrigation District (GCID) drainage ditch is located north of the property and just south of the SR 20 right-of-way. The ditch conveys stormwater east to Salt Creek.

Project Description

The proposed Project would construct a Love's Country Store facility on an 11.15 acres site. The facility would include the following:

- One truck fueling island and open-sided canopy with eight fueling stations including 16 pumps to dispense diesel
- One auto fueling island and open-sided canopy with seven fueling stations including 14 pumps to dispense gasoline
- Two 20,000 gallon underground fuel storage tanks; three 20,000 gallon above ground fuel storage tanks; one above ground 1,000 gallon propane tank; one low pressure gas tank; and one underground Diesel Exhaust Fluid (DEF) tank.
- One 13,582 square- foot convenience store with an attached restaurant space for three vendors
- One 6,322 square-foot tire shop
- A truck scale
- A trash compactor, grease container, and yard equipment shed
- A 60,000 gallon fire water storage tank and a fire pump house
- On-site stormwater runoff collection system
- On-site parking for 104 truck stalls and 69 passenger vehicle stalls, including 4 handicap stalls and a bicycle rack for bicycles
- 75-foot tall pylon sign (940 square feet surface area) with fuel pricing located adjacent to the I-5 northbound off-ramp to SR 20.

- 25-foot tall street sign (174 square feet surface area)
- On-site lighting, consisting of 39 foot tall pole lights with full cutoff fixtures, canopy lights, and wall lights
- Landscaping, hardscaping, and pavement

The proposed convenience store, restaurants and automobile fueling area would be located on the east portion of the site, truck fueling in the middle portion, and truck parking along the western and southern perimeter of the site. The tire shop will be located in the southwest portion of the project site. The passenger vehicle fueling area and circulation for this area would be physically separated from the truck fueling area and parking stalls by a raised sidewalk that links Margurite Street to the proposed convenience store and fast food restaurant. Of the 23 fueling positions, 14 pumps would dispense gasoline, and the remaining eight would dispense diesel fuel.

Underground fuel storage for passenger vehicles would be located north of the passenger vehicle fueling area. Passenger vehicle fuel storage tanks are expected to include a 20,000,000-gallon unleaded tank and a 20,000-gallon split tank for super and auto diesel. Truck fuel storage would be above-ground in an approximately 350 square foot "tank farm" located directly south of the convenience store (Figure 3). The tanks are expected to include three 20,000-gallon tanks, one 1,000-gallon propane tank, and one 8,000-gallon tank for diesel exhaust fluid (DEF).

The overall site plan is shown in Figure 3, and shows the layout of the proposed uses described below. Figure 4 shows the planned front, side, and rear architecture and exterior finishes.

The facility would operate 24 hours a day, 365 days per year. The Project is anticipated to employ 40 to 45 full-time employees; approximately 12 employees would be on-site at any one time. The site lighting would be designed and submitted to the City of Williams Planning Department in compliance with the City's Design review process established in municipal code 17.05.270 (Ord. No. 194-12, § I, 7-25-2012).

A landscape plan was prepared by Thomas H. Phelps, California Landscape Architect #4122 (Figure 5). The site landscaping plan was prepared in accordance with the City's Design review process and site permit application. The plan complies with the criteria for the water efficient landscape ordinance.

The Project site would include 104 truck stalls located along the western and southern boundaries of the site. Truck stalls would permit overnight parking. Parking for the proposed Project would include 69 passenger vehicle stalls. Four spaces will be provided for compliance with the Americans with Disabilities Act (ADA), two of which will be van accessible.

Access to the site would be via two ingress/egress drives along the west side of Margurite Street. The northernmost proposed access would be a 35-foot driveway that would allow for a full range of left- and right-turn movements by passenger vehicles accessing the fueling area and convenience store and restaurant. This entrance is located approximately 300 feet south of the Margurite Street/SR 20 intersection. The second proposed entrance is located approximately 280 feet south of the first and would provide a 53-foot two-way driveway for trucks only; this access would lead directly to the proposed truck fueling stations where they could follow the drive counterclockwise and back out the access driveway to exit.

Utilities

Water, waste water, and storm drain service will be provided by the City of Williams. The City provides utilities concurrently with development consistent with the Policy 5.1 of the 2012 General plan. Solid waste, green waste and recycling will be provided by Recology; who provides service for Colusa and

Butte Counties. Police protection services will be provided by the City of Williams Police Department. Fire protection will be provided by the Williams Fire Protection Authority. The project will connect to PG&E electric lines located in underground conduit in the Margurite Street right-of-way.

Water: The City of Williams would provide water service to the project site. The project would connect to an 8" lateral that connects to the 12" main line located within the Margurite Street right-of-way. There are no off-site improvements require water service. Three fire hydrants are located on the east side of Margurite Street between SR 20 and the future Wallace Street. A 60,000 gallon fire water storage tank and fire pump house will be located at the southwest corner of the site.

Sewer: The City of Williams would provide waste water service to the project site. The project would connect to the sanitary sewer line located in the Margurite Street right-of-way. There are no off-site improvements that require waste water service.

Storm Drainage: Stormwater runoff from the developed portion of the site would be collected in a series of at grade concrete swales, catch basins, and a pipe conveyance system that would convey flows the storm drain pipe located in the Margurite Street right-of-way.

State regulations and City standards require source control and treatment controls to be included in project design to reduce to the maximum extent practicable pollutants in stormwater runoff. Before the City issues a grading permit for the project, it will require the applicant to provide a detailed site plan identifying where each of the specific stormwater quality best management practices (BMPs) will be located, along with hydrologic and hydraulic calculations showing how stormwater would be managed in accordance with the Phase II Small MS4 General Permit (Order No. 2013-0001-DWQ) Section E.12 (Post-Construction Storm Water Management Program).

The project design includes several BMPs to prevent pollutants from contacting stormwater so that runoff from the site does not contaminate the GCID ditch. Proposed source control features included in project design are:

- **Fuel-Dispensing Area:** The fueling islands would consist of a concrete slab and canopy with a hydraulically isolated drainage system. The drainage system would be a concrete swale directing any fuel spill or stormwater runoff to a perimeter trench drain that discharges into an oil/water separator with an emergency shut-off valve. Any discharge that flows through the oil/water separator and perimeter trench drain would drain to the sanitary sewer system.
- **Tire Shop:** The Tire Shop would have a permanent roof and would include floor materials consisting of concrete to prevent infiltration of polluted wash water. It would have an independent and isolated drainage system that would discharge to the sanitary sewer.
- **Trash Enclosure:** The trash enclosure, which would be on the west side of the site would be constructed with a material base that is impervious to spills, and would be covered with a permanent roof. The area would have an independent and isolated drainage system that would discharge to the sanitary sewer.
- **Storm Drain Signage:** Storm drain message markers would be placed at all storm drain inlets in the project site.

Construction Schedule

It is anticipated it would take approximately six to seven months to construct the project (approximately two month for earthwork, three months for paving and building, and one month for finish work). Construction activities must be conducted in accordance with the City's General Plan Noise Element and limited to the daylight hours between 7:00 a.m. and 7:00 p.m. on any weekday, and 8:00 a.m. and 5:00 p.m. on weekends and federal holidays, unless an exception is made by the City in order to alleviate traffic congestion and safety hazards.

Initial Study/ Potential Environmental Effects

An initial study was not prepared because the City determined that an EIR is required for the Project (Sections 21080(b), 21080.2 and 21160, California Public Resources Code). The EIR will analyze the reasonably foreseeable direct, indirect and cumulative effects (e.g., climate change) of the Proposed Project and on a wide range of resources, including but not limited to:

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

Comments provided in response to the NOP and during the scoping meeting, and ensuing analyses, may identify additional environmental resources to be evaluated.

Public Scoping Meeting

The City will have a Scoping Meeting to: 1) inform the public and interested agencies about the proposed project; and 2) solicit public comment on the scope of the environmental issues to be addressed in the Draft Environmental Impact Report.

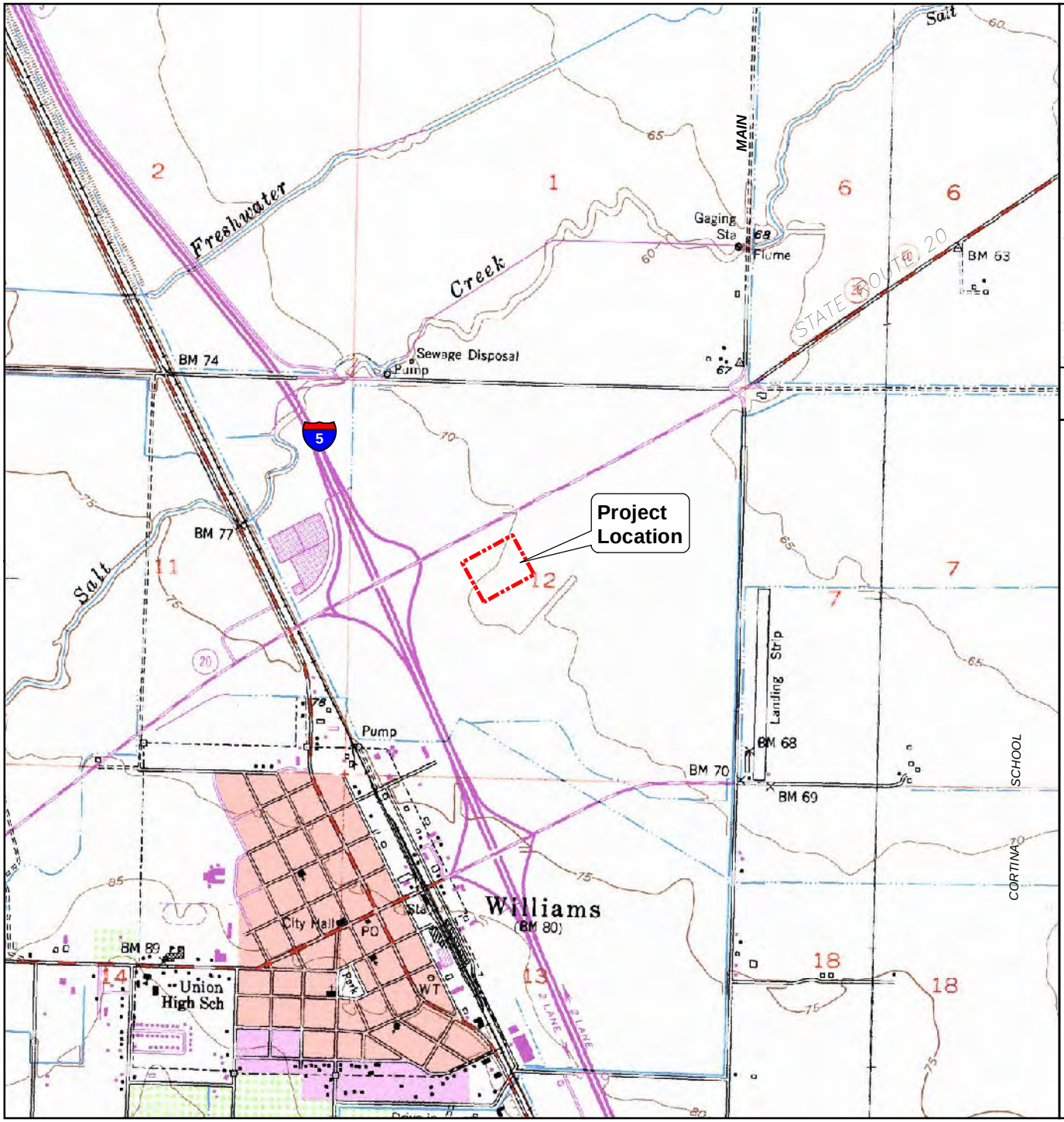
Date/Time: 9 February 2016, 6-7:30 PM

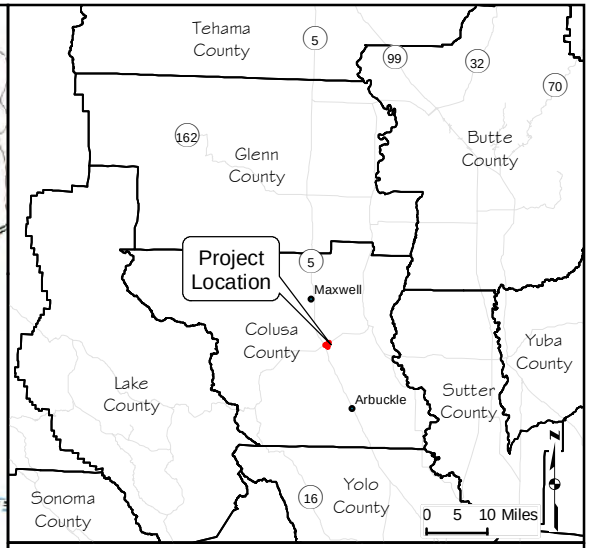
Location: Williams City Hall, 810 E St

Date: 14 January 2016

Signature: Maria Stegall

Title: Assistant City Planner





Love's Country Store
City of Williams, CA
14 January 2016

Figure 1. Project Location Map

Project Location

2,000 1,000 0 2,000 Feet

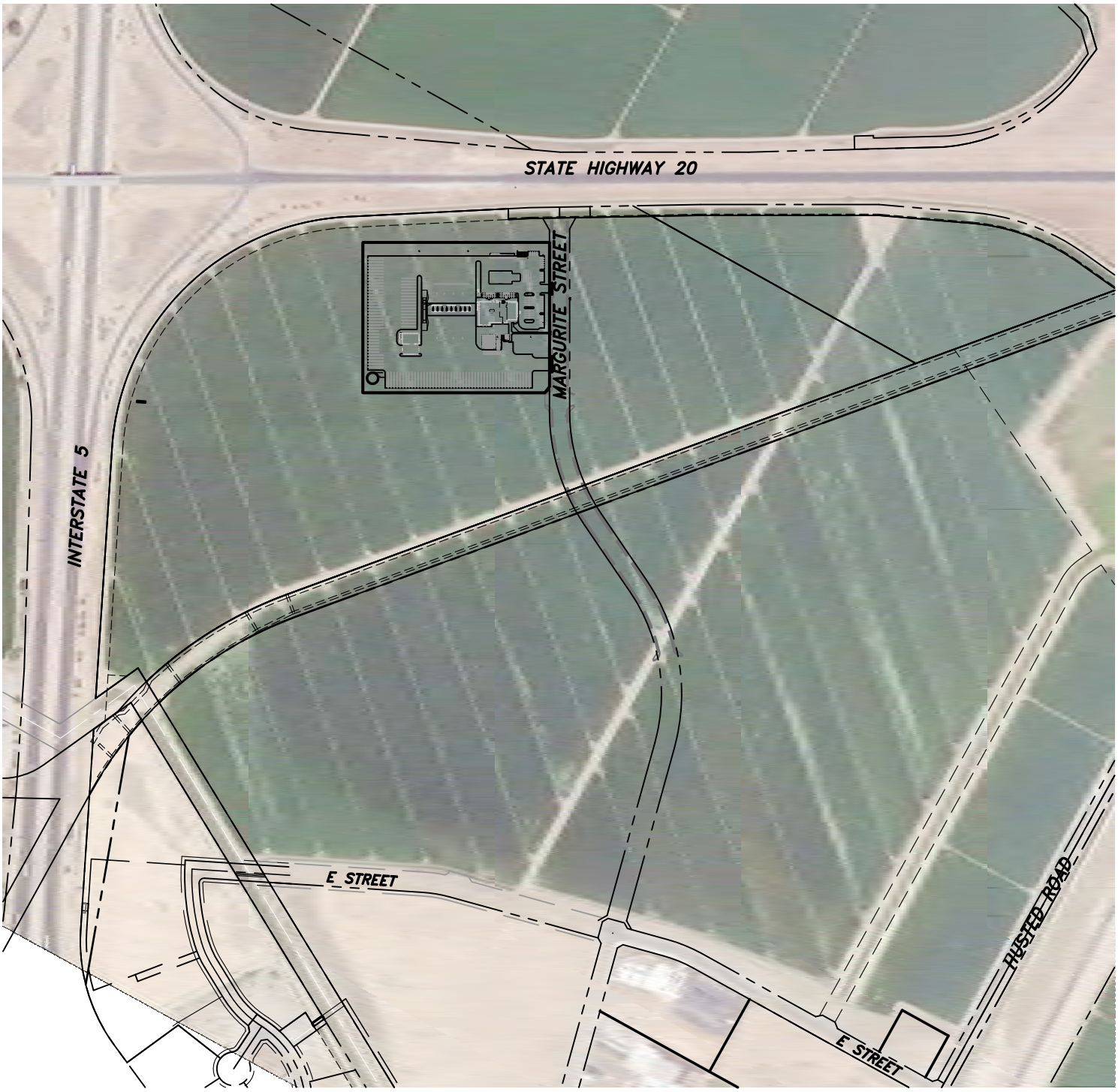
Scale: 1 inch = 2,000 feet

N

SYCAMORE Environmental Consultants, Inc.

Williams, CA (Revised 1994) &
Colusa, CA (Photoinspected 1991)
CASIL California USGS Digital Raster Graphics (DRG),
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
o_nw0302.sid

14024PotCommDev_Fig1LocationMap.mxd



0 300 600 1200

LM

SCALE: 1"=600'

Figure 2 ***CONTEXTUAL AERIAL EXHIBIT***

FOR

LOVES

LOCATED IN A PORTION OF SECTION 12, TOWNSHIP 15 NORTH, RANGE 3 WEST, MOUNT DIABLO BASE AND MERIDIAN, CITY OF WILLIAMS, COLUSA COUNTY, CALIFORNIA

SHEET 1 OF 1 *AUGUST 11, 2015*

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CALIFORNIA 95695 · PHONE: (530) 662-1755
P.O. BOX 828, WOODLAND, CALIFORNIA 95776 · FAX: (530) 662-4602

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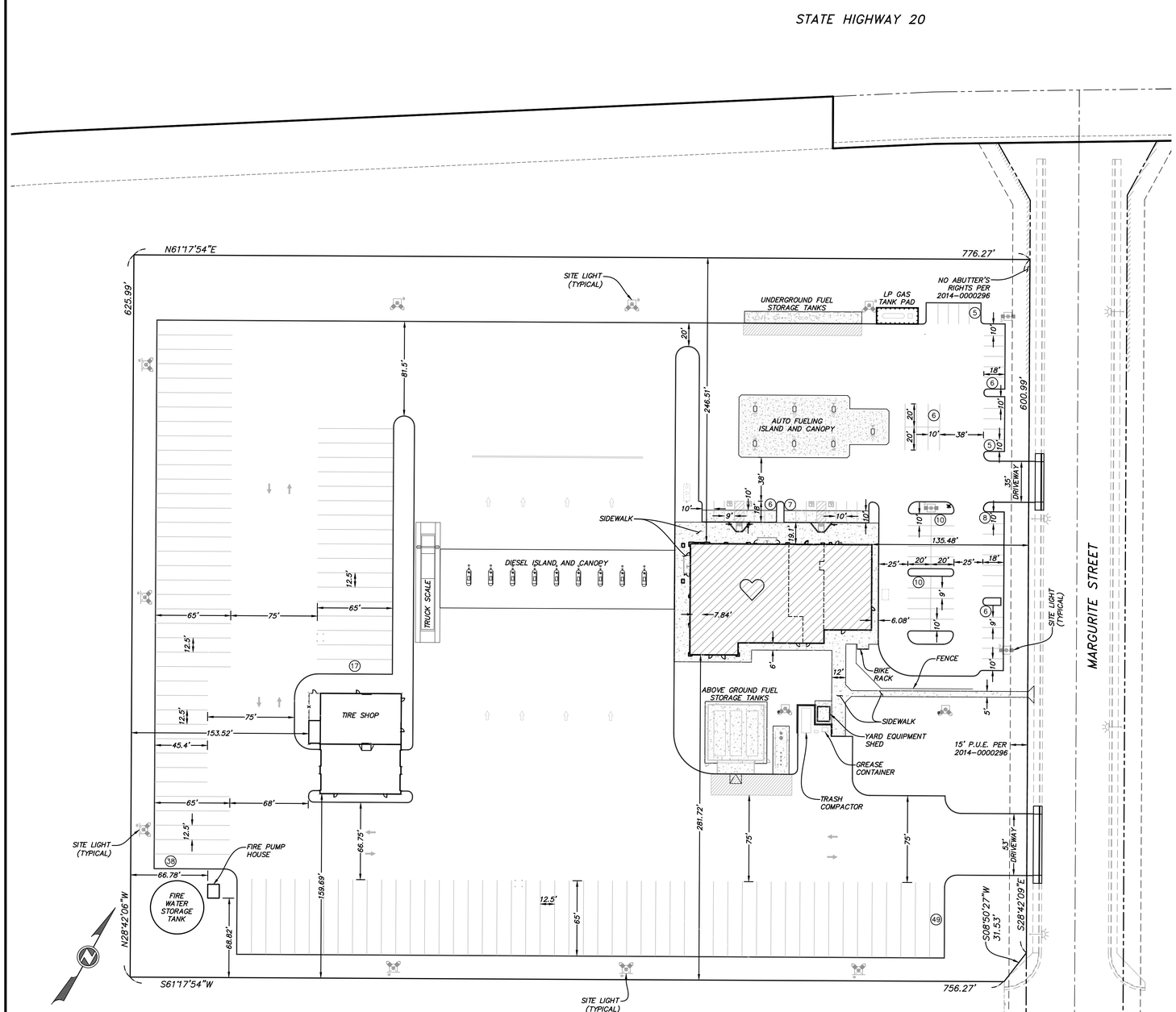
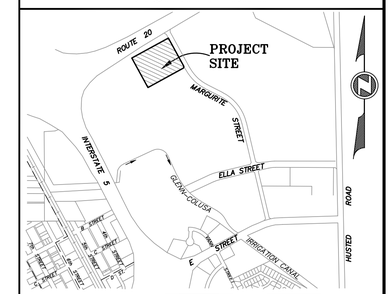


OVERALL SITE PLAN

0 25 50 100

SCALE: 1"=50'

VICINITY MAP



NOTES

ZONING:	(BP) BUSINESS PARK
APN:	0016-070-116
EXISTING USE:	AGRICULTURE
PROPOSED USE:	COMMERCIAL
GROSS AREA:	485,696 SF, 11.15± ACRES
EXISTING STRUCTURES:	0
PROPOSED STRUCTURES:	3
IMPERVIOUS AREA:	74% (362,023 SF)
PLANTED AREAS:	123,673 SF

OFF-STREET PARKING (#)

	SIZE	SPACES REQUIRED	TRUCK SPACES PROVIDED	AUTO SPACES PROVIDED	ADA SPACES REQUIRED*	ADA SPACES PROVIDED	VAN ACCESSIBLE SPACES REQUIRED	VAN ACCESSIBLE SPACES PROVIVED
LOVE'S								
1 space/250 sf	8,015 SF	33						
IHOP								
1 space/60 sf of Dining Space	1,970 SF	33						
1 space/100 sf of Kitchen Space	1,114 SF	12						
CHESTER'S/GODFATHER'S								
1 space/60 sf of Dining Space	735 SF	13						
1 space/100 sf of Kitchen Space	1,560 SF	16						
TIRE SHOP								
1 space/250 sf of Retail	3,278 SF	13						
4 spaces + 1 space/service bay	2 Bays	6						
TOTAL		**126**	**104**	**69**	**3**	**4**	**1**	**2**

*Number of ADA spaces required is based on number of auto saces provided.

DESIGNED BY PF
DRAWN BY PF
CHECKED BY BPB

REV.	DATE	DESCRIPTION	BY	APP'D.

LM LAUGENOUR AND MEIKLE
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
608 COURT STREET, WOODLAND, CALIFORNIA 95695 · PHONE: (530) 662-1755
P.O. BOX 828, WOODLAND, CALIFORNIA 95776 · FAX: (530) 662-4602
BY BRYAN P. BONINO
DATE P.E. 41804
REGISTERED PROFESSIONAL ENGINEER BRYAN P. BONINO No. 41804 CIVIL STATE OF CALIFORNIA

SITE PLAN FOR
LOVE'S TRAVEL CENTER
CITY OF WILLIAMS CALIFORNIA

Figure 3 SITE PLAN

SCALE 1"=50'
CAD FILE: 3927_P01
DATE: 08-11-15
JOB NO. 3927
SHEET 1 OF 1

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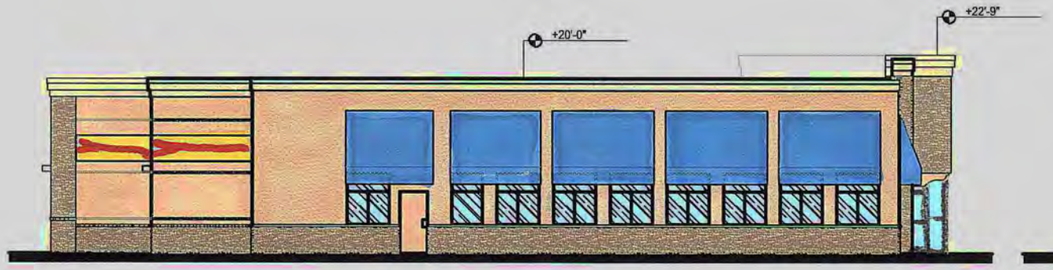
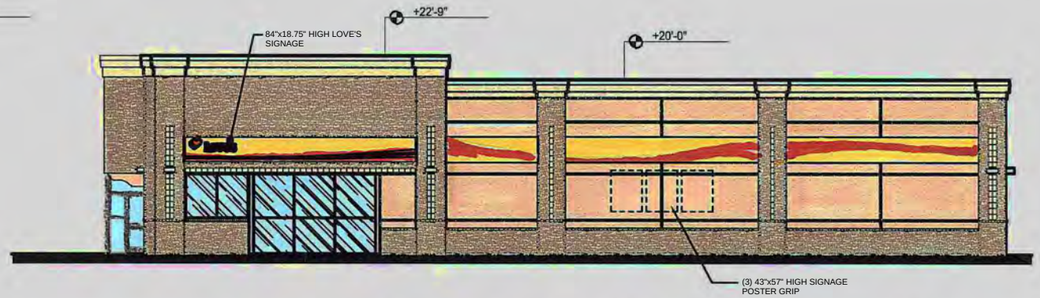
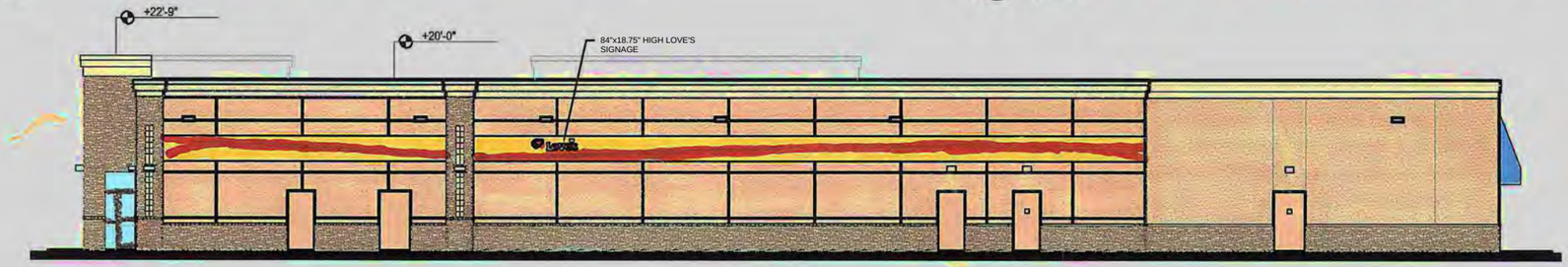
A - EXTERIOR ELEVATIONS CONCEPT- FRONT
SCALE:



B - EXTERIOR ELEVATIONS CONCEPT- LEFT SIDE
SCALE:



C - EXTERIOR ELEVATIONS CONCEPT- RIGHT SIDE
SCALE:



D - EXTERIOR ELEVATIONS CONCEPT- REAR
SCALE:

Love's
Travel Stops & Country Stores
WILLIAMS, CALIFORNIA

gsb
3555 N.W. 58th Street
Suite 700W
Oklahoma City, OK 73112
T: 405.948.9545
F: 405.948.9783
www.gsb-inc.com

08-07-2015

CULTURED STONE:
FIELD STONE = EUCALYPTUS, COUNTRY LEDGESTONE (CSV-20050)
WATERTABLE= TAUPE (SWT-1375)
TRIM STONE= CHAMPAGNE (WDM-1263)

E.I.F.S.:
COLOR 1: DRYVIT #449 BUCKSKIN
COLOR 2: DRYVIT #117 COLONIAL TAN

- E.I.F.S. CROWN SHALL HAVE THE DRYVIT "SANDPEBBLE" TEXTURE
- ALL OTHER E.I.F.S. SHALL HAVE THE DRYVIT "QUARTZPUTZ" TEXURE
- IHOP E.I.F.S. COLOR: OBELISK # IHOP 051021 SANDPEBBLE TEXTURE
- IHOP E.I.F.S. COLOR: BRUSHWOOD # IHOP 060070 SANDPEBBLE TEXTURE

Figure 4. Exterior Elevation Concepts and Finishes

PLANT LEGEND *(proposed plantings to be used)*

Key	Botanical Name - Common Name	Size	QUA.	PF**	Symbol
TREES					
T1	Phoenix canariensis - Canary Island Date Palm	#15	L		
T2	Lagerstroemia i. 'Natchez' Std. - White Crape Myrtle Std.	#15	L		
T3	Pistacia chinensis 'Keith Davey' - Chinese Pistache	#15	L		
T4	Pinus canariensis - Canary Island Pine	#15	L		
T5	Platanus x acerifolia 'Yarwood' - London Plane Tree	#15	M		
T6	Zelkova serrata 'Green Vase' - Sawleaf Zelkova	#15	M		

Key	Botanical Name - Common Name	Size	QUA.	PF**	Symbol
SHRUBS					
S1	Berberis thunbergii 'Crimson Pygmy' - Dwarf Japanese Barberry	#5	L		
S2	Chamaerops humilis - Mediterranean Fan Palm	#5	L		
S3	Ilex vomitoria 'Nana' - Dwarf Yaupon Holly	#5	M		
S4	Juniperus scopulorum 'Sky Rocket' - Sky Rocket Juniper	#5	L		
S5	Loropetalum chinensis 'Razzle Dazzle' - Chinese Fringe Flower	#5	M		
S6	Mahonia repens - Creeping Oregon Grape	#5	L		
S7	Nandina domestica 'Gulf Stream' - Gulf Stream Heavenly Bamboo	#5	L		
S8	Pittosporum tobira 'Wheeler's Dwarf' - Wheeler's Dwarf Pittosporum	#5	M		
S9	Rhaphiolepis indica 'Ballerina' - Dwarf Pink India Hawthorne	#5	L		
S10	Rosa x 'Noare White' - White Flower Carpet Rose	#2	M		
S11	Salvia clevelandii 'Pozo Blue' - Hybrid California Sage	#5	L		
S12	Teucrium fruticans - Germander	#5	L		
S13	Viburnum tinus 'Spring Bouquet' - Laurustinus	#5	M		

Key	Botanical Name - Common Name	Size	QUA.	PF**	Symbol
PERENNIALS					
P1	Agapanthus africanus 'Peter Pan' - Dwarf Lily of the Nile	#1	M		
P2	Dietes vegeta - Fortnight Lily	#1	L		
P3	Festuca ovina 'Elijah Blue' - Blue Fescue	#1	L		
P4	Hemerocallis 'Stella D'Oro' - Dwarf Yellow Day Lily	#1	M		
P5	Muehlenbergia rigens - Deer Grass	#1	L		
P6	Tulbaghia violacea 'Variegata' - Variegated Society Garlic	#1	M		
VINES					
V1	Ficus pumila - Creeping Fig, staked	#1	M		
V2	Solanum jasminoides - Potato Vine	#5	M		

SOD LAWN Hybrid Bermuda 'Celebration or Tifway 419' Sod
DELTA BLUEGRASS COMPANY
(209) 469-7979
1-800-637-8873

Key	Botanical Name - Common Name		PF**
GROUND COVERS			
GC1	Arctostaphylos densiflora 'Pt. Reyes' - Manzanita Plant 1 gal. @ 36" o.c.	#1	L
GC2	Baccharis pilularis 'Twin Peaks' - Coyote Bush Plant 1 gal. @ 36" o.c.	#1	L
GC3	Cotoneaster d. 'Lowfast' - Lowfast Cotoneaster Plant 1 gal. @ 48" o.c.	#1	L
GC4	Rosmarinus officinalis 'Prostratus' - Trailing Rosemary Plant 1 gal. @ 36" o.c.	#1	L

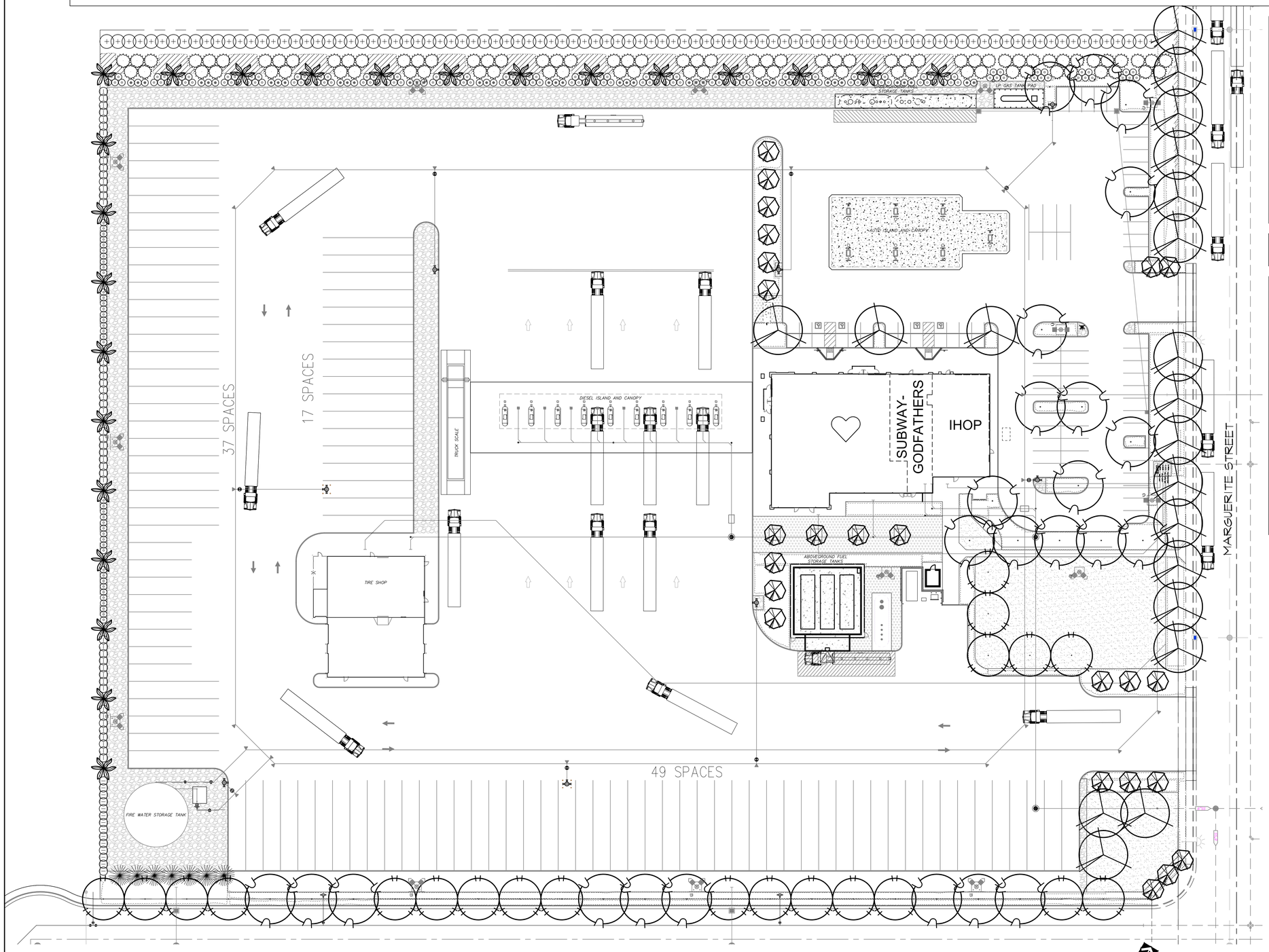


Figure 5. LANDSCAPE MASTER PLAN

SCALE: 1"=30'

NOTES:

A. Place 2" depth ¾" 'Sonoma Gold' crushed rock over landscape fabric in swales as shown, under stairways and utility access areas or as indicated on plan. Install 'Permaloc Clean Line' ⅜" x 4" aluminum edging with mill finish (MF), between crushed rock and adjacent shrub bed.

B. Place 2" -3" size washed cobble over landscape fabric in swales as indicated, in low lying areas or at drop inlets as required.

C. Install 'Permaloc Clean Line' ⅜" x 4" aluminum edging with mill finish (MF), between lawn areas, crushed rock and adjacent shrub beds.

D. As per the WELO, the Landscape Contractor is responsible for obtaining a soils report. The soils test shall be collected after grading operations and prior to installation of landscape materials. The Landscape Contractor shall install all soil amendments, as recommended or better, to correct deficiencies noted by the soils report

** PF: WUCOLS Species Evaluation List--1999

*** NO SUBSTITUTIONS WITHOUT PRIOR WRITTEN CONSENT FROM THE LAND. ARCH.

"I have complied with the criteria of the Model Water Efficient Landscape Ordinance and applied them for the efficient use of water in the landscape design plan"

GENERAL NOTES:

A. The landscape plans will comply with the requirements of the water efficient landscape ordinance:
Elements of the Landscape Documentation Package:
(a) The Landscape Documentation Package shall include the following six (6) elements:
(1) project information:
(A) date
(B) project applicant
(C) project address (if available, parcel and/or lot number(s))
(D) total landscape area (square feet)
(E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
(F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well
(G) checklist of all documents in Landscape Documentation Package
(H) project contacts to include contact information for the project applicant and property owner
(I) applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".
(2) Water Efficient Landscape Worksheet;
(A) hydro-zone information table
(B) water budget calculations
1. Maximum Applied Water Allowance (MAWA)
2. Estimated Total Water Use (ETWU)
(3) soil management report;
(4) landscape design plan;
(5) irrigation design plan; and
(6) grading design plan.

THOMAS H. PHELPS
LANDSCAPE ARCHITECTURE

California Landscape Architect #4122
P.O.BOX 8328
Chico, CA 95927-8328
(530)892-8897 fax (530)892-9588
thphelps@sbcglobal.net
THPLARCH.com

LOVES TRAVEL CENTER LANDSCAPE IMPROVEMENT PLANS

MARGUERITE STREET
WILLIAMS, CALIFORNIA

These drawings are instruments of service and are the property of Thomas H. Phelps Landscape Architecture. All designs and other information on the drawings are for the use on the specified project and shall not be used otherwise without the express written permission of Thomas H. Phelps Landscape Architecture.

Sheet Title
LANDSCAPE MASTER PLAN

Seal
LICENSED LANDSCAPE ARCHITECT
THOMAS H. PHELPS 4122
08/31/16
Renewal Date
Date
STATE OF CALIFORNIA

No.	Date	Revision
△		
△		
△		
△		
△		

Project Mgr.:	THP
Drawn By:	THP
Scale:	1"=30'
Date:	8/3/15
File Name:	

Sheet No.: L

of X *sheets*

DEPARTMENT OF TRANSPORTATION
DISTRICT 3
703 B STREET
MARYSVILLE, CA 95901
PHONE (530) 741-4199
FAX (530) 741-5346
TTY 711

Flex your power!
Be energy efficient!

February 4, 2016

FMP # 032016COL0001
03-COL-20/PM 22.429

Ms. Monica Stegall
City of Williams Planning and Zoning Department
P.O. Box 310
Williams, CA 95987

Love's Country Stores

Dear Ms. Monica Stegall,

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for Love's Country Stores. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System in keeping with our mission, vision and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl.

The proposed project is located on 11.15 acres at the intersection of Margurite Street and State Route (SR) 20 in Williams. This project includes the construction and operation of a Love's Country Store including fueling stations with 23 fueling positions, a 13,582 square- foot convenience store with an attached restaurant space for three vendors, and a separate 6,322 square foot tire shop. These comments are based on the Notice of Preparation received.

Traffic Operations

- On Page 4, a 20 million gallon underground tank is referenced in the second paragraph. Please correct for accuracy.

Forecasting

- Because this project will generate more than 100 PM peak hour trips onto State facilities, it will be necessary to adequately assess impacts on the State Highway System (SHS) through a Traffic Impact Study (TIS).

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development.

If you have any questions regarding these comments or require additional information, please contact David Smith, Intergovernmental Review Coordinator for Glenn County at (530) 634-7799 or by email at david.j.smith@dot.ca.gov.

Sincerely,

Susan Zanchi

SUSAN ZANCHI, Chief
Office of Transportation Planning – North

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

9 February 2016

Monica Stegall
City of Williams
P.O. Box 310
Williams, CA 95987

CERTIFIED MAIL
91 7199 9991 7035 8364 3304

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE ENVIRONMENTAL IMPACT REPORT, LOVE'S COUNTRY STORES PROJECT, SCH# 2016012029, COLUSA COUNTY

Pursuant to the State Clearinghouse's 15 January 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Environment Impact Report* for the Love's Country Stores Project, located in Colusa County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State
If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit
If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.

Stephanie Tadlock

Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

Edmund G. Brown Jr., Governor

February 9, 2016

Monica Stegall
City of Williams
P.O. Box 310
Williams, CA 95987

RE: SCH# 2016012029, Love's Country Stores

Dear Ms. Stegall:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
   a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.
ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
   i. Protecting the cultural character and integrity of the resource.
   ii. Protecting the traditional use of the resource.
   iii. Protecting the confidentiality of the resource.
c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52

and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Sincerely,

Joshua Standing Horse
Associate Governmental Program Analyst
cc: State Clearinghouse

From:	Monica Stegall
To:	Adam C. Forbes; Jeffery Little
Subject:	FW: CEQA Comment: Love"s Country Stores (SCH 2016012029)
Date:	Monday, February 01, 2016 9:46:27 AM

Comment Letter

From: Calderaro, Angela@Wildlife [mailto:Angela.Calderaro@wildlife.ca.gov]
Sent: Friday, January 29, 2016 10:56 AM
To: Monica Stegall
Cc: Wildlife R2 CEQA
Subject: CEQA Comment: Love's Country Stores (SCH 2016012029)

Good morning Ms. Stegall,
The California Department of Fish and Wildlife (CDFW) has reviewed the Notice of Preparation (NOP) regarding the Draft Environmental Impact Report (DEIR) for the Love's Country Stores Project (SCH# 2016012029). As a trustee for California's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Fish & G. Code, § 1802). CDFW may also act as a Responsible Agency (Cal. Code Regs., § 21069) for a project where it has discretionary approval power under the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) and the Lake and Streambed Alteration Program (Fish & G. Code, § 1600 et seq.). CDFW also administers the Native Plant Protection Act, Natural Community Conservation Program, and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources. CDFW offers the following comments and recommendations for this project in our role as a trustee and responsible agency pursuant to the California Environmental Quality Act (CEQA).

ENVIRONMENTAL SETTING
CDFW recommends that the DEIR includes a complete assessment of the existing biological conditions within the project area including but not limited to the type, quantity and locations of the habitats, flora and fauna. Adequate mapping and information regarding the survey efforts should be included within the DEIR. All surveys as well as the environmental analysis should be completed by qualified personnel with sufficient experience in the work performed for the project.

To identify a correct environmental baseline, the DEIR should include a complete and current analysis of endangered, threatened, candidate, and locally unique species. CEQA guidelines section 15125, subdivision (c) requires lead agencies to provide special emphasis to sensitive habitats and any biological resources that are rare or unique to the area.

CDFW recommends that the California Natural Diversity Database (CNDDB), as well as previous studies performed in the area, be consulted to assess the potential presence of sensitive species and habitats. Recent surveys for the different species that have the potential to be present within the project limits and its vicinity shall be included within the DEIR. Additional information regarding survey protocols can be obtained by contacting CDFW. Of particular concern is the project's potential to impact the following special-status species: State-listed Swainson's hawk, the State-listed giant garter snake and species of special concern burrowing owl, among others.

Species-specific surveys should be conducted in order to ascertain the presence of species with the potential to be present within the project vicinity. CDFW recommends that the lead agency use survey protocols previously approved by CDFW and that an assessment for rare plants and rare natural communities follow CDFW's 2009 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. The guidance document is available here: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/protocols_for_surveying_and_evaluating_impacts.pdf.

IMPACT ANALYSIS AND MITIGATION MEASURES

The DEIR should clearly identify and describe all short-term, long-term, permanent, or temporary impacts to biological resources under CDFW's jurisdiction, including all direct and foreseeable indirect impacts caused by the proposed project. The DEIR should define the threshold of significance for each impact and describe the criteria used to determine each threshold (CEQA Guidelines, § 15064, subd. (f).) The DEIR must demonstrate that the significant environmental impacts of the project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context.

CDFW is concerned that the proposed project may result in direct, indirect and cumulative adverse impacts to environmental and Public Trust resources within the project area. The project area may be impacted by reducing riparian and terrestrial habitats, including habitats for sensitive species with the system and could result in the direct "take" of State-listed species.

CDFW recommends the use of survey and monitoring protocols and guidelines available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html. CDFW also recommends that the environmental documentation provide scientifically supported discussion and adequate avoidance, minimization, and/or mitigation measures to address the project's impact upon fish and wildlife and their habitat. CDFW recommends that the environmental documentation identify natural habitats and provide a discussion of how the proposed project will affect their function and value.

The DEIR should discuss project's cumulative impacts to natural resources and determine if that contribution would result in a significant impact. The DEIR should include a list of present, past, and probable future projects producing related impacts to resources under CDFW's jurisdiction or shall include a summary of the projections contained in an adopted local, regional, or statewide plan, that consider conditions contributing to a cumulative effect. The cumulative analysis shall include impact analysis of vegetation and habitat reductions within the area and their potential cumulative effects.

The DEIR should incorporate mitigation performance standards that would ensure that significant impacts are reduced as expected. Mitigation measures proposed in the DEIR should be made a condition of approval of the project. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral.

THREATENED, ENDANGERED, CANDIDATE SPECIES

The project area as shown in the NOP includes habitat for State and federally listed species. If during the environmental analysis for the project, it is determined that the project may have the potential to result in "take", as defined in the Fish and Game Code, section 86, of a State-listed species, the DEIR shall disclose an Incidental Take Permit (ITP) or a consistency determination (Fish & G. Code, §§

2080.1 & 2081) may be required prior to starting construction activities. The DEIR must include all avoidance and minimization to reduce the impacts to a less than significant level. If impacts to listed species are expected to occur even with the implementation of these measures, mitigation measures shall be proposed to fully mitigate the impacts to State-listed species (Cal. Code Regs., tit. 14, § 783.2, subd.(a)(8)). CDFW encourages early coordination to determine appropriate measures to offset project impacts and facilitate future permitting processes and to coordinate with the U.S. Fish and Wildlife Service to coordinate specific measures if federally listed species are present within the project limits.

JURISDICTIONAL DELINEATION AND WETLANDS

The DEIR should identify all the areas under CDFW's jurisdiction per section 1602 of the Fish and Game Code. These areas include all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state and any habitats supported by these features such as wetlands and riparian habitats. If these jurisdictional features are found within the project limits or its vicinity, the DEIR should identify any potential impacts to these resources. The DEIR should include a delineation of lakes, streams, and associated habitat that will be temporarily and/or permanently impacted by the proposed project including an estimate of impact to each habitat type. Please note that the CDFW definition of wetlands as well as extent of the jurisdictional areas differ from other agencies such the U.S. Army Corps of Engineers or the Regional Water Quality Control Board. The DEIR should identify the different jurisdictional areas present within the project limits under each agency. If it is determined that the project would impact areas under CDFW's jurisdiction the DEIR must propose mitigation measures to avoid, minimize, and mitigate impacts to these resources.

MIGRATORY BIRDS AND BIRDS OF PREY

Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C., §§ 703-712). CDFW implemented the MBTA by adopting the Fish and Game Code section 3513. Fish and Game Code sections 3503, 3503.5 and 3800 provide additional protection to nongame birds, birds of prey, their nests and eggs. Potential habitat for nesting birds and birds of prey is present within the project area. The proposed project should disclose all potential activities that may incur a direct or indirect take to nongame nesting birds within the project footprint and its close vicinity. Appropriate avoidance, minimization, and/or mitigation measures to avoid take must be included in the DEIR. Measures to avoid the impacts should include species specific work windows, biological monitoring, installation of noise attenuation barriers, etc.

SUMMARY

The proposed project will have an impact to fish and/or wildlife habitat and should be evaluated in such a manner to reduce its impacts to biological resources. Assessment of fees under Public Resources Code §21089 and as defined by Fish and Game Code section 711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Pursuant to Public Resources Code §21092 and §21092.2, the Department requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife Region 2, 1701 Nimbus Road, Rancho Cordova, CA 95670.

Thank you for considering our concerns for the proposed project and providing the opportunity to comment on the NOP. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts. If you have questions, please don't hesitate to contact me.

Regards,

Angela Calderaro
Senior Environmental Scientist (Specialist)
Habitat Conservation Branch
California Department of Fish and Wildlife, North Central Region
1701 Nimbus Road, Rancho Cordova CA 95670
Office: 916-358-2920
Fax: 916-358-2912
Angela.Calderaro@wildlife.ca.gov
www.wildlife.ca.gov

To report a violation please notify the Californians Turn in Poachers and Polluters (CalTIP) program by calling 1-888-DFG-Caltip or texting "tip411" (numerically, 847411 – Start message with "Caltip") You can even send photos via text. Also, the CalTIP App can be downloaded for free via the Google Play Store and iTunes App Store.

Note: I do not work most Thursdays.

Appendix B: Air Quality Assessment - Greenhouse Gas Emissions /Global Climate Change Study

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Air Quality and Greenhouse Gas Analysis Report
Love's Country Store Project
City of Williams, Colusa County, California

Prepared for:
City of Williams
P.O. Box 310
Williams, CA 95987

Contact: Ms. Monica Stegall, Assistant City Planner

Prepared by:
FirstCarbon Solutions
7265 N. First Street, Suite 101
Fresno, CA, 93720
559.246.3732

Contact: Dave Mitchell, Senior Air Quality Scientist

Date: April 19, 2016

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AQP	Air Quality Plan
ARB	California Air Resources Board
BAU	Business as Usual
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CCAPCD	Colusa County Air Pollution Control District
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
District	Colusa County Air Pollution Control District
DPM	diesel particulate matter
EMFAC	EMission FACtors Model
EPA	United States Environmental Protection Agency
GHG	greenhouse gases
IPCC	United Nations Intergovernmental Panel on Climate Change
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	metric tons of carbon dioxide equivalent
NO_x	nitrogen oxides
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
ROG	reactive organic gases
SB	Senate Bill
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_x	sulfur oxides
VOC	volatile organic compounds
YSAQMD	Yolo Solano Air Quality Management District

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SECTION 1: EXECUTIVE SUMMARY

1.1 - Purpose and Methods of Analysis

The following air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria air pollutant and GHG emissions generated from the Love's Country Store Project (project) would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The Colusa County and the City of Williams have not adopted guidance or thresholds of significance for this jurisdiction. In the absence of adopted thresholds, it is common practice to use thresholds that are based on other thresholds adopted by the local air pollution control district. In this case, the Colusa County Air Pollution Control District (CCAPCD) has adopted thresholds for stationary source projects that can be applied to development projects.

1.2 - Project Description

The project consists of the construction and development of a Love's Country Store in located at the southwest corner of State Route 20 and Margurite Street in the City of Williams, within Colusa County. The project would be constructed on 11.15 gross acres. The Assessor's Parcel Number associated with the project site is 016-070-119. The project lies within the Sacramento Valley Air Basin Air Basin. The project's regional vicinity location is shown in Exhibit 1; an aerial view of the local vicinity is provided in Exhibit 2; and the site plan design is provided in Exhibit 3.

The proposed project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The project would include a 13,582-square-foot convenience store with an attached restaurant space for three vendors and a separate 6,322-square-foot tire shop. The project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.

1.3 - Summary of Analysis Results

The following is a summary of the analysis results. As shown below, the project would result in less than significant impacts for all air quality and GHG impact criteria analyzed.

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. **Less than significant impact.**

Impact AIR-2: The project would not violate air quality standards or contribute substantially to an existing or projected air quality violation. **Less than significant impact.**

Impact AIR-3: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable

federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors). **Less than significant impact.**

Impact AIR-4: The project would not expose sensitive receptors to substantial pollutant concentrations. **Less than significant impact with mitigation.**

Impact AIR-5: The project would not create objectionable odors affecting a substantial number of people. **Less than significant impact.**

Impact GHG-1: The project would not generate direct or indirect greenhouse gas emissions that would result in a significant impact on the environment. **Less than significant impact.**

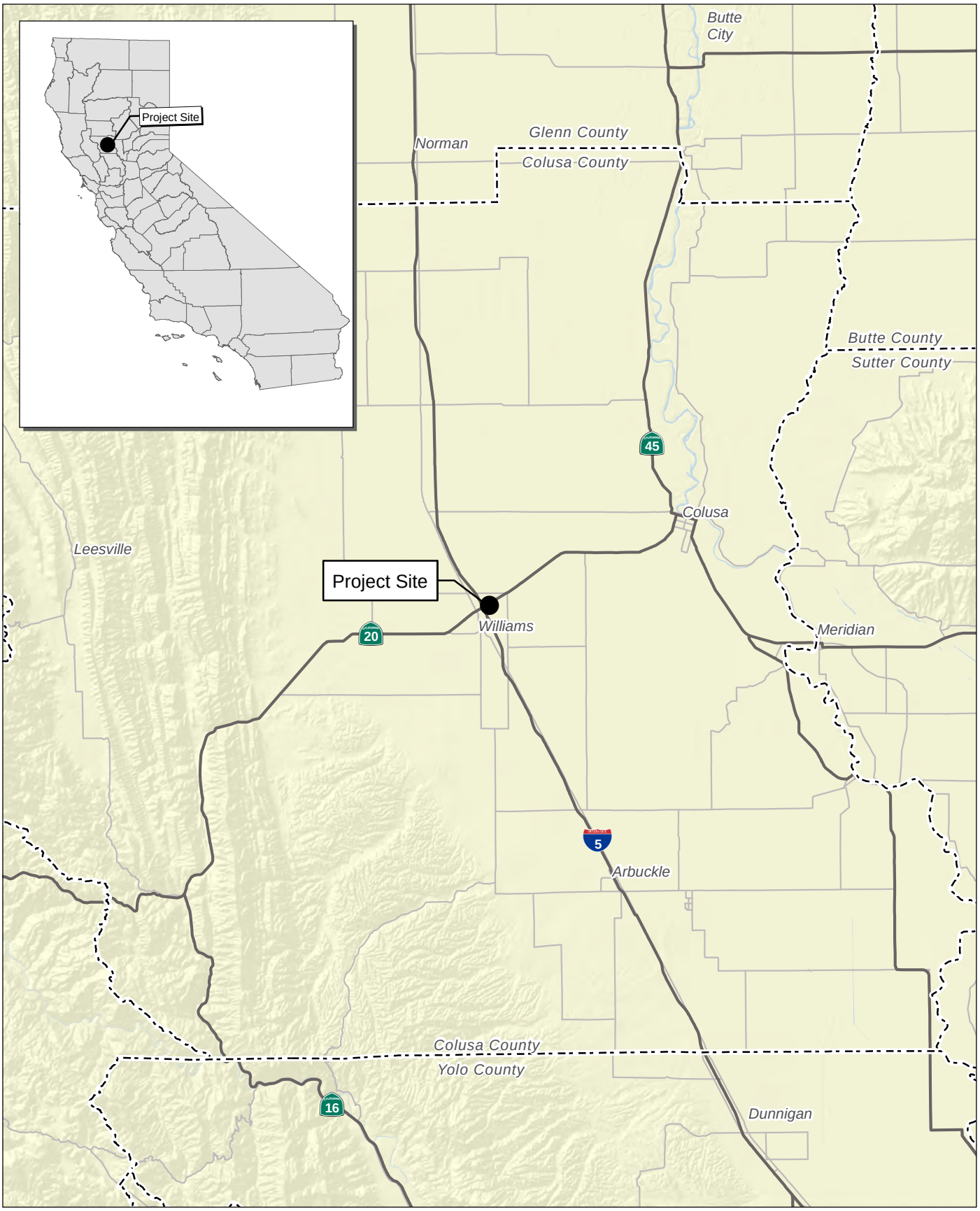
Impact GHG-2: The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases. **Less than significant impact**.

1.4 - Standard Conditions and Mitigation Measures Applied to the Project

One mitigation measures beyond compliance with mandatory regulations is required to demonstrate that the project would have less than significant air quality and GHG impacts:

MM-AIR-1: Implement Dust Control Measures sufficient to control fugitive dust during soil disturbing activities and during periods of inactivity to prevent windblown dust. The following measures shall be implemented as needed (frequency of application and need for specific measures are dependent on weather and actual construction activities occurring at any given time:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard, or cover all trucks hauling dirt, sand, or loose materials.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least 4 consecutive days).
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips or mulch, or treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.



Source: Census 2000 Data, The CaSIL, FCS GIS 2013.

FirstCarbon SOLUTIONS

5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

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Source: ESRI Imagery, 2014

FirstCarbon SOLUTIONS

1,000 500 0 1,000 Feet

Exhibit 2
Local Vicinity Map
Aerial Base

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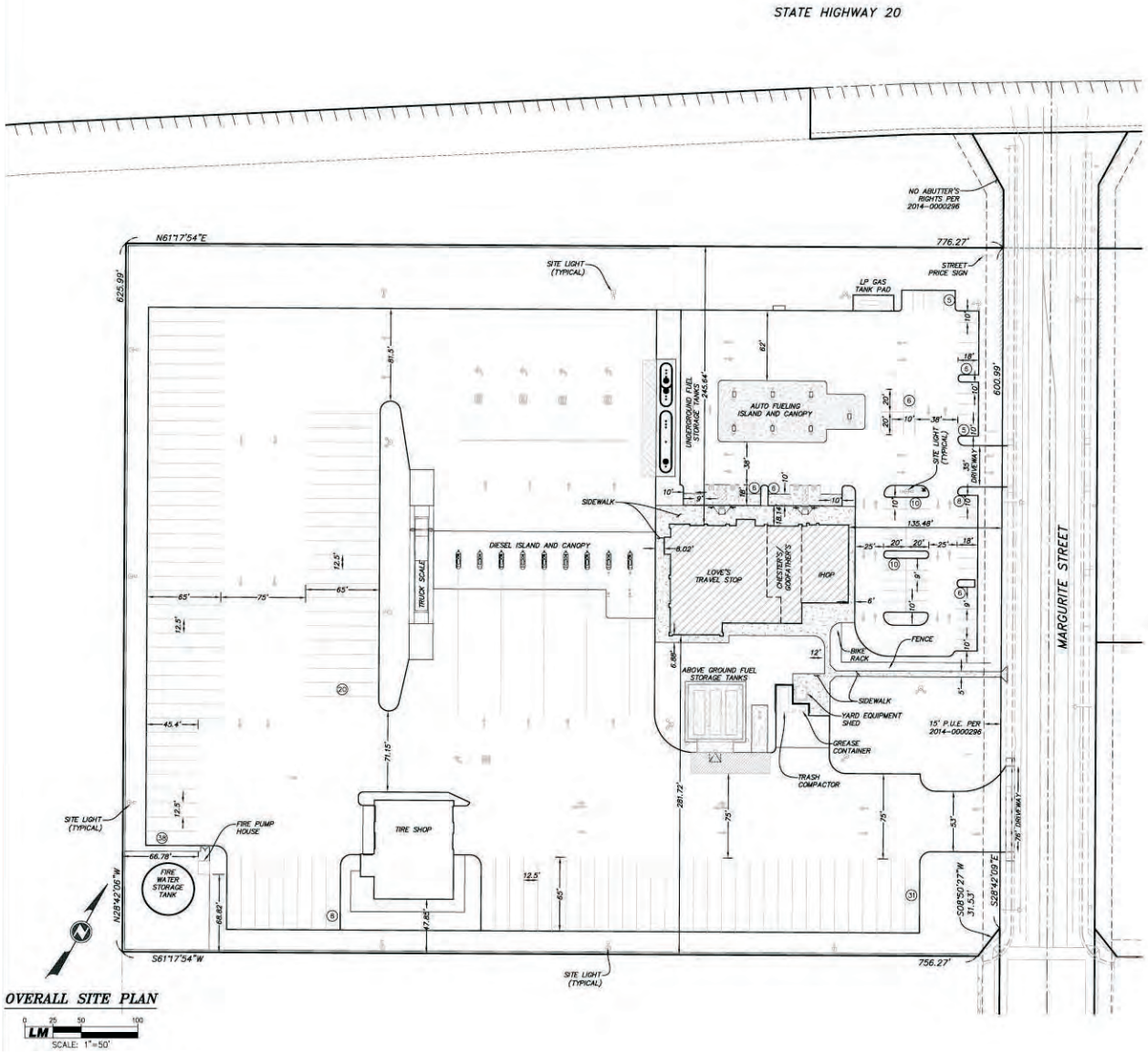

Source: Laugenour and Meikle, 2016

Exhibit 3
Site Plan

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SECTION 2: AIR QUALITY SETTING

2.1 - Environmental Setting

The project is located within the City of Williams in Colusa County, within the Sacramento Valley Air Basin (Air Basin). The Coast, Cascade, and Sierra Nevada Ranges bound the Air Basin on the west, north, and east. The Air Basin consists of all or portions of Shasta, Tehama, Glenn, Colusa, Yolo, East Solano, Sacramento, Placer, Sutter, Yuba, and Butte Counties. Air quality within the Colusa County portion of the Sacramento Valley Air Basin is regulated by the CCAPCD.

Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the Air Basin and the City of Williams.

2.1.1 - Sacramento Valley Air Basin

Topography

The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants and can channel air from upwind areas that transports pollutants to downwind areas. Elevations within the Air Basin range from a few feet above sea level at the southern end to 10,457 feet at the top of Mount Lassen in eastern Shasta County. The Air Basin is surrounded by the Coast Mountains to the west, the Cascade Mountains to the north, and the Sierra Nevada Mountains to the east. The variation in topography causes a wide variation in rainfall, temperature, and localized winds.

Elevations within the City of Williams range from approximately 110 feet above sea level to approximately 60 feet above sea level.

Climate and Meteorology

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, creating adverse air quality, or to rapidly disperse pollutants over a wide area preventing high concentrations from accumulating under different climatic conditions. Temperatures in the City of Williams range from highs between 80 degrees Fahrenheit (°F) to 110°F and lows ranging from 24°F to 44°F. The average annual rainfall in the project area, as recorded in the 2007 City of Williams Storm Water Master Plan, is 14.2 inches with primary rain events occurring between October and April (City of Williams 2012).

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants and, consequently, their effect on air quality.

Inversions are also an important component of regional air quality. In general, air temperature decreases with distance from the earth's surface, creating a gradient from warmer air near the ground to cooler air at elevation. Under normal circumstances, the air close to the earth warms as it absorbs surface heat and begins to rise. Winds occur when cooler air rushes in to take the place of the rising warm air. The wind and upward movement of air causes "mixing" in the atmosphere and can carry away or dilute pollution.

Inversions occur when warm air sits over cooler air, trapping the cooler air near the ground, when the temperature profile is 'inverted' from its usual state. These inversions trap pollutants from dispersing vertically and the terrain of the Air Basin can trap the pollutants from dispersing horizontally. The two most common types of inversions in the Northern Sacramento Valley Planning Area are subsidence and radiative. The strong inversions typical in summers are caused by subsidence, the slow sinking of air causing compressional warming. Localized shallow nighttime radiative inversions occur in the winter formed when air is cooled when it comes in contact with the earth's cold surface. Summer inversions occur on more than 90 percent of summer days, and winter radiative inversions occur on more than 70 percent of winter nights.

2.2 - Regulatory Setting

Air pollutants are regulated to protect human health and for secondary effects such as visibility and building soiling. The Clean Air Act of 1970 tasks the United States Environmental Protection Agency (EPA) with setting air quality standards. The State of California also sets air quality standards that are in some cases more stringent than federal standards, and address additional pollutants. The following section describes these federal and state standards and the health effects of the regulated pollutants.

2.2.1 - Clean Air Act

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970, and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards (EPA 2014). The federal standards are called National Ambient Air Quality Standards (NAAQS). The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO_2)
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (ARB 2016).

2.2.2 - California Clean Air Act

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation, and required additional actions beyond the federal mandates. The California Air Resources Board (ARB) administers California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the CCAA. The 10 state air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are less stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

2.2.3 - Toxic Air Contaminants

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. There are no ambient air quality standards for TAC emissions. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants. The 1990 Clean Air Act Amendments significantly expanded the EPA's authority to regulate hazardous air pollutants (HAP). Section 112 of the Clean Air Act lists 187 hazardous air pollutants to be regulated by source category. Authority to regulate these pollutants was delegated to individual states. ARB and local air districts regulate TACs and HAPs in California.

2.2.4 - Air Pollutant Description and Health Effects

The federal and state ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 1.

Table 1: Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_x, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_x) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.070 ppm[f]			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide[b] (NO_2)	1 Hour	0.18 ppm	0.100 ppm	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contribution to atmospheric discoloration; increased visits to hospital for respiratory illnesses.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO_x (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_x is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_x can react with compounds to form nitric acid and related small particles and result in PM-related health effects.	NO_x is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide (NO_2) forms quickly from NO_x emissions. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	0.030 ppm	0.053 ppm			

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide[c] (SO_2)	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_x) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. • Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 µg/m^3	—			
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3			
	Annual	12 µg/m^3	12.0 µg/m^3			
Visibility-reducing particles	8 Hour	See note below[d]				

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[e]	30-day	1.5 µg/m^3	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m^3			
	Rolling 3-month average	—	0.15 µg/m^3			
Vinyl chloride[e]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Volatile organic compounds (VOC)		There are no state or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROG), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROG and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Table 1 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources

Notes:
ppm = parts per million (concentration) µg/m^3 = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] To attain the 1-hour NO_2 national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb) (0.100 ppm).

[c] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[d] Visibility-reducing particles: In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

[e] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

f The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard will go into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and will become effective on December 28, 2015.

Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009a; U.S. Environmental Protection Agency 2003, 2009, 2009b, 2010, 2011, and 2012a; National Toxicology Program 2011a and 2011b.
Source of standards: California Air Resources Board 2013a.

Several pollutants listed in Table 1 are not addressed in this analysis. Analysis of lead is not included in this report because no new sources of lead emissions are anticipated with the project. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed as PM_{10} and $PM_{2.5}$. No components of the project would result in vinyl chloride or hydrogen sulfide emissions in any substantial quantity.

Toxic Air Contaminants Health Effects

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality presents the relevant concentration and cancer risk data for the ten TACs that pose the most substantial health risk in California based on available data. The ten TACs are acetaldehyde, benzene, 1.3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program (ARB 1998) demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

DPM differs from other TACs in that it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM.

Limited data on levels and health risks attributable to the top ten TACs listed above is available to provide a precise estimate of the level of existing risk from TAC emissions in the City of Winters. The nearest monitoring station for TAC emissions is located in Chico. ARB and CAPCOA provided estimates for average background risk from TAC emissions in the Sacramento Valley Air Basin SVAB) in the Risk Management Guidance for Stationary Sources of Air Toxics (ARB/CAPCOA 2015). The average risk in the SVAB from TAC emissions was a cancer risk of 680 in a million accounting for recent changes in health risk estimation methodologies provided by the Office of Health Hazard Assessment (OEHHA) that increased estimate risk by a factor of 2-3. It is important to note that depending on many factors, exposures may actually be lower. However, exposures and potential risk

may also be higher than the ambient background risk in areas near emission sources (i.e., living near a freeway, freight hub, or large stationary source). Risk from TAC emissions has declined substantially over the last 20 years. Since 1990, ambient monitored TAC emissions and DPM have decreased by 78 and 69 percent, respectively.

Asbestos

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.

2.3 - Existing Air Quality Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 2 summarizes 2012 through 2014 published monitoring data, which is the most recent 3-year period available. Where available, the table displays data from the Colusa-Sunrise Boulevard monitoring station (located approximately 7.93 miles east of the project site). No monitoring data was available from the Colusa-Sunrise Boulevard monitoring station for CO, NO_2, or SO_2. No data was available for the three closest monitoring sites for CO; the data displayed for CO is a summary for the Sacramento Air Basin. The closest monitoring data available for NO_2 is from the Yuba City-Almond Street monitoring station (28.28 miles southeast of the project site), which is in Sutter County. The only monitoring station that measures SO_2 in the Air Basin is the Sacramento-Del Paso Manor station, located 56.66 miles southeast of the project site.

The data shows that during the past few years, the project area has exceeded the state standard for PM_{10}. No exceedances of state or federal standards were recorded for other pollutants. The data in the table reflects the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period.

Table 2: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2012	2013	2014
Ozone[1]	1 Hour	Max 1 Hour (ppm)	0.074	0.068	0.072
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.067	0.062	0.067

Table 2 (cont.): Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2012	2013	2014
		Days > State Standard (0.07 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Carbon monoxide[2]	8 Hour	Max 8 Hour (ppm)	2.14	ID	ID
		Days > State Standard (9.0 ppm)	0	0	0
		Days > National Standard (9 ppm)	0	0	0
Nitrogen dioxide[3]	Annual	Annual Average (ppm)	0.010	0.009	0.008
	1 Hour	Max 1 Hour (ppm)	0.0830	0.0574	0.0490
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide[4]	Annual	Annual Average (ppm)	ID	ID	ID
	24 Hour	Max 24 Hour (ppm)	0.002	0.002	ID
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	23.3	26.1	22.3
	24 hour	24 Hour (µg/m^3)	**96.7**	**74.9**	**57.1**
		Days > State Standard (50 µg/m^3)	ID	ID	ID
		Days > National Standard (150 µg/m^3)	0.0	ID	0.0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	7.3	7.2	7.2
	24 Hour	24 Hour (µg/m^3)	23.8	24.5	20.3
		Days > National Standard (35 µg/m^3)	0.0	0.0	0.0

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Colusa-Sunrise Boulevard Station—8 miles from the site
[2] Sacramento Valley Air Basin—57 miles from site
[3] Yuba City-Almond Street -28 miles from site
[4] Sacramento-Del Paso Manor—57 miles from site
Source: California Air Resources Board 2014a

2.3.1 - Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics.

For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the basin are shown in Table 3. The basin is designated as nonattainment for the state ozone, PM_{10}, and $PM_{2.5}$, standards and the national ozone standard. The current attainment designations for Colusa County are shown in Table 4.

Table 3: Sacramento Valley Air Basin Attainment Status

Criteria Pollutant	State	Federal
Ozone (8-hour)	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide (annual)	Attainment	Unclassified/Attainment
Nitrogen dioxide (1-hour)	Attainment	Unclassified/Attainment
Sulfur dioxide	Attainment	Attainment (Pending)
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
Lead	Attainment	Unclassified/Attainment
Source: ARB 2015.		

Table 4: Colusa County Attainment Status

Criteria Pollutant	State	Federal
Ozone (1-hour)	Attainment	Unclassifiable/Attainment
Ozone (8-hour)	Attainment	Unclassifiable/Attainment
Carbon monoxide	Unclassified	Unclassifiable/Attainment
Nitrogen dioxide	Attainment	Unclassifiable/Attainment
Sulfur dioxide	Attainment	Unclassifiable
PM_{10}	Nonattainment[1]	Unclassifiable
$PM_{2.5}$	Attainment	Unclassifiable/Attainment
Lead	Attainment	No Standard

Notes:
California area designations from http://www.arb.ca.gov/desig/changes/ozone.pdf (ARB 2015)
Federal designations from http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol17/pdf/CFR-2010-title40-vol17-sec81-305.pdf.
[1] All of the Sacramento Valley Air Basin—nonattainment for PM_{10}
Source: ARB 2015.

2.4 - Air Quality Plans and Regulations

Air pollutants are regulated at the national, state, and air basin or county level; each agency has a different level of regulatory responsibility. The EPA regulates at the national level. The ARB regulates at the state level. The CCAPCD regulates at the county level, but it cooperates with the Northern Sacramento Valley Basinwide Air Pollution Control Council for plans at the air basin level.

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as the federal standards described earlier.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. State to attain and maintain California's ambient air quality standards. The CCAA requires that an Attainment Plan (Plan) be developed by all non-attainment districts for ozone (O_3), carbon monoxide (CO), sulfur oxide (SO_x), and nitrogen oxides (NO_x) that are either receptors or contributors of transported air pollutants. The most recent attainment plan for the Northern Sacramento Valley Planning Area is the 2015 Triennial Air Quality Attainment Plan, which addresses ozone in the SVAB (SVAQEEP 2015).

Areas designated non-attainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional state and local regulation is required to achieve the standards. Regulations adopted by California are described below.

2.4.1 - California Regulations

Low-Emission Vehicle Program

The ARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, ARB adopted the LEV III amendments to California's Low-Emission

Vehicle (LEV) regulations. These amendments include more stringent emission standards for both criteria pollutants and GHGs for new passenger vehicles (ARB 2012a).

On-Road Heavy-Duty Vehicle Program

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013b).

ARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the ARB adopted a regulation to reduce DPM and nitrous oxides (NO_x) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO_x emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501–5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

ARB Airborne Toxic Control Measure for Asbestos

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, but no demolition is associated with this project. However, asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include

unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near Williams. Colusa County contains ultramafic rock, but the closest chrysotile asbestos site is approximately 17.1 miles west of the project site.

Diesel Risk Reduction Plan

The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010 and 85 percent by 2020 (ARB 2000).

2.4.2 - Colusa County Air Pollution Control District

[]As required by the California Clean Air Act and the Federal Clean Air Act, the District is responsible for air monitoring, permitting, enforcement, long-range planning, regulatory development, education, and public information activities related to air quality. Local districts are the primary mechanism for air quality management. Districts must implement rules and regulations and provide enforcement for the attainment and maintenance of the California and national ambient air quality standards.

Air Quality Plan

An Air Quality Plan (AQP) is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded

As discussed above, each air district designated nonattainment for a federal standard prepares an attainment plan that describes air quality conditions and measures that will be enacted to attain and maintain the federal standard, which is incorporated into the State Implementation Plan. State ozone standards have planning requirements under the California Clean Air Act. However, state PM_{10} standards have no attainment planning requirements, but air districts must demonstrate that all measures feasible for the area have been adopted.

The counties in northern portion of the Air Basin—Butte, Colusa, Glenn, Shasta, Sutter, Tehama and Yuba—comprise the Northern Sacramento Valley Planning Area. The air districts in the Planning Area work cooperatively to prepare and implement the Northern Sacramento Valley Planning Area Air Quality Attainment Plan. The current air quality plan for the Planning Area is the 2015 Triennial Air Quality Attainment Plan, which contains control strategies for both ozone and PM_{10}. The Attainment Plan contains control measures for stationary, areawide, and indirect sources, as well as addresses public education programs. The Attainment Plan also provides information on transport of pollutants from the Broader Sacramento Area, and the associated planning and California Clean Air Act requirements on the Broader Sacramento Area-related to transport.

CCAPCD Rules and Regulations

The CCAPCD rules and regulations that may apply to projects that will occur during buildout of the project include, but are not limited to the following:

- **Rule 2.10—Nuisance**. The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.
- **Rule 2.26—Architectural Coatings**. The purpose of this rule is to require a limit of the quantity of VOC emissions in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the Colusa County Air Pollution Control District.
- **Rule 2.33—Cutback and Emulsified Asphalt.** The purpose of this rule is to limit VOC emissions from asphalt paving, construction, and maintenance operations.

CEQA

The District has three roles under CEQA:

1. *Lead Agency*: Responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the District where the District has primary approval authority over the project.
2. *Responsible Agency*: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The District defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits, unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible.
3. *Commenting Agency*: The District may review and comments on air quality analyses prepared by other public agencies.

The District has not adopted guidelines for Lead Agencies to follow when addressing air quality impacts under CEQA. The District would require the fueling operation to obtain an authority to construct and permit to operate.

2.4.3 - Local

The City of Williams's air quality related goals and policies from the 2012 General Plan are listed below.

City of Williams Air Quality Goals and Policies

Land Use and Character

- **Policy 3.25:** The City's Auto-Urban areas will be improved by better standards for the arrangement of buildings and parking, site landscaping and screening, and sign control, among others.
- **Policy 3.43:** Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.
- **Policy 3.48:** Resources will be protected and integrated as amenities into development.
- **Policy 3.52:** Potential adverse impacts on adjacent land use types should be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.).
- **Policy 3.62:** Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.

Open Space and Conservation

- **Policy 7.12:** A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.
- **Policy 7.13:** The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.
- **Policy 7.14:** The creation of linear greenways will serve as a vehicle to protect natural resources and provide for natural scenic corridors.
- **Policy 7.15:** The local trail system will connect local residents to regional, state, and federal trail systems.
- **Policy 7.16:** Pedestrian paths will adhere to ADA accessibility guidelines, including possible redesign of existing sidewalks, sidewalk curb cuts, ramps, and trails.
- **Policy 7.21:** Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment control, and structural foundations.
- **Action 7.yy:** Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.
- **Action 7.bbb:** Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.

Circulation

- **Policy 8.1:** Coordinate transportation planning with regional and local plans.
- **Action 8.l-2:** The City shall evaluate regional impacts of proposed local improvements.
- **Action 8.l-4:** The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities.
- **Policy 8.n:** Protect natural features.
- **Action 8.n-6:** The City shall evaluate circulation improvements and traffic control as to their effect on air and noise pollution and greenhouse gas emissions.
- **Policy 8.o:** Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.

City of Williams General Plan Program EIR

The General Plan Program Environmental Impact Report air quality and greenhouse gas sections include mitigation/policies and recommended action items listed above that would reduce significant air quality impacts related to General Plan implementation.

Sacramento Valley Basinwide Air Pollution Control Council

Colusa County participates in the Sacramento Valley Basinwide Air Pollution Council. The control strategy from the 2015 Triennial Air Quality Attainment Plan includes three components that target non-stationary source emissions: grant and incentive programs, public education programs, and commenting on development projects subject to CEQA. No control measures were identified that would apply to the project.

2.4.4 - Sources of Toxic Emissions

The project is not considered a sensitive receptor that would expose on-site receptors to existing sources of TAC emissions. A recent (2015) California Supreme Court found that impacts from the environment on projects is not required by CEQA. However, the project itself will dispense gasoline and will provide fuel and parking for diesel trucks which are considered sources of TAC emissions. Potential impacts from TAC emissions on nearby sensitive receptors are assessed in this analysis.

ARB Air Quality Land Use Handbook

Table 5 lists the following ARB advisory recommendations that address the issue of siting "sensitive land uses" near specific sources of air pollution (ARB 2005):

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The analysis examines the area around the site to determine if potential sources of TAC emissions from the project would impact sensitive receptors located near the project, based on the ARB

recommended screening distances. The project will have a fueling facility and would serve diesel trucks.

Table 5: Recommendations on Siting New Sensitive Land Uses

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.
Note: These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.	

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SECTION 3: CLIMATE CHANGE SETTING

3.1 - Climate Change

Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (IPCC 2007a). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

An individual project cannot generate enough GHG emissions to effect a discernible change in global climate. However, the project participates in the potential for global climate change by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on global climate change.

3.1.1 - Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from CCCC 2006 and Moser et al. 2009).

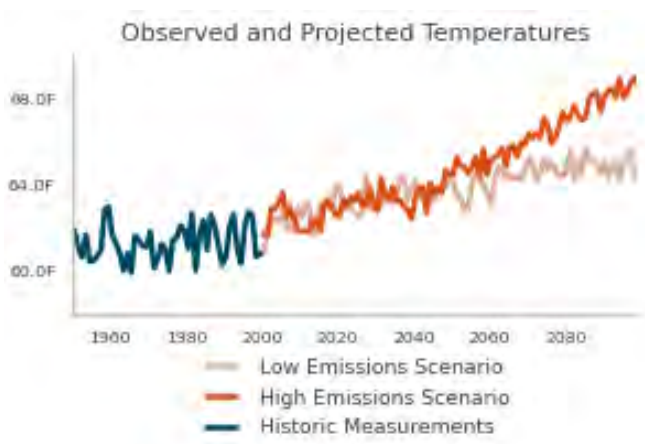
- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.

- **Exacerbation of air quality problems.** Because of this climate warming, the frequency, duration, and intensity of conditions conducive to forming air pollution events are also likely to increase. It is widely recognized that maintaining safe atmospheric levels of various pollutants such as ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM) and other toxic chemicals depends on both emissions and meteorological conditions (ARB 2010a). If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

Consequences of Climate Change in the Williams Area

Figure 1 displays a chart of measured historical and projected annual average temperatures in the Williams area. As shown in the figure, temperatures are expected to rise in the low and high greenhouse gas emissions scenarios. The results indicate that temperatures are predicted to increase by 3.6 degrees°F under the low emission scenario and 6.2°F under the high emissions scenario (CalAdapt 2016).

Figure 1: Observed and Projected Temperatures for Climate Change in the Williams Area



Source: CalAdapt 2016

Water Supply

The City of Williams Utilities Department would provide water for the project. The City relies on groundwater and treated surface water for potable water supplies. The availability of surface water and the rate of groundwater recharge could decline if climate change results in reduced snowpack in the Sierra Nevada and southern Cascades.

Wildfires

The project site is located on the edge of the Williams urban area on land currently used for agriculture. Agricultural land provides limited fuels that would be subject to a wildfire. Cultivated agricultural areas surround the project to the northwest, north, east, and south. The potential for increased temperatures and drought conditions due to climate change would result in increased risk from wildfire in those areas if farmland is taken out of production and returns to natural vegetation.

Human Health Effects of GHG Emissions

Greenhouse gas emissions from development projects would not result in concentrations that would directly impact public health. However, the cumulative effects of GHG emissions on climate change have the potential to cause adverse effects to human health.

The U.S. Global Change Research Program, in its report, Global Climate Change Impacts in the U.S. (2009), has analyzed the degree to which impacts on human health are expected to impact the United States.

Potential effects of climate change on public health include:

- Direct Temperature Effects: Climate change may directly affect human health through increases in average temperatures, which are predicted to increase the incidence of heat waves and hot extremes.
- Extreme Events: Climate change may affect the frequency and severity of extreme weather events, such as hurricanes and extreme heat and floods, which can be destructive to human health and well-being.
- Climate–Sensitive Diseases: Climate change may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.
- Air Quality: Respiratory disorders may be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution (EPA 2009a).

Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (CDC 2010 and OSHA 2003).

3.2 - Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide, methane, NO_x, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the earth's temperature. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO_2.

Individual GHG compounds have varying global warming potential and atmospheric lifetimes. CO_2, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming. To describe how much global warming a given type and amount of GHG may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2. For example, CH_4's warming potential of 21 indicates that CH_4 has 21 times greater warming effect than CO_2 on a molecule-per-molecule basis. A carbon dioxide equivalent is the mass emissions of an individual GHG multiplied by its global warming potential. GHGs defined by AB 32 (see the Climate Change Regulatory Environment section for a description) include CO_2, CH_4, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 6. A seventh GHG, nitrogen trifluoride (NF_3), was added to Health and Safety Code section 38505(g)(7) as a GHG of concern.

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (laughing gas) is a colorless GHG. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.

Table 6 (cont.): Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural GHG. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydrofluorocarbons	Hydrofluorocarbons are a group of GHGs containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Nitrogen trifluoride	Nitrogen trifluoride (NF_3) was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. It has a high global warming potential of 17,200.	This gas is used in electronics manufacture for semiconductors and liquid crystal displays.
Sources: Compiled from a variety of sources, primarily Intergovernmental Panel on Climate Change 2007a and 2007b.		

The State has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill 605, approved by the Governor on September 14, 2014 requires the ARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. ARB will complete an emission inventory of these pollutants, identify research needs, identify existing and potential new control measures that offer co-benefits, and coordinate with

other state agencies and districts to develop measures. The draft emission inventory and strategy were released on September 30, 2015. No date for final adoption was located.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 6 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, ARB will include it in its comprehensive strategy (ARB 2015a).

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NO_x) on a regional scale and CH_4 on a hemispheric scale will be subject of the strategy (ARB 2015a).

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, as opposed to other GHGs that can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100 year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by ARB, and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources (ARB 2015b). Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

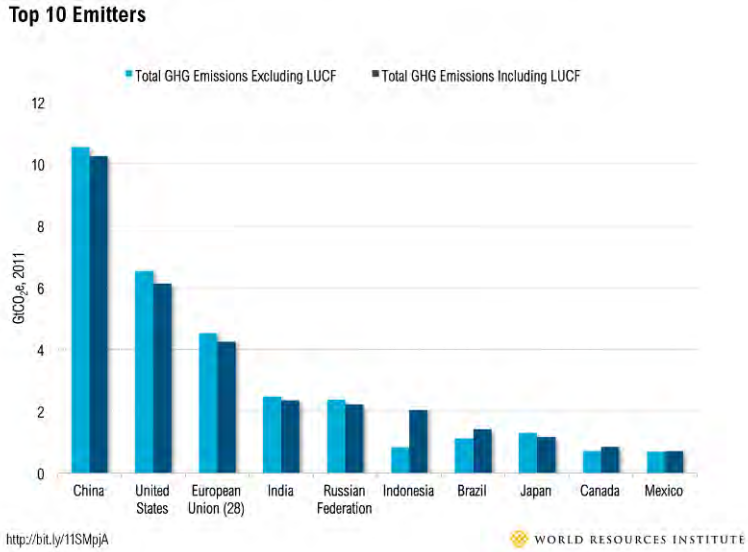
Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other greenhouse gases, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere (NASA 2015b).

3.2.1 - Emissions Inventories

An emissions inventory is a database that lists, by source, the amount of air pollutants discharged into the atmosphere of a geographic area during a given time period. Emissions worldwide were approximately 43,286 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2012. As shown

in Figure 2, China was the largest GHG emitter with over 10 billion metric tons of CO_2e, and the United States was the second largest GHG emitter with over 6 billion metric tons of CO_2e (WRI 2014).

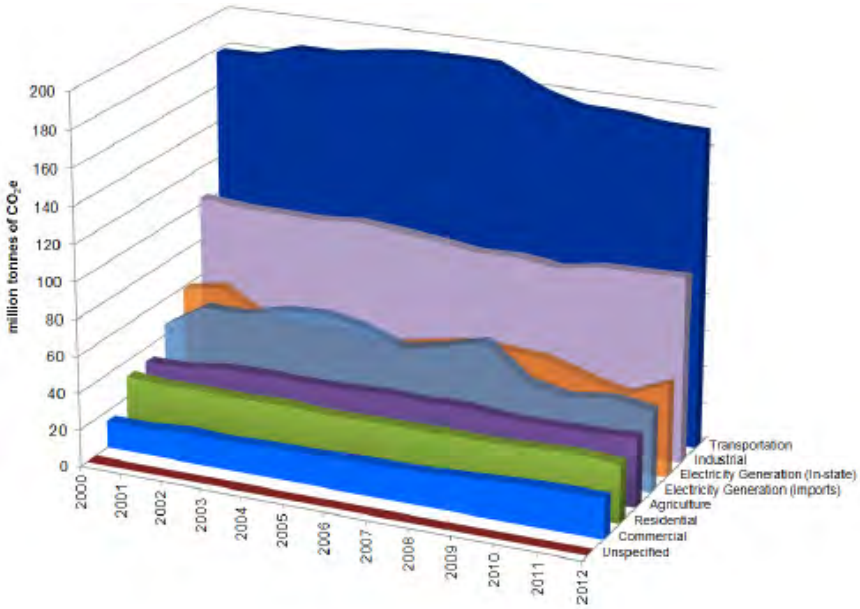
Figure 2: Greenhouse Gas Emissions Trends



Source: WRI 2014.

Figure 3 shows the contributors of GHG emissions in California between years 2000 and 2012 by economic sector. The main contributor was transportation. The second highest sector was industrial, which includes sources from refineries, general fuel use, oil and gas extraction, cement plants, and cogeneration heat output. ARB reported that California's GHG emissions inventory was 459 $MMTCO_2e$ in 2012 (ARB 2014a).

Figure 3: Greenhouse Gas Emission Trends by Sector in California



Source: ARB 2014b.

3.3 - Regulatory Environment

3.3.1 - International

International organizations such as the ones discussed below have made substantial efforts to reduce GHGs. Preventing human-induced climate change will require the participation of all nations in solutions to address the issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (Convention). On March 21, 1994, the United States joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five percent against 1990 levels over the five-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties, or COP 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC. (C2ES 2015)

3.3.2 - Federal Regulations

Prior to the last decade, there were no concrete federal regulations of GHGs or major planning for climate change adaptation. Since then, federal activity has increased. The following are actions regarding the federal government, GHGs, and fuel efficiency.

Greenhouse Gas Endangerment. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the

EPA regulate four GHGs, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling upholding that upheld the EPA Administrator findings (EPA 2009b).

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the National Highway Safety Administration issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012b). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO_2 emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010 that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units. As required by a settlement agreement, the EPA proposed new performance standards for emissions of carbon dioxide for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatt would be required to meet an output based standard of 1,000 pounds of carbon dioxide per megawatt-hour, based on the performance of widely used natural gas combined cycle technology.

Cap and Trade. Cap and trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Examples in the United States include the Acid Rain Program and the NO_x Budget Trading Program and Clean Air Interstate Rule in the northeast. The Clean Air Interstate Rule (CAIR) and the Acid Rain Program (ARP) are both cap and trade programs designed to reduce emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) from power plants. The ARP, established under Title IV of the 1990 Clean Air Act (CAA) Amendments, requires power plants to make major emission reductions of SO_2 and NO_x, the primary precursors of acid rain. CAIR addresses regional interstate transport of soot (fine particulate matter) and smog (ozone) pollution. CAIR requires certain eastern states to limit annual emissions of SO_2 and NO_x, which contribute to the formation of fine particulate matter. It also requires certain states to limit ozone season NO_x emissions, which contribute to the formation of ozone during the summer ozone season (May through September). There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap and trade.

The Regional Greenhouse Gas Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap and trade program (C2ES 2015).

3.3.3 - California

Legislative Actions to Reduce GHGs

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 California Global Warming Solutions Act of 2006 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, NO_x,

hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The ARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (ARB 2007). Therefore, to meet the State's target, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a business-as-usual (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (ARB 2008a). At that rate, a 28 percent reduction was required to achieve the 427 $MMTCO_2e$ 1990 inventory. In October 2010, ARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 $MMTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (ARB 2010). The ARB also revised the global warming potential used in the most recent inventories to reflect AR4 rates which resulted in slightly lower emissions in 2020 and a reduction from BAU of 20 percent.

Progress in Achieving AB 32 Targets and Remaining Reductions Required

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by ARB for 2000 through 2012 to show progress achieved to date (ARB 2014a). The State has also achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target. Also shown are the average reductions needed from all statewide sources (including all existing sources) to reduce GHG emissions back to 1990 levels.

- 1990: 427 million $MTCO_2e$ (AB 32 2020 Target)
- 2000: 463 million $MTCO_2e$ (an average 8-percent reduction needed to achieve 1990 base)
- 2010: 450 million $MTCO_2e$ (an average 5-percent reduction needed to achieve 1990 base)
- 2020: 545 million $MTCO_2e$ BAU (an average 21.7-percent reduction from BAU needed to achieve 1990 base)

ARB Scoping Plan. The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (ARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and

electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions (ARB 2008).

The ARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identifies the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050. The Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities Climate for the next several years. The Update does not set new targets for the State, but describes a path that would achieve the long term 2050 goal of Executive Order S-05-03 for emissions to decline to 80 percent below 1990 levels by 2050.

The ARB has no legislative mandate to set a target beyond the 2020 target from AB 32 or to adopt additional regulations to achieve a post-2020 target. The Update estimates that reductions averaging 5.2 percent per year would be required after 2020 to achieve the 2050 goal. With no estimate of future reduction commitments from the State, identifying a feasible strategy including plans and measures to be adopted by local agencies is not currently possible (ARB 2014b).

Cap and Trade Program. The Cap and Trade Program is a key element of the Scoping Plan. It sets a statewide limit on sources responsible for 85 percent of California's greenhouse gas emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Quebec's cap and trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015 (ARB 2015c).

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by ARB in the First Update:

> The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (ARB 2014).

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33 percent [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85 percent of California's GHG emissions. In sum, the Cap-and-Trade

Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by ARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures (ARB 2014).

SB 375—the Sustainable Communities and Climate Protection Act of 2008. Senate Bill (SB) 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493 Pavley Regulations and Fuel Efficiency Standards. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011 (ARB 2013c).

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant (ARB 2013d).

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California (ARB 2011).

SB 1368—Emission Performance Standards. In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO_2 per megawatt-hour (MWh).

SB 1078—Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

SBX 7-7—The Water Conservation Act of 2009. The legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the State and guide the actions of state agencies.

Executive Order S-3-05. Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order B-30-15. On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The executive order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

Executive Order S-01-07—Low Carbon Fuel Standard. The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was subject to legal challenge in 2011. Ultimately, on August 8, 2013, the Fifth District Court of Appeal (California) ruled that ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal directed that Resolution 09-31 and two executive orders of ARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing for the new LCFS regulation took place on September 24, 2015. The Final Rulemaking Package was filed with the Office of Administrative Law (OAL) on October 2, 2015. OAL approved the regulation on November 16, 2015 (ARB 2015d).

Executive Order S-13-08. Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the ". . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations. California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

Title 24 Energy Efficiency Standards. California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest version of Title 24 was adopted by the California Energy Commission (CEC) on May 31, 2012. The standards became effective on July 1, 2014. The CEC has completed the process of preparing the 2016 Building Energy Efficiency Standards that are scheduled to go into effect on January 1, 2017 (CEC 2016).

Title 24 California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2013 California Green Building Code Standards that became effective January 1, 2014. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) requires:

- **Short-term bicycle parking**. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- **Long-term bicycle parking**. For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- **Designated parking**. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- **Recycling by Occupants**. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling. (5.410.1).
- **Construction waste**. A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 80 percent for new homes and 80-percent for commercial projects. (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- **Wastewater reduction**. Each building shall reduce the generation of wastewater by one of the following methods:
    1. The installation of water-conserving fixtures or
    2. Using nonpotable water systems (5.303.4).
- **Water use savings**. 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- **Water meters**. Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).

- **Irrigation efficiency**. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- **Materials pollution control**. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard (5.404).
- **Building commissioning**. Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

Model Water Efficient Landscape Ordinance. The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected for Ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)."

Section 21097 was also added to the Public Resources Code, which provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA. The Natural Resources Agency completed the approval process and the Amendments became effective on March 18, 2010.

The 2010 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a "good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project." The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines Section 15130(f)).

3.3.4 - Colusa County Transportation Commission

The Colusa County Transportation Commission is the Regional Transportation Planning Agency for the County. Rural areas such as Colusa County do not have regional targets under SB 375. Only areas of California with Metropolitan Planning Organizations (MPO) were required to set targets and to prepare Sustainable Communities Strategies.

3.3.5 - Local

The City of Williams does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects. However, the General Plan includes goals and policies to reduce GHG emissions that are listed below.

General Plan

The 2012 General Plan includes the following applicable goals and policies related to improving air quality that may also co-benefit climate change impacts:

Land Use and Character

- **Policy 3.25:** The City's Auto-Urban areas will be improved by better standards for the arrangement of buildings and parking, site landscaping and screening, and sign control, among others.
- **Policy 3.43:** Future development and redevelopment shall be planned and implemented with appreciation for the physical environment and natural features of the community and with recognition of potential physical constraints to ensure appropriate siting of various types of development.
- **Policy 3.48:** Resources will be protected and integrated as amenities into development.
- **Policy 3.62:** Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.

Open Space and Conservation

- **Policy 7.12:** A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.
- **Policy 7.13:** The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.
- **Policy 7.14:** The creation of linear greenways will serve as a vehicle to protect natural resources and provide for natural scenic corridors.
- **Policy 7.15:** The local trail system will connect local residents to regional, state, and federal trail systems.
- **Policy 7.16:** Pedestrian paths will adhere to ADA accessibility guidelines, including possible redesign of existing sidewalks, sidewalk curb cuts, ramps, and trails.
- **Policy 7.21:** Construction practices will minimize soil erosion with respect to wind, water, and site selection. This will impact site preparation, grading, sediment control, and structural foundations.

- **Action 7.yy:** Plant trees in parking lots, parks and recreation areas, and pedestrian corridors to promote outdoor activity, reduce radiation heating, and encourage the reduction of greenhouse gases.
- **Action 7.bbb:** Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, the use of green roofs shall result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards.

Circulation

- **Policy 8.1:** Coordinate transportation planning with regional and local plans.
- **Action 8.l-2:** The City shall evaluate regional impacts of proposed local improvements.
- **Action 8.l-4:** The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities.
- **Policy 8.n:** Protect natural features.
- **Action 8.n-6:** The City shall evaluate circulation improvements and traffic control as to their effect on air and noise pollution and greenhouse gas emissions.
- **Policy 8.o:** Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics.

SECTION 4: MODELING PARAMETERS AND ASSUMPTIONS

4.1 - Model Selection and Guidance

Air pollutant emissions can be estimated by using emission factors and a level of activity. Emission factors are the emission rate of a pollutant given the activity over time; for example, grams of NO_x per horsepower hour. The ARB has published emission factors for on-road mobile vehicles/trucks in the EMFAC mobile source emissions model and emission factors for off-road equipment and vehicles in the OFFROAD emissions model. An air emissions model (or calculator) combines the emission factors and the various levels of activity and outputs the emissions for the various pieces of equipment.

The California Emissions Estimator Model (CalEEMod) version 2013.2.2 was developed by the South Coast Air Quality Management District in cooperation with other air districts throughout the State. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with construction and operation from a variety of land uses.

The modeling follows District guidance where applicable from its GAMAQI. The models used in this analysis are summarized as follows:

- Construction emissions: CalEEMod, version 2013.2.2
- Operational emissions: CalEEMod, version 2013.2.2

4.2 - Air Pollutants and GHGs Assessed

4.2.1 - Criteria Pollutants Assessed

The following air pollutants are assessed in this analysis:

- Reactive organic gases (ROG)
- Nitrogen oxides (NO_x)
- Carbon monoxide (CO)
- Sulfur oxides (SO_x)
- Particulate matter less than 10 microns in diameter (PM_{10})
- Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

Note that the project would emit ozone precursors ROG and NO_x. However, the project would not directly emit ozone, since it is formed in the atmosphere during the photochemical reaction of ozone precursors. The air basin is in attainment for sulfur dioxide standards and the project would emit inconsequential amounts of this pollutant; therefore, no additional analysis is warranted.

As noted previously, the project would emit ultrafine particles. However, there is currently no standard separate from the $PM_{2.5}$ standards for ultrafine particles and there is no accepted methodology to quantify or assess the significance of such particles.

4.2.2 - Greenhouse Gases Assessed

This analysis is restricted to GHGs identified by AB 32, which include carbon dioxide, methane, NO_x, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of GHGs, including several defined by AB 32 such as carbon dioxide, methane, and NO_x.

The project may emit GHGs that are not defined by AB 32. For example, the project may generate aerosols through emissions of DPM from the vehicles and trucks that would access the project site. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Black carbon is a component of aerosol. The ARB is in process of developing a plan to address these emissions; however, black carbon is a component of DPM that is addressed as a toxic air contaminant.

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities.

The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain GHGs defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

4.3 - Construction Modeling Assumptions

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from on-site and off-site activities. On-site emissions principally consist of exhaust emissions from the activity levels of heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Off-site emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

The activity for construction equipment is based on the horsepower and load factors of the equipment. In general, the horsepower is the power of an engine—the greater the horsepower, the greater the power. The load factor is the average power of a given piece of equipment while in operation compared with its maximum rated horsepower. A load factor of 1.0 indicates that a piece of equipment continually operates at its maximum operating capacity.

The construction equipment assumed for the project is included in the CalEEMod output contained in Appendix A. The CalEEMod default construction equipment fleet mix was used for the site preparation, grading, paving, and architectural coating phases in the analysis. The CalEEMod default schedule was revised to reflect the projects anticipated construction timeframe. The fleet mix was adjusted to conserve the horsepower hours indicated in the default CalEEMod run.

The project was assumed to start construction in September of 2016 and be completed by April of 2017. The construction schedule is shown in Table 7.

Table 7: Construction Schedule

Phase	Phase Start Date	Phase End Date	Total Number of Days
Site Preparation	9/5/2016	9/16/2016	10
Grading	9/17/2016	10/28/2016	30
Building Construction	10/29/2016	2/8/2017	73
Paving	2/9/2017	3/8/2017	20
Architectural Coating	3/9/2017	4/5/2017	20

4.3.1 - Construction Equipment Emission Factors

CalEEMod contains an inventory of construction equipment that incorporates estimates of the number of equipment, their age, their horsepower, and equipment tier from which rates of emissions are developed. The CalEEMod default equipment assumptions were used in this analysis for the estimation of emissions from on-site construction equipment for the unmitigated scenario. CalEEMod's off-road emission factors are based on the equipment populations from the OFFROAD model.

4.3.2 - Grading

During grading activities, fugitive dust can be generated from the movement of dirt on the project site. CalEEMod estimates dust from dozers moving dirt around, dust from graders or scrapers leveling the land, and loading or unloading dirt into haul trucks. Each of those activities is calculated differently in CalEEMod, based on the number of acres traversed by the grading equipment.

Only some pieces of equipment generate fugitive dust in CalEEMod. The CalEEMod manual identifies various equipment and the acreage disturbed in an 8-hour day:

- Crawler tractors, graders, and rubber tired dozers: 0.5 acre per 8-hour day
- Scrapers: 1 acre per 8-hour day

Therefore, the following acres are the total quantities disturbed per day, per phase, according to the acreage disturbed quantities listed above:

- Site preparation = 3.5 acre per day
- Grading = 4 acres per day

It was assumed that soil would be balanced on-site and, therefore, there would be no material imported or exported from the project site.

4.3.3 - Building Construction, Paving, and Architectural Coatings

The analysis uses the default modeling assumptions from CalEEMod for construction equipment during building construction, paving, and application of architectural coatings.

4.3.4 - Construction Off-site Trips

Worker trips are accounted for during the construction phases, based on 1.25 trips per piece of equipment (the CalEEMod default). The CalEEMod default trip lengths of 10.8 miles (worker), 7.3 miles (vendor), and 20.0 miles (hauling) were retained. The CalEEMod default vehicle fleet (LD Mix) was used for employee trips.

Vendor trips for the building construction phase are calculated from a study performed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) based on land use and size. The CalEEMod defaults for vendor trips, trip length, and vehicle fleet (Heavy Duty Truck Vehicle Fleet Mix) were used. The modeling results indicated that no haul trips are expected for this project.

A summary of the construction-related trips is shown in Table 8. Note that the total number of off-site construction trips would not necessarily occur on the same day, since the various construction activities would vary each day.

Table 8: Construction Off-site Trips

Activity	Construction Trips per Day		
	Worker	Vendor	Haul
Site Preparation	18	0	0
Grading	20	0	0
Building Construction	6	3	0
Paving	15	0	0
Architectural Coating	1	0	0
Source: FirstCarbon Solutions and CalEEMod.			

4.4 - Operation

Operational emissions are those emissions that occur when the project is occupied by the future residents. The major sources are summarized below.

4.4.1 - Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project residences.

Project trip generation was obtained from data provided by the traffic consultant for the project Fehr and Peers. The trip generation rates are included in the modeling results in Appendix A.

A pass-by trip accounts for vehicles already on the roadway network that stop at the project site as they pass-by; the pass-by trips are existing vehicle trips in the community. CalEEMod default rates of 3 percent pass-by trips were used in this analysis.

The traffic study provides an estimate of trips that were diverted from Interstate 5 and State Route 20 to obtain fuel or other travel related services on their way to an ultimate destination. These trips are referred to as diverted-link trips. The distance of the diverted-link trips was estimated from the freeway off-ramps to the project driveway and from the intersection of State Route 20 and Margurite Street and the project driveway.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix was revised to reflect the expected percentage of diesel trucks accessing the site for services. Separate CalEEMod runs were accomplished for local trips and diverted link trips to more accurately characterize emissions from the different locations.

4.4.2 - Architectural Coatings (Painting)

Paints release VOC emissions during application and drying. The buildings in the project would be repainted on occasion. CalEEMod defaults were used for this purpose.

4.4.3 - Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. "Consumer Product" means a chemically formulated product used by household and institutional consumers, including but not limited to detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products, but it does not include other paint products, furniture coatings, or architectural coatings (ARB 2011b). The default emission factor developed for CalEEMod was used.

4.4.4 - Landscape Equipment

CalEEMod estimated the landscaping equipment using the default assumptions in the model.

4.4.5 - Electricity

There would be emissions from the power plants that would generate electricity to be used by the project (for lighting, etc.). Electricity emissions estimates are only used in the GHG analysis. CalEEMod was used to estimate these emissions from the project.

Electricity Emission Factor

The default CalEEMod emission factors for Pacific Gas & Electric (from the CEC's year 2006 data) are as follows:

- Carbon dioxide: 641.35 pounds per megawatt hour (lbs/MWh)
- Methane: 0.029 lb/MWh
- Nitrous oxide: 0.006 lb/MWh

It is assumed that the Renewable Electricity Standards would fully implemented by 2020. The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020. In 2006, Pacific Gas & Electric had 12.6 percent renewable energy in its portfolio (California Public Utilities Commission 2011). The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020.

The emission factors projections for PG&E for 2020 are as follows:

- Carbon dioxide: 491.65 lbs/MWh
- Methane: 0.022 lb/MWh
- Nitrous oxide: 0.005 lb/MWh

4.4.6 - Electricity Consumption

CalEEMod has three categories for electricity consumption: electricity that is impacted by Title 24 regulations, non-Title 24 electricity, and lighting. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title 24. Since lighting is not considered as part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24 includes everything else such as appliances and electronics. Total electricity consumption in CalEEMod is divided into the three categories. The percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity factors. The percentages are then applied to the electricity consumption to result in the values used in the analysis.

4.4.7 - Natural Gas

There would be emissions from the combustion of natural gas used for the project (water heaters, heat, etc.). CalEEMod has two categories for natural gas consumption: Title 24 and non-Title 24. CalEEMod defaults were used.

4.4.8 - Water and Wastewater

GHG emissions are emitted from the use of electricity to pump water to the project and to treat wastewater. CalEEMod defaults were used.

4.4.9 - Refrigerants

During operation, there may be leakages of refrigerants (hydrofluorocarbons) from air conditioners and the refrigeration system. Hydrofluorocarbons are typically used for refrigerants, which are long-lived GHGs. The project's anticipated uses of refrigerants are minor; therefore, they were not estimated.

4.4.10 - Solid Waste

GHG emissions would be generated from the decomposition of solid waste generated by the project. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture: 6%
- Landfill capture gas flare: 94%
- Landfill capture gas energy recovery: 0%

4.4.11 - Vegetation

There is limited carbon sequestration occurring on-site here is currently carbon sequestration occurring on-site. The project would plant trees and integrate landscaping into the project design, which would provide carbon sequestration. However, the number of trees to be planted is unknown and data are insufficient to accurately determine the impact that orchard trees have on carbon sequestration. For this analysis, it was assumed that the loss and addition of carbon sequestration that are due to the project would be balanced; therefore, emissions due to carbon sequestration were not included.

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SECTION 5: AIR QUALITY IMPACT ANALYSIS

This section calculates the expected emissions from construction and operation of the project as a necessary requisite for assessing the regulatory significance of project emissions on a regional and localized level.

5.1 - CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially 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 national or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the District recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable District thresholds and methodologies are contained under each impact statement below.

5.2 - Impact Analysis

5.2.1 - Consistency with Air Quality Plan

Impact AIR-1:	**The project would not conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

The CEQA Guidelines indicate that a significant impact would occur if the project would conflict with or obstruct implementation of the applicable air quality plan. There is no federal attainment plan for

the Upper Sacramento Valley, which includes Tehama, Shasta, Glenn, and Colusa counties. The Northern Sacramento Valley—which includes Colusa County—is subject to state planning requirements. The most recent plan is the 2015 Triennial Air Quality Attainment Plan. The CCAA requires air districts which have been designated as a nonattainment area for California Ambient Air Quality Standards (CAAQS) for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to prepare and submit a plan for attaining and maintaining the standards. The CCAA also requires that districts review their progress made toward attaining the CAAQS every 3 years. The Triennial Plan indicates that Colusa County has attained state ozone standards effective July 1, 2014. There are no requirements in the CCAA to develop plans for PM_{10} or $PM_{2.5}$. Areas that exceed state PM_{10} standards must implement all feasible control measures to reduce emissions.

The Triennial Plan indicates that emissions of criteria pollutants will continue to decline accounting for projected growth through 2020. Therefore, projects that are accounted for in the growth projections for the air basin would not result in conflict with the implementation of the Triennial Plan. When emissions decline in the air basin, it is reasonable to assume that violations of air quality standards will be less likely to occur.

Based on the information provided above, this document uses the following criteria for determining project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified for regional and local air pollutants.
2. Will the project conform to the assumptions in the AQPs? The analysis assesses the assumptions in the Triennial Plan to determine compliance with this criteria.
3. Will the project comply with applicable control measures in the AQPs? The analysis examines the control measures from the 2015 Triennial Plan to assess project conformity.

The use of the criteria listed above is a standard approach for CEQA analysis of projects for the following reasons:

- Significant contribution to existing or new exceedances of the air quality standards would be inconsistent with the goal of attaining the air quality standards.
- AQP emissions inventories and attainment modeling are based on growth assumptions for the area within the air district's jurisdiction.
- AQPs rely on a set of air district-initiated control measures as well as implementation of federal and state measures to reduce emissions within their jurisdictions, with the goal of attaining the air quality standards.

Contribution to Air Quality Violations

A measure for determining if the project is consistent with the air quality plans is if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Regional air quality impacts and attainment of standards are the result of the cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the project is based on its cumulative contribution. Because of the air basin's attainment status for ozone, $PM_{2.5}$, and PM_{10}, projects would be significant if project-generated emissions of either of the ozone precursor pollutants (ROG and NO_x), PM_{10}, or $PM_{2.5}$ would exceed quantitative thresholds based on the District's Stationary Source New Source Review Offset Thresholds from Regulation III. This approach is used by most air districts that have adopted CEQA thresholds for land use projects.

Offset thresholds vary by the severity of the air pollution problem in each nonattainment area. Areas with the most severe air pollution problems have the lowest threshold. Areas with less severe air quality problems have higher thresholds. The amounts are based on federal Clean Air Act requirements. Stationary source projects with emissions exceeding the threshold must obtain emission offsets to reduce emissions to below the thresholds or the project would not be approved. Colusa County is in attainment for all federal criteria pollutants and has a 25-ton-per-year offset threshold. If a project exceeds these thresholds, then the project would be considered to contribute to potential future violations of the applicable standards and to conflict with the attainment plans.

As discussed in Impact AIR-2 below, emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ associated with the construction and operation of the project would not exceed the project significance thresholds. As shown in Impact AIR-2, the project would not result in CO hotspots that would violate CO standards. Therefore, the project would not contribute to air quality violations.

Consistency with Assumptions in AQPs

The Triennial Plan estimated future emissions using population data derived from California Department of Finance and vehicle miles traveled (VMT) forecasts from EMFAC that were derived from data from regional traffic models provided by the Regional Transportation Planning Agencies. The Triennial Plan indicates that the population of Colusa County is projected to increase from 21,478 in 2010 to 24,886 by 2020 for a net increase of 3,408 people over the 10-year period or 15.8 percent. VMT is projected to increase from 696,000 miles per day in 2010 to 801,000 miles per day in 2020, for a net increase of 105,000 miles per day or 15.1 percent.

The project is a highway commercial business that serves the traveling public. Most of the project's customers are existing travelers that are currently traveling on Interstate 5 and State Route 20 in route to other destinations. Growth in the region and growth in travel on the highways may result in additional customers accessing the project site in the future; however, it is unlikely that the project would induce significant numbers of trips in the region other than by limited numbers of employees working at the site. The Triennial Plan indicates that emissions of ozone precursors will continue to decline rapidly between 2010 and 2020 even with the projected growth due to the adopted

regulations on emission sources in the air basin. NO_x emissions are projected to decline from 98.7 tons per day in 2010 to 66.7 tons in 2020. ROG emissions are projected to decline from 70 tons per day in 2020 to 58.4 tons per day. Based on this information, it is reasonable to conclude that air quality will continue to improve in the air basin even with the project's emission contribution.

The General Plan EIR found the growth allowed by the plan to be less than significant for these criteria with compliance of general plan policies and recommended actions that are listed in Table 9. An analysis of the project's compliance with the measures is included in the table.

Table 9: Consistency with General Plan Policies and Recommended Actions

General Plan Policy/Action	Project Consistency
Mitigation/Policies and Recommended Actions in the General Plan Update	
Policies	
3.56: Potential adverse impacts on adjacent land use types should be considered in the City's development review process (including factors such as noise, odor, pollution, excessive light, traffic, etc.)	**Consistent:** The project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.
3.58: Walkability and good connectivity will be promoted through continuity of the street and pedestrian system, together with a compact community form.	**Consistent:** The project is proposed in an area adjacent to a freeway and regional highway that is suitable for automobile-oriented uses and not suitable for pedestrian-oriented development.
3.60: Residential development should be oriented away from I-5 and other primary streets without adequate transitioning standards and situated within the roadway network and relative to other land uses so as to minimize high volumes of through traffic	**Not Applicable:** The project is not residential.
7.12: A comprehensive, interconnected trail system will offer pedestrian walkways, bike paths, and equestrian trails throughout the community.	**Consistent:** The project would comply with trail and pedestrian infrastructure requirements, if any are required on the streets serving the site.
7.13: The creation of inter-city trails will enhance recreational opportunities and promote walking as a viable travel mode.	**Consistent**. The project is not located on an intercity trail route.
7.15: The local trail system will connect local residents to regional, state, and federal trail systems	**Consistent**. The project is not located in an area served by regional, state, or federal trails.
Actions	
7.bbb: as Support green roofs on new developments as a method of stormwater mitigation, as well as reduction of the urban "heat island" effect. For new construction, use of green roofs should result in a reduction in the extent of stormwater facilities that need to be constructed to meet standards	**Not applicable**. The project has limited roof area suitable for installation of green roofs. The project will comply with high albedo roof requirements of Title 24 that have similar heat island and energy savings benefits.

Table 9 (cont.): Consistency with General Plan Policies and Recommended Actions

General Plan Policy/Action	Project Consistency
8.b: Establish complete street subdivision criteria for new development and improve convenience, energy efficiency, and safety for multi-modal travel in existing neighborhoods.	**Not applicable**. The project is not in a subdivision subject to complete street criteria.
8.b-5: Upon signalization improvements, the City shall optimize traffic signal performance to increase traffic flow and reduce vehicular emissions.	**Consistent.** The project will contribute funding for signalization at intersections impacted by the project. The City would be responsible for optimizing performance.
8.b-7: The City shall coordinate bicycle and pedestrian paths to logically link to the County's plans for bicycle and pedestrian travel.	**Not applicable**. This action applies to City planning efforts.
8.c: Monitor the operation and performance of the multi-modal circulation system	**Not applicable**. This action will be accomplished by the City and not individual project proponents.
8.c-7: All transportation improvement projects proposed for inclusion in the City's Capital Improvement Program shall be consistent with air quality, land use, circulation, and other goals and policies of the General Plan	**Consistent**. Transportation improvements required of the project that are part of the Capital Improvement Program are required to comply with this action.
8.d-2: New development shall construct and dedicate streets that accommodate the full range of locally available travel modes	**Consistent.** The streets constructed for the project will be designed to meet city specifications.
8.d-3: New development shall construct and dedicate and/or contribute to a connected bicycle/pedestrian network that is designed to promote travel to schools, parks, and other major destinations	**Consistent**. The project is an automobile oriented use that is not intended to attract pedestrians or bicycles; however, any streets designated for this purpose that are required to be constructed by the project will meet city design standards.
8.d-7: The City shall integrate local bikeway planning with regional plans	**Not applicable**. This action is the responsibility of the City.
8.d-11: Provide dedicated pedestrian and bike lanes on the E Street overpass of I-5, as recommended in Chapter 5, Open Space and Conservation	**Not applicable**. The project is not located on E Street.
8.f-2: The City shall designate by ordinance truck routes to direct trucks to routes that maintain sufficient carrying capacity and to discourage truck traffic on local residential streets	**Not applicable**. This action is the City's responsibility. Trucks accessing the site will be directed to truck routes designated by the City.
8.h-4: The City shall plan and require construction of bikeways, sidewalks, and pedestrian access ways to major destination points with emphasis on providing connecting access to schools, parks and shopping centers from residential neighborhoods	**Consistent**. The project will construct bikeways and pedestrian infrastructure required by City design standards and plans.
8.i: Encourage the continued development and expansion of local and regional public transit systems	**Not applicable**. The project use and location is not conducive to transit service.

Table 9 (cont.): Consistency with General Plan Policies and Recommended Actions

General Plan Policy/Action	Project Consistency
8.i-1: The City shall review and comment on proposed changes to the Colusa County Transit Authority	**Not applicable**. This action is the City's responsibility.
8.i-2: The City will consult with the California Public Utilities Commission, Amtrak, Union Pacific Railroad Company, and any other relevant agencies to encourage and accommodate any future opportunities for establishing passenger rail service in Colusa County and create a central multimodal transit station in Williams	**Not applicable**. This action is the City's responsibility.
8.i-3: The City should actively engage in the restoration of passenger rail service along the California Northern Pacific Railroad tracks within Williams	**Not applicable**. This action is the City's responsibility
8.l: Coordinate transportation planning with regional and local plans	**Not applicable**. This action is the City's responsibility
8.l-4: The City will coordinate with Caltrans, the Colusa County Air Pollution Control District and the Colusa County Regional Transportation Commission to minimize air quality and transportation impacts associated with planned and existing transportation facilities	**Consistent**. The City will make the environmental document available for comment by these agencies.
8.o: Provide parking in a way that balances the needs of motorists, pedestrians, bicyclists, transit users and community aesthetics	**Consistent**. The project parking design is appropriate for a land use that serves the traveling public and will meet City design standards.
Source: City of Williams General Plan.	

Air Quality Plan Control Measures

The 2015 Triennial Plan contains control measures, which are voluntary actions and enforceable requirements through the adoption of rules and regulations. A detailed description of rules and regulations that apply to this project is provided in Section 2.2, Regulatory Setting. The project would comply with all applicable CCAPCD rules and regulations. Therefore, the project complies with this criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plan.

Conclusion

The project's emissions are less than significant for all criteria pollutants and would not result in inconsistency with the AQP for this criterion. The project's land use designation is consistent with the land use assumptions of the applicable general plan. The project complies with all applicable policies, implementation actions of the 2012 General Plan; therefore, the project is not considered inconsistent with the AQP, and the impact would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

5.2.2 - Potential for Air Quality Standard Violation

Impact AIR-2:	**The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Impact Analysis

Regional Emissions

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to quantitative thresholds of significance for short-term construction activities and long-term operation of the project in tons per year of each pollutant emitted. Localized emissions from project construction and operation are also assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, NO_x, PM_{10}, and $PM_{2.5}$. The CCAPCD has not adopted CEQA thresholds of significance for land use projects. However, in the absence of adopted Air District thresholds specifically for land use, the City may use the Air District's stationary source new source review offset thresholds that apply to projects where stationary source permits are required under Regulation III—Permits. Regulation 3 requires offsets for a new stationary source with a potential to emit nonattainment pollutants or their precursors equal to or exceeding twenty five (25) tons per year. The air basin is classified as nonattainment for ozone, PM_{10} (state), and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and NO_x emissions in the presence of sunlight. Therefore, ROG and NO_x are termed ozone precursors. The Air Basin has exceeded the state and national ozone standards and Colusa County although now in attainment of ozone standards has exceeded the ozone standards in the past. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for PM_{10}, and $PM_{2.5}$; therefore, substantial project emissions may contribute to an exceedance for these pollutants.

The following thresholds would apply to the project:

- ROG: 25 tons/year
- NO_x 25 tons/year
- PM_{10} 25 tons/year
- $PM_{2.5}$ 25 tons/year

Thresholds adopted by some air districts and lead agencies do not apply the regional thresholds to construction emissions because they are temporary. Others apply the annual operational thresholds to construction activities to ensure that large construction projects and projects with multi-year construction schedules assess potential regional impacts. The analysis prepared for this project applies the thresholds to both operational and construction emissions. The Air Basin is in attainment for CO and SO_2; therefore, no ton per year threshold is required for these pollutants. CO is assessed as a localized pollutant under Impact AIR-3 to address potential hotspots. The project does not contain sources that would produce substantial quantities of SO_2 emissions during construction and operation. No further analysis of SO_2 is required.

Construction Emissions

Construction emissions associated with the project are shown for the years 2016 and 2017 in Table 10. Construction is scheduled to be completed in a single phase. Construction emissions are temporary, so their impacts are addressed separately from operational emissions and would be subject to their own mitigation measures if the thresholds were exceeded. For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. As shown in Table 10, the emissions are below the significance thresholds in each construction year. Therefore, the emissions are less than significant on a project basis.

Table 10: Construction Air Pollutant Emissions

Source	Emissions (tons per year)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
2016 Construction	0.44	4.04	0.48	0.34
2017 Construction	0.43	1.75	0.12	0.11
Significance threshold (tons/year)	25	25	25	25
Exceed threshold—significant impact?	No	No	No	No

Notes:
ROG = reactive organic gases NO_x = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Area source emissions include emissions from natural gas, landscape, and painting.
Source: Appendix A.

Operational Emissions

Operational emissions occur over the lifetime of the project and are from two main sources: area sources and motor vehicles, or mobile sources. Operations were assumed to commence in 2017 after construction is expected to be complete.

For assumptions in estimating the emissions, please refer to Section 4, Modeling Parameters and Assumptions. The emissions modeling results for project operation are summarized in Table 11. Please note that these results include the benefits from compliance with mandated regulations not yet incorporated into CalEEMod. These regulations are considered part of the project baseline; however, the results are presented in the CalEEMod mitigated model output and are not considered mitigation required for CEQA compliance.

The results of the analysis are presented in Table 11. The emissions are below the CCAPCD significance thresholds and, therefore, would result in a less than significant impact.

Table 11: Operational Air Pollutant Emissions (2017)

Source	Emissions (tons per year)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Area	0.10	<0.01	<0.01	<0.01
Energy	0.01	0.05	<0.01	<0.01
Mobile—Local Area	0.58	1.02	0.42	0.12
Mobile—Diverted Trips	3.63	7.33	0.26	0.10
Total	**4.31**	**8.41**	**0.69**	**0.22**
Significance threshold (tons/year)	25	25	25	25
Exceed threshold—significant impact?	No	No	No	No

Notes:
ROG = reactive organic gases NO_x = nitrogen oxides PM_{10} and $PM_{2.5}$ = particulate matter
Area source emissions include emissions from natural gas, landscape, and painting.
Source: CalEEMod output (Appendix A).

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

5.2.3 - Cumulative Impacts

Impact AIR-3: **The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis

To result in a less than significant impact, the following criteria must be true:

1. Regional analysis: emissions of nonattainment pollutants must be below the regional significance thresholds.
2. Summary of projections: the project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA Guidelines.

3. Cumulative health impacts: the project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219-20.

Step 1: Regional Analysis

If an area is in nonattainment for a criteria pollutant, then the background concentration of that pollutant has historically exceeded the ambient air quality standard. It follows that if a project exceeds the regional threshold for that nonattainment pollutant, then it would result in a cumulatively considerable net increase of that pollutant and result in a significant cumulative impact.

Colusa County has attained all ambient air quality standards with the exception of the state PM_{10} standard. However, other locations in the Air Basin have not attained other standards and emissions that occur in Colusa County could contribute to violations of standards in other portions of the Air Basin. The Air Basin is in nonattainment for PM_{10}, $PM_{2.5}$, and ozone. Therefore, if the project exceeds the regional thresholds for PM_{10}, or $PM_{2.5}$, then it contributes to a cumulatively considerable impact for those pollutants. If the project exceeds the regional threshold for NO_x or ROG, then it follows that the project would contribute to a cumulatively considerable impact for ozone.

Regional emissions include those generated from all on-site and off-site activities. Regional significance thresholds have been identified from CCAPCD new and modified stationary source review offset thresholds because emissions from projects in the Air Basin can potentially contribute to the existing emission burden and possibly affect the attainment and maintenance of ambient air quality standards. Projects with regional emissions in excess of any of the thresholds presented previously under Impact AIR-2 are considered to have a significant regional air quality impact.

The criteria pollutant emissions analysis assessed to determine whether the project would exceed the CCAPCD regional thresholds of significance. As shown in Table 10 and Table 11, criteria pollutant emissions would not exceed any threshold of significance during project construction or operation. Therefore, the combination of unmitigated project emissions with the criteria pollutants from other sources within the Air Basin would not cumulatively contribute to a significant impact according to this criterion.

Step 2: Plan Approach

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts is based on a summary of projections analysis. The project's consistency with the attainment plan is provided under Impact AIR-1. The results of that assessment found that the project is consistent with the applicable plan for the Air Basin.

This analysis considers the current CEQA Guidelines, which includes the amendments approved by the Natural Resources Agency that were effective on March 18, 2010. The Air Basin is in nonattainment or maintenance status for ozone and particulate matter (PM_{10} and $PM_{2.5}$), which means that concentrations of those pollutants currently exceed the ambient air quality standards for those pollutants or that the standards have recently been attained in the case of pollutants with maintenance status. When concentrations of ozone, PM_{10}, or $PM_{2.5}$ exceed the ambient air quality standard, then those sensitive to air pollution (such as children, the elderly, and the infirm) could experience health effects such as decrease of pulmonary function and localized lung edema in humans and animals, increased mortality risk, and risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans. Current air quality in the Williams area does not exceed state and federal air quality standards for ozone and $PM_{2.5}$, so no health impacts from these pollutants occur. Colusa County exceeds state PM_{10} standards on occasion, so the population is currently experiencing health impacts that are due to PM_{10} exposure.

Under the amended CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. In accordance with CEQA Guidelines Section 15064, subdivision (h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously approved plan or mitigation program. The geographic scope for cumulative criteria pollution from air quality impacts is the Air Basin, because that is the area in which the air pollutants generated by the sources within the Air Basin circulate and are often trapped. The 2015 Triennial Plan is the applicable plan for the Air Basin. The Triennial Plan evaluated emissions from land uses and transportation related sources in the entire Air Basin during plan development. As described under Impact AIR-1, emissions are declining sufficiently because of adopted regulations to help ensure that health impacts will continue to decline even with predicted growth.

As discussed in Impact AIR-1, the project is consistent with all applicable control measures in the air quality attainment plans. The project would comply with any CCAPCD rules and regulations that may pertain to implementation of the AQPs. Therefore, impacts would be less than significant with regard to compliance with applicable rules and regulations.

Step 3: Cumulative Health Impacts

The County is in attainment of all ambient air quality standards with the exception of the state PM_{10} standard. However, the Air Basin is in nonattainment for ozone, PM_{10}, (state only) and $PM_{2.5}$, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and the infirm). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects that were described in Table 1. However, the health

effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience health effects.

Since the Basin is nonattainment for ozone, PM_{10}, and $PM_{2.5}$, it is considered to have an existing significant cumulative health impact without the project. When this occurs, the analysis considers whether the project's contribution to the existing violation of air quality standards is cumulatively considerable. The regional thresholds for NO_x, VOC, PM_{10}, or $PM_{2.5}$ are applied as cumulative contribution thresholds. Projects that exceed the regional thresholds would have a cumulatively considerable health impact. As shown in Table 10 and Table 11, the regional analysis of construction and operational emissions indicates that the project would not exceed the significance thresholds and the project is consistent with the applicable Air Quality Attainment Plan. Therefore, the project would not result in significant cumulative health impacts.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

5.2.4 - Sensitive Receptors

Impact AIR-4:	**The project would not expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis

Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. Sensitive receptor are defined as a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The closest sensitive receptors are the Colusa County Outreach Facility and the Colusa County Department of Education, Alternative Education School and Special Education/ Severely Handicapped School and are located a minimum of approximately 0.4 mile south of the Project site. Emissions decrease in concentration with distance from the emission sources at a rate of approximately 80 percent at 1,000 feet (ARB 2005). At this distance, emissions generated by a project could not be differentiated from background emissions. At 2,000 feet from the project site, emission concentrations would be extremely low.

Construction

The CCAPCD has not published guidance for assessing the localized impacts of construction emissions. Review of SMAQMD guidance for assessing construction emissions indicates that the District does not expect construction activity to generate high concentrations of other criteria pollutants (e.g., NO_2, SO_X, CO) and, therefore, does not recommend their evaluation. Based on this guidance and the distance to the nearest sensitive receptor, no quantitative analysis for the localized impacts of these pollutants during construction was conducted.

ROG is emitted during the application of architectural coatings (painting). The amount emitted is dependent on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern rather than an outdoor air quality health hazard concern. Therefore, exposure to ROG during architectural coatings is a less than significant health impact.

As discussed in Impact AIR-2, emissions during construction would not exceed the significance thresholds and therefore would not be expected to result in concentrations that would exceed ambient standards or contribute substantially to an existing exceedance of an ambient air quality standard.

The grading and site preparation activities have the potential to emit fugitive dust (PM_{10}) from soil disturbance. Standard dust control practices such as watering areas that will be actively disturbed and prevention and frequent clean-up of soil tracked onto paved roads is normally adequate to reduce impacts from PM_{10} during construction to less than significant. The CCAPCD has not adopted regulations to control fugitive dust; therefore, this impact is potentially significant without mitigation. To ensure that adequate dust controls are applied to prevent significant impacts, implementation of standard dust control management practices recommended by the neighboring Yolo Solano Air Quality Management District (YSAQMD) under Mitigation Measure (MM) AIR-1 is required.

Operation

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

As discussed in Impact AIR-2, localized concentrations of PM_{10}, $PM_{2.5}$, would not exceed the ambient air quality standards with the application of controls to minimize fugitive dust emissions. Therefore, the project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

Carbon Monoxide Hot Spot Analysis

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. CO hotspots have become increasingly unlikely due to the success of the State's emission control requirements. The entire State has attained state and federal ambient CO standards. Several air districts have developed screening criteria that if exceeded would require dispersion modeling to

determine if a CO hotspot would occur. The SMAQMD screening criteria from its CEQA Guide are as follows:

- Traffic generated by the proposed project will not result in deterioration of intersection level of service (LOS) to LOS E or F; and
- The project will not contribute additional traffic to an intersection that already operates at LOS of E or F.

The intersections serving the project would not exceed these criteria; therefore, the project would not significantly contribute to an exceedance of state or federal CO standards.

Toxic Air Contaminants

A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The health risk is affected by several factors, such as the amount, toxicity, and concentration of the contaminant; meteorological conditions; distance from the emission sources to people; the distance between emission sources; the age, health, and lifestyle of the people living or working at a location; and the length of exposure to the toxic air contaminant.

The term "risk" usually refers to the chance of contracting cancer as a result of an exposure, and it is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

The CCAPCD does not have an adopted threshold of significance for TAC impacts for development projects. The YSAQMD CEQA Handbook includes the following thresholds that are common to many other air districts that may be applied to the project:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) equals to 10 in one million or more.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index equal to 1 for the MEI or greater.

Construction: Toxic Air Contaminants

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. Most air districts do not currently recommend analysis of TAC emissions from project construction activities, but instead focus on projects with operational emissions that would expose sensitive receptors over a typical lifetime of 70 years. In addition, the project site is over 3,000 feet from the nearest sensitive receptor. At this distance, concentrations of TAC emissions would be reduced by about 80 percent and would be indistinguishable from background concentrations (ARB 2005). Therefore, impacts from TAC emissions during construction would be less than significant.

Construction phase risks would be considered acute health risks as opposed to cancer risks, which are long-term. OEHHA has yet to define acute risk factors for diesel particulates that would allow the calculation of a hazards risk index; thus, evaluation of this impact would be speculative and no further discussion is necessary.

Operation: Toxic Air Contaminants

The ARB Air Quality and Land Use Handbook contains recommendations that will "help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution" (ARB 2005), including recommendations for distances between sensitive receptors and certain land uses. The handbook does not provide specific recommendations for projects that include a truck stop; however, it does have a recommendation for another land use that would have substantial numbers of diesel trucks. According to the ARB and the South Coast AQMD, analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public exposure downwind of a distribution center. The recommendation is based on distribution centers with more than 100 trucks per day. Although the project is expected to serve approximately 900 trucks per day, the trucks do not idle when refueling and most would be on-site for a limited time. Trucks on-site to obtain other services at the facility or that park overnight are required to idle no longer than 5 minutes in accordance with ARB regulations limiting idling described in Section 2.2.1 State Regulations.

The ARB handbook recommends avoiding new sensitive land uses within 300 feet of a large fueling station (a facility with a throughput of 3.6 million gallons per year or greater). A similar Love's project was expected to sell approximately 3.0 million gallons of gasoline per year. The primary pollutant of concern for fueling stations is benzene from evaporated gasoline. The project will service gasoline-fueled cars and trucks, but the largest volume of fuels is expected to be provided to diesel-fueled vehicles. Diesel fuel has low volatility and is not a significant source of benzene. The fueling station is over 3,000 feet from the nearest residence. Therefore, impacts from the fueling operation would be negligible.

A health risk assessment prepared for a Love's project in Madera County with similar volumes of truck trips and fuel throughput estimated the maximum increase in cancer risk to the nearest sensitive receptor (50 feet) was 37 in a million using 2015 OEHHA risk guidance. The DPM concentration and related impact at 1,000 feet would be reduced by approximately 80 percent. At that rate of dispersion, the risk at 1,000 feet would be approximately 7.4 in a million compared with the health risk threshold of 10 in a million increase in cancer risk. Since the sensitive receptors nearest the project site are over 3,000 feet away, the risk would well below the 10 in a million threshold and would produce a less than significant impact from TAC emissions.

Projects with fueling stations and diesel truck emissions that do not exceed the cancer risk threshold also would not exceed the acute hazard index threshold of 1.0. The health risk assessment for the Love's project in Madera County with a sensitive receptor at 50 feet from the project site determined the acute hazard index in that case was 0.326. The nearest sensitive receptor for the Williams Love's project is over 3,000 feet from the project. Therefore, it is reasonable to conclude that acute impacts related to TAC emissions at sites more distant will be less than significant.

Valley Fever

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

Colusa County experiences a number of cases of Valley fever each year. Although Valley fever is less of a problem than other areas such as the San Joaquin Valley, it is still a concern in soils that provide habitat for the spores. The average annual number of cases in Colusa County from 2000 to 2007 was 2.1 to 4.9 per 100,000 population (CDC 2009).

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

1) Rodent burrows (often a favorable site for *C. immitis*, perhaps because temperatures are more moderate and humidity higher than on the ground surface)
2) Old (prehistoric) Indian campsites near fire pits
3) Areas with sparse vegetation and alkaline soils
4) Areas with high salinity soils
5) Areas adjacent to arroyos (where residual moisture may be available)
6) Packrat middens
7) Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils
8) Sandy well aerated soil with relatively high water holding capacities

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

1) Cultivated fields
2) Heavily vegetated areas (e.g. grassy lawns)
3) Higher elevations (above 7,000 feet)
4) Areas where commercial fertilizers (e.g. ammonium sulfate) have been applied
5) Areas that are continually wet
6) Paved (asphalt or concrete) or oiled areas
7) Soils containing abundant microorganisms
8) Heavily urbanized areas where there is little undisturbed virgin soil (USGS 2000).

The project site is situated in a city growth area. The project includes urbanization of site that is currently developed with previously cultivated land. Therefore, implementation of the project would have a low probability of the site having *C. immitis* growth sites and exposure to the spores from disturbed soil.

Construction activities would generate fugitive dust that could contain *C. immitis* spores. The project will minimize the generation of fugitive dust during construction activities by complying with MM AIR-1. Therefore, this regulation, combined with the relatively low probability of the presence of *C. immitis* spores would reduce valley fever impacts to less than significant.

During operations, dust emissions are anticipated to be negligible, because most of the project area would be occupied by buildings, pavement, and landscaped areas. This condition would preclude the possibility of the project from providing habitat suitable for *C. immitis* spores and for generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

Naturally Occurring Asbestos

According to a map of areas where naturally occurring asbestos in California are likely to occur (U.S. Geological Survey 2011), there are no such areas in the project area. Therefore, development of the project is not anticipated to expose receptors to naturally occurring asbestos. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM-AIR-1 Implement Dust Control Measures sufficient to control fugitive dust during soil disturbing activities and during periods of inactivity to prevent windblown dust. The following measures shall be implemented as needed (frequency of application and need for specific measures are dependent on weather and actual construction activities occurring at any given time:

- Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Haul trucks shall maintain at least 2 feet of freeboard, or cover all trucks hauling dirt, sand, or loose materials.
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least 4 consecutive days).
- Plant vegetative ground cover in disturbed areas as soon as possible.
- Cover inactive storage piles.
- Sweep streets if visible soil material is carried out from the construction site.
- Treat accesses to a distance of 100 feet from the paved road with a 6- to 12-inch layer of wood chips or mulch, or treat accesses to a distance of 100 feet from the paved road with a 6-inch layer of gravel.

Level of Significance After Mitigation

Less than significant impact.

5.2.5 - Objectionable Odors

Impact AIR-5: **The project would not create objectionable odors affecting a substantial number of people.**

Impact Analysis

Thresholds of Significance

Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. Common land use types that are known to produce odors are shown in Table 12.

Table 12: Screening Levels for Potential Odor Sources

Odor Generator	Screening Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: SJVAPCD 2015.	

Project Analysis

Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roasters, asphalt batch plants, and rendering plants. The project would not engage in any of these

activities. Therefore, the project would not be considered a generator of objectionable odors during operations.

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and would not likely be noticeable for extended periods of time beyond the project's site boundaries. The potential for diesel odor impacts during construction is therefore less than significant.

During operations, the project will dispense motor vehicle fuels and will serve diesel trucks that purchase fuel and use the other facilities available at the project site. The project site is over 3,000 feet from the nearest sensitive receptor; therefore, the odorous emissions would not expose sensitive receptors to substantial concentrations of these pollutants. This impact is less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

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SECTION 6: GREENHOUSE GAS IMPACT ANALYSIS

6.1 - CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

6.2 - Impact Analysis

6.2.1 - Greenhouse Gas Inventory

Impact GHG-1:	**The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.**

Impact Analysis

Threshold of Significance

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- **Consideration #1**: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration #2**: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration #3**: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The City of Williams has not adopted its own GHG thresholds or prepared a Climate Action Plan that can be used as a basis for determining project significance. In the absence of an adopted threshold, the City may assess project GHG impacts by whether the project would conflict with the State's goal of achieving the GHG targets of AB 32. AB 32 requires the State to reduce GHG emissions to 1990 levels by 2020. This amount constitutes the State's fair-share contribution to reducing the global impacts of climate change. The ARB was tasked with preparing the 2008 Scoping Plan that identifies the sources of GHG in California in an emission inventory and provides a strategy to reduce emissions to the extent needed to reach the target accounting for projected growth in population and economic activity predicted for 2020. In 2008, the ARB estimated that the State would need to reduce its emissions by 28.3 percent from the 2020 BAU inventory. BAU represents the emissions that would occur if no regulations were adopted after the base year. For the purposes of the Scoping Plan, ARB used three-year average emissions, by sector, for 2002-2004 to forecast emissions to 2020. This allowed ARB to more accurately estimate the amount of reductions needed from growth in all sources in the emission inventory.

The ARB issued an updated inventory in 2010 that reflected slower population and economic growth during the years after the 2008 recession. The new BAU inventory was reduced from 596 $MMTCO_2e$ to 545 $MMTCO_2e$. The new GHG reduction level for the State to reach 1990 emission levels by 2020 is 21.7 percent (ARB 2010). The First Update to the Climate Change Scoping Plan adopted in May 2014 provided another revised inventory projection that used updated global warming potentials for the greenhouse gases from IPCC AR4. The 2014 update revised the 1990 baseline inventory to 431 $MMTCO_2e$ and the 2020 BAU inventory to 539 $MMTCO_2e$ which results in a required reduction from BAU of 20.0 percent. The First Update to the Climate Change Scoping Plan also confirmed that the State is on track to achieve the 2020 target and to maintain and continue reductions beyond 2020 as required by AB 32 (ARB 2014b). The models used to estimate project emissions have not been updated for IPCC AR4 GWPs; therefore, the reduction from the 2010 inventory provides the most consistent BAU comparison.

A number of Air Districts and lead agencies adopted GHG thresholds for project GHG significance based on applying the amount needed by the State to achieve the 2020 target to project emission sources. Under this approach, if emissions from project emission sources were reduced by the percentage required by the State to achieve the target, the project would be considered to have less than significant GHG impacts. GHG emissions from most residential and commercial development projects are generated by mobile sources (cars and trucks) and from energy consumption from project buildings from electricity and natural gas use. These sources comprise the vast majority of the State's emission inventory (approximately 72 percent), so a threshold based on the overall reduction required by the State to achieve its target was considered a reasonable threshold. The application of a BAU threshold as a project threshold was challenged in court and was the subject of a recent ruling of the California Supreme Court in the *Center for Biological Diversity vs. California Department of Fish and Wildlife* (commonly referred to as Newhall Ranch).

Newhall Ranch

On November 30, 2015, the California Supreme Court issued its decision in *Newhall Ranch* invalidating the GHG analysis for a large master planned residential development in Los Angeles

County consisting of over 20,000 residential dwelling units and other uses. In particular, the Court upheld: (1) use of the statewide emissions reduction goal in AB 32 as a significance criterion (pp. 15-19), (2) use of the Scoping Plan's BAU model "as a comparative tool for evaluating efficiency and conservation efforts" of the Project (pp. 18-19), and (3) a comparison of the project's expected emissions to a BAU model rather than a baseline of pre-project conditions (pp.15-19.). The Court invalidated the GHG analysis on the grounds that the "administrative record discloses no substantial evidence that the Newhall Ranch's project-level reduction of 31 percent in comparison to [BAU] is consistent with achieving AB 32's statewide goal of a 29 percent reduction from [BAU] The Court indicated that A lead agency may use a BAU comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location. (p. 25.) A lead agency "might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities.

The substantial evidence needed to support a project BAU threshold can be derived from data used to develop the Scoping Plan inventory and control strategy and from analysis conducted by the ARB to track progress in achieving the AB 32 2020 target. The critical factor in determining the appropriate project threshold is whether the State requires additional reductions beyond that achieved by regulations to achieve its target. If no additional reductions are required from individual projects, no nexus exists to require a project to mitigate its emissions. In that case the percentage reductions achieved by projects is the amount needed to reach the AB 32 target.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked for their effectiveness after implementation. The combined effect of this successful effort is that the State now projects that it will meet the 2020 target and achieve continued progress toward meeting post-2020 targets. Governor Brown in the introduction to Executive Order B-30-15 states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)".

The Supreme Court was concerned that new development may need to do more than existing development to reduce greenhouse gases to demonstrate that it is doing its fair share of reductions. As will be shown below, new development does do more than existing development and, due to the nature of the sources of GHG emissions related to development, existing development is equally responsible for reducing emissions from the most important sources of emissions. It is important to note that most of the State's regulatory program applies to new and existing development.

The Scoping Plan reduction from BAU accounts for growth projected in the State and assumes that existing development would continue to emit GHGs at the same rate that occurred in the base year (2002-2004 average). The California Department of Finance (DOF) Report E-5 predicts that population growth in California from 2005 to 2020 will be 13.2 percent. This means that development that existed in 2005 will produce nearly 87 percent of the State's emissions in 2020.

Conversely, new development is only responsible for about 13 percent of the emissions generated during this timeframe. If measures to reduce emissions from existing development were not available, new development could not provide sufficient reductions to reach the 2020 target even if their emissions were reduced to net zero.

The State's regulatory program is able to target both new and existing development because the two most important strategies, motor vehicle fuel efficiency, and emissions from electricity generation obtain reductions equally from existing sources and new sources. This is because all vehicle operators use cleaner low carbon fuels and buy vehicles subject to the fuel efficiency regulations and all building owners or operators purchase cleaner energy from the grid that is produced by increasing percentages of renewable fuels. This includes regulations on mobile sources such as the Pavley standards that apply to all vehicles purchased in California, the Low Carbon Fuel Standard (LCFS) that applies to all fuel used in California, and the Renewable Portfolio Standard and Renewable Energy Standard that apply to utilities providing electricity to all California homes and businesses. The reduction strategy where new development is required to do more than existing development is building energy efficiency and energy use related to water conservation regulations. For example, new projects are subject to Title 24 Energy Efficiency standards and CalGreen Code and MWELO water conservation requirements. Buildings constructed to the 2013 Title 24 standards use 30 percent less energy than buildings complying with the 2008 standards. New buildings and landscapes are much more energy efficient and water efficient than the development that has been built over the past decades and will require much less energy.

As described above, the State requires an average reduction from all sources of the emission inventory of about 22 percent. The Scoping Plan strategy will achieve more than average reductions from energy and mobile source sectors that are the primary sources related to development projects and lower than average reductions from other sources such as agriculture. The amount of reduction estimated for each sector was based on technical feasibility and cost effectiveness. Review of the Scoping Plan inventory and strategy shows that the reduction from all development related sources is approximately 29 percent from BAU in order to make up for the below average sectors and achieve the required 22 percent average reduction.

As suggested by the Court, a project BAU analysis was prepared for this project that assesses "consistency with AB 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities". The analysis shows the extent to which the project complies with adopted regulations and the additional amount that will be achieved through project design features. At this point in time, no additional reductions are required from new development beyond regulations for the State to achieve its target. Therefore, this analysis meets the consistency test described by the Supreme Court.

The analysis prepared for the project also includes a qualitative assessment of compliance with Scoping Plan and General Plan measures to support GHG significance findings under Impact GHG-2. There are no measures that identify specific requirements on development projects, but the analysis shows how the applicable measures affect project emission sources.

Impact Analysis

Construction

Total GHG emissions generated during all phases of construction were combined and are presented in Table 13. Although construction-related emissions would occur prior to the year 2020, which is the year the State is required to reduce its GHG emissions to 1990 levels, construction emissions have been included since they may remain in the atmosphere for years after construction is complete. In order to account for the construction emissions, the total emissions generated during construction were amortized based on the life of the development (residential—30 years) and added to the operational emissions.

Table 13: Construction Greenhouse Gas Emissions

Year	Total $MTCO_2e$ per year
Construction 2016	336.16
Construction 2017	164.13
Total	500.29
Amortized over 30 years	16.68

Notes:
Due to rounding, total $MTCO_2e$ may be marginally different from CalEEMod output.
$MTCO_2e$ = metric tons of carbon dioxide equivalents
Source: CalEEMod output (Appendix A).

Operation

Operational or long-term emissions occur over the life of the project. Sources of emissions may include motor vehicles and trucks, energy usage, water usage, waste generation, and area sources, such as landscaping activities and residential wood burning. Operational GHG emissions associated with the project were estimated using CalEEMod 2013.2.2.

Business-as-Usual Operational Emissions

Operational emissions under the BAU scenario were modeled using CalEEMod 2013.2.2. Modeling assumptions for the year 2005 were used to represent 2020 BAU conditions (without the benefit of regulations adopted to reduce GHG emissions). The SJVAPCD guidance recommends using emissions in 2002-2004 in the baseline scenario to represent conditions as if regulations had not been adopted to allow the effect of projected growth on achieving reduction targets to be clearly defined. CalEEMod defaults were used for project energy usage, water usage, waste generation, and area sources (architectural coating, consumer products, and landscaping). The vehicle fleet mix was revised to reflect the residential fleet mix approved by SJVAPCD for year 2020. The year 2020 was chosen because it is the AB 32 target year. Full assumptions and CalEEMod model outputs are provided in Appendix A.

2020 Operational Emissions

Operational emissions for the year 2020 were modeled using CalEEMod. CalEEMod assumes compliance with some, but not all, applicable rules and regulations regarding energy efficiency,

vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies, as described in the CalEEMod User's Guide (CAPCOA 2013) The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

Emissions Accounting for Applicable Regulations

The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I motor vehicle emission standards
- Low Carbon Fuel Standard (LCFS)
- 2005 and 2008 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Pavley II (LEV III) Advanced Clean Cars Program
- 2013 Title 24 Energy Efficiency Standards
- Renewable Portfolio Standards (RPS)
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)
- ARB Refrigerant Management Program

Pavley II/LEV III standards have not been incorporated in the latest version of CalEEMod. Reductions from standards are calculated by adjusting the CalEEMod GHG passenger car and light truck emission factors by ARB's estimated three percent reduction expected from the vehicle categories subject to the regulation by 2020 (ARB 2010).

Title 24 reductions for 2013 are not accounted for in the current version of CalEEMod. The California Energy Commission (CEC) estimates that 2013 Title 24 standards would result in an increase in energy efficiency of 30 percent in commercial buildings compared with 2008 Title 24 (CEC 2014). The benefits of 2013 Title 24 are applied in the CalEEMod mitigation component to correctly allocate the reductions only to building components subject to the regulation.

RPS is not accounted for in the current version of CalEEMod. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the projected utility energy intensity factor provided by the utility.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations (CDWR 2013). CalGreen requires a 20 percent reduction in indoor water use. Benefits of the water conservation regulations are applied in the CalEEMod mitigation component.

The reductions from each regulation, project applicability, and where the credit for the regulation is obtained is provided in Table 14.

Table 14: Reductions from Greenhouse Gas Regulations

Regulation	Project Applicability	Reduction Source	Percent Reduction from BAU in 2020
Pavley Low Emission Vehicle Standards	Light duty cars and trucks accessing the site are subject to the regulation	CalEEMod defaults (Pavley I)I	25.1[1]
		Adjusted GHG emission factor (Pavley II/LEV III) in CalEEMod.	3%[2]
Low Carbon Fuel Standard (LCFS)	Vehicles accessing the site will use fuel subject to the LCFS	CalEEMod defaults	10%[1]
Title 24 Energy Efficiency Standards	Project building components will be constructed to meet the latest version of Title 24 (currently 2013). Energy reductions taken apply only to energy consumption by building components subject to the regulation.	CalEEMod defaults (2008) and CalEEMod mitigation component (2013)	30%[3]
Green Building Code Standards	The project will include water conservation features required by the standard	CalEEMod mitigation component	20%[4]
Water Efficient Land Use Ordinance	The project landscaping will comply with the regulation	CalEEMod mitigation component	20%[5]
Renewable Portfolio Standard (RPS)	Electricity purchased for use at the project site is subject to the 33% RPS mandate	CalEEMod adjusted energy intensity factors from PG&E	23.3%[6]
Solid waste	The solid waste service provider will need to provide programs to increase diversion and recycling to meet the mandate.	CalEEMod mitigation component	25%

Notes:
Regulations are described in Section 2.3 Regulatory Environment. The source of the percentage reductions from each measure are from the following sources:
[1] Pavley 1 + Low Carbon Fuel Standard Postprocessor Version 1.0 User's Guide (ARB 2010c).
[2] ARB Staff Report for LEV III Amendments (ARB 2013)
[3] 2013 Title 24 Building Energy Efficiency Standards Adoption Hearing Presentation (CEC 2013)
[4] 2013 California Green Building Standards Code Section 5.303.2
[5] California Water Plan Update 2013 (CDWR 2013).
[6] PG&E Default Emission Factor for BAU adjusted to reflect 33 percent RPS in 2020)
[7] CalRecycle 75 Percent Initiative: Defining the Future (2016).

In addition to rules and regulations, the project would incorporate design features and would obtain benefits from its location and infrastructure that would reduce project VMT compared with default values. This development is intended to serve the traveling public and would not be expected to attract customers using alternative transportation modes.

Note that CalEEMod nominally treats these design elements and conditions as "mitigation measures," despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions. Full assumptions and model outputs are provided in Appendix A. Results of this analysis are presented in Table 15.

Table 15: Project Operational Greenhouse Gases

Source	Emissions ($MTCO_2e$ per year)		
	Business as Usual	2020	Percent Reduction (with Regulation and Design Features)
Area	0.00414	0.00398	3.9
Energy	148.66	114.65	22.9
Mobile—Local Area	641.53	460.46	28.2
Mobile—Diverted Trips	1,255.23	837.81	33.3
Waste	34.67	26.01	25.0
Water	6.72	4.45	33.8
Amortized Construction Emissions	16.68	16.68	0
Total	2,103.49	1,460.05	—
Reduction from BAU		643.43	—
Percent Reduction		30.6%	—
Significance Threshold		29	—
Are emissions significant?		No	—

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
The project achieves the 29 percent required to show consistency with AB 32 targets.
Source of BAU emissions: CalEEMod output using 2005 modeling year to represent emissions in 2020 without regulations (Appendix A).
Source of 2020 emissions: CalEEMod output for the year 2020 (Appendix A).

As shown in Table 15, the project has a reduction of 30.6 percent from BAU to the year 2020 with Regulations and Design features incorporated. This is above the 29 percent reduction that is needed from development related emission sources to achieve AB 32 2020 targets. The impact is less than significant.

The Supreme Court in the Newhall Ranch case indicated that as 2020 gets closer, selection of a new post-2020 threshold will be necessary. The project is expected to be completed before 2020; therefore, a 2020 target is still appropriate. Nevertheless, without a new Scoping Plan that identifies the State's strategy for achieving a post-2020 target, a new project threshold is premature since the amount of reduction, if any, needed from new development is not known and would be speculative. Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; however,

it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80-percent reduction below 1990 levels by 2050.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

6.2.2 - Greenhouse Gas Reduction Plans

Impact GHG-2:	**The project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of greenhouse gases.**

Impact Analysis

The City of Williams has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, and goal-setting process required to identify a reduction target and to take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with ARB's adopted Scoping Plan. This would be achieved with an assessment of the project's compliance with Scoping Plan measures.

Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 28.4 percent from BAU emission levels projected for 2020, or about 10 percent from 2008 levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman, and child in California down to about 10 tons per person by 2020. As stated earlier, the ARB has updated its emission inventory forecasts and now estimates a reduction of 21.7 percent is required from BAU in 2020 to achieve AB 32 targets.

The Scoping Plan contains a variety of strategies to reduce the State's emissions. As shown in Table 16, the project is consistent with most of the strategies, while others are not applicable to the project.

Table 16: Scoping Plan Reduction Measures Consistency Analysis

Scoping Plan Reduction Measure	Consistency/Applicability Determination
1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.	**Not applicable.** Although the cap-and-trade system has begun, products or services (such as electricity) would be covered and the cost of the cap-and-trade system would be transferred to the consumers.
2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. However, the standards would be applicable to the light-duty vehicles that would access the project site.
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	**Consistent.** This is a measure for the State to increase its energy efficiency standards in new buildings. The project is required to build to the new standards and would increase its energy efficiency through compliance.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. PG&E provided third-party-verified emission factors for its power supply and projections for its emission factors in 2020 based on its expected mix from renewable sources such as solar and geothermal. PG&E would exceed the percentage to 33 percent by the year 2020 pursuant to various regulations. The owners of residences within the project would purchase power that includes a greater amount of renewable sources and could install renewable solar power systems that will assist the utility in achieving the mandate.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Consistent.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the project site.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	**Consistent.** SB 375 has no requirements that apply directly to development projects; however, the development and density proposed by the project will contribute to achieving SB 375 regional targets.

Table 16 (cont.): Scoping Plan Reduction Measures Consistency Analysis

Scoping Plan Reduction Measure	Consistency/Applicability Determination
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	**Consistent.** When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the project site.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	**Not applicable.** The project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
9. Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The project would comply with Title 24, which requires new buildings to be "solar ready." The project would not preclude the implementation of this strategy.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. The standards phase-in over model years 2014 through 2018. Vehicles that access the project site are subject to the regulation.
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.	**Not applicable.** This measure would apply to the direct GHG emissions at major industrial facilities emitting more than 25,000 $MTCO_2e$ per year. Furthermore, the project is not an industrial land use.
12. High Speed Rail. Support implementation of a high-speed rail system.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Consistent.** The project would comply with the California Energy Code, and thus incorporate applicable energy efficiency features designed to reduce project energy consumption.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Not applicable.** This measure is applicable to the high global warming potential gases that would be used by sources with large equipment (such as in air conditioning and commercial refrigerators) that are not part of this residential project.
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	**Consistent**. The project would comply with City of Williams recycling services and comply with construction waste reduction measures required by CalGreen.

Table 16 (cont.): Scoping Plan Reduction Measures Consistency Analysis

Scoping Plan Reduction Measure	Consistency/Applicability Determination
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	**Not applicable.** The project site is not forested; therefore, this measure is not applicable.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	**Consistent.** The project would comply with water-efficient landscaping requirements and Green Building Code regulations.
18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	**Not applicable.** The project site is not designated for agriculture purposes. No dairy or feedlot that would generate manure is proposed to be implemented by the project.
Source of ARB Scoping Plan Reduction Measure: California Air Resources Board 2008. Source of Project Consistency or Applicability: FirstCarbon Solutions.	

In summary, the project incorporates a number of features that would minimize GHG emissions. These features are consistent with project-level strategies identified by the ARB's Scoping Plan. As demonstrated in the impact analysis above, the project would achieve an approximately 30.6 percent reduction from the BAU inventory and, therefore, would not significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32 or conflict with implementation of the Scoping Plan. The project promotes the goals of the Scoping Plan through implementation of regulations that apply to project sources that reduce energy consumption, water consumption, and reduction in VMT. Therefore, the project does not conflict with any plans to reduce GHG emissions. The impact is less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

SECTION 7: REFERENCES

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Appendix A: CalEEMod Output

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Love's Country Store Project Modeling Assumptions

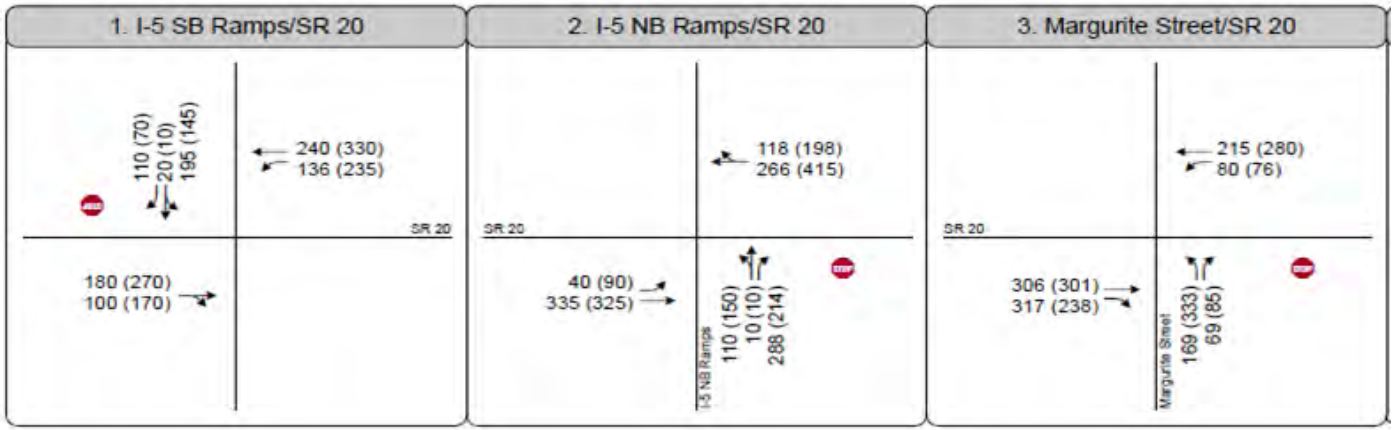
Diverted Trip Length Calculations

Total Trip Generation from TIS (trips/day)	4307
Internal Capture (trips/day)	406
Total New Trips @ Site Driveways	3901
Diverted Link Trips	2926
Net External Trips	975
Diverted Link Trips Percentage	75%
Diverted Link Trips	2,926
NB Trip Length from I5 (miles)	0.67
SB Trip Length from I5 (miles)	1.02
NB/EB Trip Length from Hwy 20 (miles)	0.09
SB/WB Trip Length from Hwy 20 (miles)	0.09
NB Trips from 5 (Fraction of Total Trips)	0.332
SB Trips from 5 (Fraction of Total Trips)	0.234
NB/EB Trips from Hwy 20 (Fraction of Total Trips)	0.158
SB/WB Trips from Hwy 20 (Fraction of Total Trips)	0.276
Weighted Average Diverted Link Trip Length (mi)	**0.500**

Truck Trip Calculations

Total Trips/Day	3901	
Truck Trips/Day	1833.47	
Local Area Truck Trips	113.42029	
Diverted Truck Trips	1720.0497	
MHD Fraction	0.3169849	
HHD Fraction	0.6830151	
Truck Trip Percentage for Diverted Run	0.5878502	
MHD Trips	**0.1863396**	Fleet Fraction
HHD Trips	**0.4015106**	Fleet Fraction

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project Conditions - Provided by Fehr and Peers



Source: Traffic Study prepared by Fehr and Peers

	Fraction of Trips	**1. 1-5 SB Ramps/SR 20**	**2. I-5 NB Ramps/SR 20**	**3. Margurite Street/SR 20**	**Total**
NB Trips from 5	0.3320594	0	782	0	782
SB Trips from 5	0.2335456	550	0	0	550
NB/EB Trips from Hwy 20	0.1579618	0	0	372	372
SB/WB Trips from Hwy 20	0.2764331	0	0	651	651
					2355

Air Basin Default Fleet Mix	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.462386	0.061858	0.181346	0.154042	0.057199	0.007292	0.019609	0.042252	0.00183	0.001673	0.006973	0.000697	0.002843

New Fleet Mix for Diverted Run	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.2021179	0.02730861	0.080059285	0.068005318	0.02525179	0.003219218	0.186339612	0.401510597	0.000807895	0.000738584	0.003078388	0.000308	0.001255

Trip Generation Rates

	Size	**Units for Size**	**Trips/ksf**	**Trips/Day**	**Internal Capture Fraction**	**Trips with Int Capture**	**Diverted Link (75%)**	**Diverted Link Trip Rate for CalEEMod**	**Other Trips**	**Other Trip Gen Rate for CalEEMod**
Gasoline/Service Station with Convenience Market	22	Fueling Station	162.78	3581	0.09426515	3243.436499	2432.784954	**110.5811343**	810.6645185	**36.8483872**
High-Turnover Restaurant and Fast Food	4.53	kfs	127.15	576	0.09426515	521.7032737	391.3108443	**86.38208484**	130.3945162	**28.78466142**
Tire Shop	6.04	kfs	24.87	150	0.09426515	135.8602275	101.9038657	**16.87150094**	33.95690527	**5.622004184**
Totals				4307		3901	2925.999664		975	
Local Area Run										

Note: Trip generation rates provided in Traffic Study prepared by Fehr and Peers

Love's Country Store Williams - Construction

Colusa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	56
Climate Zone	3			**Operational Year**	2017
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 - Based on building data and site plan
Construction Phase - Estimated construction schedule based on 6-7 month duration and a 2016-2017 buildout

Off-road Equipment - Building Construction equipment adjusted to conserve HorsePower (HP) hours

Grading -
Vehicle Trips -
Construction Off-road Equipment Mitigation -
Mobile Land Use Mitigation -
Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	300.00	73.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	12.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	10.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	7.00	7.20
tblOffRoadEquipment	UsageHours	8.00	8.20
tblOffRoadEquipment	UsageHours	8.00	8.20
tblOffRoadEquipment	UsageHours	7.00	8.60
tblOffRoadEquipment	UsageHours	8.00	8.20
tblProjectCharacteristics	OperationalYear	2014	2017

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					
2016	0.4410	4.0362	2.6961	3.6600e-003	0.2250	0.2501	0.4752	0.1048	0.2337	0.3385	0.0000	334.3225	334.3225	0.0876	0.0000	336.1614
2017	0.4346	1.7461	1.2276	1.8200e-003	2.2000e-003	0.1155	0.1177	5.9000e-004	0.1083	0.1089	0.0000	163.2793	163.2793	0.0406	0.0000	164.1311
Total	**0.8757**	**5.7823**	**3.9237**	**5.4800e-003**	**0.2272**	**0.3656**	**0.5928**	**0.1054**	**0.3420**	**0.4474**	**0.0000**	**497.6018**	**497.6018**	**0.1281**	**0.0000**	**500.2924**

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					
2016	0.4410	4.0362	2.6961	3.6600e-003	0.1038	0.2501	0.3539	0.0479	0.2337	0.2815	0.0000	334.3221	334.3221	0.0876	0.0000	336.1610
2017	0.4346	1.7461	1.2276	1.8200e-003	2.2000e-003	0.1155	0.1177	5.9000e-004	0.1083	0.1089	0.0000	163.2791	163.2791	0.0406	0.0000	164.1309
Total	**0.8757**	**5.7823**	**3.9237**	**5.4800e-003**	**0.1060**	**0.3656**	**0.4716**	**0.0484**	**0.3420**	**0.3904**	**0.0000**	**497.6012**	**497.6012**	**0.1281**	**0.0000**	**500.2918**

	ROG	**NOx**	**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**	**53.36**	**0.00**	**20.45**	**54.05**	**0.00**	**12.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/5/2016	9/16/2016	5	10	
2	Grading	Grading	9/17/2016	10/28/2016	5	30	
3	Building Construction	Building Construction	10/29/2016	2/8/2017	5	73	
4	Paving	Paving	2/9/2017	3/8/2017	5	20	
5	Architectural Coating	Architectural Coating	3/9/2017	4/5/2017	5	20	

Acres of Grading (Site Preparation Phase): 0
Acres of Grading (Grading Phase): 75
Acres of Paving: 0
Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 28,221; Non-Residential Outdoor: 9,407 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	4	7.20	226	0.29
Building Construction	Forklifts	12	8.20	89	0.20
Building Construction	Generator Sets	4	8.20	84	0.74
Building Construction	Tractors/Loaders/Backhoes	10	8.60	97	0.37
Building Construction	Welders	4	8.20	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	34	6.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0254	0.2732	0.2055	2.0000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	18.4386	18.4386	5.5600e-003	0.0000	18.5554
Total	**0.0254**	**0.2732**	**0.2055**	**2.0000e-004**	**0.0903**	**0.0147**	**0.1050**	**0.0497**	**0.0135**	**0.0632**	**0.0000**	**18.4386**	**18.4386**	**5.5600e-003**	**0.0000**	**18.5554**

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	4.7000e-004	6.0000e-004	5.6000e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6355	0.6355	4.0000e-005	0.0000	0.6364
Total	**4.7000e-004**	**6.0000e-004**	**5.6000e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6355**	**0.6355**	**4.0000e-005**	**0.0000**	**0.6364**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0254	0.2732	0.2055	2.0000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	18.4385	18.4385	5.5600e-003	0.0000	18.5553
Total	**0.0254**	**0.2732**	**0.2055**	**2.0000e-004**	**0.0407**	**0.0147**	**0.0553**	**0.0223**	**0.0135**	**0.0359**	**0.0000**	**18.4385**	**18.4385**	**5.5600e-003**	**0.0000**	**18.5553**

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	4.7000e-004	6.0000e-004	5.6000e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6355	0.6355	4.0000e-005	0.0000	0.6364
Total	**4.7000e-004**	**6.0000e-004**	**5.6000e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6355**	**0.6355**	**4.0000e-005**	**0.0000**	**0.6364**

3.3 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0972	1.1222	0.7371	9.3000e-004		0.0538	0.0538		0.0495	0.0495	0.0000	87.2936	87.2936	0.0263	0.0000	87.8465
Total	**0.0972**	**1.1222**	**0.7371**	**9.3000e-004**	**0.1301**	**0.0538**	**0.1839**	**0.0540**	**0.0495**	**0.1034**	**0.0000**	**87.2936**	**87.2936**	**0.0263**	**0.0000**	**87.8465**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5700e-003	1.9800e-003	0.0187	3.0000e-005	2.3800e-003	2.0000e-005	2.4000e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1184	2.1184	1.4000e-004	0.0000	2.1212
Total	**1.5700e-003**	**1.9800e-003**	**0.0187**	**3.0000e-005**	**2.3800e-003**	**2.0000e-005**	**2.4000e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.1184**	**2.1184**	**1.4000e-004**	**0.0000**	**2.1212**

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					0.0586	0.0000	0.0586	0.0243	0.0000	0.0243	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0972	1.1222	0.7371	9.3000e-004		0.0538	0.0538		0.0495	0.0495	0.0000	87.2935	87.2935	0.0263	0.0000	87.8464
Total	**0.0972**	**1.1222**	**0.7371**	**9.3000e-004**	**0.0586**	**0.0538**	**0.1123**	**0.0243**	**0.0495**	**0.0737**	**0.0000**	**87.2935**	**87.2935**	**0.0263**	**0.0000**	**87.8464**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5700e-003	1.9800e-003	0.0187	3.0000e-005	2.3800e-003	2.0000e-005	2.4000e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.1184	2.1184	1.4000e-004	0.0000	2.1212
Total	**1.5700e-003**	**1.9800e-003**	**0.0187**	**3.0000e-005**	**2.3800e-003**	**2.0000e-005**	**2.4000e-003**	**6.3000e-004**	**2.0000e-005**	**6.5000e-004**	**0.0000**	**2.1184**	**2.1184**	**1.4000e-004**	**0.0000**	**2.1212**

3.4 Building Construction - 2016

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	0.3143	2.6312	1.7074	2.4700e-003		0.1815	0.1815		0.1706	0.1706	0.0000	223.4537	223.4537	0.0554	0.0000	224.6176
Total	**0.3143**	**2.6312**	**1.7074**	**2.4700e-003**		**0.1815**	**0.1815**		**0.1706**	**0.1706**	**0.0000**	**223.4537**	**223.4537**	**0.0554**	**0.0000**	**224.6176**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3900e-003	6.1300e-003	0.0135	2.0000e-005	4.3000e-004	1.0000e-004	5.3000e-004	1.2000e-004	9.0000e-005	2.1000e-004	0.0000	1.4295	1.4295	1.0000e-005	0.0000	1.4297
Worker	7.0000e-004	8.9000e-004	8.4000e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9533	0.9533	6.0000e-005	0.0000	0.9546
Total	**2.0900e-003**	**7.0200e-003**	**0.0219**	**3.0000e-005**	**1.5000e-003**	**1.1000e-004**	**1.6100e-003**	**4.1000e-004**	**1.0000e-004**	**5.0000e-004**	**0.0000**	**2.3828**	**2.3828**	**7.0000e-005**	**0.0000**	**2.3843**

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	0.3143	2.6312	1.7074	2.4700e-003		0.1815	0.1815		0.1706	0.1706	0.0000	223.4534	223.4534	0.0554	0.0000	224.6173
Total	**0.3143**	**2.6312**	**1.7074**	**2.4700e-003**		**0.1815**	**0.1815**		**0.1706**	**0.1706**	**0.0000**	**223.4534**	**223.4534**	**0.0554**	**0.0000**	**224.6173**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3900e-003	6.1300e-003	0.0135	2.0000e-005	4.3000e-004	1.0000e-004	5.3000e-004	1.2000e-004	9.0000e-005	2.1000e-004	0.0000	1.4295	1.4295	1.0000e-005	0.0000	1.4297
Worker	7.0000e-004	8.9000e-004	8.4000e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9533	0.9533	6.0000e-005	0.0000	0.9546
Total	**2.0900e-003**	**7.0200e-003**	**0.0219**	**3.0000e-005**	**1.5000e-003**	**1.1000e-004**	**1.6100e-003**	**4.1000e-004**	**1.0000e-004**	**5.0000e-004**	**0.0000**	**2.3828**	**2.3828**	**7.0000e-005**	**0.0000**	**2.3843**

3.4 Building Construction - 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	0.1781	1.5165	1.0407	1.5400e-003		0.1023	0.1023		0.0961	0.0961	0.0000	137.5021	137.5021	0.0338	0.0000	138.2129
Total	**0.1781**	**1.5165**	**1.0407**	**1.5400e-003**		**0.1023**	**0.1023**		**0.0961**	**0.0961**	**0.0000**	**137.5021**	**137.5021**	**0.0338**	**0.0000**	**138.2129**

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	8.1000e-004	3.3600e-003	7.8600e-003	1.0000e-005	2.7000e-004	5.0000e-005	3.2000e-004	8.0000e-005	5.0000e-005	1.2000e-004	0.0000	0.8742	0.8742	1.0000e-005	0.0000	0.8743
Worker	3.8000e-004	4.9000e-004	4.5200e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.7000e-004	1.8000e-004	1.0000e-005	1.8000e-004	0.0000	0.5702	0.5702	3.0000e-005	0.0000	0.5709
Total	**1.1900e-003**	**3.8500e-003**	**0.0124**	**2.0000e-005**	**9.4000e-004**	**6.0000e-005**	**9.9000e-004**	**2.6000e-004**	**6.0000e-005**	**3.0000e-004**	**0.0000**	**1.4444**	**1.4444**	**4.0000e-005**	**0.0000**	**1.4452**

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	0.1781	1.5165	1.0407	1.5400e-003		0.1023	0.1023		0.0961	0.0961	0.0000	137.5020	137.5020	0.0338	0.0000	138.2127
Total	**0.1781**	**1.5165**	**1.0407**	**1.5400e-003**		**0.1023**	**0.1023**		**0.0961**	**0.0961**	**0.0000**	**137.5020**	**137.5020**	**0.0338**	**0.0000**	**138.2127**

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	8.1000e-004	3.3600e-003	7.8600e-003	1.0000e-005	2.7000e-004	5.0000e-005	3.2000e-004	8.0000e-005	5.0000e-005	1.2000e-004	0.0000	0.8742	0.8742	1.0000e-005	0.0000	0.8743
Worker	3.8000e-004	4.9000e-004	4.5200e-003	1.0000e-005	6.7000e-004	1.0000e-005	6.7000e-004	1.8000e-004	1.0000e-005	1.8000e-004	0.0000	0.5702	0.5702	3.0000e-005	0.0000	0.5709
Total	**1.1900e-003**	**3.8500e-003**	**0.0124**	**2.0000e-005**	**9.4000e-004**	**6.0000e-005**	**9.9000e-004**	**2.6000e-004**	**6.0000e-005**	**3.0000e-004**	**0.0000**	**1.4444**	**1.4444**	**4.0000e-005**	**0.0000**	**1.4452**

3.5 Paving - 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	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8266
Paving	0.0142					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8266**

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	6.7000e-004	8.7000e-004	8.0700e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0182	1.0182	6.0000e-005	0.0000	1.0195
Total	**6.7000e-004**	**8.7000e-004**	**8.0700e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0182**	**1.0182**	**6.0000e-005**	**0.0000**	**1.0195**

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	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8265
Paving	0.0142					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0333**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8265**

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	6.7000e-004	8.7000e-004	8.0700e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0182	1.0182	6.0000e-005	0.0000	1.0195
Total	**6.7000e-004**	**8.7000e-004**	**8.0700e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0182**	**1.0182**	**6.0000e-005**	**0.0000**	**1.0195**

3.6 Architectural Coating - 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					
Archit. Coating	0.2180					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.2213**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

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	4.0000e-005	6.0000e-005	5.4000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0679	0.0679	0.0000	0.0000	0.0680
Total	**4.0000e-005**	**6.0000e-005**	**5.4000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0679**	**0.0679**	**0.0000**	**0.0000**	**0.0680**

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	0.2180					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5589
Total	**0.2213**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5589**

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	4.0000e-005	6.0000e-005	5.4000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0679	0.0679	0.0000	0.0000	0.0680
Total	**4.0000e-005**	**6.0000e-005**	**5.4000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0679**	**0.0679**	**0.0000**	**0.0000**	**0.0680**

Love's Country Store Williams - Local Area Operations

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2017
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 - Based on building data and site plan

Construction Phase - Project operations run only - construction in a separate run

Off-road Equipment - Operations only

Trips and VMT - Operations only

Architectural Coating - Operations only

Vehicle Trips - Project-specific trip generation prepared by Fehr and Peers
Diverted trips analyzed in a separate run

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblConstructionPhase	NumDays	20.00	1.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblVehicleTrips	DV_TP	51.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	PR_TP	21.00	72.00
tblVehicleTrips	PR_TP	14.00	35.00
tblVehicleTrips	PR_TP	51.00	88.00
tblVehicleTrips	PR_TP	37.00	57.00
tblVehicleTrips	ST_TR	62.00	5.62
tblVehicleTrips	ST_TR	204.47	36.85
tblVehicleTrips	ST_TR	696.00	28.78
tblVehicleTrips	ST_TR	158.37	28.78
tblVehicleTrips	SU_TR	62.00	5.62
tblVehicleTrips	SU_TR	166.88	36.85
tblVehicleTrips	SU_TR	500.00	28.78
tblVehicleTrips	SU_TR	131.84	28.78
tblVehicleTrips	WD_TR	62.00	5.62
tblVehicleTrips	WD_TR	542.60	36.85
tblVehicleTrips	WD_TR	716.00	28.78
tblVehicleTrips	WD_TR	127.15	28.78

2.0 Emissions Summary

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	0.0955	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Energy	6.3900e-003	0.0581	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	143.2276	143.2276	4.8300e-003	1.9100e-003	143.9204
Mobile	0.5841	1.0238	4.9300	6.6400e-003	0.4082	0.0119	0.4202	0.1096	0.0109	0.1205	0.0000	513.6131	513.6131	0.0225	0.0000	514.0861
Waste						0.0000	0.0000		0.0000	0.0000	15.4720	0.0000	15.4720	0.9144	0.0000	34.6737
Water						0.0000	0.0000		0.0000	0.0000	0.6895	4.0086	4.6981	0.0710	1.7100e-003	6.7191
Total	**0.6860**	**1.0819**	**4.9807**	**6.9900e-003**	**0.4082**	**0.0163**	**0.4246**	**0.1096**	**0.0154**	**0.1249**	**16.1615**	**660.8530**	**677.0145**	**1.0127**	**3.6200e-003**	**699.4032**

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	0.0955	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Energy	5.8200e-003	0.0529	0.0444	3.2000e-004		4.0200e-003	4.0200e-003		4.0200e-003	4.0200e-003	0.0000	131.2702	131.2702	4.4400e-003	1.7500e-003	131.9044
Mobile	0.5841	1.0238	4.9300	6.6400e-003	0.4082	0.0119	0.4202	0.1096	0.0109	0.1205	0.0000	513.6131	513.6131	0.0225	0.0000	514.0861
Waste						0.0000	0.0000		0.0000	0.0000	15.4720	0.0000	15.4720	0.9144	0.0000	34.6737
Water						0.0000	0.0000		0.0000	0.0000	0.6895	4.0086	4.6981	0.0710	1.7100e-003	6.7180
Total	**0.6854**	**1.0767**	**4.9764**	**6.9600e-003**	**0.4082**	**0.0159**	**0.4242**	**0.1096**	**0.0150**	**0.1245**	**16.1615**	**648.8957**	**665.0571**	**1.0123**	**3.4600e-003**	**687.3861**

	ROG	**NOx**	**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	**0.08**	**0.48**	**0.09**	**0.43**	**0.00**	**2.45**	**0.09**	**0.00**	**2.60**	**0.32**	**0.00**	**1.81**	**1.77**	**0.04**	**4.42**	**1.72**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5841	1.0238	4.9300	6.6400e-003	0.4082	0.0119	0.4202	0.1096	0.0109	0.1205	0.0000	513.6131	513.6131	0.0225	0.0000	514.0861
Unmitigated	0.5841	1.0238	4.9300	6.6400e-003	0.4082	0.0119	0.4202	0.1096	0.0109	0.1205	0.0000	513.6131	513.6131	0.0225	0.0000	514.0861

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	33.94	33.94	33.94	71,747	71,747
Convenience Market With Gas Pumps	810.70	810.70	810.70	774,966	774,966
Fast Food Restaurant w/o Drive Thru	57.27	57.27	57.27	134,777	134,777
High Turnover (Sit Down Restaurant)	73.10	73.10	73.10	114,700	114,700
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	975.02	975.02	975.02	1,096,190	1,096,190

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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	72	0	28
Convenience Market With Gas Pumps	9.50	7.30	7.30	0.80	80.20	19.00	35	0	65
Fast Food Restaurant w/o Drive Thru	9.50	7.30	7.30	1.50	79.50	19.00	88	0	12
High Turnover (Sit Down Restaurant)	9.50	7.30	7.30	8.50	72.50	19.00	57	0	43
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.462386	0.061858	0.181346	0.154042	0.057199	0.007292	0.019609	0.042252	0.001830	0.001673	0.006973	0.000697	0.002843

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	73.6784	73.6784	3.3300e-003	6.9000e-004	73.9621
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.9794	79.9794	3.6200e-003	7.5000e-004	80.2873
NaturalGas Mitigated	5.8200e-003	0.0529	0.0444	3.2000e-004		4.0200e-003	4.0200e-003		4.0200e-003	4.0200e-003	0.0000	57.5918	57.5918	1.1000e-003	1.0600e-003	57.9423
NaturalGas Unmitigated	6.3900e-003	0.0581	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	63.2482	63.2482	1.2100e-003	1.1600e-003	63.6331

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					
Convenience Market With Gas Pumps	91909.4	5.0000e-004	4.5100e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9046	4.9046	9.0000e-005	9.0000e-005	4.9345
Fast Food Restaurant w/o Drive Thru	421608	2.2700e-003	0.0207	0.0174	1.2000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	22.4986	22.4986	4.3000e-004	4.1000e-004	22.6355
High Turnover (Sit Down Restaurant)	540278	2.9100e-003	0.0265	0.0223	1.6000e-004		2.0100e-003	2.0100e-003		2.0100e-003	2.0100e-003	0.0000	28.8313	28.8313	5.5000e-004	5.3000e-004	29.0068
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Automobile Care Center	131430	7.1000e-004	6.4400e-003	5.4100e-003	4.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	7.0136	7.0136	1.3000e-004	1.3000e-004	7.0563
Total		**6.3900e-003**	**0.0581**	**0.0488**	**3.5000e-004**		**4.4100e-003**	**4.4100e-003**		**4.4100e-003**	**4.4100e-003**	**0.0000**	**63.2482**	**63.2482**	**1.2000e-003**	**1.1600e-003**	**63.6331**

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					
Convenience Market With Gas Pumps	69480.2	3.7000e-004	3.4100e-003	2.8600e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7077	3.7077	7.0000e-005	7.0000e-005	3.7303
Fast Food Restaurant w/o Drive Thru	399212	2.1500e-003	0.0196	0.0164	1.2000e-004		1.4900e-003	1.4900e-003		1.4900e-003	1.4900e-003	0.0000	21.3035	21.3035	4.1000e-004	3.9000e-004	21.4331
High Turnover (Sit Down Restaurant)	511578	2.7600e-003	0.0251	0.0211	1.5000e-004		1.9100e-003	1.9100e-003		1.9100e-003	1.9100e-003	0.0000	27.2998	27.2998	5.2000e-004	5.0000e-004	27.4659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Automobile Care Center	98959.4	5.3000e-004	4.8500e-003	4.0700e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2809	5.2809	1.0000e-004	1.0000e-004	5.3130
Total		**5.8100e-003**	**0.0529**	**0.0444**	**3.2000e-004**		**4.0300e-003**	**4.0300e-003**		**4.0300e-003**	**4.0300e-003**	**0.0000**	**57.5918**	**57.5918**	**1.1000e-003**	**1.0600e-003**	**57.9423**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	58346.4	16.9736	7.7000e-004	1.6000e-004	17.0390
Convenience Market With Gas Pumps	75258.6	21.8936	9.9000e-004	2.0000e-004	21.9779
Fast Food Restaurant w/o Drive Thru	61943.3	18.0200	8.1000e-004	1.7000e-004	18.0894
High Turnover (Sit Down Restaurant)	79378.6	23.0921	1.0400e-003	2.2000e-004	23.1810
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**79.9794**	**3.6100e-003**	**7.5000e-004**	**80.2873**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	54015.7	15.7138	7.1000e-004	1.5000e-004	15.7743
Convenience Market With Gas Pumps	68804.3	20.0160	9.1000e-004	1.9000e-004	20.0930
Fast Food Restaurant w/o Drive Thru	57176.9	16.6334	7.5000e-004	1.6000e-004	16.6975
High Turnover (Sit Down Restaurant)	73270.6	21.3152	9.6000e-004	2.0000e-004	21.3973
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**73.6784**	**3.3300e-003**	**7.0000e-004**	**73.9621**

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	0.0955	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Unmitigated	0.0955	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Total	**0.0955**	**2.0000e-005**	**1.9700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7700e-003**	**3.7700e-003**	**1.0000e-005**	**0.0000**	**3.9900e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0218					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.9000e-004	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Total	**0.0955**	**2.0000e-005**	**1.9700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.7700e-003**	**3.7700e-003**	**1.0000e-005**	**0.0000**	**3.9900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.6981	0.0710	1.7100e-003	6.7180
Unmitigated	4.6981	0.0710	1.7100e-003	6.7191

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.56825 / 0.348282	1.4294	0.0186	4.5000e-004	1.9586
Convenience Market With Gas Pumps	0.230058 / 0.141003	0.5787	7.5200e-003	1.8000e-004	0.7929
Fast Food Restaurant w/o Drive Thru	0.604032 / 0.0385552	1.1817	0.0197	4.7000e-004	1.7429
High Turnover (Sit Down Restaurant)	0.770976 / 0.0492112	1.5083	0.0252	6.1000e-004	2.2246
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.6981**	**0.0710**	**1.7100e-003**	**6.7191**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.56825 / 0.348282	1.4294	0.0186	4.5000e-004	1.9583
Convenience Market With Gas Pumps	0.230058 / 0.141003	0.5787	7.5200e-003	1.8000e-004	0.7928
Fast Food Restaurant w/o Drive Thru	0.604032 / 0.0385552	1.1817	0.0197	4.7000e-004	1.7426
High Turnover (Sit Down Restaurant)	0.770976 / 0.0492112	1.5083	0.0252	6.0000e-004	2.2242
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.6981**	**0.0710**	**1.7000e-003**	**6.7180**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	15.4720	0.9144	0.0000	34.6737
Mitigated	15.4720	0.9144	0.0000	34.6737

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	23.07	4.6830	0.2768	0.0000	10.4949
Fast Food Restaurant w/o Drive Thru	22.92	4.6526	0.2750	0.0000	10.4267
High Turnover (Sit Down Restaurant)	30.23	6.1364	0.3627	0.0000	13.7521
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**15.4720**	**0.9144**	**0.0000**	**34.6737**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	23.07	4.6830	0.2768	0.0000	10.4949
Fast Food Restaurant w/o Drive Thru	22.92	4.6526	0.2750	0.0000	10.4267
High Turnover (Sit Down Restaurant)	30.23	6.1364	0.3627	0.0000	13.7521
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**15.4720**	**0.9144**	**0.0000**	**34.6737**

9.0 Operational Offroad

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

10.0 Vegetation

Love's Country Store Williams - Diverted Trips

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2017
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 - Based on building data and site plan

Construction Phase - Diverted trips - mobile operations only

Off-road Equipment - Operations only

Trips and VMT - Operations only

Architectural Coating - Operations only

Vehicle Trips - Diverted trips only
Trip rates based on Traffic Study prepared by Fehr & Peers (see spreadsheet)
Trip length changed to reflect the weighted average diverted link trip length

Vechicle Emission Factors - Fleet mix adjusted to a total of reflect 47% trucks based on traffic counts done for a Love's of a similar size (Love's in Corning, CA).

Vechicle Emission Factors - Adjusted fleet mix

Vechicle Emission Factors - Adjusted fleet mix

Area Coating - Run for Mobile emissions only

Energy Use - Diverted trip operations

Water And Wastewater - -

Solid Waste - -

Area Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblConstructionPhase	NumDays	20.00	1.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24E	2.30	0.00
tblEnergyUse	NT24E	16.25	0.00
tblEnergyUse	NT24E	16.25	0.00
tblEnergyUse	T24E	2.39	0.00
tblEnergyUse	T24E	2.61	0.00
tblEnergyUse	T24E	8.00	0.00
tblEnergyUse	T24E	8.00	0.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblSolidWaste	SolidWasteGenerationRate	23.07	0.00
tblSolidWaste	SolidWasteGenerationRate	22.92	0.00

tblSolidWaste	SolidWasteGenerationRate	30.23	0.00
tblVehicleEF	HHD	0.04	0.40
tblVehicleEF	HHD	0.04	0.40
tblVehicleEF	HHD	0.04	0.40
tblVehicleEF	LDA	0.46	0.20
tblVehicleEF	LDA	0.46	0.20
tblVehicleEF	LDA	0.46	0.20
tblVehicleEF	LDT1	0.06	0.03
tblVehicleEF	LDT1	0.06	0.03
tblVehicleEF	LDT1	0.06	0.03
tblVehicleEF	LDT2	0.18	0.08
tblVehicleEF	LDT2	0.18	0.08
tblVehicleEF	LDT2	0.18	0.08
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD2	7.2920e-003	3.2190e-003
tblVehicleEF	LHD2	7.2920e-003	3.2190e-003
tblVehicleEF	LHD2	7.2920e-003	3.2190e-003
tblVehicleEF	MCY	6.9730e-003	3.0780e-003
tblVehicleEF	MCY	6.9730e-003	3.0780e-003
tblVehicleEF	MCY	6.9730e-003	3.0780e-003
tblVehicleEF	MDV	0.15	0.07
tblVehicleEF	MDV	0.15	0.07
tblVehicleEF	MDV	0.15	0.07
tblVehicleEF	MH	2.8430e-003	1.2550e-003
tblVehicleEF	MH	2.8430e-003	1.2550e-003
tblVehicleEF	MH	2.8430e-003	1.2550e-003
tblVehicleEF	MHD	0.02	0.19
tblVehicleEF	MHD	0.02	0.19
tblVehicleEF	MHD	0.02	0.19
tblVehicleEF	OBUS	1.8300e-003	8.0800e-004

tblVehicleEF	OBUS	1.8300e-003	8.0800e-004
tblVehicleEF	OBUS	1.8300e-003	8.0800e-004
tblVehicleEF	SBUS	6.9700e-004	3.0800e-004
tblVehicleEF	SBUS	6.9700e-004	3.0800e-004
tblVehicleEF	SBUS	6.9700e-004	3.0800e-004
tblVehicleEF	UBUS	1.6730e-003	7.3900e-004
tblVehicleEF	UBUS	1.6730e-003	7.3900e-004
tblVehicleEF	UBUS	1.6730e-003	7.3900e-004
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	DV_TP	51.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	PB_TP	28.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00

tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PR_TP	21.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	ST_TR	62.00	16.87
tblVehicleTrips	ST_TR	204.47	110.58
tblVehicleTrips	ST_TR	696.00	86.38
tblVehicleTrips	ST_TR	158.37	86.38
tblVehicleTrips	SU_TR	62.00	16.87
tblVehicleTrips	SU_TR	166.88	110.58
tblVehicleTrips	SU_TR	500.00	86.38
tblVehicleTrips	SU_TR	131.84	86.38
tblVehicleTrips	WD_TR	62.00	16.87
tblVehicleTrips	WD_TR	542.60	110.58
tblVehicleTrips	WD_TR	716.00	86.38
tblVehicleTrips	WD_TR	127.15	86.38
tblWater	IndoorWaterUseRate	568,249.89	0.00
tblWater	IndoorWaterUseRate	230,057.94	0.00
tblWater	IndoorWaterUseRate	604,032.09	0.00
tblWater	IndoorWaterUseRate	770,975.63	0.00
tblWater	OutdoorWaterUseRate	348,282.19	0.00
tblWater	OutdoorWaterUseRate	141,003.25	0.00
tblWater	OutdoorWaterUseRate	38,555.24	0.00
tblWater	OutdoorWaterUseRate	49,211.21	0.00

2.0 Emissions Summary

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	0.0737	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Energy	6.3900e-003	0.0581	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	87.9800	87.9800	2.3300e-003	1.3900e-003	88.4601
Mobile	3.6257	7.3299	48.4563	0.0117	0.2160	0.0450	0.2611	0.0597	0.0409	0.1006	0.0000	962.8152	962.8152	0.0251	0.0000	963.3416
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.7058**	**7.3880**	**48.5071**	**0.0121**	**0.2160**	**0.0495**	**0.2655**	**0.0597**	**0.0453**	**0.1050**	**0.0000**	**1,050.7990**	**1,050.7990**	**0.0274**	**1.3900e-003**	**1,051.8057**

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	0.0737	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9900e-003
Energy	6.3900e-003	0.0581	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	87.9800	87.9800	2.3300e-003	1.3900e-003	88.4601
Mobile	3.6257	7.3299	48.4563	0.0117	0.2160	0.0450	0.2611	0.0597	0.0409	0.1006	0.0000	962.8152	962.8152	0.0251	0.0000	963.3416
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.7058**	**7.3880**	**48.5071**	**0.0121**	**0.2160**	**0.0495**	**0.2655**	**0.0597**	**0.0453**	**0.1050**	**0.0000**	**1,050.7990**	**1,050.7990**	**0.0274**	**1.3900e-003**	**1,051.8057**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.6257	7.3299	48.4563	0.0117	0.2160	0.0450	0.2611	0.0597	0.0409	0.1006	0.0000	962.8152	962.8152	0.0251	0.0000	963.3416
Unmitigated	3.6257	7.3299	48.4563	0.0117	0.2160	0.0450	0.2611	0.0597	0.0409	0.1006	0.0000	962.8152	962.8152	0.0251	0.0000	963.3416

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	101.89	101.89	101.89	18,545	18,545
Convenience Market With Gas Pumps	2,432.76	2,432.76	2432.76	442,762	442,762
Fast Food Restaurant w/o Drive Thru	171.90	171.90	171.90	31,285	31,285
High Turnover (Sit Down Restaurant)	219.41	219.41	219.41	39,932	39,932
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	2,925.96	2,925.96	2,925.96	532,524	532,524

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
Automobile Care Center	0.50	0.50	0.50	33.00	48.00	19.00	100	0	0
Convenience Market With Gas Pumps	0.50	0.50	0.50	0.80	80.20	19.00	100	0	0
Fast Food Restaurant w/o Drive Thru	0.50	0.50	0.50	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down Restaurant)	0.50	0.50	0.50	8.50	72.50	19.00	100	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.202118	0.027309	0.080059	0.068005	0.025252	0.003219	0.186340	0.401511	0.000808	0.000739	0.003078	0.000308	0.001255

Love's Country Store Williams - Local Area Operations BAU

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2005
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 - Based on building data and site plan
Construction Phase - BAU project operations run only
Off-road Equipment - Operations only
Trips and VMT - Operations only
Architectural Coating - Operations only
Vehicle Trips - Project-specific trip generation prepared by Fehr and Peers
Vechicle Emission Factors - 2020 fleet mix

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblConstructionPhase	NumDays	20.00	1.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblProjectCharacteristics	OperationalYear	2014	2005
tblVehicleEF	HHD	0.05	0.04
tblVehicleEF	LDA	0.43	0.46
tblVehicleEF	LDT1	0.13	0.06
tblVehicleEF	LDT2	0.21	0.18
tblVehicleEF	LHD1	0.03	0.06
tblVehicleEF	LHD2	9.4620e-003	7.3020e-003
tblVehicleEF	MCY	9.0420e-003	7.0610e-003
tblVehicleEF	MDV	0.11	0.15
tblVehicleEF	MH	3.4900e-003	2.8590e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	OBUS	1.0730e-003	1.8300e-003
tblVehicleEF	SBUS	1.0900e-003	6.7200e-004
tblVehicleEF	UBUS	9.8500e-004	1.6640e-003
tblVehicleTrips	DV_TP	51.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	PR_TP	21.00	72.00
tblVehicleTrips	PR_TP	14.00	35.00
tblVehicleTrips	PR_TP	51.00	88.00

tblVehicleTrips	PR_TP	37.00	57.00
tblVehicleTrips	ST_TR	62.00	5.62
tblVehicleTrips	ST_TR	204.47	36.85
tblVehicleTrips	ST_TR	696.00	28.78
tblVehicleTrips	ST_TR	158.37	28.78
tblVehicleTrips	SU_TR	62.00	5.62
tblVehicleTrips	SU_TR	166.88	36.85
tblVehicleTrips	SU_TR	500.00	28.78
tblVehicleTrips	SU_TR	131.84	28.78
tblVehicleTrips	WD_TR	62.00	5.62
tblVehicleTrips	WD_TR	542.60	36.85
tblVehicleTrips	WD_TR	716.00	28.78
tblVehicleTrips	WD_TR	127.15	28.78

2.0 Emissions Summary

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											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Energy											0.0000	147.9415	147.9415	5.0000e-003	1.9700e-003	148.6560
Mobile											0.0000	640.0005	640.0005	0.0726	0.0000	641.5258
Waste											15.4720	0.0000	15.4720	0.9144	0.0000	34.6737
Water											0.6895	4.0086	4.6981	0.0710	1.7100e-003	6.7191
Total											**16.1615**	**791.9544**	**808.1159**	**1.0630**	**3.6800e-003**	**831.5787**

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											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Energy											0.0000	147.9415	147.9415	5.0000e-003	1.9700e-003	148.6560
Mobile											0.0000	640.0005	640.0005	0.0726	0.0000	641.5258
Waste											15.4720	0.0000	15.4720	0.9144	0.0000	34.6737
Water											0.6895	4.0086	4.6981	0.0710	1.7100e-003	6.7180
Total											**16.1615**	**791.9544**	**808.1159**	**1.0630**	**3.6800e-003**	**831.5776**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	640.0005	640.0005	0.0726	0.0000	641.5258
Unmitigated											0.0000	640.0005	640.0005	0.0726	0.0000	641.5258

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	33.94	33.94	33.94	71,747	71,747
Convenience Market With Gas Pumps	810.70	810.70	810.70	774,966	774,966
Fast Food Restaurant w/o Drive Thru	57.27	57.27	57.27	134,777	134,777
High Turnover (Sit Down Restaurant)	73.10	73.10	73.10	114,700	114,700
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	975.02	975.02	975.02	1,096,190	1,096,190

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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	72	0	28
Convenience Market With Gas Pumps	9.50	7.30	7.30	0.80	80.20	19.00	35	0	65
Fast Food Restaurant w/o Drive Thru	9.50	7.30	7.30	1.50	79.50	19.00	88	0	12
High Turnover (Sit Down Restaurant)	9.50	7.30	7.30	8.50	72.50	19.00	57	0	43
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.461412	0.061542	0.181462	0.153657	0.057057	0.007302	0.019991	0.043491	0.001830	0.001664	0.007061	0.000672	0.002859

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	83.1011	83.1011	3.7600e-003	7.8000e-004	83.4210
Electricity Unmitigated											0.0000	83.1011	83.1011	3.7600e-003	7.8000e-004	83.4210
NaturalGas Mitigated											0.0000	64.8405	64.8405	1.2400e-003	1.1900e-003	65.2351
NaturalGas Unmitigated											0.0000	64.8405	64.8405	1.2400e-003	1.1900e-003	65.2351

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					
Automobile Care Center	143571											0.0000	7.6615	7.6615	1.5000e-004	1.4000e-004	7.7081
Convenience Market With Gas Pumps	103038											0.0000	5.4985	5.4985	1.1000e-004	1.0000e-004	5.5319
Fast Food Restaurant w/o Drive Thru	424488											0.0000	22.6523	22.6523	4.3000e-004	4.2000e-004	22.7901
High Turnover (Sit Down Restaurant)	543968											0.0000	29.0282	29.0282	5.6000e-004	5.3000e-004	29.2049
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**64.8405**	**64.8405**	**1.2500e-003**	**1.1900e-003**	**65.2351**

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					
Automobile Care Center	143571											0.0000	7.6615	7.6615	1.5000e-004	1.4000e-004	7.7081
Convenience Market With Gas Pumps	103038											0.0000	5.4985	5.4985	1.1000e-004	1.0000e-004	5.5319
Fast Food Restaurant w/o Drive Thru	424488											0.0000	22.6523	22.6523	4.3000e-004	4.2000e-004	22.7901
High Turnover (Sit Down Restaurant)	543968											0.0000	29.0282	29.0282	5.6000e-004	5.3000e-004	29.2049
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**64.8405**	**64.8405**	**1.2500e-003**	**1.1900e-003**	**65.2351**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	60581.2	17.6238	8.0000e-004	1.6000e-004	17.6916
Convenience Market With Gas Pumps	79132.8	23.0206	1.0400e-003	2.2000e-004	23.1093
Fast Food Restaurant w/o Drive Thru	63969.1	18.6093	8.4000e-004	1.7000e-004	18.6810
High Turnover (Sit Down Restaurant)	81974.4	23.8473	1.0800e-003	2.2000e-004	23.9391
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**83.1011**	**3.7600e-003**	**7.7000e-004**	**83.4210**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	60581.2	17.6238	8.0000e-004	1.6000e-004	17.6916
Convenience Market With Gas Pumps	79132.8	23.0206	1.0400e-003	2.2000e-004	23.1093
Fast Food Restaurant w/o Drive Thru	63969.1	18.6093	8.4000e-004	1.7000e-004	18.6810
High Turnover (Sit Down Restaurant)	81974.4	23.8473	1.0800e-003	2.2000e-004	23.9391
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**83.1011**	**3.7600e-003**	**7.7000e-004**	**83.4210**

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											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Unmitigated											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Total											**0.0000**	**3.7700e-003**	**3.7700e-003**	**2.0000e-005**	**0.0000**	**4.1400e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Total											**0.0000**	**3.7700e-003**	**3.7700e-003**	**2.0000e-005**	**0.0000**	**4.1400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.6981	0.0710	1.7100e-003	6.7180
Unmitigated	4.6981	0.0710	1.7100e-003	6.7191

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.56825 / 0.348282	1.4294	0.0186	4.5000e-004	1.9586
Convenience Market With Gas Pumps	0.230058 / 0.141003	0.5787	7.5200e-003	1.8000e-004	0.7929
Fast Food Restaurant w/o Drive Thru	0.604032 / 0.0385552	1.1817	0.0197	4.7000e-004	1.7429
High Turnover (Sit Down Restaurant)	0.770976 / 0.0492112	1.5083	0.0252	6.1000e-004	2.2246
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.6981**	**0.0710**	**1.7100e-003**	**6.7191**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.56825 / 0.348282	1.4294	0.0186	4.5000e-004	1.9583
Convenience Market With Gas Pumps	0.230058 / 0.141003	0.5787	7.5200e-003	1.8000e-004	0.7928
Fast Food Restaurant w/o Drive Thru	0.604032 / 0.0385552	1.1817	0.0197	4.7000e-004	1.7426
High Turnover (Sit Down Restaurant)	0.770976 / 0.0492112	1.5083	0.0252	6.0000e-004	2.2242
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.6981**	**0.0710**	**1.7000e-003**	**6.7180**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	15.4720	0.9144	0.0000	34.6737
Mitigated	15.4720	0.9144	0.0000	34.6737

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	23.07	4.6830	0.2768	0.0000	10.4949
Fast Food Restaurant w/o Drive Thru	22.92	4.6526	0.2750	0.0000	10.4267
High Turnover (Sit Down Restaurant)	30.23	6.1364	0.3627	0.0000	13.7521
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**15.4720**	**0.9144**	**0.0000**	**34.6737**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	23.07	4.6830	0.2768	0.0000	10.4949
Fast Food Restaurant w/o Drive Thru	22.92	4.6526	0.2750	0.0000	10.4267
High Turnover (Sit Down Restaurant)	30.23	6.1364	0.3627	0.0000	13.7521
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**15.4720**	**0.9144**	**0.0000**	**34.6737**

9.0 Operational Offroad

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

10.0 Vegetation

Love's Country Store Williams - Diverted Trips BAU

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2005
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 - Based on building data and site plan
Construction Phase - Diverted trips - mobile operations only
Off-road Equipment - Operations only
Trips and VMT - Operations only
Architectural Coating - Operations only
Vehicle Trips - Diverted trips only
Trip rates based on Traffic Study prepared by Fehr & Peers (see spreadsheet)
Trip length changed to reflect the weighted average diverted link trip length

Vechicle Emission Factors - Fleet mix adjusted to reflect a total of 47% trucks based on traffic counts done for a Love's of a similar size (Love's in Corning, CA).

Area Coating - Run for Mobile emissions only

Energy Use - Diverted trip operations

Water And Wastewater - -

Solid Waste - -

Area Mitigation -

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblConstructionPhase	NumDays	20.00	1.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2005
tblSolidWaste	SolidWasteGenerationRate	23.07	0.00
tblSolidWaste	SolidWasteGenerationRate	22.92	0.00
tblSolidWaste	SolidWasteGenerationRate	30.23	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblVehicleEF	HHD	0.05	0.40
tblVehicleEF	LDA	0.43	0.20
tblVehicleEF	LDT1	0.13	0.03
tblVehicleEF	LDT2	0.21	0.08
tblVehicleEF	LHD1	0.03	0.03

tblVehicleEF	LHD2	9.4620e-003	3.2190e-003
tblVehicleEF	MCY	9.0420e-003	3.0780e-003
tblVehicleEF	MDV	0.11	0.07
tblVehicleEF	MH	3.4900e-003	1.2550e-003
tblVehicleEF	MHD	0.02	0.19
tblVehicleEF	OBUS	1.0730e-003	8.0800e-004
tblVehicleEF	SBUS	1.0900e-003	3.0800e-004
tblVehicleEF	UBUS	9.8500e-004	7.3900e-004
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.50
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	DV_TP	51.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00

tblVehicleTrips	PB_TP	28.00	0.00
tblVehicleTrips	PB_TP	65.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PB_TP	43.00	0.00
tblVehicleTrips	PR_TP	21.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	ST_TR	62.00	16.87
tblVehicleTrips	ST_TR	204.47	110.58
tblVehicleTrips	ST_TR	696.00	86.38
tblVehicleTrips	ST_TR	158.37	86.38
tblVehicleTrips	SU_TR	62.00	16.87
tblVehicleTrips	SU_TR	166.88	110.58
tblVehicleTrips	SU_TR	500.00	86.38
tblVehicleTrips	SU_TR	131.84	86.38
tblVehicleTrips	WD_TR	62.00	16.87
tblVehicleTrips	WD_TR	542.60	110.58
tblVehicleTrips	WD_TR	716.00	86.38
tblVehicleTrips	WD_TR	127.15	86.38
tblWater	IndoorWaterUseRate	568,249.89	0.00
tblWater	IndoorWaterUseRate	230,057.94	0.00
tblWater	IndoorWaterUseRate	604,032.09	0.00
tblWater	IndoorWaterUseRate	770,975.63	0.00
tblWater	OutdoorWaterUseRate	348,282.19	0.00
tblWater	OutdoorWaterUseRate	141,003.25	0.00
tblWater	OutdoorWaterUseRate	38,555.24	0.00
tblWater	OutdoorWaterUseRate	49,211.21	0.00

2.0 Emissions Summary

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											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Energy											0.0000	143.2276	143.2276	4.8300e-003	1.9100e-003	143.9204
Mobile											0.0000	1,250.0760	1,250.0760	0.2455	0.0000	1,255.2320
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1,393.3074**	**1,393.3074**	**0.2504**	**1.9100e-003**	**1,399.1565**

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											0.0000	3.7700e-003	3.7700e-003	2.0000e-005	0.0000	4.1400e-003
Energy											0.0000	143.2276	143.2276	4.8300e-003	1.9100e-003	143.9204
Mobile											0.0000	1,250.0760	1,250.0760	0.2455	0.0000	1,255.2320
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**1,393.3074**	**1,393.3074**	**0.2504**	**1.9100e-003**	**1,399.1565**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	1,250.0760	1,250.0760	0.2455	0.0000	1,255.2320
Unmitigated											0.0000	1,250.0760	1,250.0760	0.2455	0.0000	1,255.2320

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	101.89	101.89	101.89	18,545	18,545
Convenience Market With Gas Pumps	2,432.76	2,432.76	2432.76	442,762	442,762
Fast Food Restaurant w/o Drive Thru	171.90	171.90	171.90	31,285	31,285
High Turnover (Sit Down Restaurant)	219.41	219.41	219.41	39,932	39,932
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	2,925.96	2,925.96	2,925.96	532,524	532,524

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	0.50	0.50	0.50	33.00	48.00	19.00	100	0	0
Convenience Market With Gas Pumps	0.50	0.50	0.50	0.80	80.20	19.00	100	0	0
Fast Food Restaurant w/o Drive Thru	0.50	0.50	0.50	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down Restaurant)	0.50	0.50	0.50	8.50	72.50	19.00	100	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.202118	0.027309	0.080059	0.068005	0.025252	0.003219	0.186340	0.401511	0.000808	0.000739	0.003078	0.000308	0.001255

Love's Country Store Williams - Local Area Operations 2020

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	491.65	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Based on Renewable Portfolio Standard

Land Use - Based on building data and site plan

Construction Phase - Project 2020 operations run only

Off-road Equipment - Operations only

Architectural Coating - Operations only

Vehicle Trips - Project-specific trip generation prepared by Fehr and Peers
Diverted trips analyzed in a separate run

Vechicle Emission Factors - Emissions of LDA, LDT1, LDT2, and MDV adjusted to reflect clean car standards as determined by Pavley II (3% reduction)

Energy Use - Renewable Portfolio Standard

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblConstructionPhase	NumDays	20.00	1.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleEF	LDA	9.4910e-003	9.2060e-003
tblVehicleEF	LDA	6.1620e-003	5.9770e-003
tblVehicleEF	LDA	231.69	224.74
tblVehicleEF	LDA	51.81	50.26
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	279.83	271.44
tblVehicleEF	LDT1	62.74	60.86
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	9.9700e-003	9.6710e-003
tblVehicleEF	LDT2	345.02	334.67
tblVehicleEF	LDT2	76.77	74.47
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	463.33	449.43
tblVehicleEF	MDV	102.09	99.03
tblVehicleTrips	DV_TP	51.00	0.00

tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	37.00	0.00
tblVehicleTrips	DV_TP	20.00	0.00
tblVehicleTrips	PR_TP	21.00	72.00
tblVehicleTrips	PR_TP	14.00	35.00
tblVehicleTrips	PR_TP	51.00	88.00
tblVehicleTrips	PR_TP	37.00	57.00
tblVehicleTrips	ST_TR	62.00	5.62
tblVehicleTrips	ST_TR	204.47	36.85
tblVehicleTrips	ST_TR	696.00	28.78
tblVehicleTrips	ST_TR	158.37	28.78
tblVehicleTrips	SU_TR	62.00	5.62
tblVehicleTrips	SU_TR	166.88	36.85
tblVehicleTrips	SU_TR	500.00	28.78
tblVehicleTrips	SU_TR	131.84	28.78
tblVehicleTrips	WD_TR	62.00	5.62
tblVehicleTrips	WD_TR	542.60	36.85
tblVehicleTrips	WD_TR	716.00	28.78
tblVehicleTrips	WD_TR	127.15	28.78

2.0 Emissions Summary

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											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Energy											0.0000	124.5593	124.5593	3.9600e-003	1.7800e-003	125.1951
Mobile											0.0000	460.0892	460.0892	0.0176	0.0000	460.4597
Waste											15.4720	0.0000	15.4720	0.9144	0.0000	34.6737
Water											0.6895	3.0730	3.7624	0.0710	1.7000e-003	5.7806
Total											**16.1615**	**587.7252**	**603.8866**	**1.0069**	**3.4800e-003**	**626.1130**

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											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Energy											0.0000	114.0727	114.0727	3.6300e-003	1.6300e-003	114.6543
Mobile											0.0000	460.0892	460.0892	0.0176	0.0000	460.4597
Waste											11.6040	0.0000	11.6040	0.6858	0.0000	26.0053
Water											0.5516	2.2831	2.8347	0.0568	1.3600e-003	4.4485
Total											**12.1556**	**576.4487**	**588.6043**	**0.7638**	**2.9900e-003**	**605.5717**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**24.79**	**1.92**	**2.53**	**24.14**	**14.08**	**3.28**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	460.0892	460.0892	0.0176	0.0000	460.4597
Unmitigated											0.0000	460.0892	460.0892	0.0176	0.0000	460.4597

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	33.94	33.94	33.94	71,747	71,747
Convenience Market With Gas Pumps	810.70	810.70	810.70	774,966	774,966
Fast Food Restaurant w/o Drive Thru	57.27	57.27	57.27	134,777	134,777
High Turnover (Sit Down Restaurant)	73.10	73.10	73.10	114,700	114,700
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	975.02	975.02	975.02	1,096,190	1,096,190

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
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	72	0	28
Convenience Market With Gas Pumps	9.50	7.30	7.30	0.80	80.20	19.00	35	0	65
Fast Food Restaurant w/o Drive Thru	9.50	7.30	7.30	1.50	79.50	19.00	88	0	12
High Turnover (Sit Down Restaurant)	9.50	7.30	7.30	8.50	72.50	19.00	57	0	43
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.461412	0.061542	0.181462	0.153657	0.057057	0.007302	0.019991	0.043491	0.001830	0.001664	0.007061	0.000672	0.002859

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated											0.0000	56.4809	56.4809	2.5300e-003	5.7000e-004	56.7120
Electricity Unmitigated											0.0000	61.3111	61.3111	2.7400e-003	6.2000e-004	61.5620
NaturalGas Mitigated											0.0000	57.5918	57.5918	1.1000e-003	1.0600e-003	57.9423
NaturalGas Unmitigated											0.0000	63.2482	63.2482	1.2100e-003	1.1600e-003	63.6331

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					
Automobile Care Center	131430											0.0000	7.0136	7.0136	1.3000e-004	1.3000e-004	7.0563
Convenience Market With Gas Pumps	91909.4											0.0000	4.9046	4.9046	9.0000e-005	9.0000e-005	4.9345
Fast Food Restaurant w/o Drive Thru	421608											0.0000	22.4986	22.4986	4.3000e-004	4.1000e-004	22.6355
High Turnover (Sit Down Restaurant)	540278											0.0000	28.8313	28.8313	5.5000e-004	5.3000e-004	29.0068
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**63.2482**	**63.2482**	**1.2000e-003**	**1.1600e-003**	**63.6331**

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					
Automobile Care Center	98959.4											0.0000	5.2809	5.2809	1.0000e-004	1.0000e-004	5.3130
Convenience Market With Gas Pumps	69480.2											0.0000	3.7077	3.7077	7.0000e-005	7.0000e-005	3.7303
Fast Food Restaurant w/o Drive Thru	399212											0.0000	21.3035	21.3035	4.1000e-004	3.9000e-004	21.4331
High Turnover (Sit Down Restaurant)	511578											0.0000	27.2998	27.2998	5.2000e-004	5.0000e-004	27.4659
Other Asphalt Surfaces	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total												**0.0000**	**57.5918**	**57.5918**	**1.1000e-003**	**1.0600e-003**	**57.9423**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	58346.4	13.0118	5.8000e-004	1.3000e-004	13.0650
Convenience Market With Gas Pumps	75258.6	16.7833	7.5000e-004	1.7000e-004	16.8520
Fast Food Restaurant w/o Drive Thru	61943.3	13.8139	6.2000e-004	1.4000e-004	13.8704
High Turnover (Sit Down Restaurant)	79378.6	17.7021	7.9000e-004	1.8000e-004	17.7746
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**61.3111**	**2.7400e-003**	**6.2000e-004**	**61.5620**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	54015.7	12.0460	5.4000e-004	1.2000e-004	12.0953
Convenience Market With Gas Pumps	68804.3	15.3440	6.9000e-004	1.6000e-004	15.4068
Fast Food Restaurant w/o Drive Thru	57176.9	12.7510	5.7000e-004	1.3000e-004	12.8031
High Turnover (Sit Down Restaurant)	73270.6	16.3400	7.3000e-004	1.7000e-004	16.4068
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**56.4809**	**2.5300e-003**	**5.8000e-004**	**56.7120**

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											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Unmitigated											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Total											**0.0000**	**3.7700e-003**	**3.7700e-003**	**1.0000e-005**	**0.0000**	**3.9800e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Total											**0.0000**	**3.7700e-003**	**3.7700e-003**	**1.0000e-005**	**0.0000**	**3.9800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8347	0.0568	1.3600e-003	4.4485
Unmitigated	3.7624	0.0710	1.7000e-003	5.7806

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.56825 / 0.348282	1.1378	0.0186	4.5000e-004	1.6661
Convenience Market With Gas Pumps	0.230058 / 0.141003	0.4607	7.5100e-003	1.8000e-004	0.6745
Fast Food Restaurant w/o Drive Thru	0.604032 / 0.0385552	0.9506	0.0197	4.7000e-004	1.5111
High Turnover (Sit Down Restaurant)	0.770976 / 0.0492112	1.2133	0.0252	6.0000e-004	1.9288
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**3.7624**	**0.0710**	**1.7000e-003**	**5.7806**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.4546 / 0.278626	0.8645	0.0149	3.6000e-004	1.2869
Convenience Market With Gas Pumps	0.184046 / 0.112803	0.3500	6.0100e-003	1.4000e-004	0.5210
Fast Food Restaurant w/o Drive Thru	0.483226 / 0.0308442	0.7118	0.0158	3.8000e-004	1.1600
High Turnover (Sit Down Restaurant)	0.616781 / 0.039369	0.9085	0.0201	4.8000e-004	1.4806
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8347**	**0.0568**	**1.3600e-003**	**4.4485**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	15.4720	0.9144	0.0000	34.6737
Mitigated	11.6040	0.6858	0.0000	26.0053

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	23.07	4.6830	0.2768	0.0000	10.4949
Fast Food Restaurant w/o Drive Thru	22.92	4.6526	0.2750	0.0000	10.4267
High Turnover (Sit Down Restaurant)	30.23	6.1364	0.3627	0.0000	13.7521
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**15.4720**	**0.9144**	**0.0000**	**34.6737**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	17.3025	3.5123	0.2076	0.0000	7.8712
Fast Food Restaurant w/o Drive Thru	17.19	3.4894	0.2062	0.0000	7.8200
High Turnover (Sit Down Restaurant)	22.6725	4.6023	0.2720	0.0000	10.3141
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.6040**	**0.6858**	**0.0000**	**26.0053**

9.0 Operational Offroad

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

10.0 Vegetation

Love's Country Store Williams - Diverted Trips (2020)

Sacramento Valley Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	9.31	Acre	9.31	0.00	0
Parking Lot	169.00	Space	1.52	0.00	0
Fast Food Restaurant w/o Drive Thru	1.99	1000sqft	0.05	1,986.00	0
High Turnover (Sit Down Restaurant)	2.54	1000sqft	0.06	2,545.00	0
Automobile Care Center	6.04	1000sqft	0.14	6,040.00	0
Convenience Market With Gas Pumps	22.00	Pump	0.07	8,243.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	65
Climate Zone	3			**Operational Year**	2020
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

Land Use - Based on building data and site plan
Construction Phase - Diverted trips - mobile operations only
Off-road Equipment - Operations only
Trips and VMT - Operations only
Architectural Coating - Operations only
Vehicle Trips - Diverted trips only
Vechicle Emission Factors - Fleet mix. Emissions of light duty autos adjusted to reflect clean car standards as determined by Pavley II (3% reduction).
Vechicle Emission Factors - Fleet mix adjusted to reflect a total of 47% trucks based on traffic counts done for Love's in Corning, CA.
Vechicle Emission Factors - Adjusted fleet mix
Area Coating - Run for Mobile emissions only

Energy Use - Diverted trip operations
Water And Wastewater - -
Solid Waste - -
Area Mitigation -
Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblConstructionPhase	NumDays	20.00	1.00
tblEnergyUse	NT24E	4.16	0.00
tblEnergyUse	NT24E	2.30	0.00
tblEnergyUse	NT24E	16.25	0.00
tblEnergyUse	NT24E	16.25	0.00
tblEnergyUse	T24E	2.39	0.00
tblEnergyUse	T24E	2.61	0.00
tblEnergyUse	T24E	8.00	0.00
tblEnergyUse	T24E	8.00	0.00
tblLandUse	LandUseSquareFeet	405,543.60	0.00
tblLandUse	LandUseSquareFeet	67,600.00	0.00
tblLandUse	LandUseSquareFeet	1,990.00	1,986.00
tblLandUse	LandUseSquareFeet	2,540.00	2,545.00
tblLandUse	LandUseSquareFeet	3,105.85	8,243.00
tblProjectCharacteristics	OperationalYear	2014	2020
tblSolidWaste	SolidWasteGenerationRate	23.07	0.00
tblSolidWaste	SolidWasteGenerationRate	22.92	0.00
tblSolidWaste	SolidWasteGenerationRate	30.23	0.00
tblVehicleEF	HHD	527.75	489.86
tblVehicleEF	HHD	1,536.46	1,426.14
tblVehicleEF	HHD	51.53	47.83

tblVehicleEF	HHD	0.04	0.40
tblVehicleEF	LDA	9.4910e-003	9.2060e-003
tblVehicleEF	LDA	6.1620e-003	5.9770e-003
tblVehicleEF	LDA	231.69	224.74
tblVehicleEF	LDA	51.81	50.26
tblVehicleEF	LDA	0.46	0.20
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	279.83	271.44
tblVehicleEF	LDT1	62.74	60.86
tblVehicleEF	LDT1	0.06	0.03
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	9.9700e-003	9.6710e-003
tblVehicleEF	LDT2	345.02	334.67
tblVehicleEF	LDT2	76.77	74.47
tblVehicleEF	LDT2	0.18	0.08
tblVehicleEF	LHD1	8.35	7.75
tblVehicleEF	LHD1	685.78	636.54
tblVehicleEF	LHD1	30.25	28.08
tblVehicleEF	LHD1	0.06	0.03
tblVehicleEF	LHD2	9.06	8.41
tblVehicleEF	LHD2	595.79	553.01
tblVehicleEF	LHD2	18.46	17.14
tblVehicleEF	LHD2	7.3020e-003	3.2190e-003
tblVehicleEF	MCY	7.0610e-003	3.0780e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	463.33	449.43
tblVehicleEF	MDV	102.09	99.03
tblVehicleEF	MDV	0.15	0.07

tblVehicleEF	MH	2.8590e-003	1.2550e-003
tblVehicleEF	MHD	568.20	527.40
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tblVehicleEF	MHD	0.02	0.19
tblVehicleEF	OBUS	1.8300e-003	8.0800e-004
tblVehicleEF	SBUS	6.7200e-004	3.0800e-004
tblVehicleEF	UBUS	1.6640e-003	7.3900e-004
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tblVehicleTrips	CC_TL	7.30	0.50
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tblVehicleTrips	CNW_TL	7.30	0.50
tblVehicleTrips	CNW_TL	7.30	0.50
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tblVehicleTrips	CW_TL	9.50	0.50
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tblVehicleTrips	CW_TL	9.50	0.50
tblVehicleTrips	CW_TL	9.50	0.00
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tblVehicleTrips	PB_TP	28.00	0.00
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tblVehicleTrips	PR_TP	21.00	100.00
tblVehicleTrips	PR_TP	14.00	100.00
tblVehicleTrips	PR_TP	51.00	100.00
tblVehicleTrips	PR_TP	37.00	100.00
tblVehicleTrips	ST_TR	62.00	16.87
tblVehicleTrips	ST_TR	204.47	110.58
tblVehicleTrips	ST_TR	696.00	86.38
tblVehicleTrips	ST_TR	158.37	86.38
tblVehicleTrips	SU_TR	62.00	16.87
tblVehicleTrips	SU_TR	166.88	110.58
tblVehicleTrips	SU_TR	500.00	86.38
tblVehicleTrips	SU_TR	131.84	86.38
tblVehicleTrips	WD_TR	62.00	16.87
tblVehicleTrips	WD_TR	542.60	110.58
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tblWater	IndoorWaterUseRate	568,249.89	0.00
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tblWater	IndoorWaterUseRate	770,975.63	0.00
tblWater	OutdoorWaterUseRate	348,282.19	0.00
tblWater	OutdoorWaterUseRate	141,003.25	0.00
tblWater	OutdoorWaterUseRate	38,555.24	0.00
tblWater	OutdoorWaterUseRate	49,211.21	0.00

2.0 Emissions Summary

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											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Energy											0.0000	87.9800	87.9800	2.3300e-003	1.3900e-003	88.4601
Mobile											0.0000	837.3235	837.3235	0.0230	0.0000	837.8061
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**925.3073**	**925.3073**	**0.0253**	**1.3900e-003**	**926.2702**

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											0.0000	3.7700e-003	3.7700e-003	1.0000e-005	0.0000	3.9800e-003
Energy											0.0000	87.9800	87.9800	2.3300e-003	1.3900e-003	88.4601
Mobile											0.0000	837.3235	837.3235	0.0230	0.0000	837.8061
Waste											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total											**0.0000**	**925.3073**	**925.3073**	**0.0253**	**1.3900e-003**	**926.2702**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated											0.0000	837.3235	837.3235	0.0230	0.0000	837.8061
Unmitigated											0.0000	837.3235	837.3235	0.0230	0.0000	837.8061

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	101.89	101.89	101.89	18,545	18,545
Convenience Market With Gas Pumps	2,432.76	2,432.76	2432.76	442,762	442,762
Fast Food Restaurant w/o Drive Thru	171.90	171.90	171.90	31,285	31,285
High Turnover (Sit Down Restaurant)	219.41	219.41	219.41	39,932	39,932
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	2,925.96	2,925.96	2,925.96	532,524	532,524

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
Automobile Care Center	0.50	0.50	0.50	33.00	48.00	19.00	100	0	0
Convenience Market With Gas Pumps	0.50	0.50	0.50	0.80	80.20	19.00	100	0	0
Fast Food Restaurant w/o Drive Thru	0.50	0.50	0.50	1.50	79.50	19.00	100	0	0
High Turnover (Sit Down Restaurant)	0.50	0.50	0.50	8.50	72.50	19.00	100	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.202118	0.027309	0.080059	0.068005	0.025252	0.003219	0.186340	0.401511	0.000808	0.000739	0.003078	0.000308	0.001255

Appendix C: Biological Resources Evaluation Report

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Biological Resources Evaluation
for the
Love's Country Store Project

City of Williams, CA

Prepared by:

Sycamore Environmental Consultants, Inc.
6355 Riverside Blvd., Suite C
Sacramento, CA 95831-1143
Phone: 916/ 427-0703
Contact: Jeffery Little

Prepared for:

The City of Williams, CA
P.O. Box 310
Williams, CA 95987
Phone: (530) 473-2445
Contact: Monica Stegall, City Planner

August 2016

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Biological Resources Evaluation
for the
Love's Country Store Project

City of Williams, CA

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I. SUMMARY OF FINDINGS AND CONCLUSIONS

This Biological Resources Evaluation (BRE) was prepared for the Love's Country Store Project in the City of Williams, CA. The site and offsite improvements consist of approximately 27.77 acres south of the Margurite Street and State Route 20 (SR-20) intersection. The site is a former agricultural field with annual vegetation that is disked and mowed. The site does not contain wetlands. Offsite improvements include proposed ditch alignments to convey storm water to the manmade Husted Lateral Detention Basin 7 (HLDET7) east of the project.

The Biological Study Area (BSA) provides potential aquatic and upland habitat for Federal and State threatened giant-garter snake.

The BSA provides potential foraging habitat for Swainson's hawk. The BSA does not provide potential nesting habitat for Swainson's hawk due to a lack of trees. Some off-site trees in the vicinity of the site could support a Swainson's hawk nest. The BSA provides potential foraging and nesting habitat for burrowing owl. Burrowing owl is not currently nesting at the site. The BSA provides low quality foraging habitat for White-tailed kite. The BSA does not provide potential nesting habitat for White-tailed kite. The BSA and surrounding area provides potential nesting habitat for some birds listed under the Federal Migratory Bird Treaty Act and State Fish and Game Code.

The BSA provides potential habitat for the Federal and State endangered Palmate-bracted bird's beak. The BSA provide potential habitat for seven California Native Plant Society ranked rare plants including Ferris' milk-vetch, brittlescale, pappose tarplant, San Joaquin spearscale, water star grass, California alkali grass and Wright's trichocoronis.

II. INTRODUCTION

A. Purpose of Report

The purpose of this report is to document baseline biological conditions and any special-status biological resources. This report is intended to be used in support of the California Environmental Quality Act (CEQA) review process and in permit applications. Project impacts are identified and avoidance and minimization measures are proposed.

B. Project Location

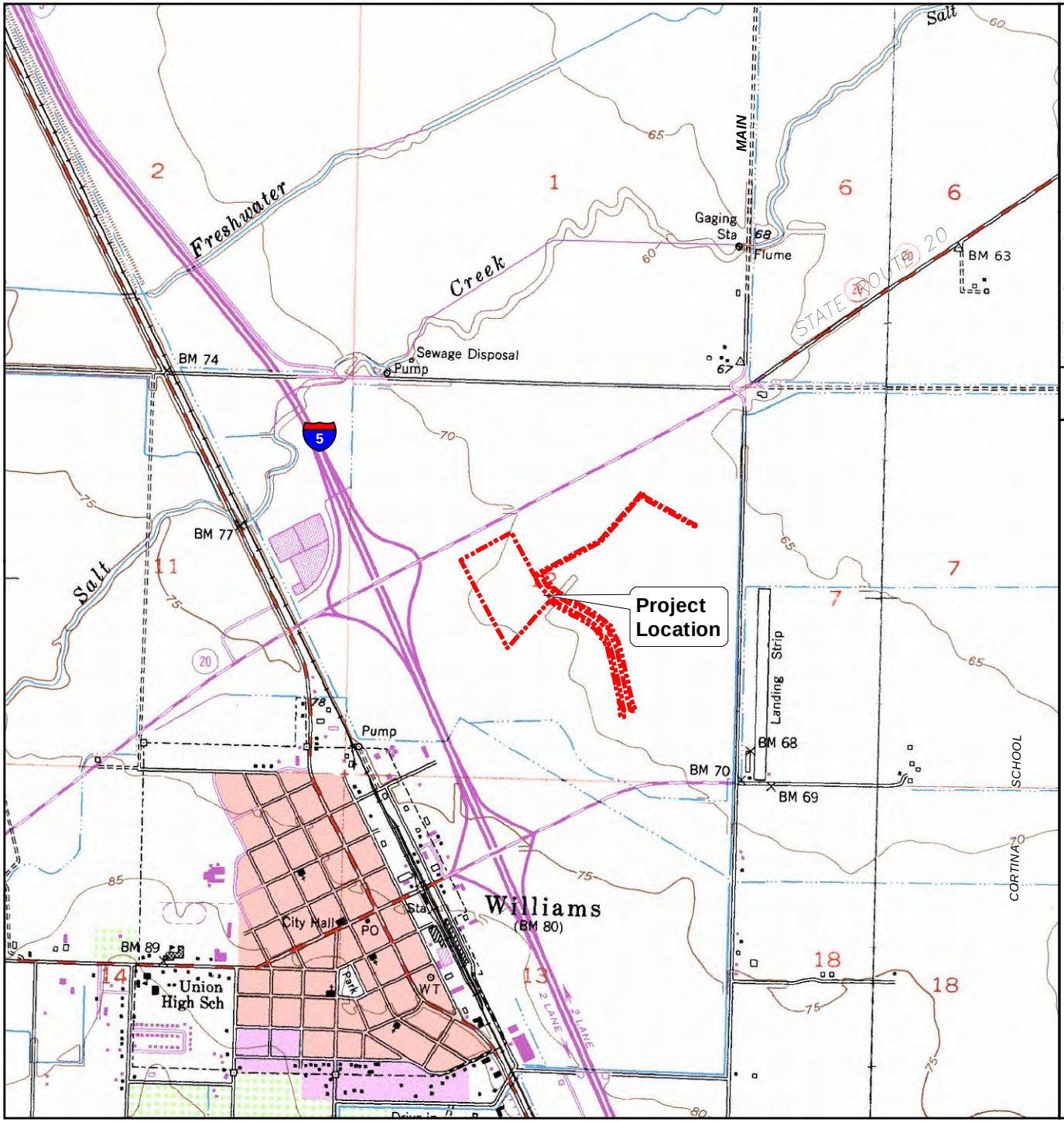
The biological study area (BSA) is located south of the Margurite Street and SR-20 intersection in the City of Williams, CA, Colusa County. The BSA, including a proposed drainage ditch, consists of approximately 27.77 acres. The Project Site excluding off site drainage and staging areas is 11.15 ac. The BSA is on the Williams USGS topographic quad. Figure 1 and Figure 2 shows the project location.

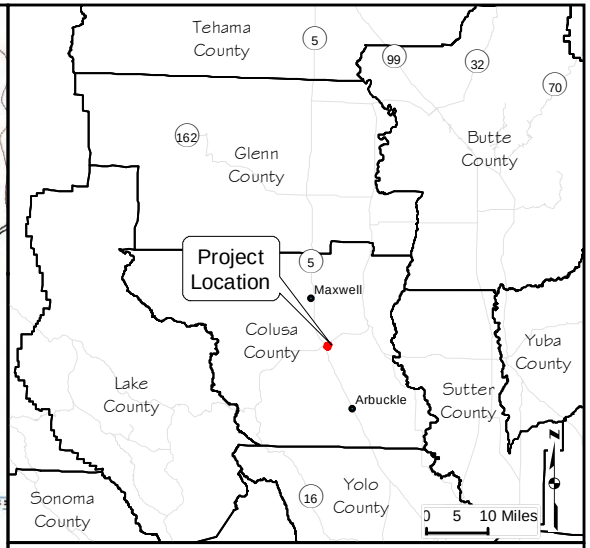
C. Project Applicant

Love's Country Stores of California
10601 N. Pennsylvania Ave
Oklahoma City, OK 73120
Contact: Mr. Rick Shuffield

D. Project Description

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, CA (Figure 1). Love's Country Stores of California submitted an application for a Design Review and Site Plan Permit for a proposed Love's Country Store to be sited on approximately 11.15 acres located near the southwest corner of the Margurite Street and State Route 20 (SR 20) intersection (Figure 2) just east of the Interstate 5 (I-5)/SR 20 intersection. The proposed Project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The Project would include a 13,582 square- foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square foot tire shop. The proposed travel center will function as a "one stop shop" for freeway travelers and truckers including minor vehicle repairs and tire sales. The Project is consistent with existing City of Williams General Plan land use designations and zoning (Business Park), which allow for the development of Truck stop/Truck wash, Fueling Station/Light Automobile Service/Car Wash and Restaurants.





Love's Country Stores
City of Williams, CA
1 July 2016

Figure 1. Project Location Map

Project Location

2,000 1,000 0 2,000 Feet

Scale: 1 inch = 2,000 feet

N

SYCAMORE Environmental Consultants, Inc.

Williams, CA (Revised 1994) &
Colusa, CA (Photoinspected 1991)
CASIL California USGS Digital Raster Graphics (DRG),
7.5 Minute (C) Series, Albers Nad83 Mosaics (MrSID)
o_nw0302.sid

14024LovesCountryStores_Fig1LocationMap.mxd

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Love's Country Stores
City of Williams, CA
1 July 2016

Biological Study Area (BSA)

SYCAMORE
Environmental
Consultants, Inc.

Aerial Photograph: 13 July 2014
2014NAIP USDA FSA Imagery
ESRI ArcGIS Basemap Service Layer

Figure 2. Aerial Photograph

14024LovesCountryStores_Fig2AerialPhoto.mxd

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The proposed Project considers two stormwater drainage alignments to connect to HLDET7. The first alignment follows the future Wallace Street alignment and connects directly to the HLDET7. The first alignment would excavate a temporary ditch to the west side of HLDET7. Two 48" reinforced concrete pipe (RCP) culverts would convey flows under an existing gas line. Culverts would convey flows underneath an existing perimeter farm ditch into the shallow portion of HLDET7. A ditch would be excavated in HLDET7 to direct flows to the deep portion of the basin. The deep section is continuously inundated; the shallow section is seasonally inundated. A back flow device (e.g. flap gate) may be installed in the ditch to prevent high water in the HLDET7 from backing up into the ditch. The temporary ditch may contain water during some or most of the year.

The second alignment parallels Margurite Street south to Ella Street where it connects to the existing underground storm drain pipes and infrastructure in Ella Street. The pipes in Ella Street drain east towards Husted Road. Stormwater then flows north via an open ditch into HLDET7

E. Project History

The 1988 General Plan, designated the area east of I-5, south of SR 20, west of Husted Rd, and north of E Street as Light Manufacturing (M-L), Heavy Manufacturing (M-H), and Commercial Heavy (CH), with Highway Commercial (HC) north of E Street. The project site was in the area designated for Heavy Manufacturing.

The current General Plan (Williams 2012) redesignated and rezoned the M-L, M-H, and CH in the area described to Business Park (BP). The land north of SR 20 within the City limits was changed from agricultural to BP. The proposed Project site is zoned as BP. Much of the area had previously been in rice production.

The Margurite Street extension to SR 20 was completed in 2016. The road extension includes underground water, sewer, and storm drain facilities.

III. STUDY METHODS

A. Studies Conducted

An evaluation of biological resources was conducted to determine whether any special-status plant or wildlife species, their habitat, or other sensitive habitats occur in the BSA. Data on special-status species and habitats known in the area were obtained from state and federal agencies. Maps and aerial photographs of the BSA and surrounding areas were reviewed. Field surveys were conducted to determine the habitats present. The field survey, map review, and a review of the biology of evaluated species and habitats were used to determine the special-status species and sensitive habitats that could occur in the BSA.

Special-status species in this report are those listed (or candidate or proposed) under the federal or state endangered species acts, under the California Native Plant Protection Act, as a California species of special concern or fully protected by the California Department of Fish and Wildlife (CDFW), or that are Rank 1 or 2 in the California Native Plant Society's Inventory of Rare and Endangered Plants of California (CNPS 2016). Special-status natural communities are waters, wetlands, riparian communities, and any natural community ranked S1, S2, or S3 by CDFW (2010).

B. Survey Dates and Personnel

Sycamore Environmental, conducted biological surveys on 9 March and 11 May 2016. Sycamore Environmental biologists conducted biological surveys in 2013 and 2014 for the preparation of technical studies and a CEQA document for the City's Margurite Street extension project. There is some overlap for the two project study areas.

C. Problems Encountered and Limitations That May Influence Results

No problems or limitations were encountered that may influence the results.

D. Literature Search

An official letter and list were obtained from the U.S. Fish and Wildlife Service (USFWS), Sacramento Field Office (Appendix A). The list identifies federal-listed, candidate, or proposed species that potentially occur in or could be affected by projects on the Williams Quad.

The California Natural Diversity Database (CNDDB) was queried for known occurrences of special-status species near the BSA (Williams Quad and the eight surrounding quads; Appendix B). The California Native Plant Society (CNPS) online inventory of rare and endangered plants was queried for known occurrences of special-status plants in or near the BSA (Williams Quad and the eight surrounding quads; Appendix B).

E. Field Survey Methods

Biological surveys consisted of walking through the BSA to assess potential habitat for special-status species and sensitive communities. The Glenn-Colusa Irrigation District (GCID) drainage ditch, north and outside of the BSA, was surveyed for wildlife species. A survey of areas where potential offsite improvements may be located included 50 ft on both sides of Margurite Street from Ella Street to the SR-20, the disturbed area north of Ella Street from Margurite Street to the City storm drainage canal, banks of the canal, the HLDET7 and a proposed ditch alignment from the HLDET7 to the Love's site. Plant and animal species and biological communities were identified and recorded. A list of plant and wildlife species observed is in Appendix D. Photographs are in Appendix E.

A floristic botanical survey was conducted in accordance with CDFW (2009) protocol. Approximately 9 person-hours were spent on-site during the two surveys. The botanical surveys consisted of walking through the BSA systematically to look for all vascular plants present. Approximately 3 person-hour was spent keying specimens that were collected in the field, to verify or determine the identification. All plants observed are listed in Appendix D.

F. Mapping

An aerial photograph acquired from the ESRI ArcGIS Basemap Service Layer was aligned with existing features to create Figure 4. Acreages were calculated using ArcMap functions.

IV. ENVIRONMENTAL SETTING

The BSA is a former agricultural field of the Sacramento Valley in the City of Williams, CA. The Project is located south of State Route 20 (SR-20) and east of I-5. The east side of the Project abuts the new Margurite Street. Between the Project site and SR-20 is the GCID ditch to the north. About 0.4 mile to the east is the Husted Lateral Detention Basin (HDL7). Fallow agricultural fields are to the south and west. Elevation is approximately 69 ft above sea level and the topography is generally flat. The larger surrounding area consists of agricultural fields (rice and safflower).

A. Soils

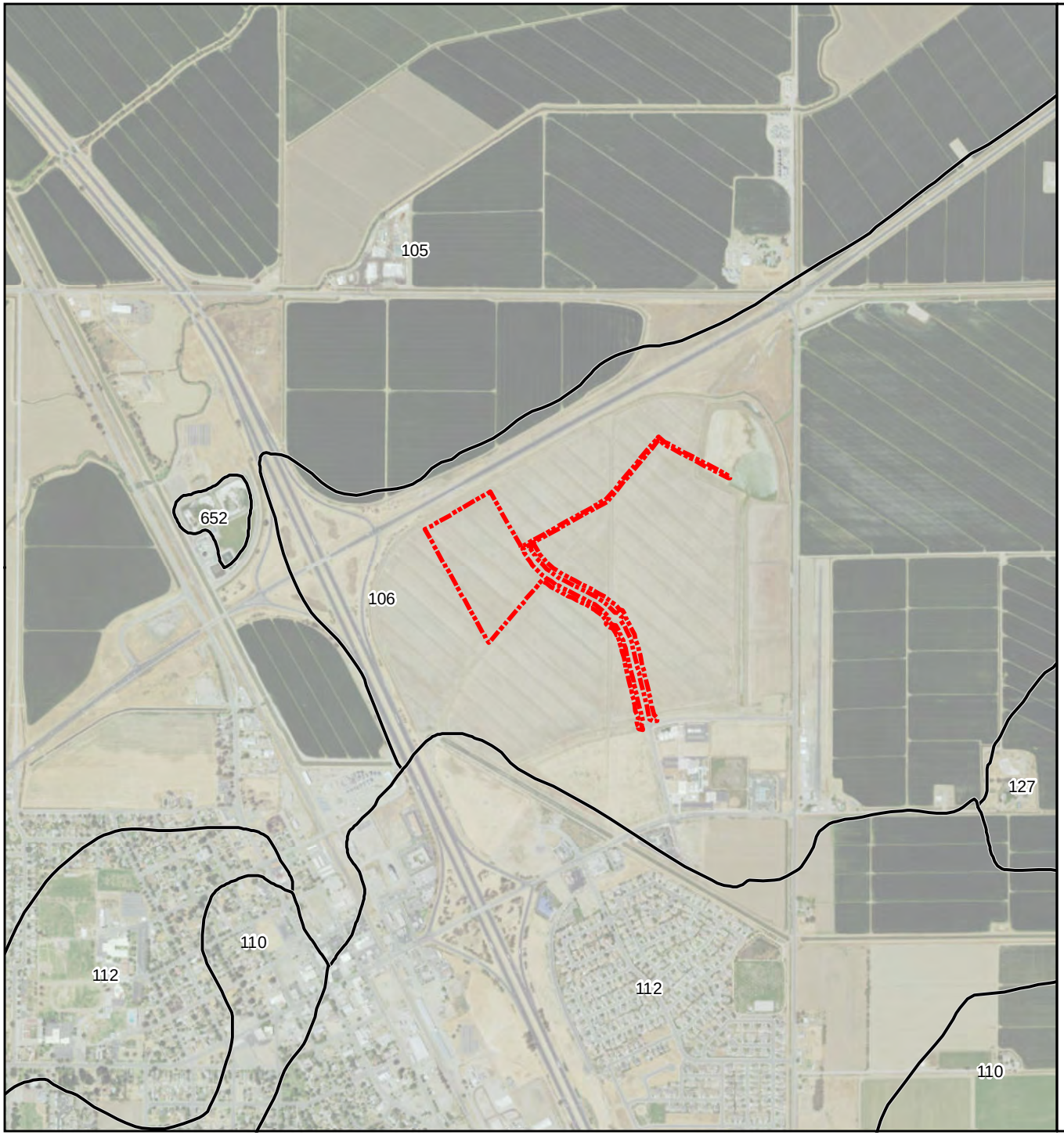
The soil mapping unit is present in the BSA is Willows silty clay, 0-1% slopes (NRCS 2006). The Willows series is a very deep, poorly drained soil that formed from fine-textured alluvium derived from mixed rock sources. This soil is classified as saline and sodic within a depth of 40 inches. Accumulations of salts at the surface have been removed through reclamation or ponding for rice production. The soil formed under saturated and frequently flooded conditions (NRCS 2006). A soil map is in Figure 3.

B. Biological Communities

Biological communities are defined by species composition and relative abundance. A biological resource map of the BSA is in Figure 4. Photographs of the BSA are in Appendix E. These communities correlate where applicable with the list of California terrestrial natural communities recognized by CDFW (2010). Given the disturbed nature of the BSA no natural communities recognized by CDFW were identified. Descriptions of biological communities present in the BSA are included below. Table 1 includes the acreage of the various communities in the BSA.

Table 1. Biological Communities in the BSA.

	Community Acreage				
Project Component	**Agricultural Field**	**Ruderal/ Disturbed**	**Paved Road**	**Detention Basin (HLDET7)**	**Total Acreage**
Project Site	11.15	--	--	--	11.15
Staging	9.97	--	--	--	9.97
Off Site Drainage Alignment	1.11	0.05	0.05	0.21	1.43
Alternate Off Site Drainage Alignment	4.94	0.24	0.05	--	5.22
Total	**27.17**	**0.29**	**0.10**	**0.21**	**27.77**



Love's Country Stores
City of Williams, CA
1 July 2016

Figure 3. Soils Map

Biological Study Area

Soil Boundary

Soil Types (In BSA):

106: Willows silty clay,
0 to 1 percent slopes

2,000 0 2,000 Feet

Scale: 1 inch = 2,000 feet

N

Digital Soil Survey Geographic (SSURGO) database for
Colusa County, California, USDA, NRCS (6 Dec. 2007)
URL:http://SoilDataMart.nrcs.usda.gov/

Aerial Photograph: 13 July 2014
2014NAIP USDA FSA Imagery
ESRI ArcGIS Basemap Service Layer

14024LovesCountryStores_Fig3SoilsMap.mxd

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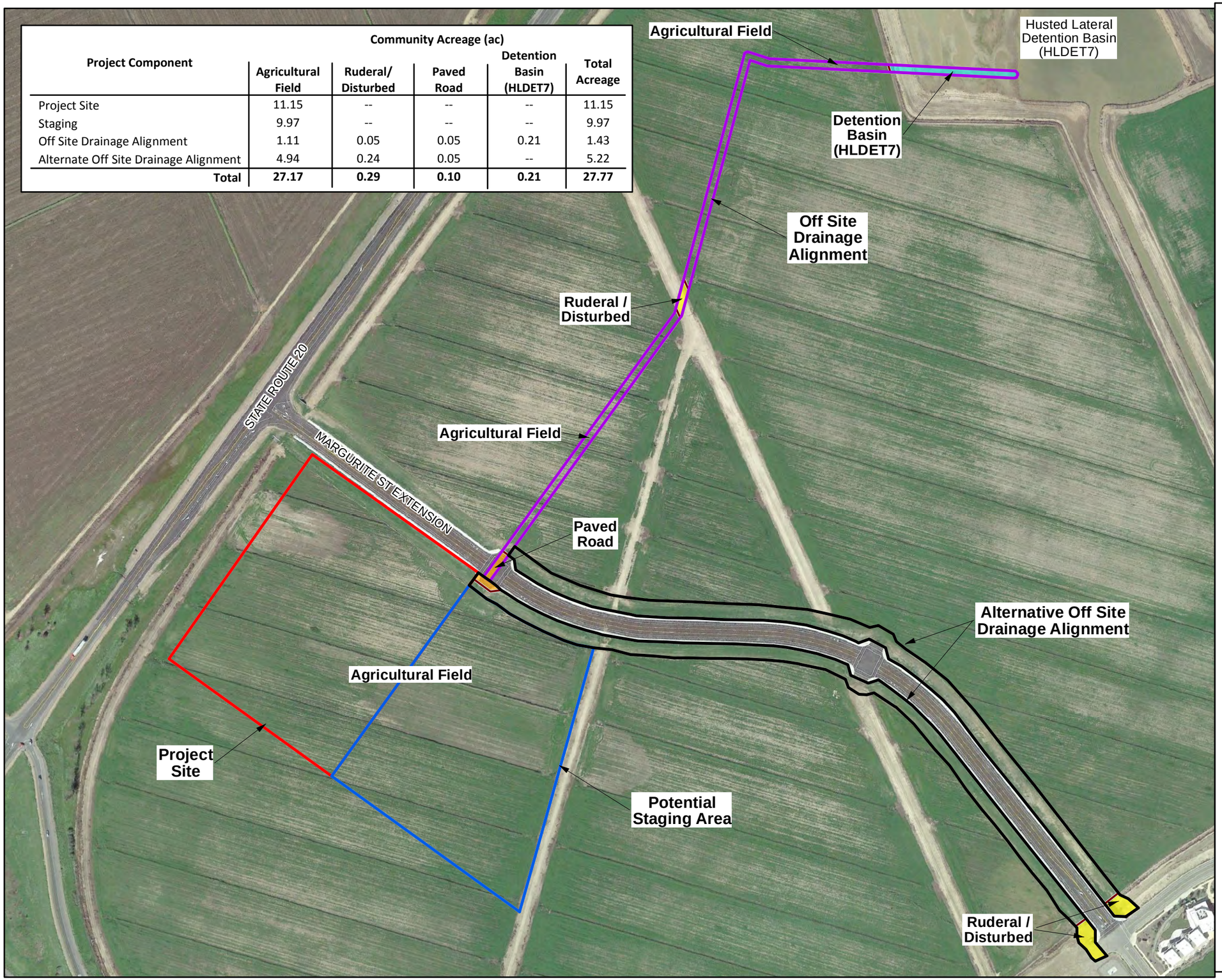
Project Component	Community Acreage (ac)				
	Agricultural Field	Ruderal/ Disturbed	Paved Road	Detention Basin (HLDET7)	Total Acreage
Project Site	11.15	--	--	--	11.15
Staging	9.97	--	--	--	9.97
Off Site Drainage Alignment	1.11	0.05	0.05	0.21	1.43
Alternate Off Site Drainage Alignment	4.94	0.24	0.05	--	5.22
Total	**27.17**	**0.29**	**0.10**	**0.21**	**27.77**



Love's Country Stores
City of Williams, CA
1 July 2016

Figure 4.
Biological Resources Map

- Project Site
- Staging
- Off Site Drainage Alignment
- Alternative Off Site Drainage Alignment
- Agricultural Field
- Ruderal / Disturbed
- Paved Road
- Detention Basin

300 150 0 300 Feet

Scale: 1 inch = 300 feet

SYCAMORE Environmental Consultants, Inc.

Aerial Photograph: 13 July 2014
2014NAIP USDA FSA Imagery
ESRI ArcGIS Basemap Service Layer

14024LovesCountryStores_Fig4BioresMap(11x17)_v2.mxd

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The ruderal/disturbed community includes dirt farm roads that occur on the eastern portion of the BSA where the proposed temporary ditch is located. The dirt roads provide access through and around the agricultural fields. These areas are mostly devoid of vegetation except for scattered weedy species such as puncture vine (*Tribulus terrestris*) and bindweed (*Convolvulus arvensis*).

The HLDET7 is east of the proposed Love's Country Store. The basin collects storm water from development along Ella Street and E Street via a canal and underground culvert. The GCID drainage canal occurs north and east of the HLDET7. The drainage canal can flow into a small wetland that occurs north of the HLDET7 through a culvert that must be manually opened. The wetland drains into agricultural ditches that flow in both directions around the HLDET7 and canal. The agricultural ditches likely supplied water to rice fields prior to the construction of Margurite Street. One ditch ends just south of the HLDET7 and the other ends just north of Ella Street. During periods of high water levels the HLDET7 may discharge to the GCID drainage canal via overflow pipes.

Double-crested cormorants, snowy egrets, American avocets, black necked stilts, killdeer and mallards were observed foraging in the HLDET7 during the March and May 2016 field surveys. Several large carp (12+ inches) were observed in the HLDET7 and associated canal. Dominant plant species on the banks of the HLDET7 include spurrey (*Spergularia* sp.) and sour clover (*Melilotus indicus*).

Paved roads consist of the newly constructed Margurite Street. The paved roads are east of the proposed Love's Country Store and are devoid of vegetation.

The agricultural fields within the BSA are the majority of the project area. The Love's Country Store, a potential staging area and proposed temporary ditch all occur in agricultural fields. The fields are primarily farmed for either rice or safflower. In 2010 a portion of the northern field in the BSA was used for safflower production. In 2013, the site was used for rice production. The agricultural fields have a business park land use and zoning designation in the 2012 City of Williams GPU. While rice was farmed in these fields in 2013, no rice farming occurred after 2013 to allow for construction of the SR-20 Margurite Street Connection.

C. The Existing Level of Disturbance

A review of aerial photographs indicates the BSA has been used for agricultural production since at least 1998 and possibly earlier. Agricultural production consists of periodically tilling the fields with farming equipment. Dirt farm roads within the BSA are used by farm workers and were used by contractors during the SR-20 Margurite Street connection project.

The construction of the underground utilities for the Margurite Street extension required ground water pumping. The ground water was pumped onto the fallow agricultural field in the northern portion of the Project area. The entire site had been disked prior to the May 2016 fieldwork.

V. BIOLOGICAL RESOURCES IN THE PROJECT STUDY AREA

A. Determination of Special Status Species in the Project Study Area

File data from USFWS, CNDDB, and CNPS were used to determine the special-status species that could occur in the area. The USFWS list of special-status species that could occur in or be affected by the project is in Appendix A. CNDDB and CNPS queries for the Williams and 8 surrounding USGS quads are in Appendix B. Field surveys were conducted to determine if special-status species or their habitats are present in the BSA. Special-status species with potential habitat are listed in Table 2.

Table 2. Special-Status Species with the Potential to Occur.

Special-Status Species	Common Name	Federal Status[a, b]	State Status [a] & Other Codes [b,c]	Source [d]	Habitat Present? / Species Observed?
Reptiles					
Thamnophis gigas	Giant garter snake	T	T	2	Yes / No
Birds					
Nesting Birds (MBTA or CA protected)		--	--	3	Yes / No
Athene cunicularia	Burrowing owl	--	SSC	2	Yes / No
Buteo swainsoni	Swainson's hawk	--	T	2	Yes / No
Elanus leucurus	White-tailed kite	--	FP	2	Yes / No
Plants					
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	-	1B.2	2	Yes / No
Atriplex depressa	Brittlescale	--	--/ 1B.2	2	Yes / No
Centromadia parryi ssp. *parryi*	Pappose tarplant	--	--/ 1B.2	2	Yes / No
Chloropyron palmatum	Palmate-bracted bird's-beak	E	E/ 1B.1	2	Yes / No
Extriplex joaquinana (=Atriplex joaquiniana)	San Joaquin spearscale	--	--/ 1B.2	2	Yes / No
Heteranthera dubia	Water star-grass	--	--/ 2B.2	2	Yes / No
Puccinellia simplex	California alkali grass	--	--/ 1B.2	2	Yes / No
Trichocoronis wrightii var. *wrightii*	Wright's trichocoronis	--	--/ 2B.1	2	Yes / No

[a] **Listing Status** : **E** = Endangered; **T** = Threatened; **P** = Proposed; **C** = Candidate; **R** = California Rare.

[b] **Other Codes:** **SC** = CDFW Species of Special Concern; **FP** = CDFW Fully Protected; **CH =** Critical habitat designated.

[c] **CNPS Rare Plant Rank**: 1A = Presumed Extinct in CA; 1B = Rare or Endangered in CA and elsewhere; 2 = R/E in CA and more common elsewhere; 3 = More information is needed about this plant species (review list); 4 = Limited distribution (watch list).

CNPS Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in California (20-80% occurrences threatened); .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known).

[d] **Sources** **1** = From USFWS list. **2** = From CNDDB/CNPS Records. **3 =** Observed or included by Sycamore Environmental.

B. Special Status Species Not in the Project Study Area

Special-status species for which suitable habitat is not present, or for which range limits preclude the possibility of their occurrence in the BSA, are evaluated in Appendix C and are not discussed further.

C. Evaluation of Special Status Wildlife

1. Giant Garter Snake (*Thamnophis gigas*)

Habitat and Biology: Giant garter snakes (GGS) were listed as federally threatened on 20 October 1993 (FR 58:54053). GGS historically inhabited natural wetlands, but now mostly inhabit agricultural wetlands and other waterways, such as irrigation and drainage canals, riceland, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Ideal habitat contains shallow water, deep water, and high ground. This habitat is often found in rice fields, where GGS appear to be the most numerous. GGS inhabit small mammal burrows and other soil crevices above prevailing flood elevations throughout the winter dormancy period (November to mid-March). GGS are most active from spring to mid-fall (approximately April through the end of October). The breeding season begins after emergence from overwintering sites, which occurs approximately March through May, and resumes briefly in September.

Range: GGS are endemic to wetlands in the Central Valley of California, from Red Bluff to Bakersfield. Once common throughout the Central Valley, GGS are currently only found in the Sacramento Valley and isolated populations in San Joaquin Valley.

The GGS Draft Recovery Plan (USFWS 1999b) recognizes 13 separate populations of GGS that coincide with riverine flood basins and tributary streams: Butte Basin, Colusa Basin, Sutter Basin, American Basin, Yolo Basin/Willow Slough, Yolo Basin/Liberty Farms, Sacramento Basin, Badger Creek/Willow Creek, Caldoni Marsh, East Stockton – Diverting Canal and Duck Creek, North and South Grasslands, Mendota, and Burrel/Lanare. These populations occur in Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo counties.

Known Records: There are 39 CNDDB records of GGS on the nine quads centered on the BSA. The closest CNDDB record for GGS is located approximately 0.3 miles south of the BSA at Husted Road, 0.1 mile north of E Street in Williams. One subadult was found dead in 1981. In 2015, Sycamore Environmental Biologists observed GGS in the GCID canal 100 ft north of the BSA.

Aquatic Habitat in the Project Area: The Husted Lateral Detention Basin 7 (HLDET7), constructed in 2008-2009, created suitable aquatic habitat for GGS. While the water levels in the basin fluctuate seasonally, it is a permanent water source with perennial marsh vegetation. Based on the recent 2015 and earlier CNDDB records, GGS may be present in the HLDET7.

Upland Habitat in the Project Area: Upland habitat in the BSA includes the banks of the HLDET7 and non-disturbed annual grasslands that are within 200 ft of GGS aquatic habitat (as described above). Agricultural fields and ruderal areas adjacent to the HLDET7 are regularly disked and disturbed. GGS are unlikely to use these areas as upland refuge.

The main Project site is located approximately 100 ft south of the GCID canal where GGS were observed in 2015. The main Project site is not included as upland habitat for GGS. These areas are subject to repeated disturbance on a regular basis. The field was disced in approximately 2010 to facilitate planting of safflower in the field and in 2013 rice was grown in the field. The fields were disced again prior to the May 2016 fieldwork. Given this episodic disturbance it is unlikely that this area provides suitable higher elevation uplands for cover and refuge from flood waters during the snake's winter dormant season.

Proposed Avoidance and Minimization: Giant garter snake is state and federal listed. Incidental take of GGS require take authorization from CDFW and USFWS.

- Prior to the issuance of a grading permit for work in the HLDET7, the project proponent shall demonstrate to the City that State and Federal endangered species act compliance has been satisfied. USFWS may authorize take of GGS through the issuance of a Biological Opinion with an Incidental Take Statement at the conclusion of formal endangered species act consultation. Take authorization from CDFW is through one of two processes, through the issuance of a 2080.1. California Endangered Species Act (CESA) Consistency Determination or a 2081 CESA Incidental Take Permit.
- Mitigation for permanent impacts of GGS aquatic and upland habitat will be based on the programmatic biological opinion's mitigation ratios, namely 3:1 for permanent impacts to aquatic habitat and 1:1 for permanent upland impacts. Temporarily affected areas will be restored to their pre-project conditions. Restored habitat will be monitored for a period of one year following implementation. A monitoring report will be submitted to the USFWS one year after completion of the restoration implementation. The project proponent will mitigate impacts to GGS habitat through the purchase of USFWS and CDFW approved GGS mitigation credits.

Project Impacts: HLDET7 was designed to handle storm water runoff for the business park, including the 11.15 acre project site. The proposed Project considers several stormwater drainage alignments to connect to HLDET7. The first alignment follows the future Wallace Street alignment and connects directly to the HLDET7. The second alignment parallels Margurite Street south to Ella Street where it connects to the existing underground storm drain pipes and infrastructure in Ella Street. The pipes in Ella Street drain east towards Husted Road. Stormwater then flows north via an open ditch into HLDET7.

The first alignment results in construction impacts to suitable upland and aquatic GGS habitat. The first alignment would excavate a temporary ditch to the west side of HLDET7. Two 48" reinforced concrete pipe (RCP) culverts would convey flows under an existing gas line. Culverts would convey flows underneath an existing perimeter farm ditch into the shallow portion of HLDET7. A ditch would be excavated in HLDET7 to direct flows to the deep portion of the basin. The deep section is continuously inundated; the shallow section is seasonally inundated. A back flow device (e.g. flap gate) may be installed in the ditch to prevent high water in the HLDET7 from backing up into the ditch. The temporary ditch may contain water during some or most of the year. The ditch may become suitable GGS aquatic habitat. As the business park is developed, the wet and dry utilities would be installed in the ditch and the ditch backfilled to make way for construction of future Wallace Street. The length of the ditch in HLDET7 is approximately 375 ft long. Only the construction of the ditch in the basin could impact GGS. The use and operation of the ditch will not impact GGS.

Construction of the first alignment would result in permanent and temporary impact to upland and aquatic GGS habitat.

The second alignment avoids work in suitable GGS habitat. If selected the second alignment would not result in impacts to GGS and no mitigation would be required.

Compensatory Mitigation: If determined that the project does not result in take of GGS, no further mitigation is required. Mitigation for permanent impacts of GGS aquatic and upland habitat will be based on the programmatic biological opinion's mitigation ratios, namely 3:1 for permanent impacts to aquatic habitat and 1:1 for permanent upland impacts.

2. Nesting Birds Listed Under the MBTA or Regulated by CA Fish and Game Code

CA Fish and Game Code §3503 protects most birds and their nests. CA Fish and Game Code §3503.5 further protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). Birds of prey include raptors, falcons, and owls. The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) also protects most birds and their nests, including most non-migratory birds in California. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any bird listed in 50 CFR Part 10 including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. Any disturbance that causes direct injury, death, nest abandonment, or forced fledging of migratory birds, is restricted under the MBTA. Any removal of active nests during the breeding season or any disturbance that results in the abandonment of nestlings is considered a 'take' of the species under federal law.

HABITAT PRESENT: The BSA and nearby areas provides potential nesting sites for birds listed under the MBTA and regulated by CA Fish and Game Code. Depending on the

species, birds may nest on trees, shrubs, in or on the ground, and on artificial structures such as buildings, poles, and signs.

PROPOSED AVOIDANCE AND MINIMIZATION: Under the MBTA, nests that contain eggs or unfledged young are not to be disturbed during the breeding season. Nesting or attempted nesting by migratory birds and birds-of-prey is anticipated from 15 February to 1 September. The following avoidance and minimization measures will be implemented:

- If construction begins outside the 15 February to 1 September breeding season, there will be no need to conduct a preconstruction survey for active nests.
- If applicable, trees scheduled for removal should be removed during the non-breeding season from 1 September to 31 January.
- If construction is scheduled to begin between 15 February and 1 September, a biologist shall conduct a survey for active bird of prey nests within 250 ft and active MTBA bird nests within 100 ft of the Project area from publicly accessible areas within one week prior to construction. The measures listed below shall be implemented based on the survey results.

No Active Nests Found:

- If no active nest of a bird of prey, MBTA bird, or other CDFW protected bird is found, then no further avoidance and minimization measures are necessary.

Active Nests Found:

- If an active nest of a bird of prey, MBTA bird, or other CDFW protected bird is discovered that may be adversely affected by construction activities or an injured or killed bird is found, immediately:
    1. Stop all work within a 100-ft radius of the discovery
    2. Notify the Engineer
    3. Do not resume work within the specified radius of the discovery until authorized.
- The biologist shall establish a minimum 250-ft Environmentally Sensitive Area (ESA) around the nest if the nest is of a bird of prey, and a minimum 100-ft ESA around the nest if the nest is of an MBTA bird other than a bird of prey.

Bird Species Protection Areas

Identification	Location
Bird of Prey	250 ft no-disturbance buffer
MBTA protected bird (not bird of prey)	100 ft no-disturbance buffer

- Activity in the ESA will be restricted as follows:

1. Do not enter the ESA unless authorized
2. If the ESA is breached, immediately:
    a. Secure the area and stop all operations within 60 ft of the ESA boundary
    b. Notify the Engineer
3. If the ESA is damaged, the Department determines what efforts are necessary to remedy the damage and who performs the remedy.

- No construction activity will be allowed in the ESA until the biologist determines that the nest is no longer active, or unless monitoring determines that a smaller ESA will protect the active nest.
- The size of an ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the active nest is occurring. Reduction of ESA size depends on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific factors.
- Between 15 February and 1 September, if additional trees or shrubs need to be trimmed and/or removed after construction has started, a survey will be conducted for active nests in the area to be affected. If an active nest is found, the above measures will be implemented.
- If an active nest is identified in or adjacent to the construction zone after construction has started, the above measures will be implemented to ensure construction is not causing disturbance to the nest.

PROJECT IMPACTS: With implementation of the avoidance and minimization measures, the Project will not impact active nests of protected birds.

COMPENSATORY MITIGATION: No compensatory mitigation is proposed.

3. Burrowing owl (*Athene cunicularia*)

HABITAT AND BIOLOGY: Burrowing owls primarily inhabit open, dry grassland and desert habitats, such as grasses, forbs, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Main habitat components include burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation. Burrowing owls most commonly use ground squirrel burrows, but may also use badger, coyote, and fox holes or dens; or human-made structures such as culverts, piles of concrete rubble, pipes and nest boxes. Burrowing owls are a semi-colonial species that breed in CA from March through August, though breeding can begin as early as February and extend into December. CDFW has designated burrowing owl a CA species of special concern, with emphasis on burrow sites, and also winter observations in San Francisco, Ventura, Sonoma, Marin, Napa, and Santa Cruz counties (CDFW 2016).

RANGE: Burrowing owls are a year round resident in most of CA, particularly in the Central Valley, San Francisco Bay region, Carrizo Plain, and Imperial Valley. Burrowing owls are generally absent from the humid coastal counties north of Marin and mountainous areas above 5,300 ft. Burrowing owl has declined along the central and southern coast, but large populations remain in agricultural areas in the Central and Imperial valleys (CWHR 2016, Shuford and Gardali 2008).

KNOWN RECORDS: There are 10 CNDDB records of burrowing owl on the nine quads centered on the BSA. The closest CNDDB record for burrowing owl is located approximately 5.6 miles southwest of the south side of the BSA on the west side of East Camp Road, 5 miles southwest of Williams. Five east-facing burrows, with castings but no owls, were observed in March 1992. Surrounding habitat consists of agricultural fields.

HABITAT PRESENT: The BSA provides potential nesting and foraging habitat for burrowing owl. Rodent burrows occur outside the Project area, primarily on farm road margins and the banks of the GCID canal. Farm roads are considered ruderal/disturbed habitat and occur on the southern border of the potential staging area and cross the proposed drainage ditch alignment. Multiple burrows occurred on the banks of the GCID canal north of the Project area. No sign of burrowing owl was observed on any of the burrows. No burrowing owls were observed during the fieldwork. No burrows were observed in the field. The Project area is not currently occupied by burrowing owl but could become occupied prior to Project construction.

PROPOSED AVOIDANCE AND MINIMIZATION: A qualified biologist will conduct Take Avoidance Surveys in accordance with Appendix D of the Staff Report on Burrowing Owl Mitigation (CDFW 2012). An initial Take Avoidance Survey will be conducted no less than 14 days prior to initiating ground disturbance activities and a final survey will be conducted within 24 hours prior to ground disturbance.

The preconstruction survey for burrowing owls will include all potential burrowing owl habitat within 500 ft of the project. Portions of the survey area located on private land will be survey from all publicly accessible areas.

If active burrowing owl burrows are found, the following measures shall be implemented:

- During the non-breeding season (1 September through 31 January), the biologist shall establish a 160 ft ESA around the burrow. During the breeding season (1 February through 31 August), the biologist shall establish a 250 ft ESA around the burrow in consultation with CDFW.
- The size of the ESA may be reduced if the biologist monitors the construction activities and determines that no disturbance to the burrowing owl is occurring. Reduction of ESA size depends on the location of the burrow relative to the project, project activities during the time the burrow is active, and other project-specific factors.

- If the burrow is located within the construction zone and it is during the non-breeding season, the burrowing owl can be passively excluded from the burrow using one-way doors, as described in the Exclusion Plan of Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW 2012).
- If the burrow is located within the construction zone and it is during the breeding season, the burrow owl can only be passively excluded if it has been confirmed that the owl has not begun egg laying and incubation, the clutch was unsuccessful, or juveniles from the occupied burrows are foraging independently and are capable of independent survival.

PROJECT IMPACTS: With implementation of the avoidance and minimization measures, the Project will not impact nesting burrowing owl.

COMPENSATORY MITIGATION: No compensatory mitigation is required.

4. Swainson's Hawk (*Buteo swainsoni*)

HABITAT AND BIOLOGY: Swainson's hawk is state listed as threatened (CDFW 2016). Swainson's hawks breed from late March to late August, with peak activity late May through July. Between two to four eggs are incubated for 25 to 28 days (CWHR 2016). In a typical year, post-fledging occurs between 10 June and 30 July. Swainson's hawk young are active and visible, and relatively safe without parental protection (Swainson's Hawk TAC 2000).

Throughout its range, Swainson's hawks nest almost exclusively in trees. Nesting habitat includes stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Nests are built on a platform of sticks, bark, and fresh leaves in a tree, bush, or utility pole from 4 to 100 feet above the ground.

Swainson's hawk forage in suitable grain or alfalfa fields, livestock pastures, or grasslands adjacent to nesting areas. They feed on mice, gophers, ground squirrels, rabbits, large arthropods, amphibians, reptiles, birds, and rarely, fish (CWHR 2016). Irrigated agricultural is preferable foraging habitat to grasslands.

RANGE: Swainson's hawk is a breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert with very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley (CWHR 2016).

KNOWN RECORDS: There are 35 CNDDB records of Swainson's hawks on the nine quads centered on the BSA. The closest CNDDB record for Swainson's hawk is located approximately 0.55 miles northwest of the BSA on the west side of I-5, north of Williams. A nest located in a 25 ft willow surrounded by fallow land was observed in 2004. The nest

was monitored in 2004 and produced two young. In 2009, the nest was located in a 60 ft cottonwood tree. Young were observed in the nest in May 2009.

In 2015 Sycamore Environmental conducted a pre-construction survey for nesting birds, including Swainson's hawks, for the SR-20 Margurite Street Connection Project which was adjacent to and overlapping the BSA (Sycamore Environmental 2015). The survey covered the current area of Margurite Street, the trees eucalyptus trees northwest of the BSA and the GCID canal north of the BSA. No Swainson's hawk were observed.

HABITAT PRESENT: The BSA does not provide nesting habitat for Swainson's hawk because there are no trees. CDFW is concerned with the potential impacts of projects within 0.5 mile of an active Swainson's hawk nest (Swainson's Hawk TAC 2000). Most of the trees within 0.5 mile of the BSA are adjacent to Interstate 5 and the associated connections to SR-20. The closest CNDDB record (mentioned above) more than 0.5 miles from the BSA.

The BSA does provide marginally suitable Swainson's hawk foraging habitat. The foraging habitat is suitable because it is part of a large contiguous area of high quality foraging habitat. The BSA has had some disturbance from the construction activities related to the SR-20 Margurite Street Connnection Project. The BSA has not been irrigated since 2013 and provides marginally suitable foraging habitat.

PROPOSED AVOIDANCE AND MINIMIZATION: The Project will implement the avoidance and minimization efforts described in Section V.C.2. for migratory birds and birds of prey to protect Swainson's hawk.

- A preconstruction survey for nesting Swainson's hawk will be conducted and will be timed in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys In California's Central Valley* (Swainson's Hawk TAC 2000). The survey area will include the Project area and a 0.25 mile radius around the Project area. Portions of the survey area located on private land will be surveyed from publicly accessible areas. If a nesting Swainson's hawk is found within 0.25 mile of the Project area, CDFW will be contacted to confirm monitoring and avoidance buffers.

PROJECT IMPACTS: With implementation of the avoidance and minimization measures, the Project will not impact Swainson's hawk.

COMPENSATORY MITIGATION: No compensatory mitigation is proposed.

5. White-tailed kite (*Elanus leucurus*)

HABITAT AND BIOLOGY: White-tailed kite is a fully protected species by CDFW. White-tailed kites occur in herbaceous and open stages of most habitats in cismontane California. Areas with substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. They also roost in saltgrass and Bermuda grass in southern California. White-tailed kites breed from February to October, with peak activity occurring from May to August. Nests are typically located near the top of dense oak, willow, or other tree stands from 20 to 100 ft above the ground, and are often located near an open foraging area with a dense population of voles (CWHR 2016). Nesting sites are of concern to CDFW (2016).

RANGE: White-tailed kites are a common to uncommon yearlong resident in coastal and valley lowlands in cismontane California, and are rarely found far from agricultural areas (CWHR 2016).

KNOWN RECORDS: There is one CNDDB record of white-tailed kite on the 9 quads centered on the BSA. The closest CNDDB record for white-tailed kites is located approximately 9 miles northwest of the west end of the BSA between Standard Road and Lurline Creek, northwest of Willows. The nest tree is a lone valley oak located in the middle of a hayfield. Two adults were observed nesting in 1985.

HABITAT PRESENT: The BSA does not provide nesting habitat for white-tailed kite as no trees are present. The BSA provides suitable foraging habitat for white-tailed kite

PROPOSED AVOIDANCE AND MINIMIZATION: The Project will implement the avoidance and minimization efforts described in Section V.C.2 for migratory birds and birds of prey to protect white-tailed kite.

PROJECT IMPACTS: With implementation of the avoidance and minimization measures, the proposed Project will not impact white-tailed kite.

COMPENSATORY MITIGATION: No compensatory mitigation is required.

D. Special-Status Plant Species

1. Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*)

Habitat and Biology: Annual herb found on often serpentinite soils of chaparral, cismontane woodland, and valley and foothill grassland from 970 to 2,300 ft. Blooms March through June (CNPS 2016)
Range: Known from Colusa, Glenn, Lake, Mendocino, Napa, San Benito, Sonoma, Tehama, and Yolo cos (CNPS 2016).
Known Records: There are three CNDDB records of Ferris' milk-vetch on the 9 quads centered in the BSA. The closest CNDDB record for Ferris' milk-vetch is located

approximately 2.3 miles northeast of the BSA. The species was last observed in 1926 and is possible extirpated.
Habitat Present: The former agricultural fields provide potential habitat for Ferris' milk-vetch.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: The Project will not impact Ferris' milk-vetch. Ferris' milk-vetch was not observed during the biological survey conducted during the evident and identifiable period.
Compensatory Mitigation: No compensatory mitigation is proposed.

2. Brittlescale (*Atriplex depressa*)

Habitat and Biology: Brittlescale is an annual herb found in alkaline, clay soils of chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools from 3 to 1,050 ft. This species blooms from April through October (CNPS 2016).
Range: Brittlescale is known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Merced, Solano, Stanislaus, Tulare, and Yolo counties (CNPS 2016).
Known Records: There are 5 CNDDB records of brittlescale on the 9 quads centered on the BSA. The closest CNDDB record for brittlescale is located approximately 5.6 miles southeast of the south end of the BSA along Ohm Road at the Colusa NWR. Habitat consists of heavily alkaline soils with a white crust of salts. Brittlescale was found in dry soil in a vernally wet area in an upland field in July 1993.
Habitat Present: The margins of agricultural fields and the HLDET7 provide habitat for Brittlescale.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: Brittlescale was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact Brittlescale.
Compensatory Mitigation: No compensatory mitigation is proposed.

3. Pappose tarplant (*Centromadia parryi* ssp. *parryi*)

Habitat and Biology: Pappose tarplant is an annual herb found in often alkaline conditions of chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grasslands from 0 to 1,378 ft. This species blooms from May through November (CNPS 2016).
Range: Pappose tarplant is known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties (CNPS 2016).
Known Records: There is one CNDDB record of pappose tarplant on the 9 quads centered on the BSA. The closest CNDDB record for pappose tarplant is located approximately 16.3 miles southwest at Bear Creek Ranch, approximately 0.8 miles north of the mouth of Eula Canyon. Habitat consists of grassland with sparse oak woodland. Most individuals were found in a drainage below a saline seep dominated by salt grass. Numerous individuals were present in 2007.

Habitat Present: The agricultural fields and margins of the HLDET7 provide potential habitat for pappose tarplant.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: Pappose tarplant was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact pappose tarplant.
Compensatory Mitigation: No compensatory mitigation is proposed.

4. Palmate-bracted bird's-beak (*Chloropyron palmatum*)

Habitat and Biology: Palmate-bracted bird's-beak is an annual hemiparisitic herb found in alkaline soils of chenopod scrub and valley and foothill grassland from 15 to 510 ft. This species blooms from May through October (CNPS 2016).
Range: Palmate-bracted bird's-beak is known from Alameda, Colusa, Fresno, Glenn, Madera and Yolo counties. Presumed extirpated from San Joaquin county (CNPS 2016).
Known Records: There are 9 CNDDB record of palmate-bracted bird's-beak on the 9 quads centered on the BSA. Two CNDDB records for palmate-bracted bird's-beak are located approximately 4.8 miles east of the east end of the BSA, both at the Colusa NWR. One of the CNDDB records describes the habitat as a weedy alkaline meadow with black, fissured soil without alkaline powder on top. Between approximately 1 and 134,620 plants were observed at this location during surveys conducted in 1988, 1991, 1992, 1993, 1997, 1998, 1999, 2000, 2001, 2003, and 2004. The second CNDDB record occurs on Tract T11 of the Colusa National Wildlife. Between approximately 0 and more than 100,000 plants were observed at this location during surveys conducted in 1994, 1997, 1998, 1999, 2000, 2001, 2003, 2004, 2005, 2006, and 2007.
Habitat Present: The agricultural fields and margins of the HLDET7 provide potential habitat for *Chloropyron palmatum*.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: Palmate-bracted bird's beak was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact palmate-bracted bird's-beak.
Compensatory Mitigation: No compensatory mitigation is proposed.

5. San Joaquin spearscale (*Extriplex joaquinana*)

Habitat and Biology: San Joaquin spearscale is an annual herb found in alkaline soils of chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 3 to 2,740 ft. This species blooms from April through October (CNPS 2016).
Range: San Joaquin spearscale is known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Solano, Yolo and possibly San Luis Obispo counties. Presumed extirpated from Santa Clara, San Joaquin and Tulare counties (CNPS 2016).

Known Records: There are 7 CNDDB records of San Joaquin spearscale on the 9 quads centered on the BSA. The closest CNDDB record for San Joaquin spearscale is located along the SR 20 ROW just north of the BSA. According to the CNDDB, the only source of information for this record is from a 1916 collection and the exact location where this species was collected is unknown and was mapped as a best guess by CNDDB. Habitat consists of low ground in saline soil along the state highway.
Habitat Present: The agricultural fields and margins of the HLDET7 provide potential habitat for San Joaquin sperarscale.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: San Joaquin spearscale was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact San Joaquin spearscale.
Compensatory Mitigation: No compensatory mitigation is proposed.

6. Water star-grass (*Heteranthera dubia*)

Habitat and Biology: Perennial herb found usually in slightly eutrophic waters of marshes and swamps (alkaline, still or slow-moving water) and requires a pH of 7 or higher. Found in elevations between 98 to 4905 ft. Blooms July through October (CNPS 2016). Jepson eFlora states that water star grass is generally submersed with leaves greater that 15 cm long.
Range: Known from from Butte, Colusa, Lassen, Mendocino, Modoc, Marin, San Francisco, Shasta and San Mateo counties (CNPS 2016).
Known Records: There is one CNDDB record for water star grass on the 9 quads centered on the BSA. The record is approximately 2 miles northwest of the BSA. The species was last seen in 1976, but a field review in 2013 lead Taylor to state water star grass could still be present. The record occurred in the vicinity of GCID canals.
Habitat Present: The HLDET7 provides potential habitat for water star grass.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: Water star grass is a perennial herb with distinctly long leaves that grow submerged in water. During the May 2016 survey no water star grass was observed growing in accessible areas of the HLDET7. The Project will not impact water star grass.
Compensatory Mitigation: No compensatory mitigation is proposed.

7. California alkali grass (*Puccinellia simplex*)

Habitat and Biology: Annual herb found in alkaline and vernally mesic sinks, flats and lake margins from 6 to 3050 ft. Blooms March through May (CNPS 2016).

Range: Known from Fresno, Merced and Tulare cos. Uncertain distribution in Colusa, Napa, Solano and Yolo counties (CNPS 2016).

Known Records: There are two CNDDB records for California alkali grass on the 9 quads centered on the BSA. The closest CNDDB record is approximately 4.2 miles northwest of the BSA. The record was last observed in 1958 in an alkaline depression of an old rice field growing with salt grass. During the May 2016 fieldwork a Sycamore biologist visited a reference population of California alkali grass in the City of Woodland, California. The record was from a 2013 collection by Ellen Dean (CCH 2016). Sycamore did not observe any California alkali grass in the vicinity of the 2013 CCH record.
Habitat Present: The HLDET7 provides potential habitat for California alkali grass.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: California alkali grass was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact California alkali grass.
Compensatory Mitigation: No compensatory mitigation is proposed.

8. Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*)

Habitat and Biology: Annual herb found on alkaline soils in meadows and seeps, marshes and swamps, riparian forest, and vernal pools from 16 to 1427 ft. Blooms May through September (CNPS 2016).
Range: Known from Merced and Riverside cos. Presumed extirpated from Colusa, San Joaquin and Sutter cos (CNPS 2016).
Known Records: There are no CNDDB records for Wright's trichocoronis on the 9 quads centered on the BSA. Wright's trichocoronis has been frequently collect in rice fields in the vicinity of Williams (CCH 2016).
Habitat Present: The HLDET7 provides potential habitat for Wright's trichocoronis.
Proposed Avoidance and Minimization: No avoidance or minimization efforts are proposed.
Project Impacts: Wright's trichocoronis was not observed during the biological survey conducted during the evident and identifiable period. The Project will not impact Wright's trichocoronis.
Compensatory Mitigation: No compensatory mitigation is proposed.

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VII. PREPARERS

Jeffery Little, Vice President, Sycamore Environmental.
Responsibilities: Project Manager, Principal-in-charge.

Adam Forbes, M.S., Range Science (emphasis plant systematics), New Mexico State University, NM. Over 17 years' experience preparing biological/botanical resource evaluations, wetland delineations, arborist reports, impact analyses, and mitigation and restoration plans. Serves as assistant project manager. He holds a California Department of Fish and Wildlife Rare, Threatened and Endangered Plant Voucher Collecting Permit (2081(a)-15-014-V), and is an authorized individual on the CDFW Scientific Collecting Permit (SC-7617). His B.S. degree from Humboldt State University is in Rangeland Resource Science.
Responsibilities: Report review.

Juan Mejia, B.S., Environmental Science and Management (emphasis Ecology, Conservation and Biodiversity), University of California, Davis, CA. Over 3 years experience as a professional biologist. He conducts preconstruction and construction monitoring, assists with plant and wildlife surveys, and assists with preparation of biological resource evaluations, Natural Environment Study reports, permit applications, and other documents used in the CEQA/NEPA process. Serving as both field biologist and technical report writer, he conducts database research on special status species' biology, habitat and distribution. He holds a California Department of Fish and Wildlife Rare, Threatened and Endangered Plant Voucher Collecting Permit (2081(a)-15-067-V), and a Forest Service Certification in Wilderness Ethics.
Responsibilities: Fieldwork, Report preparation

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APPENDIX A.

USFWS List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2016-SLI-0938 August 15, 2016
Event Code: 08ESMF00-2016-E-04511
Project Name: Love's Country Store

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

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

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

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

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

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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

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

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

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

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

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

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Love's Country Store

Official Species List

Provided by:

Sacramento Fish and Wildlife Office
FEDERAL BUILDING
2800 COTTAGE WAY, ROOM W-2605
SACRAMENTO, CA 95825
(916) 414-6600

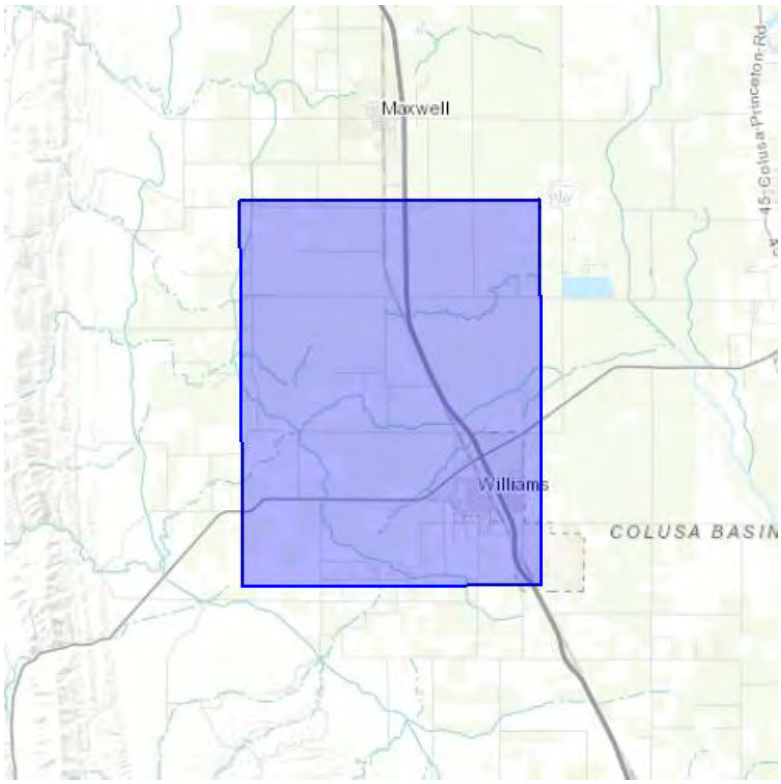
Consultation Code: 08ESMF00-2016-SLI-0938
Event Code: 08ESMF00-2016-E-04511

Project Type: ** OTHER **

Project Name: Love's Country Store
Project Description: A truck and automobile fueling station with tire shop and convenience store in the City of Williams.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-122.2510528564453 39.24980258296657, -122.24967956542967 39.12473362566032, -122.1247100830078 39.1252663054351, -122.12539672851561 39.25033431567789, -122.12882995605467 39.24980258296657, -122.2510528564453 39.24980258296657)))

Project Counties: Colusa, CA

Endangered Species Act Species List

There are a total of 12 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
California red-legged frog *(Rana draytonii)* Population: Entire	Threatened	Final designated	
California tiger Salamander *(Ambystoma californiense)* Population: U.S.A. (Central CA DPS)	Threatened	Final designated	
Birds			
Northern Spotted owl *(Strix occidentalis caurina)* Population: Entire	Threatened	Final designated	
Yellow-Billed Cuckoo *(Coccyzus americanus)* Population: Western U.S. DPS	Threatened	Proposed	
Crustaceans			
Conservancy fairy shrimp *(Branchinecta conservatio)* Population: Entire	Endangered	Final designated	
Vernal Pool fairy shrimp	Threatened	Final designated	

(Branchinecta lynchi) Population: Entire			
Vernal Pool tadpole shrimp *(Lepidurus packardi)* Population: Entire	Endangered	Final designated	
Fishes			
Delta smelt *(Hypomesus transpacificus)* Population: Entire	Threatened	Final designated	
steelhead *(Oncorhynchus (=salmo) mykiss)* Population: Northern California DPS	Threatened		
Flowering Plants			
Palmate-Bracted bird's beak *(Cordylanthus palmatus)*	Endangered		
Insects			
Valley Elderberry Longhorn beetle *(Desmocerus californicus dimorphus)* Population: Entire	Threatened	Final designated	
Reptiles			
Giant Garter snake *(Thamnophis gigas)* Population: Entire	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

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APPENDIX B.

CNDDB and CNPS Query Results

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Arbuckle (3912211) OR Colusa (3912221) OR Cortina Creek (3912212) OR Manor Slough (3912223) OR Maxwell (3912232) OR Moulton Weir (3912231) OR Salt Canyon (3912213) OR Sites (3912233) OR Williams (3912222))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	None	G2G3	S1S2	SSC
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2?	S2?	1B.2
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Astragalus rattanii var. jepsonianus Jepson's milk-vetch	PDFAB0F7E1	None	None	G4T3	S3	1B.2
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex depressa brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
Atriplex persistens vernal pool smallscale	PDCHE042P0	None	None	G2	S2	1B.2
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
California macrophylla round-leaved filaree	PDGER01070	None	None	G3?	S3?	1B.2
Castilleja rubicundula var. rubicundula pink creamsacs	PDSCR0D482	None	None	G5T2	S2	1B.2
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Chloropyron palmatum palmate-bracted salty bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Fritillaria pluriflora adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Willow Scrub Great Valley Willow Scrub	CTT63410CA	None	None	G3	S3.2	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Heteranthera dubia water star-grass	PMPON03010	None	None	G5	S1	2B.2
Horkelia bolanderi Bolander's horkelia	PDROS0W010	None	None	G1	S1	1B.2
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Layia septentrionalis Colusa layia	PDAST5N0F0	None	None	G2	S2	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Myotis ciliolabrum western small-footed myotis	AMACC01140	None	None	G5	S3	
Navarretia leucocephala ssp. bakeri Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Plegadis chihi	ABNGE02020	None	None	G5	S3S4	WL
white-faced ibis						
Puccinellia simplex	PMPOA53110	None	None	G3	S2	1B.2
California alkali grass						
Riparia riparia	ABPAU08010	None	Threatened	G5	S2	
bank swallow						
Spirinchus thaleichthys	AFCHB03010	Candidate	Threatened	G5	S1	SSC
longfin smelt						
Taxidea taxus	AMAJF04010	None	None	G5	S3	SSC
American badger						
Thamnophis gigas	ARADB36150	Threatened	Threatened	G2	S2	
giant gartersnake						
Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Valley Needlegrass Grassland						

Record Count: 46

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Plant List

33 matches found. *Click on scientific name for details*

Search Criteria

Rare Plant Rank is one of [1A, 1B, 2A, 2B, 4], Found in 9 Quads around 39122B2

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	Federal Listing Status	State Listing Status
Allium fimbriatum var. purdyi	Purdy's onion	Alliaceae	perennial bulbiferous herb	4.3		
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2		
Astragalus clevelandii	Cleveland's milk-vetch	Fabaceae	perennial herb	4.3		
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	Fabaceae	annual herb	1B.2		
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	1B.1		
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	1B.2		
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	1B.2		
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.2		
Carex scabriuscula	Siskiyou sedge	Cyperaceae	perennial rhizomatous herb	4.3		
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	1B.2		
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	1B.2		
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2		
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	FE	CE
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	annual herb	4.2		
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	4.3		
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	1B.2		
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	1B.1		
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2		
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	1B.2		
Galium andrewsii ssp. gatense	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	4.2		
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss	1B.3		
Helianthus exilis	serpentine sunflower	Asteraceae	annual herb	4.2		
Heteranthera dubia	water star-grass	Pontederiaceae	perennial herb	2B.2		
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	1B.1		
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	1B.2		
Lomatium hooveri	Hoover's lomatium	Apiaceae	perennial herb	4.3		
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	1B.1		
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	Polemoniaceae	annual herb	4.2		
Puccinellia simplex	California alkali grass	Poaceae	annual herb	1B.2		
Senecio clevelandii var. clevelandii	Cleveland's ragwort	Asteraceae	perennial herb	4.3		
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	1B.1	FE	
Streptanthus barbiger	bearded jewelflower	Brassicaceae	annual herb	4.2		
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Asteraceae	annual herb	2B.1		

Suggested Citation

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APPENDIX C.

Species Evaluated Table

Special Status Species from USFWS, CNDDB, and CNPS Data.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Invertebrates						
Branchinecta conservatio	Conservancy fairy shrimp	E, CH	--	Occurs in swales in grassland communities and in large turbid vernal pools, where rooted vegetation is absent (USFWS 1994). Known from eight populations in California: Vina Plains, Butte and Tehama counties; Sacramento National Wildlife Refuge, Glenn County; Yolo Bypass Wildlife Area, Yolo County; Jepson Prairie, Solano County; Mapes Ranch, Stanislaus County; University of California, Merced, Merced County; Grasslands Ecological Area, Merced County; and Los Padres National Forest, Ventura County (USFWS 2007).	Absent	There is no habitat for this species in the BSA. The BSA is not located within critical habitat for this species (USFWS 2006a).
Branchinecta lynchi	Vernal pool fairy shrimp	T, CH	--	Exist only in vernal pools or vernal pool-like habitats. Individuals have never been found in riverine, marine, or other permanent bodies of water. Water movement within complexes allows movement between individual pools. Currently found in 28 counties across the Central Valley and coast ranges of CA. Occupies a variety of vernal pool habitats (USFWS 2005).	Absent	There is no habitat for this species in the BSA. The BSA is not located within critical habitat for this species (USFWS 2006a).
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	T, CH	--	Requires an elderberry shrub (*Sambucus mexicana* or *Sambucus racemosa* var. *microbotrys*) as a host plant (USFWS 1999a).	Absent	There are no elderberry shrubs in the BSA.
Lepidurus packardi	Vernal pool tadpole shrimp	E, CH	--	Occurs in vernal pools and sometimes other areas of similar hydrology across the Central Valley of CA and in the San Francisco Bay area. Requires a minimum of about 25 days to mature, and usually inhabits large, deep vernal pools that pool continuously for many months (USFWS 2005). They can also make use of smaller pools that are present as part of a larger vernal pool complex (Witham et al. 1998), and they may be able tolerate temporary dry conditions (USFWS 2005).	Absent	There are no vernal pools in the BSA. There is no habitat for this species in the BSA.
Fish						

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Hypomesus transpacificus	Delta smelt	T, CH	E	Euryhaline (tolerant of a wide salinity range) species that is confined to the San Francisco Estuary, principally in the Delta and Suisun Bay. Currently found only from the San Pablo Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo cos. Can be washed into San Pablo Bay during high-outflow periods, but do not establish permanent populations there (Moyle 2002).	Absent	The BSA is outside the geographic range of this species. There is no habitat for this species in the BSA. The BSA is not located within critical habitat for this species (USFWS 2016).
Oncorhynchus mykiss	Central Valley steelhead distinct population segment (DPS)	T, CH	--	Anadromous salmonid historically distributed throughout the Sacramento and San Joaquin river drainages. While steelhead are found elsewhere in the Sacramento River system, the principal remaining wild populations are a few hundred fish that spawn annually in Deer and Mill Creeks in Tehama County and a population of unknown size in the lower Yuba River. With the possible exception of a small population in the lower Stanislaus River, steelhead appear to have been extirpated from the San Joaquin basin (Moyle 2002). Spawning occurs in small tributaries on coarse gravel beds in riffle areas (Busby et al. 1996). Federal listing includes all runs in the Sacramento and San Joaquin Rivers and their tributaries (NMFS 2005).	Absent	There is no habitat for this species in the BSA. The BSA is not located within critical habitat for this species (NMFS 2005).
Spirinshus thaleichthys	Longfin smelt	C	T, SSC	Spawns from November to June in freshwater over sandy-gravel substrates, rocks, or aquatic plants. After hatching, larvae move up into surface waters and are transported downstream into brackish-water nursery areas. In the San Francisco estuary, longfin smelt are usually found downstream of Rio Vista on the Sacramento River and from the vicinity of Medford Island downstream on the San Joaquin River. They are occasionally found upstream of these locations (Moyle 2002).	Absent	There is no habitat for this species in the BSA. The BSA is outside the range of this species.
Amphibians						
Ambystoma californiense	California tiger salamander, central population	T, CH	T, SSC	Occurs in grassland, oak savannah, and edges of mixed woodland and lower elevation coniferous forest. Spends much time underground in mammal burrows. Requires pools lasting approximately 10 weeks or longer to complete larval development (Jennings and Hayes 1994). Usually breeds in temporary ponds such as vernal pools but may also breed in slower parts of streams and some permanent waters (Stebbins 2003). The state listing refers to the entire range of the species. The federal threatened listing is only for the Central Valley population. The Sonoma and Santa Barbara populations are federally listed as endangered (CDFW 2016).	Absent	The BSA is outside the range of this species; the closest CNDDB records for this species are approximately 19 miles away. The BSA is not located within critical habitat for this species (USFWS 2016)

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Rana draytonii	California red-legged frog	T, CH	SSC	Inhabits quiet pools of streams, marshes, and occasionally ponds with dense, shrubby, or emergent vegetation. Requires permanent or nearly permanent pools for larval development (CWHR 2016; USFWS 2010). The range of CA red-legged frog extends from near sea level to approximately 5,200 ft, though nearly all sightings have occurred below 3,500 ft. CA red-legged frog was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002).	Absent	The BSA is outside the geographic range of this species. CA red-legged frog was probably extirpated from the floor of the Central Valley before 1960 (USFWS 2002). The BSA is not located within critical habitat for this species (USFWS 2006b).
Reptiles						
Thamnophis gigas	Giant garter snake	T	T	Endemic to the Central Valley of California, where they occupy a variety of agricultural, managed, and natural wetlands, including their waterways and adjacent upland habitats. Agricultural wetlands include irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, and low gradient streams. Essential habitat consists of the following: 1) adequate water during the snake's active season (early spring through mid-fall); 2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes; 3) upland habitat with grassy banks and openings in waterside vegetation for basking; and 4) higher elevation uplands for cover and refuge during the snake's inactive season in winter. Inhabits small mammal burrows during winter dormancy (USFWS 1999b).	Present	See text.
Birds						
Agelaius tricolor	Tricolored blackbird	--	SSC	Common locally throughout the Central Valley and in coastal districts from Sonoma Co south. Forages on ground in cropland, grassland, flooded land, and along pond edges. Nests near freshwater, prefers emergent marsh of dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs. Highly colonial, nesting area must be large enough to support a minimum colony of about 50 pairs (CWHR 2016). Nesting colonies are of concern to CDFW (2016a).	Absent	Suitable nesting habitat does not occur in the BSA.
Aquila chrysaetos	Golden eagle	--	FP	Uncommon permanent resident and migrant throughout California, except center of Central Valley. Perhaps more common in southern California than in north. Ranges from sea level up to 11,500 ft (Grinnell and Miller 1944). Typically inhabits rolling foothills, mountain areas, sage-juniper flats, and deserts. Uses secluded cliffs with overhanging ledges and large trees for cover. Nest on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments used most frequently for nesting. Needs open terrain for hunting (CWHR 2016). Nesting and wintering sites are of concern to CDFW (2016a).	Absent	Suitable nesting habitat does not occur in the BSA.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Athene cunicularia	Burrowing owl	--	SSC	Yearlong resident of open, dry grassland and desert habitat, and in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats. Uses small mammal burrows, often ground squirrel, for roosting and nesting cover (CWHR 2016). Burrowing sites and some wintering sites are of concern to CDFW (2016a).	Present	See text.
Buteo swainsoni	Swainson's hawk	--	T	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Nests in stands with few trees in juniper-sage flats, in riparian areas and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Feeds on small birds, rodents, mammals, reptiles, large arthropods, amphibians, and, rarely, fish (CWHR 2016). Nesting sites are of concern to CDFW (2016a).	Present	See text.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	T	E	Uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in CA. Breeding populations known from the Colorado River (southeast CA border), Sacramento and Owens valleys, along the South Fork of the Kern River (Kern Co.), along the Santa Ana River (Riverside Co.), and along the Amargosa River (Inyo and San Bernardino cos). They may also nest along San Luis Rey River (San Diego Co.). Nests in dense cover of deciduous trees and shrubs, especially willows, which usually abut a slow-moving watercourse, backwater or seep. Also utilizes adjacent orchards, especially walnuts, in the Central Valley (CWHR 2016). Nesting sites are of concern to CDFW (2016a).	Absent	No densely foliaged trees or shrubs abutting waters in the BSA.
Elanus leucurus	White-tailed kite	--	FP	Yearlong resident in coastal and valley lowlands; rarely found away from agricultural areas. Inhabits herbaceous and open stages of most habitats mostly in cismontane CA. Substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting. Nest placed near top of dense oak, willow, or other tree stand located near open foraging area. Forages in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (CWHR 2016). Nesting sites are of concern to CDFW (2016a).	Present	See text.
Haliaeetus leucocephalus	Bald eagle	D	E, FP	Nests mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity cos. More widespread as a winter migrant. Requires large bodies of water or free flowing rivers with abundant fish and perching sites. Nests in large old growth and dominant live trees with open branchwork. Favors ponderosa pine (CWHR 2016). Nesting and wintering sites are of concern to CDFW (2016a).	Absent	No perching sites near large bodies of water. No large old growth trees.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Melospiza melodia	Song sparrow ("Modesto" population)	--	SSC	A year-round resident that prefers emergent freshwater marshes dominated by tules and cattails as well as riparian willow thickets. Modesto song sparrows also nest in riparian forests of valley oak with sufficient understory of blackberry, along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. The Modesto song sparrow is restricted to California where it is locally numerous in the Sacramento Valley, Sacramento-San Joaquin River Delta, and the northern San Joaquin Valley. The Modesto song sparrow remains locally numerous in areas where, by today's standards, extensive wetlands remain. Hence, highest densities occur in the Butte Sink area of the Sacramento Valley and in the Sacramento-San Joaquin River Delta. Immediately adjacent to the Butte Sink, song sparrows breed in sparsely vegetated irrigation canals, yet are almost entirely absent from the main stem and tributaries of the Sacramento River above Sacramento (Shuford and Gardali 2008).	Absent	There are no extensive emergent freshwater marshes in the BSA. There is no habitat for this species in the BSA.
Riparia riparia	Bank swallow	--	T	Found primarily in riparian and other lowland habitats in CA west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine textured sandy soils, into which in digs nesting holes. Approx. 75% of breeding population in CA occurs along banks of the Sacramento and Feather rivers in the northern Central Valley. Other colonies are known from the central coast from Monterey to San Mateo cos., and northeastern CA in Shasta, Siskiyou, Lassen, Plumas, and Modoc cos. Colonial range in size from 10 to 1,500, typically 100-200, nesting pairs (CWHR 2016). Nesting sites are of concern to CDFW (2016a).	Absent	There are no vertical cliffs or banks in the BSA. There is no habitat for this species in the BSA.
Strix occidentalis caurina	Northern spotted owl	T	CT/ SSC	Resides in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to7,544 ft. Feeds in forest habitats upon a variety of small mammals, including flying squirrels, woodrats, mice and voles, and rabbits (USFWS 2011). Also eats small birds, bats, and large arthropods (CWHR 2016).	Absent	The BSA is outside the geographic range of this species.
Mammals						

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Lasiurus blossevillii	Western red bat	--	SSC	The western red bat is a tree bat associated with cottonwoods in riparian areas at elevations below 6,500 ft. They especially favor roosts where leaves form a dense canopy above and branches do not obstruct the bats' flyway below. Western red bats are also known to roost in orchards, especially in the Sacramento Valley. Western red bats typically feed along forest edges, in small clearings, or around street lights where they prefer moths (BCI 2016). Day roosts typically in edge habitats adjacent to streams or open fields, in orchards, and sometimes urban areas. Occasionally uses caves (WBWG 2016).	Absent	There are no riparian areas in the BSA. There is no habitat for this species in the BSA.
Taxidea taxus	American badger	--	SSC	Found throughout most of CA, except in the North Coast area. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Feeds on fossorial rodents and some reptiles, insects, earthworms, bird eggs, and carrion (CWHR 2016).	Absent	There is no habitat for this species in the BSA.
Plants			**/CNPS [b]**			
Amsinckia lunaris	Bent-flowered fiddleneck	--	--/ 1B.2	Annual herb found in coastal bluff scrub, cismontane woodland, and valley and foothill grassland from 10 to 1,650 ft (CNPS 2016). Often found in serpentine soil (Jepson Flora Project 2016). Known from Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, and Yolo cos. Blooms March through June (CNPS 2016).	Absent	Not known from Valley floor. The BSA is outside of the geographic and elevational range.
Astragalus rattanii var. *jepsonianus*	Jepson's milk-vetch	--	--/ 1B.2	Annual herb found on often serpentinite soils of chaparral, cismontane woodland, and valley and foothill grassland from 970 to 2,300 ft. Known from Colusa, Glenn, Lake, Mendocino, Napa, San Benito, Sonoma, Tehama, and Yolo cos. Blooms March through June (CNPS 2016).	Absent	There are no serpentine soils in the BSA.
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	--	--/ 1B.1	Annual herb found in vernally mesic meadows and seeps and subalkaline flats in valley and foothill grassland from 10 to 250 ft. Known from Butte, Colusa, Glenn, Sutter, and Yolo cos. Presumed extirpated from Sonoma Co. Known only from six extant occurrences. Blooms April through May (CNPS 2016).	Present	See text.
Atriplex depressa	Brittlescale	--	--/ 1B.2	Annual herb found in alkaline, clay soils of chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools from 3 to 1,050 ft. Known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern. Merced, Solano, Stanislaus, Tulare, and Yolo cos. Blooms April through October (CNPS 2016).	Present	See text.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Atriplex persistens	Vernal pool smallscale	--	--/ 1B.2	Annual herb found in alkaline vernal pools from 30 to 380 ft. Known from Colusa, Glenn, Madera, Merced, Solano, and Tulare cos. Presumed extirpated from Stanislaus co. Blooms June through October (CNPS 2016).	Absent	There are no vernal pools in the BSA.
California macrophylla	Round-leaved filaree	--	--/ 1B.2	Annual herb found in clay soils of cismontane woodland and valley and foothill grassland from 50 to 3,940 ft. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kings, Kern, Lake, Los Angeles, Merced, Monterey, Napa, Riverside, Santa Barbara, San Benito, Santa Clara, San Diego, San Joaquin, San Luis Obispo, San Mateo, Solano, Sonoma, Stanislaus, Tehama, Tulare, Ventura, and Yolo cos. Presumed extirpated from Santa Cruz Isl. Blooms March through May (CNPS 2016).	Absent	Likely extirpated from disurbed areas on the floor of the Central Valley; has not been collected on the Valley floor since 1955 (CCH 2016).
Castilleja rubicundula var. *rubicundula*	Pink creamsacs	--	--/ 1B.2	Annual hemiparasitic herb found in serpentine soils of chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland from 65 to 2,985 ft. Known from Butte, Contra Costa, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta cos. Blooms April through June (CNPS 2016).	Absent	There are no serpentine soils in the BSA.
Centromadia parryi ssp. *parryi*	Pappose tarplant	--	--/ 1B.2	Annual herb found in often alkaline conditions of chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernally mesic valley and foothill grasslands from 0 to 1,378 ft. Known from Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma cos. Blooms May through November (CNPS 2016).	Present	See text.
Chloropyron palmatum	Palmate-bracted bird's-beak	E	E/ 1B.1	Annual hemiparisitic herb found in alkaline soils of chenopod scrub and valley and foothill grassland from 15 to 510 ft. Known from Alameda, Colusa, Fresno, Glenn, Madera, and Yolo cos. Presumed extirpated from San Joaquin co. Blooms May through October (CNPS 2016).	Present	See text.
Delphinium recurvatum	Recurved larkspur	--	--/ 1B.2	Perennial herb found in alkaline soils of chenopod scrub, cismontane woodland, and valley and foothill grassland from 10 to 2,450 ft. Known from Alameda, Contra Costa, Fresno, Glenn, Kings, Kern, Madera, Merced, Monterey, San Joaquin, San Luis Obispo, Solano, Sutter and Tulare cos. Presumed extirpated form Butte and Colusa cos. Blooms March through June (CNPS 2016). Grows in poorly drained, fine, alkaline soils in grasslands (Jepson Floral Project 2016).	Absent	The BSA does not provide habitat. Presumed extirpated in Colusa County (CNPS 2016).
Eschscholzia rhombipetala	Diamond-petaled California poppy	--	--/ 1B.1	Annual herb found in alkaline and clay soils of valley and foothill grassland from 0 to 3,200 ft. Known from Alameda, San Joaquin, and San Luis Obispo cos. Occurrences in Colusa, Contra Costa, and Stanislaus cos. presumed extirpated. Blooms March through April (CNPS 2016).	Absent	Not known from Valley floor, presumed extirpated in Colusa County.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Extriplex joaquinana (=Atriplex joaquiniana)	San Joaquin spearscale	--	--/ 1B.2	Annual herb found in alkaline soils of chenopod scrub, meadows and seeps, playas, and valley and foothill grassland from 3 to 2,740 ft. Known from Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Santa Clara, San Joaquin, Solano, and Yolo cos. Presumed extirpated in Santa Clara, San Joaquin, and Tulare cos. Uncertain distribution and identity in San Luis Obispo co. Blooms April through October (CNPS 2016).	Present	See text
Fritillaria pluriflora	Adobe-lily	--	--/ 1B.2	Perennial bulbiferous herb found often in adobe soils of chaparral, cismontane woodland, and valley and foothill grassland from 195 to 2,315 ft. Known from Butte, Colusa, Glenn, Lake, Napa, Solano, Tehama, and Yolo cos. Blooms February through April (CNPS 2016).	Absent	There are no adobe soils in the BSA.
Grimmia torenii	Toren's grimmia	--	--/ 1B.3	Moss found in openings, rocky, boulder and rock walls, carbonate and volcanic soils of chaparral, cismontane woodland and lower montane coniferous forest from 1066 to 3805 ft. Known from Contra Costa, Colusa, Lake, Mendocino, Monterey, Santa Cruz and San Mateo cos. (CNPS 2016).	Absent	There is no habitat for this species in the BSA. The BSA is below the elevation range of this species.
Heteranthera dubia	Water star-grass	--	--/ 2B.2	Perennial herb found usually in slightly eutrophic waters of marshes and swamps (alkaline, still or slow-moving water) and requires a pH of 7 or higher. Found in elevations between 98 to 4905 ft. and known from Butte, Colusa, Lassen, Mendocino, Modoc, Marin, San Francisco, Shasta and San Mateo cos. Blooms July through October (CNPS 2016).	Present	See text.
Horkelia bolanderi	Bolander's horkelia	--	--/ 1B.2	Perennial herb found at the edges of vernally mesic areas in chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grasslands from 1,475 to 3, 610 ft. Known from Lake, and Mendocino cos. Presumed extirpated from Colusa co. Blooms May through August (CNPS 2016).	Absent	There is no habitat for this species in the BSA. The BSA is below the elevation range of this species.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--	--/ 1B.1	Annual herb found in coastal salt marshes and swamps, playas, and vernal pools from 3 to 4,000 ft. Known from Colusa, Merced, Orange, Riverside, Santa Barbara, San Diego, San Luis Obispo, Santa Rosa Isl., Tehama, Ventura and Yolo cos. Presumed extirpated from Kern, Los Angeles and San Bernardino cos. Uncertain about distribution or identity in Tulare co. Blooms February through June (CNPS 2016).	Absent	There is no habitat for this species in the BSA.
Layia septentrionalis	Colusa layia	--	--/ 1B.2	Annual herb found in sandy, serpentinite soils of chaparral, cismontane woodland, and valley and foothill grassland from 330 to 3,600 ft. Known from Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo cos. Blooms April through May (CNPS 2016).	Absent	There are no sandy, serpentine soils in the BSA.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	--	--/ 1B.1	An annual herb found in mesic habitats of cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, and vernal pools from 15 to 5,700 ft. Known from Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo cos. Blooms April through July (CNPS 2016).	Absent	There is no habitat for this species in the BSA.
Puccinellia simplex	California alkali grass	--	--/ 1B.2	Annual herb found in alkaline and vernally mesic sinks, flats and lake margins from 6 to 3050 ft. Known from Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare and Yolo cos. Presumed extirpated from Kings co. Blooms March through May (CNPS 2016).	Present	See text
Sidalcea keckii	Keck's checkerbloom	E	--/ 1B.2	Annual herb found on serpentine and clay soils of cismontane woodland and valley and foothill grassland from 245 to 2,135 ft. Known from Fresno, Merced and Tulare cos. Uncertain distribution in Colusa, Napa, Solano and Yolo cos. Blooms April through June (CNPS 2016).	Absent	There is no habitat for this species in the BSA.
Trichocoronis wrightii var. *wrightii*	Wright's trichocoron s	--	--/ 2B.1	Annual herb found on alkaline soils in meadows and seeps, marshes and swamps, riparian forest, and vernal pools from 16 to 1427 ft. Blooms May through September. Known from Merced and Riverside cos. Presumed extirpated from Colusa, San Joaquin and Sutter cos (CNPS 2016).	Present	See text
Natural Communities						
Great Valley Cottonwood Riparian Forest		--	--/ --	Deciduous riparian forest dominated by *Populus fremontii* and *Salix gooddingii* with dense understory. Lianas are common including *Vitis californica*. Frequent flooding prevents other trees, such as *Acer negundo californica* and *Fraxinus latifolia*, from reaching canopy height. Occurs in areas of fine-textured alluvium near streams with subsurface flow even when the channel is dry. Additional characteristic species include: *Cephalanthus occidentalis, Elymus triticoides*, and *Salix* spp. (Holland 1986).	Absent	This community type does not occur in the BSA.
Great Valley Mixed Riparian Forest		--	--/ --	Tall, dense, winter-deciduous, broadleaved riparian forest which occurs on floodplains of low-gradient, depositional streams of the Great Valley usually below 500 ft. Tree canopy is usually closed. Soil is relatively fine-textured alluvium set back from active river channels. Flooding does occur, but erosion and physical battering is not too severe. Characteristic species include: *Acer negundo californica, Juglans hindsii, Platanus racemosa, Populus fremontii,* and *Salix* sp. (Holland 1986).	Absent	This community type does not occur in the BSA.

Scientific Name	Common Name	Federal Status [a]	State Status [a]	General Habitat Description	Habitat Present/ Absent [c]	Rationale
Great Valley Willow Scrub		--	--/ --	A streamside community dominated by winter-deciduous willows (*Salix* spp.) with little understory or herbaceous vegetation. Characteristic species include: *Chenopodium ambrosioidea, Populus fremontii, Rosa californica,* and *Vitis californica.* Found on watercourses throughout the Great Valley watershed, usually below 1,000 ft (Holland 1986).	Absent	This community type does not occur in the BSA.
Northern Claypan Vernal Pool		--	--/ --	A low, amphibious, herbaceous, wetland emergent community dominated by annual herbs and grasses. Pools may be small or quite large. Fairly old, circum neutral to alkaline, silica-cemented hardpan soils. Often more or less saline. Intergrades with Cismontane Swale with Cismontane Alkali Marsh, which has water present throughout the year. Loses water primarily by evaporation. Typical species include *Allocarya* spp., *Boisduvalia glabella, Cressa truxillensis vallicola, Downingia* spp., *Eryngium aristulatum, Lasthenia* spp., *Plagiobothrys leptocladus, P. stipitatus* var. *stipitatus, Spergularia marina* (Holland 1986).	Absent	This community type does not occur in the BSA.
Valley Needlegrass Grassland		--	--/ --	Dominated by the perennial tussock-forming bunchgrass *Nassella pulchra* with annuals occurring between bunches. Usually on fine-textured (often clay) soils, moist or waterlogged in winter, but very dry in summer. Often interdigitates with Oak Woodlands on moister, better-drained sites. Historically, extensively occurred around Sacramento, San Joaquin, and Salinas valleys, as well as the Los Angeles Basin. Range is now greatly reduced (Holland 1986).	Absent	This community type does not occur in the BSA.

[a] **Status**: Endangered (E); Threatened (T); Proposed (P); Candidate (C), Delisted (D), Fully Protected (FP); Rare (R); State Species of Special Concern (SSC); Proposed Critical Habitat (PCH); Critical Habitat (CH) - Project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

[b] **CNPS Rare Plant Rank**: 1A = Presumed Extinct in CA; 1B = Rare or Endangered in CA and elsewhere; 2 = R/E in CA and more common elsewhere; 3 = More information is needed about this plant species (review list); 4 = Limited distribution (watch list).

CNPS Decimal Extensions: .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in California (20-80% occurrences threatened); .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known).

[c] Absent = No habitat present. Present = Habitat is, or may be present.

APPENDIX D.

Plant and Wildlife Species Observed

Plant Species Observed [3].

Family	Scientific Name	Common Name	N/I[1]	CAL-IPC[2]
EUDICOTS				
Amaranthaceae	*Amaranthus* sp.	Amaranth, pigweed	--	
Asteraceae	*Anthemis cotula*	Mayweed	I	
	Carduus pycnocephalus ssp.	Italian thistle	I	Moderate
	Centaurea solstitialis	Yellow star-thistle	I	High
	Cotula coronopifolia	Brass-buttons	I	Limited
	Erigeron canadensis	Horseweed	N	
	Helminthotheca echioides	Bristly ox-tongue	I	Limited
	Lactuca serriola	Prickly lettuce	I	
	Senecio vulgaris	Common groundsel	I	
	Sonchus oleraceus	Common sow thistle	I	
Boraginaceae	*Amsinckia intermedia*	Common fiddleneck	N	
Brassicaceae	*Brassica nigra*	Black mustard	I	Moderate
	Descurainia sophia		I	Limited
	Lepidium latifolium	Perennial pepperweed	I	High
Caryophyllaceae	*Spergularia* sp.	Spurrey	--	
	Stellaria media	Common chickweed	I	
Chenopodiaceae	*Atriplex prostrata*	Fat-hen	I	
	Beta vulgaris ssp. *vulgaris*	Chard	I	
	Chenopodium album	Lamb's quarters	I	
	Salsola tragus	Russian thistle, tumbleweed	I	Limited
Convolvulaceae	*Convolvulus arvensis*	Bindweed, orchard	I	
	Cressa truxillensis	Alkali weed	N	
Euphorbiaceae	*Croton setigerus*	Turkey-mullein	N	
Fabaceae	*Lupinus bicolor*	Miniature lupine	N	
	Medicago polymorpha	California burclover	I	Limited
	Melilotus indicus	Sourclover	I	
	Trifolium willdenovii	Tomcat clover	N	
Geraniaceae	*Erodium cicutarium*	Redstem filaree	I	Limited
	Geranium dissectum		I	Limited
Lamiaceae	*Lamium amplexicaule*	Henbit	I	
Malvaceae	*Malva parviflora*	Cheeseweed, little mallow	I	
Onagraceae	*Epilobium ciliatum*	Willowherb	N	
Papaveraceae	*Eschscholzia californica*	California poppy	N	
Plantaginaceae	*Plantago erecta*		N	
	Plantago lanceolata	English plantain	I	Limited
Polygonaceae	*Persicaria* sp.	Smartweed	--	
	Polygonum aviculare	Knotweed, knotgrass	I	
	Rumex crispus	Curly dock	I	Limited
	Rumex sp.			
MONOCOTS				
Cyperaceae	*Cyperus eragrostis*	Nutsedge	N	
Poaceae	*Avena barbata*	Slender wild oat	I	Moderate
	Bromus carinatus	California brome	N	
	Bromus hordeaceus	Soft chess	I	Moderate
	Bromus diandrus	Ripgut grass	I	Moderate
	Dactylis glomerata	Orchard grass	I	Limited
	Elymus glaucus	Blue or western wild-rye	N	
	Festuca perennis	Rye grass	I	Moderate

Family	Scientific Name	Common Name	N/I[1]	CAL-IPC[2]
	Hordeum marinum ssp.	Mediterranean barley	I	Moderate
	Hordeum murinum	Wall barley	I	Moderate
	Phalaris minor	Little-seeded canary grass	I	
	Poa annua	Annual blue grass	I	
	Polypogon monspeliensis	Annual beard grass,	I	Limited
	Sorghum halepense	Johnson grass	I	
	Triticum aestivum	Cultivated wheat	I	
Typhaceae	*Typha angustifolia*	Narrow-leaved cattail	N/I	

[1] N = Native to CA; I = Introduced.
[2] Negative ecological impact according to the California Invasive Plant Council (Cal-IPC 2006).

Wildlife Species Observed

COMMON NAME	SCIENTIFIC NAME
BIRDS	
American avocet	*Recurvirostra americana*
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
Black necked stilt	*Himantopus mexicanus*
Cliff swallow	*Hirundo pyrrhonota*
Double-crested cormorant	*Phalacrocorax auritus*
Killdeer	*Charadrius vociferus*
Mallard	*Anas platyrhynchos*
Red-winged blackbird	*Agelaius phoeniceus*
Snowy egret	*Leucophoyx thula*
Western kingbird	*Tyrannus verticalis*
Western meadowlark	*Sturnella neglecta*
Turkey vulture	*Cathartes aura*
FISH	
Carp	*Cyprinus carpio*
MAMMALS	
Jackrabbit	*Lepus californicus*

APPENDIX E.

Photographs
9 March 2016

Photo 1. View looking northeast across the BSA from the south west corner at the location of the proposed Love's Country Store and parking lot.

Photo 2. View looking southwest across the BSA from the north end. Accumulation of fine sediment in the foreground. A disturbance from the Margurite Street Project in Summer 2015.

Photo 3. View east from the start of the temporary ditch alignment (southeast portion of the BSA). The alignment is within a proposed future roadway.

Photo 4. View southwest of the manmade HLDET7. The proposed ditch alignment will enter the HLDET7 on the northwest corner.

Photographs
11 May 2016

Photo 5. View north of the HLDET7 from the south end. Several bird species were foraging in the mud. Short orange plants growing in the foreground are *Spergularia* sp.

Photo 6. View southeast of the HLDET7 from the west end. The proposed temporary ditch will enter HLDET7 in the foreground and head southeast for approximately 400 ft.

Photo 7. View east across the center of the proposed Love's country store from the northwest corner of the BSA.

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Appendix D: Archaeological Survey Report (Separately Bound Confidential Document)

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Appendix E: Geotechnical Engineering Report Love's Travel Stop

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Geotechnical Engineering Report

Love's Travel Stop
Southeast Quadrant I-5 and California State Hwy 20
Williams, California

June 29, 2015
Terracon Project No. NB155021

Prepared for:
Love's Travel Stop & County Stores
Oklahoma City, Oklahoma

Prepared by:
Terracon Consultants, Inc.
Sacramento, California

terracon.com

Terracon

Environmental ■ Facilities ■ Geotechnical ■ Materials

June 29, 2015

Terracon

Love's Travel Stops & County Stores
10601 N. Pennsylvania Ave.
Oklahoma City, OK 73120

Attn: Mr. Rick Shuffield, Vice President Real Estate & Development
P: [405] 302.6646
E: Rick.Shuffield@loves.com

Re: **Geotechnical Engineering Report**
Love's Travel Stop
Southeast Quadrant I-5 and California State Hwy 20
Williams, California
Terracon Project No. NB155021

Dear Mr. Shuffield:

Terracon Consultants, Inc. (Terracon) has completed the geotechnical engineering services for the above referenced project. These services were performed in general accordance with our Proposal No. PNB150059 dated March 10, 2015. This geotechnical engineering report presents the results of the subsurface exploration and provides geotechnical engineering recommendations concerning earthwork and the design and construction of foundations and other earth connected phases for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

REGISTERED PROFESSIONAL ENGINEER GERRY R. LENEHAN No. 73459 CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER PATRICK C. DELL No. 2186 GEOTECHNICAL STATE OF CALIFORNIA

Gerry Lenehan, P.E.
Project Manager

Patrick Dell, G.E.
Senior Geotechnical Engineer

Enclosures
cc: 1 – Client (PDF)
1 – File

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EXECUTIVE SUMMARY

A geotechnical investigation has been performed for a proposed Love's Travel Stop to be located at the southeast quadrant of Interstate 5 and California State Highway 20 in Williams, California. Terracon's geotechnical scope of work included the advancement of twelve (12) borings drilled to maximum depths of approximately 51½ feet below ground surface (bgs). Six (6) of the twelve borings were advanced to 20 feet bgs within the footprint of the proposed convenience store, tire shop, refueling canopies, and fuel storage tanks. Five (5) of the twelve borings were advanced to five (5) feet bgs within the proposed parking and drive areas. Finally, one (1) boring was advanced to 51½ feet bgs in the vicinity of the proposed high rise sign. Additionally, field resistivity testing was performed within the vicinity of the proposed fuel storage tanks.

Based on the information obtained from our engineering analyses of the field and laboratory data, the site appears suitable for the proposed construction based upon geotechnical conditions encountered in the test borings, and provided our recommendations contained in this report are properly implemented in the design and construction. The following geotechnical considerations were identified:

- The near-surface soils are expansive and prone to significant volume change with variations in moisture content. For this reason, we recommend either a 24-inch thick low volume change zone or a 12 to 18-inch thick lime treated section below pavement sections and floor slabs. Both options are discussed in the body of this report.

- Groundwater at the site is shallow and the underlying clays are subject to settlement under additional loading. Prior to construction, the site will require surcharging to induce settlement to reduce post-construction movement of pavement sections.

- Due to the presence of soft, compressible clays and shallow groundwater the proposed building should be founded on deep foundations such as drilled piers or a geopier foundation system may be implemented. Recommendations are included in the Foundations section of the report.

- The presence of shallow groundwater will require underground storage tanks be anchored and weighted to resist buoyant forces. Design parameters are discussed in Section 4.8.

- The site is generally underlain by lean to fat clays with variable sand to the maximum depth of exploration of 51½ feet bgs. Clayey sand to poorly graded sand was encountered in multiple borings at variable depths throughout the site.

- Assuming proper site preparation and any necessary subgrade repair, total and differential settlement should be within anticipated client/owner specifications.

- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that Terracon be retained to monitor this portion of the work.

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The section titled **GENERAL COMMENTS** should be read for an understanding of the report limitations.

GEOTECHNICAL ENGINEERING REPORT
LOVE'S TRAVEL STOP
SOUTHEAST QUADRANT I-5 AND HWY 20
WILLIAMS, CALIFORNIA

Terracon Project No. NB155021

June 29, 2015

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering services performed for the proposed Love's Truck Stop to be located on the southeast quadrant of Interstate 5 (I-5) and California State Highway 20 (Hwy 20) in Williams, California. The Site Location Plan (Exhibit A-1) is included in Appendix A of this report. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- earthwork
- seismic considerations
- pavement design
- groundwater conditions
- floor slab design and construction
- foundation design and construction

2.0 PROJECT INFORMATION

2.1 Project Description

Item	Description
Site layout	See Appendix A, Exhibit A-2: Boring Location Diagram.
Structures	Based on previous Love's projects, we assume the following: ▪ The convenience store will have isolated steel columns, load bearing masonry walls and a concrete slab-on-grade floor. The tire shop will be a pre-engineered steel frame structure with a concrete slab-on-grade floor. We anticipate both buildings will be supported on either deep foundations or spread footing foundations on a stone column system. ▪ Fuel Island Canopies will be steel column and frame construction. ▪ The monument sign will be constructed on a deep foundation.

Item	Description
Building Construction	We have been provided with a preliminary development plan indicating the proposed project will consist of the following: ■ A one-story convenience store/restaurant building about 11,000 square feet in area. ■ Canopies will be constructed over the car and truck fuel dispensing islands located on the north and west sides of the proposed convenience store, respectively. ■ Underground fuel tanks will be located beneath asphalt pavements to the north and south of the convenience store building. ■ A tire shop is planned southwest of the truck canopy. ■ A trash enclosure will be located south of the proposed convenience store building. ■ A high rise sign about 100 feet tall will be constructed west of the site, adjacent to the I-5 and Hwy 20 interchange.
Maximum loads	The following loads are based on Love's Geotechnical Soil Test Requirements or our experience with similar projects: ■ Travel Stop building columns: 25 kips (provided) ■ Travel Stop building walls: 1 klf (provided) ■ Travel Stop Building Slabs: 150 psf (assumed) ■ Canopy Columns: 23 kips compression; 15 kips uplift; 22 to 55 kip-ft moments (provided)
Grading	■ According to the project civil engineer approximately 2 to 3 feet of import fill will be required to raise the building pad to final grade. ■ Maximum cuts for pavement sections are anticipated to be up to 3.5 feet, except for the fuel storage tank pit which could extend to a depth of 12 to 15 feet.
Pavements	■ A city access road is planned between a proposed hotel and the Travel stop. The city access road is not part of this investigation. ■ Pavements for the automobile and truck parking and drives, and the fueling areas will cover more than half of the site. ■ Concrete pavement design will be based on ACI design procedures using truck repetitions. Asphalt pavement thickness design will be based on Caltrans procedures.
Excavation depth	■ Buildings: 2 feet (assumed) ■ Fuel Storage: 12 to 15 feet (assumed)

Item	Description
Traffic Loading	We were provided with the following traffic loading: ■ Light Duty Auto Area: 1,000 cars & minimum truck traffic per day. ■ Medium Duty Truck Parking Area: 150 trucks per day (2.5 million ESALs) ■ Heavy Duty Truck Drives: 600 trucks per day (10.25 million ESALs) ■ Extra Heavy Duty Truck Drives: 1,000 trucks per day (17 million ESALs)
Infrastructure	Installation of underground utilities within about 5 feet of finished site grades. Access drives and parking areas will also be constructed around the perimeters of all buildings. Trash enclosures are planned at the south of the convenience store. A 100-foot tall freeway monument sign will be constructed west of the site, adjacent to I-5.

2.2 Site Location and Description

Item	Description
Location	The proposed Love's Travel Stop development will be located southeast of the intersection of I-5 and State Hwy 20 in Williams, California.
Existing improvements	The site is currently vacant land that has historically been used as irrigated agricultural land.
Current ground cover	The ground cover in the area of the proposed Travel Stop buildings consists of volunteer grasses and weeds with native soil.
Existing topography	The site is relatively flat with elevation differences on the order of about 3 feet across the site.

3.0 SUBSURFACE CONDITIONS

3.1 Geology

The project area is located in the Great Valley Geomorphic Province California. The northern portion of the Great Valley is situated along the western flank of the Sierra Nevada Mountains and is bounded by the Coast Ranges to the west. The topography consists of relatively flat alluviated valleys. As a result of erosion, the Great Valley has been filled with sedimentary material deposited as alluvial fans.

The native soils underlying the site are considered to consist of Great Valley Basin Deposits (Q_b) as described on the "Geologic Map of California: Ukiah Sheet," (Jennings, C.W., 1960; scale: 1:250,000) by the California Geological Survey. According to the map, the sediments are late Quaternary in age (2.6 million years ago and present) and consist of alluvially deposited silts and clays interbedded with sand and gravel. The surficial mapped geology is consistent with the materials encountered throughout the boring depths.

3.2 Typical Profile

Specific conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in situ, the transition between materials may be gradual. Details for each of the borings can be found on the boring logs in Appendix A of this report. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum (feet)	Material Description	Consistency/ Density
1	10 to 28 feet	Lean to Fat Clay with Variable Sand	Soft to Medium Stiff
2	15 to 38 feet[1]	Clayey Sand to Poorly Graded Sand	Very Loose to Medium Dense
3	Greater than 51.5 feet[2]	Lean to Fat Clay with Variable Sand	Medium Stiff to Stiff

1. This stratum was encountered exclusively in Boring Nos. B-1, B-3, B-4, B-9, B-13, and B-15.
2. Deepest boring terminated within this stratum at the planned depth of approximately 51½ feet.

3.3 Groundwater

The boreholes were observed while drilling and after completion for the presence and level of groundwater. The water levels observed in the boreholes are noted on the attached boring logs, and are summarized in the following table:

Boring Number	Depth to groundwater while drilling, ft.	Depth to groundwater after drilling, ft.
B-01	10.0	3.5
B-02	Not Encountered	Not Encountered
B-03	12.0	4.0
B-04	10.0	3.5
B-05	Not Encountered	Not Encountered
B-06	12.5	4.0
B-07	8.0	3.0
B-08	10.0	3.5
B-09	15.0	4.0
B-10	Not Encountered	Not Encountered
B-11	Not Encountered	Not Encountered
B-12	Not Encountered	Not Encountered

Groundwater was not observed in the borings identified as "Not Encountered" while drilling, or for the short duration that the borings were allowed to remain open. However, this does not necessarily mean these borings terminated above groundwater, or that the water levels summarized above are stable groundwater levels. Due to the low permeability of the soils encountered in the borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole in these materials. Long term observations in piezometers or observation wells sealed from the influence of surface water are often required to define groundwater levels in materials of this type.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff, irrigation, and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the project may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

3.4 Seismic Considerations

DESCRIPTION	VALUE
2013 California Building Code Site Classification (CBC) [1]	D
Site Latitude	39.1680°
Site Longitude	-122.1434°
S_s Spectral Acceleration for a Short Period	0.999
S_1 Spectral Acceleration for a 1-Second Period	0.388
F_a Site Coefficient for a Short Period	1.101
F_v Site Coefficient for a 1-Second Period	1.624

[1] Note: The 2013 California Building Code (CBC) requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. The current scope does not include the required 100-foot soil profile determination. Borings extended to a maximum depth of 51½ feet, and this seismic site class definition considers that similar soils continue below the maximum depth of the subsurface exploration.

3.5 Faulting and Estimated Ground Motions

The subject site is located in Northern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. The following table indicates the distance of the fault zones and the associated maximum credible earthquake that can be produced by nearby seismic events, as calculated using the USGS Earthquake Hazard Program 2008 interactive deaggregations.

Characteristics and Estimated Earthquakes for Regional Faults		
Fault Name	**Approximate Distance to Site (kilometers)**	**Maximum Credible Earthquake (MCE) Magnitude**
Great Valley 3, Mysterious Ridge	15	7.0
Bartlett Springs Fault	41	7.3

Based on nearby faults within the proximity of the site, the peak ground acceleration at the subject site for a 2% Probability of Exceedance in 50 years (Return period of 475 years) is expected to be about 0.433g. The site is not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[1]

[1] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California.*

3.6 Liquefaction

Liquefaction is a mode of ground failure that results from the generation of excess pore-water pressures during earthquake ground shaking, causing loss of shear strength. This phenomenon generally occurs in areas of high seismicity, where groundwater is shallow, and loose granular soils or relatively non-plastic fine-grained soils are present. The California Geologic Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the likely presence of a relatively shallow water table. Based on the depth of groundwater, the prevalent cohesive soils, and CGS information, we consider that the potential for liquefaction to occur at the site is low. Other geologic hazards related to liquefaction, such as lateral spreading, are therefore also considered low.

In the event liquefiable soils are present below the maximum 51½-foot depth of exploration, the consequences of one-dimensional settlement may be largely mitigated by the presence of a thick non-liquefied layer above the liquefied soils (Ishihara 1985, Naesgaard et al. 1998, Bouckovalas and Dakoulas 2007). A 10-foot poorly graded sand layer was encountered at 28 feet bgs with corrected blow counts that are non-liquefiable. Further, it is our opinion that the presence of cohesive clay soils (non-liquefiable layer) found beneath the existing ground surface will act as a bridging layer that redistributes stresses and therefore results in more uniform ground surface settlement if there is a deeper liquefiable soil.

4.0 RECOMMENDATIONS FOR DESIGN AND CONSTRUCTION

4.1 Geotechnical Considerations

Based on the results of the subsurface exploration, laboratory testing, and our analyses, it is our opinion that the proposed buildings could be supported on deep foundations or a soil improvement system such as stone columns. Geotechnical considerations for this project include:

Clay soils at this site are expansive and also prone to settlement with increases in loading conditions. This report provides recommendations to help mitigate the effects of settlement from increased loads as well as soil shrinkage and expansion on buildings underlain by expansive clay soil. However, even if these procedures are followed, some movement and at least minor cracking in the structures should be anticipated. The severity of cracking and other cosmetic damage such as uneven floor slabs will probably increase if any modification of the site results in excessive wetting or drying of the expansive soils. Eliminating the risk of movement and cosmetic distress may not be feasible, but it may be possible to further reduce the risk of movement if more expensive measures are used during construction. Some of these options are discussed in this report such as chemical treatment and replacement of expansive soils. We would be pleased to discuss other construction alternatives with you upon request.

Geotechnical engineering recommendations for foundation systems and other earth-connected phases of the project are outlined below. The recommendations contained in this report are based upon the results of field and laboratory testing (which are presented in Appendices A and B), engineering analyses, and our current understanding of the proposed project.

4.2 Earthwork

The following presents recommendations for site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented are for the design and construction of earth supported elements including foundations, concrete slabs, and pavements and are contingent upon following the recommendations outlined in this section. All grading for the structure should incorporate the limits of the proposed structure plus a lateral distance of at least five feet beyond the outside perimeters (the building pad).

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during the construction of the project. Such evaluation is considered an extension of this study.

4.2.1 Site Preparation

The site should initially be cleared of all surface organic growth, loose organic soil, and miscellaneous debris. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction.

4.2.2 Surcharged Induced Settlement

Clay soils at this site are normally consolidated and will settle under increased loading. Groundwater is located 3 to 4 feet bgs. It is anticipated that 2 to 3 feet of soil will be imported to grade the site, which will apply an additional load that will induce up to 4 inches of settlement. Foundations for buildings should extend through the soft soils and derive support from skin friction from the clay soils. However, in order to reduce post-construction settlement of pavement sections and concrete flatwork, we recommend that the proposed construction area be surcharged (pre-loaded) and/or dewatered.

Dewatering and preloading the site will accelerate settlement to a condition that will support the proposed fills without continuing significant post-construction settlement. Engineered fill should be placed at the site in accordance with compaction requirements described in Section 4.2.5. Fill depths to induce settlement should exceed the fill anticipated for construction. After the fill has been placed, dewatering operations may begin. Dewatering should lower the groundwater table to 10 to 15 feet bgs and water should be discharged away from the site. Based on our experience with similar soils, the anticipated settlement should be achieved in 1 to 2 months. The time to dewater will depend on the amount of fill placed and the depth of detwatering. Terracon should

be retained to consult with the developer about the depth of the surcharge fill, depth of detwatering and to develop a settlement monitoring program.

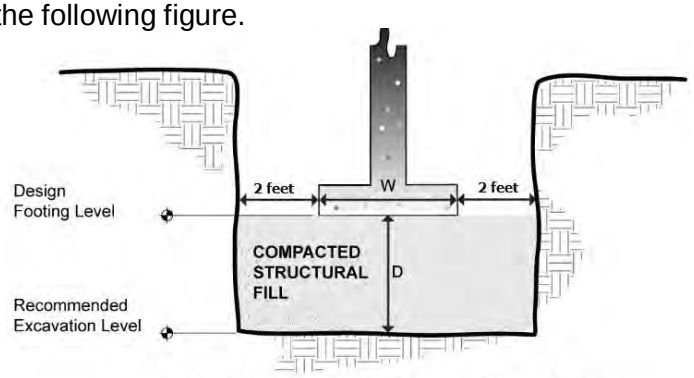
After the anticipated settlement has been achieved, dewatering operations can be stopped and the groundwater can be allowed to return to normal levels.

4.2.3 Soil Stabilization

The near surface soils are clays that are prone to volume changes with fluctuations in moisture content. We are presenting two options for stabilization of the expansive subgrade soils. If low volume change engineered fill is unavailable, Option 2 for Lime Treatment will be required.

Option 1 – Engineered Fill

- After the site has been graded, the building pads should be over-excavated to a minimum depth of 24 inches below finished pad grade or bottom of foundations. The resulting subgrade shall be scarified to a depth of 12 inches, moisture conditioned as necessary, and compacted per the compaction requirements in **Section 4.2.5.**
- Floor slabs and footings should bear on at least 24 inches of low volume change engineered fill extending below the bottoms of proposed footings and floor slabs. Engineered fill should be comprised of low volume change materials as described in **Section 4.2.4**
- The minimum lateral extent of the over-excavation for footings should be at least 2 feet wider than the building or foundation perimeter.
- Over-excavation for compacted structural fill placement below footings should extend laterally beyond all edges of the footings at least 2 feet. The over excavation should then be backfilled up to the footing base elevation with low volume change material placed in lifts of 10 inches or less in loose thickness (6 inches or less if using hand-guided compaction equipment) and compacted to at least 90 percent of the material's modified effort maximum dry density (ASTM D1557). The over excavation and backfill procedure is described in the following figure.



Overexcavation / Backfill

NOTE: Excavations in sketches shown vertical for convenience.
Excavations should be sloped as necessary for safety.

Option 2 – Lime Treatment

- Based on our conversations with the civil engineer, we anticipate low volume material will not be redily available for this project and expansive material will be used to raise the site grade.
- The clay subgrade shall be scarified to a depth of 18 inches, moisture conditioned and compacted per the compaction requirements in **Section 4.2.5.**
- Once building pads are brought to rough grade, for estimating purposes only, the upper 18 inches should be thoroughly mixed with a minimum of 5.5 pounds per square foot of high calcium quick lime and compacted to a minimum of 90 percent relative compaction based on the maximum wet density obtained in the Cal 216 test method. The actual amount of lime to be used should be determined by laboratory testing at least 2 weeks prior to the start of any grading operations.
- Lime treatment should be performed according to Section 24 of the Cal Trans Standard Specifications, latest edition.
- Following completion of the lime treatment operations, the finished lime treated subgrade should be covered with aggregate base or kept moist until placement of the aggregate base. If the lime treated subgrade is allowed to dry out, deterioration of the lime treated material will occur. Remediation of the lime treated material will then be required prior to further construction activities.
- The treatment should extend at least 3 feet beyond the footing lines and under any attached perimeter sidewalks.
- The landscape architect should be informed that plants will not grow in lime-treated soil.

4.2.4 Material Requirements

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than three inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer.

Earth materials that are pre-approved by our representative may be used as fill material for the following:

- general site grading
- foundation areas
- slab-on-grade floor
- foundation backfill
- trench backfill

Soils for use as engineered fill material within the proposed building and pavement areas should conform to low volume change materials as indicated as follows:

Percent Finer by Weight

Gradation **(ASTM C 136)**

3" 100
No. 4 Sieve 50-100
No. 200 Sieve ..... 20 - 40

- Liquid Limit ..... 30 (max)
- Plasticity Index ..... 12 (max)
- Maximum expansive index* ..... 20 (max)
  *ASTM D 4829
- R-value (for pavement subgrade fill soil) ……..25 (min)

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed ten inches in loose thickness.

4.2.5 Compaction Requirements

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
Approved import structural fill soils:			
Beneath foundations:	90	0	+3
Beneath slabs:	90	0	+3
Utility trenches (structural areas):	95	0	+3
On site Soils:			
Bottom of excavation receiving fill:	90	0	+4
Miscellaneous backfill:	90	0	+4
Utility trenches (Landscape areas):	90	0	+4
Beneath asphalt pavements:	95	0	+4
Beneath concrete pavements:	95	0	+4
Aggregate base (beneath pavements):	95	0	+4

Item	Description
Fill Lift Thickness	10 inches or less in loose thickness when heavy, self-propelled compaction equipment is used. 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used.
Minimum Compaction Requirements	At least 90% of the material's maximum modified Proctor dry density (ASTM D 1557); and, at least 95% in the upper 6 inches of pavement subgrade soil and for aggregate base.
Moisture Content – Cohesive Soil	Within the range of 1% to 4% above optimum moisture content as determined by the modified Proctor test at the time of placement and compaction.
Moisture Content – Granular Material	Within the range of optimum moisture content to 3% above optimum moisture content as determined by the modified Proctor test at the time of placement and compaction.

4.2.6 Utility Trench Backfill

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath the buildings should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the buildings. We recommend constructing an effective "trench plug" that extends at least 2 feet out from the face of the building exterior. The plug material could consist of lean clay compacted at a water content at or above the soils optimum water content or lean concrete. The plug should be placed to completely surround the utility line. If lean concrete is used, then the utility line should be sleeved through flexible material and/or designed to be flexible.

4.2.7 Grading and Drainage

All final grades must provide effective drainage away from the buildings during and after construction. Water permitted to pond next to the buildings can result in greater soil movements than those discussed in this report. These greater movements can result in unacceptable differential floor slab movements, cracked slabs and walls, and roof leaks. Estimated movements described in this report are based on effective drainage for the life of the structures and cannot be relied upon if effective drainage is not maintained.

Exposed ground should be sloped at least 2 percent away from the buildings for at least 10 feet beyond the perimeter of the buildings. After building construction and landscaping, we recommend the Civil Engineer/Surveyor verify final grades to document that effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted as necessary, as part of the structure's maintenance program.

Positive drainage should be provided during construction and maintained throughout the life of the buildings. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Backfill against footings, exterior walls, and in utility and sprinkler

line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration. We recommend a horizontal setback distance of at least 10 feet from the perimeter of any building and the high-water elevation of the nearest storm-water retention.

Planters located within 10 feet of the structures should be self-contained to prevent water accessing the building and pavement subgrade soils. Locate sprinkler mains and spray heads a minimum of 5 feet away from the building line. Low-volume, drip style landscaped irrigation should not be used near the building. Collect roof runoff in drains or gutters. Discharge roof drains and downspouts onto pavements which slope away from the buildings or extend down spouts a minimum of 10 feet away from each structure.

Downspouts, roof drains or scuppers should discharge into splash blocks or extensions when the ground surface beneath such features is not protected by exterior slabs or paving. Sprinkler systems should not be installed within 5 feet of foundation walls. Landscaped irrigation adjacent to the foundation system should be minimized or eliminated.

4.2.8 Earthwork Construction Considerations

At the time of our study, moisture contents of the surface and near-surface native soils varied. Groundwater is located at 3 to 4 feet bgs. Therefore, some moisture conditioning will likely be needed for the project. The soils may need to be dried by aeration during dry weather conditions, or an additive, such as cement, lime, or kiln dust, may be needed to stabilize the soil. Subgrade conditions may require a rock protective mat covering of exposed subgrades in order to limit disturbance of the site soils as well as provide a stable base for the contractor's equipment.

Given the relatively shallow depth to groundwater, on site soils may pump and unstable subgrade conditions will likely develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive heavy construction equipment traffic. The contractor should plan his work accordingly. The use of light construction equipment would aid in reducing subgrade disturbance. The use of remotely operated equipment, such as a backhoe, would be beneficial to perform cuts and reduce subgrade disturbance. Should unstable subgrade conditions develop stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of the floor slab. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and re-compacted prior to floor slab and pavement construction.

We anticipate that site grading for concrete foundations, slab construction and utility trenches can be performed with conventional earthmoving equipment. The contractor is responsible for

designing and constructing stable, temporary excavations (including utility trenches) as required to maintain stability of both the excavation sides and bottom. Excavations should be sloped or shored in the interest of safety following local and federal regulations, including current OSHA excavation and trench safety standards.

The geotechnical engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations to the completed subgrade.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through May) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

If unstable subgrade conditions develop during construction, suitable methods of stabilization will be dependent upon factors such as schedule, weather, size of area to be stabilized, and the nature of the instability. If soil stabilization is needed, Terracon should be consulted to evaluate the situation as needed.

4.3 Foundations

The near surface soils are normally consolidated clays, prone to settlement with additional loads, and are not suitable to directly support the foundations of the proposed development. As a result, typical shallow spread footing foundations on native soil are not suitable for this site. The monument sign and island canopies should be supported on deep foundations described in 4.3.1. We are providing two foundation options for the building structures. Option-1 is to support the structures on a drilled pier foundation system. Option-2 is to support the structures on traditional shallow foundations that bear on drilled rammed aggregate shafts, such as Geopiers.

4.3.1 Foundation Design Recommendations – Drilled Piers

For Option-1 the proposed convenience store, tire shop, monument signs, and island canopies may be wholly supported by drilled piers that derive their support from the clay soils. The building canopies and monument sign should be founded on a drilled pier system. The piers shall be designed and constructed in accordance with the following criteria. These criteria were developed from analysis of field data, laboratory data, and our experience.

Description	Pier
Net allowable skin friction[1]	250 psf
Lateral passive resistance	350 pcf equivalent fluid pressure (EFP) acting against the projected area equal to 2.0 times the pier diameter.
Neglect upper pier for vertical and lateral support	3 feet
Minimum pier length	8 feet
Approximate total settlement from foundation loads[3]	1 inch
Estimated differential settlement from foundation loads[3]	+/- ¾ inch between columns

1. Increase by 1/3 for seismic load.

- Drilled piers should be designed as friction piers. The pier foundation shall be designed to distribute the weight of the structure solely on the piers.
- Piers should have a minimum diameter of 18 inches. All piers should have a minimum spacing of at least 3 pier diameters and 5 pier diameters for vertical and horizontal loading, respectively, unless our office provides reduction values for group action of piers.
- All piers should be connected with continuous grade beams or a thickened floor slab which rely on the piers for full support. Grade beam reinforcement should be designed by the structural engineer so as to distribute the structural loads to the piers. Grade beams should extend a minimum of 18 inches below the lowest surrounding grade.
- Concrete should be placed immediately after the holes are drilled, cleaned and inspected utilizing a "drill and pour" procedure to reduce the potential for possible contamination of the open pier holes. If groundwater, caving conditions, or gravel are encountered during drilling, it may be necessary to adjust pier lengths. Due to shallow groundwater conditions, concrete should be placed in pier holes using the tremie method. If drilling problems occur, we should be contacted to discuss alternatives with the structural engineer.
- Formation of mushrooms or enlargements at the tops of piers should be avoided during pier drilling. If mushrooms develop at the tops of the piers during drilling, sono-tubes should be placed at the pier tops to help isolate the piers.
- Pier excavation operations shall be continuously observed by a staff engineer/geologist of our office to verify that suitable depth and bearing material has been encountered.

4.3.2 Foundation Design Recommendations – Rammed Aggregate Shaft

Rammed aggregate shafts is a foundation system based on soil improvement that consists of installing densified, well-graded aggregate columns into compressible soil and fill. Common spread footing foundations are used in conjunction with aggregate shafts. The foundation elements are constructed by drilling shafts (commonly 30-inches in diameter), and backfilling the

open shaft with rammed/compacted, open graded crushed rock and Class 2 aggregate base rock in 10- to 12-inch thick lifts. Ramming action is produced with a high impact pneumatic hammer. The drill spoil is commonly reused as fill material or disposed of offsite.

Rammed aggregate shafts are typically proprietary design-build products. Geopier is one product that is commonly used in this area. We have consulted with Farrell Design-Build Companies, Inc. (Farrell), regarding Geopier design capacities. If the Geopier system is selected for structural support, then Farrell would provide a complete design-build submittal with design recommendations, engineered plans and specifications. If this option is selected, our office should perform a geotechnical review of the Geopier design. Based on the soil conditions, Farrell has estimated the following Geopier reinforced soil capacities for the subject project:

- Geopier shaft lengths (GSL) for bearing elements should extend 10 to 12 feet below the bottom of spread footings. If tension resistance is required, the GSL for uplift elements should extend 15 feet below the bottom of spread footings.
- Allowable Geopier composite bearing capacity: 3,500 psf for an area replacement (Ra) greater than 0.30
- Allowable 30-inch diameter Geopier cell capacity: 55 to 65 kips
- Allowable 30-inch diameter Geopier uplift capacity: 25 to 35 kips
- Allowable Geopier composite sliding coefficient: 0.40 (includes FS=2)
- Total and differential settlements will be less than 1 inch and ½ inch respectively.
- A 1/3 increase to these allowable capacities is permitted for short term seismic and wind loads.
- The allowable vertical capacities should be verified by full-scale load tests.

Geopier is a proprietary product that is commonly used in Northern California. There are other rammed aggregate or stone column products that may also be considered as a substitution to Geopier, if desired. All rammed aggregate system designs should be reviewed by the geotechnical engineer.

FOUNDATION OPTION 2 DESCRIPTION	RECOMMENDATION – RAMMED AGGREGATE SHAFT
Foundation Purpose	Foundation support for the buildings
Foundation Type	Conventional Shallow Spread Footings
Bearing Material – Rammed Aggregate Shaft	Rammed Aggregate Shaft such as Geopier
Allowable Bearing Pressure – Geopier System	3,500 psf
Minimum Plan View Dimensions	Walls: 12 inches; Columns: 24 inches
Minimum Embedment Below Finished Grade	18 inches
Total Estimated Settlement	1-inch
Estimated Differential Settlement	½ -inch over 40 feet

4.3.3 Foundation Construction Considerations

The foundation system for the structures shall consist of either Option 1 – deep foundations, or Option 2 – shallow foundations supported on rammed aggregate piers. Foundation systems shall not be mixed. Lightly loaded tertiary structures may be supported on the in-situ native soils, or imported fill provided the structures are entirely detached from the main structures.

Finished grade is defined as the lowest adjacent grade within five feet of the foundations. The allowable foundation bearing pressures apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include transient conditions, such as wind or seismic. The weight of the foundation concrete below grade may be neglected in dead load computations.

Total and differential settlements should not exceed predicted values, provided that:

- Foundations are constructed as recommended, and
- Essentially no changes occur in water contents of foundation soils.

Additional foundation movements could occur if water from any source infiltrates the foundation soils; therefore, proper drainage should be provided in the final design and during construction.

Footings and foundations should be reinforced as necessary to reduce the potential for distress caused by differential foundation movement.

Foundation excavations and bearing soils should be observed by the geotechnical engineer. If the soil conditions encountered differ significantly from those presented in this report, then supplemental recommendations will be required.

The base of all foundation excavations should be free of water, loose soil, and deleterious materials prior to placing concrete. Concrete should be placed soon after excavating and placement of engineered fill to reduce bearing soil disturbance. Should the soils at bearing level become excessively dry, disturbed, or saturated, the affected soil should be removed prior to placing concrete. In addition, as previously described, unsuitable soils should be completely removed from any proposed construction areas prior to construction. We recommend that Terracon be retained to observe and test the soil foundation bearing materials exposed in the over excavation.

4.3.4 Corrosion Potential

Results of Chemical tests are summarized on the following table.

Bulk Sample Depth	B-9 at 1 – 2 ft.
Water Soluble Sulfate (mg/kg)	660
Soluble Chloride (mg/kg)	75
Soil pH	9.23
Red-Ox (mV)	+621

The results of the pH, resistivity, chloride, and sulfate corrosivity testing conducted on the upper soil sample from the boring in conjunction with this geotechnical exploration should be used to determine potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials that will be used for project construction. Results of soluble sulfate testing indicate ASTM Type III/IV Portland cement is suitable for all concrete on and below grade. Foundation concrete may be designed for low sulfate exposure in accordance with the provisions of the ACI Design Manual, Section 318, Chapter 4.

4.4 Floor Slabs

4.4.1 Floor Slab Design Recommendations

Subgrade soils at this site are expansive and prone to volume changes with variations in moisture content. Consequently, floor slabs not supported by drilled pier systems shall be constructed on either 24 inches of low volume engineered fill or 18 inches of lime treated soil.

Item	Description
Floor slab support[1]	At least 24 inches of engineered fill consisting of low volume change material (this is in addition to the base material) or 18 inches of lime treated material.
Aggregate base course/capillary break	4-inches of crushed, washed ¾-inch gravel; or, 6-inches of compacted Aggregate Base (CalTrans Class 2)
Modulus of subgrade reaction	150 pounds per square inch per inch (psi/in) (The modulus was obtained based on our experience with similar subgrade conditions and structural fill.)[2]

1. Upon completion of grading operations in the building area, the recommended subgrade moisture content and density should be maintained to construction of the building floor slabs.
2. This value is for a small load area (1 sq. ft. or less) such as for forklift wheel loads or point loads and should be adjusted for large loaded areas.

The use of a vapor retarder should be considered beneath concrete slabs-on-grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the

slab will support items sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

In areas of exposed concrete, control joints should be saw-cut into the slab after concrete placement in accordance with ACI Design Manual, Section 302.1R-37 8.3.12 (tooled control joints are not recommended). To control the width of cracking (should it occur), continuous slab reinforcement should be considered in exposed concrete slabs.

Interior trench backfill placed beneath slabs should be compacted in accordance with recommendations outlined in the Earthwork section of this report. Other design and construction considerations, as outlined in the ACI Design Manual, Section 302.1R are recommended.

4.4.2 Floor Slab Construction Considerations

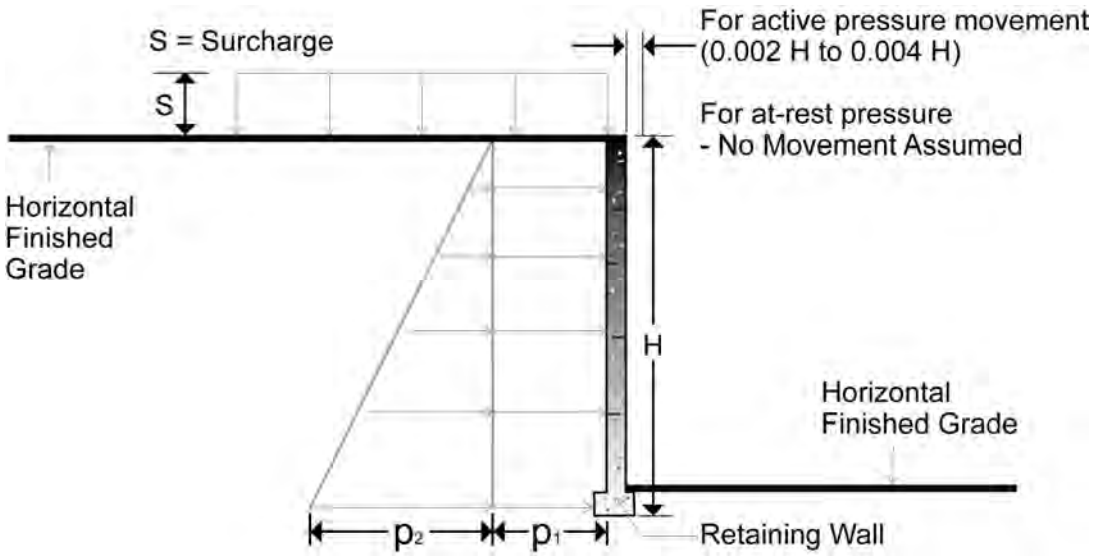
Some differential movement of a slab-on-grade floor system is possible should the moisture content of the subgrade soils vary significantly. Such movements are anticipated to be within general tolerance for normal slab-on-grade construction. To reduce (not prevent) potential slab movements, the subgrade soils should be prepared as outlined in the **Earthwork** section of this report.

On most project sites, the site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab subgrade may not be suitable for placement of base rock and concrete and corrective action will be required.

Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted fill. All floor slab subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the base rock and concrete.

4.5 Lateral Earth Pressures and Retaining Wall Recommendations

Reinforced concrete walls with unbalanced backfill levels on opposite sides should be designed for earth pressures at least equal to those indicated in the following table. Earth pressures will be influenced by structural design of the walls, conditions of wall restraint, methods of construction and/or compaction and the strength of the materials being restrained. Two wall restraint conditions are shown. Active earth pressure is commonly used for design of free-standing cantilever retaining walls and assumes some wall movement. The "at-rest" condition assumes no wall movement. The recommended design lateral earth pressures do not include a factor of safety and do not provide for possible hydrostatic pressure on the walls.



Earth Pressure Coefficients

Earth Pressure Conditions	Coefficient for Backfill Type	Equivalent Fluid Density (pcf)	Surcharge Pressure, p_1 (psf)	Earth Pressure, p_2 (psf)
Active (Ka)	Granular - 0.33	40	(0.33)S	(40)H
	Clay - 0.42	50	(0.42)S	(50)H
At-Rest (Ko)	Granular - 0.46	55	(0.46)S	(55)H
	Clay - 0.58	70	(0.58)S	(70)H
Passive (Kp)	Granular - 3.0	360	---	---
	Clay - 2.4	290	---	---

Applicable conditions to the above include:

- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 **H** to 0.004 **H**, where **H** is wall height
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance
- Uniform surcharge, where S is surcharge pressure
- In-situ soil backfill weight a maximum of 120 pcf
- Horizontal backfill, compacted between 90 and 95 percent of modified Proctor maximum dry density
- Loading from heavy compaction equipment not included
- No hydrostatic pressures acting on wall
- Seismic loading: lateral load equivalent to $9H^2$ (H = height of retaining wall) should be applied at 0.6H from the bottom of the wall stem
- No safety factor included

Backfill placed against structures should consist of granular soils or low plasticity cohesive soils. For the granular values to be valid, the granular backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases,

respectively. To calculate the resistance to sliding, a value of 0.32 should be used as the ultimate coefficient of friction between the footing and the underlying soil.

4.6 Pavements

Clay soils at this site are normally consolidated and will settle under increased loading. Groundwater is located 3 to 4 feet bgs. It is anticipated that 2 to 3 feet of soil will be imported to grade the site, which will apply an additional load that will induce up to 4 inches of settlement. In order to reduce post-construction settlement of pavement sections and concrete flatwork, we recommend that the proposed construction area be surcharged (pre-loaded) and/or dewatered.

Dewatering and preloading the site will accelerate settlement to a condition that will support the proposed fills without continuing significant post-construction settlement. Engineered fill should be placed at the site in accordance with compaction requirements described in Section 4.2.5. Fill depths to induce settlement should exceed the fill anticipated for construction. After the fill has been placed, dewatering operations may begin. Dewatering should lower the groundwater table to 10 to 15 feet bgs and water should be discharged away from the site. Based on our experience with similar soils, the anticipated settlement should be achieved in 1 to 2 months. The time to dewater will depend on the amount of fill placed and the depth of detwatering. Terracon should be retained to consult with the developer about the depth of the surcharge fill, depth of detwatering and to develop a settlement monitoring program.

After the anticipated settlement has been achieved, dewatering operations can be stopped and the groundwater can be allowed to return to normal levels.

The pavement areas for this project may be supported by 24 inches of engineered fill material, 18 inches of lime treated soils placed and compacted as outlined in the **Earthwork** section of this report.

4.6.1 Pavement Design Recommendations

Pavement design was analyzed for the following traffic loading conditions.

- Light Duty Auto Area: 1,000 cars & minimum truck traffic per day.
- Medium Duty Truck Parking Area: 150 trucks per day (2.5 million ESALs)
- Heavy Duty Truck Drives: 600 trucks per day (10.25 million ESALs)
- Extra Heavy Duty Truck Drives: 1,000 trucks per day (17 million ESALs)

The surface soils at this site are expansive and prone to volume changes and are not suitable to support the pavement sections. Clay soils at this site have an R-value of 5. Based on the heavy traffic loading, we are recommending two options for subgrade support of the pavement sections.

- OPTION 1 - The pavement section may be supported by 24 inches of engineered fill material. The pavement design for 24 inches of low volume change compacted import subgrade soil was designed with an assumed R-value of 25. The R-value of the imported low volume change engineered fill should be confirmed prior to grading operations. The pavement sections should be revised based on the actual R-value of the imported material.
- OPTION 2 - A 12 to 18-inch lime treated section may be placed and compacted as outlined in the **Earthwork** section of this report. Pavement design for subgrade that is prepared with 18 inches of lime treated material was designed with an assumed R-value of 50.
- REINFORCED OPTION - For each option, a geogrid reinforced section is provided to help reduce overall section thickness. The Geogrid option incorporates a layer of AllianceGeo BX2525 at the bottom of the pavement section. Conventional pavement sections presented below were calculated using Caltrans design procedures.

4.6.2 Asphaltic Cement Concrete Thickness

OPTION 1 - Minimum ACC Pavement Section (inches) - 24-inch Compacted Import Subgrade			
Traffic Area and Traffic Index[1]	**Asphalt Surface**	**Aggregate Base**	**Compacted Import Subgrade[3]**
Unreinforced Section			
Light Duty Auto Area (TI = 6)	3.5	9.0	24.0
Medium Duty Truck Parking Area (TI =10)	6.5	16.0	24.0
Heavy Duty Truck Drives (TI = 12)	8.0	20.0	24.0
Extra Heavy Duty Truck Drives (TI = 13)	9.0	21.5	24.0
GeoGrid Reinforcement at Base of Pavement Section			
Medium Duty Truck Parking Area (TI =10)	7.0	9.0	24.0
Heavy Duty Truck Drives (TI = 12)	8.0	15.5	24.0
Extra Heavy Duty Truck Drives (TI = 13)	9.0	16.5	24.0

1. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic. Anticipated traffic patterns were provided.
2. All materials should meet the requirements as outlined in the Caltrans Standard Specifications.
3. Imported subgrade is low volume change material that meets specifications in Section 4.2.4

OPTION 2 - Minimum ACC Pavement Section (inches) – 12 to 18-inch Lime Treated Subgrade			
Traffic Area and Traffic Index[1]	**Asphalt Surface**	**Aggregate Base**	**Lime Treated Section**
Unreinforced Section			
Light Duty Auto Area (TI = 6)	3.5	4.0	12.0
Medium Duty Truck Parking Area (TI =10)	6.5	9.0	18.0
Heavy Duty Truck Drives (TI = 12)	8.0	11.0	18.0
Extra Heavy Duty Truck Drives (TI = 13)	9.0	13.0	18.0
GeoGrid Reinforcement at Base of Pavement Section			
Medium Duty Truck Parking Area (TI =10)	5.0	6.0	18.0
Heavy Duty Truck Drives (TI = 12)	8.0	6.0	18.0
Extra Heavy Duty Truck Drives (TI = 13)	8.5	7.0	18.0

1. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic. Anticipated traffic patterns were provided.
2. All materials should meet the requirements as outlined in the Caltrans Standard Specifications.

These pavement sections are considered minimum sections based on the expected traffic and the existing subgrade conditions; however, they are expected to function with periodic maintenance and overlays if good drainage is provided and maintained.

4.6.3 Portland Cement Concrete Thickness

Minimum PCC Pavement Section (inches)				
Traffic Area and Traffic Index[1]	**Portland Cement Concrete**	**Aggregate Base [2]**	**Lime Treated Section**	**Compacted Import Subgrade[3]**
Light Duty Auto Area (TI = 6)	5.0	4.0	12.0	
Medium Duty Truck Parking Area (TI =10)	11.0	4.0	18.0	
Heavy Duty Truck Drives (TI = 12)	13.5	4.0	18.0	
Extra Heavy Duty Truck Drives (TI = 13)	15.0	4.0	18.0	
Light Duty Auto Area (TI = 6)	5.0	4.0		24.0
Medium Duty Truck Parking Area (TI =10)	11.0	4.0		24.0

Minimum PCC Pavement Section (inches)				
Traffic Area and Traffic Index[1]	**Portland Cement Concrete**	**Aggregate Base [2]**	**Lime Treated Section**	**Compacted Import Subgrade[3]**
Heavy Duty Truck Drives (TI = 12)	14.0	4.0		24.0
Extra Heavy Duty Truck Drives (TI = 13)	15.0	4.0		24.0

1. The traffic index (TI) is a measure of traffic wheel loading frequency and intensity of anticipated traffic. For comparison, TI's of between 4 and 5 are often suitable for design of automobile parking areas, TI's of between 5 and 6 are commonly used for design of fire truck access lanes and areas subject to channelized flow with light delivery trucks, and TI's greater than 6 are common for design of pavements supporting light to moderate bus and truck traffic.
2. All materials should meet the requirements as outlined in the Caltrans Standard Specifications.
3. Imported subgrade is low volume change material that meets specifications in Section 4.2.4
4. The trash container pad should be large enough to support the container and the tipping axle of the collection truck.

We recommend that reinforced concrete pavements be provided for truck pad areas and in front of and beneath trash receptacles. The trash collection trucks should be parked on the rigid concrete pavement when the trash receptacles are lifted. The concrete pavements should be a minimum of 5 inches thick and properly reinforced. Thickened edges should be used along outside edges of concrete pavements. Edge thickness should be at least 2 inches thicker than concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges.

4.6.4 Pavement Construction Considerations

Materials and construction of pavements for the project should be in accordance with the requirements and specifications of the latest edition of Caltrans Standard Specifications.

On most project sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds, the subgrades may become disturbed due to utility excavations, construction traffic, rainfall, etc. As a result, the pavement subgrade may not be suitable for placement of aggregate base and pavement.

We recommend the area underlying the pavement be rough graded and proof-rolled prior to placement of aggregate base material. Particular attention should be paid to high traffic areas and utility trenches that were backfilled. Areas where disturbance has occurred and materials are unsuitable should be removed and replaced with compacted structural fill.

The aggregate base should be uniformly moisture-conditioned and compacted to a minimum of 95 percent of the maximum dry density as determined in the ASTM D1557 test method in accordance with this report. Base course or pavement materials should not be placed when the surface is wet. Surface drainage should be provided away from the edge of paved areas to minimize lateral moisture transmission into the subgrade.

Minimizing subgrade saturation is an important factor in maintaining subgrade strength. Water allowed to pond on or adjacent to pavements could saturate the subgrade and cause premature pavement deterioration. The pavement should be sloped to provide rapid surface drainage, and positive surface drainage should be maintained away from the edge of the paved areas. Design alternatives which could reduce the risk of subgrade saturation and improve long-term pavement performance include crowning the pavement subgrades to drain toward the edges, rather than to the center of the pavement areas; and installing surface drains next to any areas where surface water could pond. Properly designed and constructed subsurface drainage will reduce the time subgrade soils are saturated and can also improve subgrade strength and performance. In areas where there will be irrigation adjacent to pavements, we recommend the owner consider installing perimeter drains for the pavements.

Preventative maintenance should be planned and provided for through an on-going pavement management program in order to enhance future pavement performance. Preventative maintenance activities are intended to slow the rate of pavement deterioration, and to preserve the pavement investment.

4.6.5 Construction Considerations

Pavement subgrades prepared early in the project should be carefully evaluated as the time for pavement construction approaches. We recommend the pavement areas be rough graded and then thoroughly proof rolled with a loaded tandem-axle dump truck. Particular attention should be paid to high traffic areas that were rutted and disturbed and to areas where backfilled trenches are located. Areas where unsuitable conditions are located should be repaired by replacing the materials with properly compacted fill.

We recommend the pavement construction be scheduled in the later stage of construction activities when most heavy construction traffic such as concrete trucks and material delivery trucks will no longer come on-site.

4.7 Corrosivity/Resistivity Testing

Laboratory soil pH, sulfate content tests, and laboratory resistivity tests were conducted on a selected soil sample recovered from the borings to assess the corrosivity risk of the soils at the site. Soil samples were submitted to the Terracon Las Vegas, NV analytical lab. The results of the laboratory test are provided in Appendix B of this report and are also discussed herein.

4.7.1 Resistivity

Resistivity of the subsurface soils was measured at the site using an AEMC Model 4500 Ground Resistance Tester. The Wenner Vertical Profiling Method was used. With this array, potential electrodes are centered on a traverse line between the current electrodes and an equal "A" spacing between electrodes is maintained. Resistivity measurements were taken along two traverses. Individual resistivity values at various A-spacing ranged from 76.6 to 345 ohm-cm as shown on Exhibit D-1.

In addition to field testing, soil electrical resistivity test was performed in the lab on two samples taken from borings B-9 and B-13. The resistivity of the laboratory tested samples for B-9 and B-13 were determined to be about 621 and 1261 ohm-cm respectively. These resistivity values indicate that the samples tested exhibit a high to very high corrosive potential to buried metal pipes.

Evaluation of the test results is based upon the guidelines of J.F. Palmer, "Soil Resistivity Measurements and Analysis", Materials Performance, Volume 13, January 1974. The following table outlines the guidelines for soil resistivity for corrosion potential.

Corrosion Potential of Soil on Steel	
Soil Resistivity (ohm-cm)	**Corrosion Potential**
0 to 1,000	Very High
1,000 to 2,000	High
2,000 to 5,000	Moderate
> 5,000	Mild

4.7.2 Sulfates

The sulfate test results indicates the water soluble sulfate concentrations at boring locations B-9 and B-13 are 660 and 440 mg/Kg respectively. According to the California Building Code, concrete that will be exposed to sulfate-containing solutions should be designed in accordance with ACI 318, Section 4.3. The results indicate that the sulfate level is moderate when considering corrosion to concrete.

4.7.3 Laboratory pH

Data suggests the soil pH should not be the dominant soil variable affecting soil corrosion if the soil has a pH in the 5 to 8 range. Based on our laboratory pH test, the soils tested have a pH of about 9.23 to 9.44. The pH of the sample is above the recommended range, and should therefore be considered when determining soil corrosion potential.

4.7.4 Corrosion Potential

Based on our review of published soils information and the results of our laboratory resistivity testing it appears that the on-site soils have a high to very high corrosive potential. Type III cement is commonly used and is appropriate for this project according to ACI 318, Table 4.3.1.

4.8 Underground Fuel Storage Tanks

Based on the subsurface conditions encountered in borings B-4 and B-12, in the vicinity of the planned underground fuel storage tank areas, we anticipate that the tank excavation will penetrate into native lean to fat clay soils. We expect wet to saturated medium stiff clay will be encountered at/near the tank bearing elevation. These soils will likely require some remediation (stabilization and/or surficial undercutting and replacement) to achieve a stable bearing subgrade for tank support prior to placing the tank bedding material and tie-down mats. Granular backfill materials should conform to the tank manufacturer's requirements for material type and gradation and should be placed in lifts and thoroughly compacted with suitable vibratory equipment.

Groundwater was encountered at about 10 feet in boring B-4 but stabilized as shallow as 3 feet after completion of the boring. We expect groundwater will be exposed during tank excavation and will require dewatering techniques during excavation and tank placement. Underground storage tanks should be designed to resist uplift pressures due to hydrostatic loading. Uplift pressure would be greatest when the tanks are empty and groundwater level is high. It is our understanding that tie-down mats are typically designed to resist the uplift forces developed due to hydrostatic pressures. The fuel tanks and tie-down mats should be designed to resist a water pressure of 62.4 psf per foot of embedment below the groundwater table. The total uplift force could be resisted by the dead weight of the structures and the effective weight of backfill placed over the tank and any extensions of the tank foundations (i.e. tie-down mats). A backfill total unit weight of 110 pcf could be used above the groundwater table and an effective unit weight of 50 pcf for backfill below the water table.

As an alternative, if a sump pit and permanent pump system are provided to remove any seepage into the granular fill around the tanks, then the uplift pressures will not develop. A backup pump and emergency power source should be part of any sump design.

5.0 LIMITED ENVIRONMENTAL ANALYTICAL EVALUATION

Environmental soil samples were collected and tested according to the provided Love's Geotechnical Soil Test Requirements in seven borings at the site (B-1 and B-4 through B-9). Boring B-1 was advanced to 51½ feet bgs. Borings B-4 through B-9 were advanced to 20 feet bgs. Soil samples were collected and screened at approximate depths of 5, 10, 15, and 20 feet bgs and observed to document soil lithology, color, moisture content and evidence of petroleum hydrocarbon impact. The soil samples were field-screened using a photo-ionization detector (PID) to indicate the presence of volatile organic compounds (VOCs). PID readings of significance were

not detected. In addition, visual evidence of petroleum impact in the soil samples collected from the borings was not observed.

5.1 Groundwater Samples

While drilling, groundwater was encountered in the soil borings at depths ranging from about 3 to 10 feet bgs. A groundwater sample was collected from each borehole by lowering a new, disposable bailer into boring at the completion of drilling. The groundwater samples were analyzed for BTEX, MTBE, TPH-Gas, and DRO (diesel range organics). The laboratory analytical report indicates that BTEX and MTBE were not detected in the groundwater samples at concentrations above the laboratory detection limits. However, elevated readings of TPH DRO were encountered in each groundwater sample at concentrations ranging from 0.41mg/L in B-1 to 5.1 mg/L in B-9. Terracon understands the site will be commercially developed with no drinking water wells.

The analytical result was compared to the California Table B Environmental Screening Levels (ESLs) for groundwater that is not a current or potential source for drinking water. The total TPH-DRO concentrations reported in the groundwater samples from the borings tested are above the Table B ESL value of 1000 ug/L. False positive readings are possible with certain analytical methods, and the lack of significant PID readings in soil samples suggest a potential inconsistency with the analytical results. For this reason, we recommend additional testing to determine the source and extent of the contamination detected in this analysis. The laboratory analytical report for the groundwater samples is provided in Appendix C.

6.0 GENERAL COMMENTS

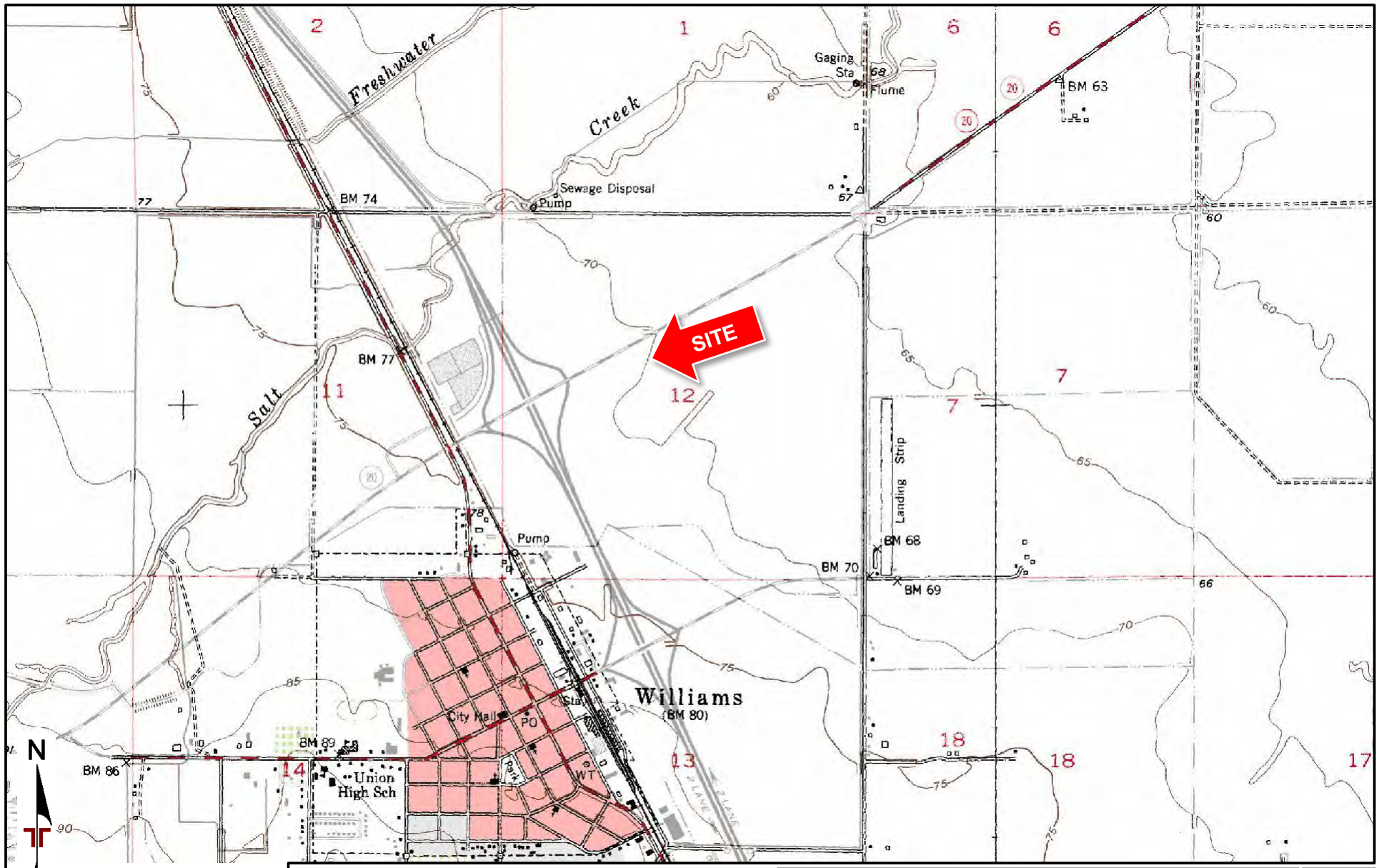
Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the borings performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

APPENDIX A
FIELD EXPLORATION



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY QUADRANGLES INCLUDE: WILLIAMS, CA (1/1/1994) and COLUSA, CA (1/1/1991).

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	GL
Drawn by:	NN
Checked by:	GL
Approved by:	GL

Project No.	NB155021
Scale:	1"=24,000 SF
File Name:	Exhibit 1
Date:	June 2015

Terracon

50 Goldenland Ct. Ste. 100

Sacramento, CA 95834

SITE LOCATION

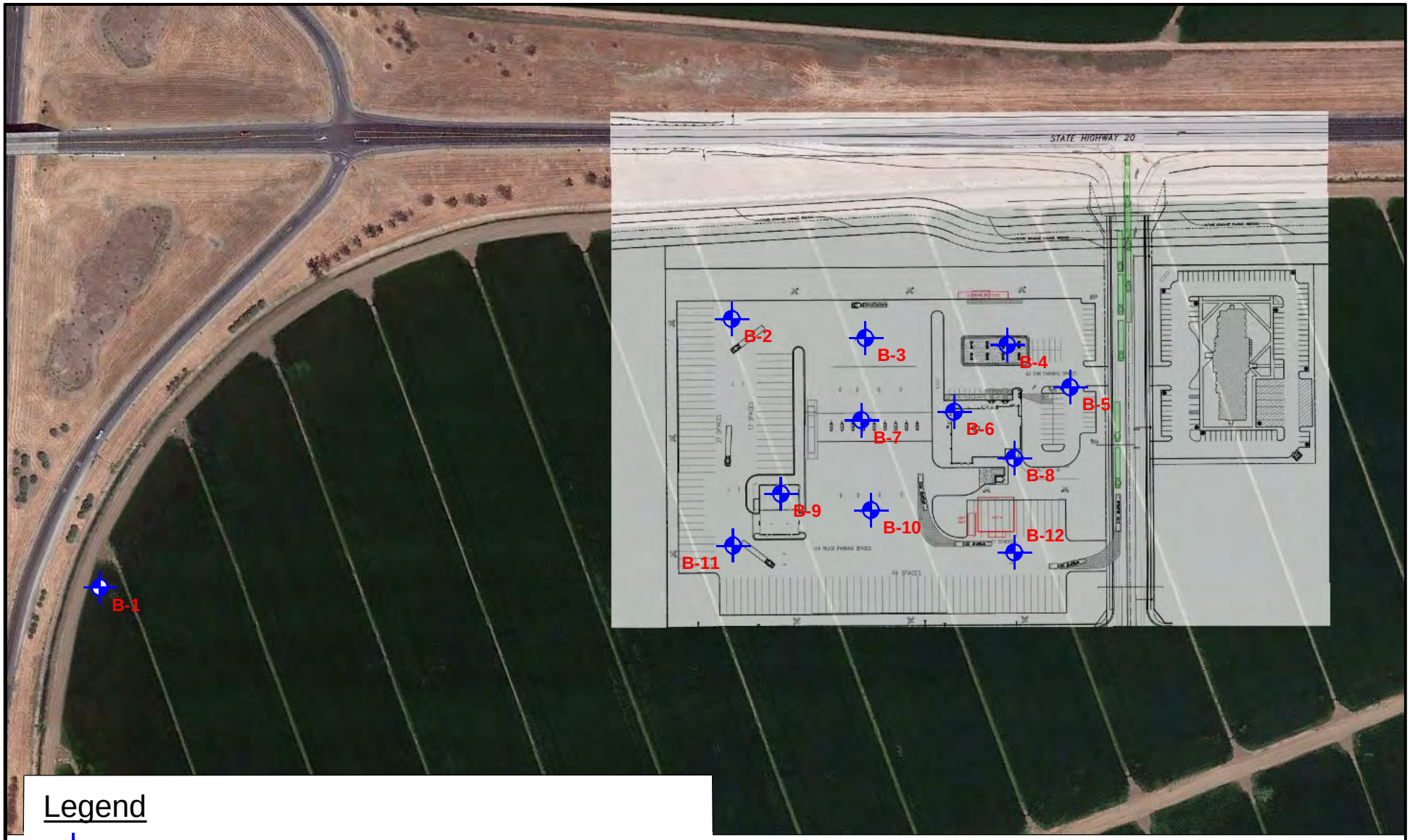
Love's - Williams, Ca

State Highway 20, 1/4 Mile East of I-5

Williams, CA

Exhibit

A-1



Legend

B-1 Approximate Location of Borings

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

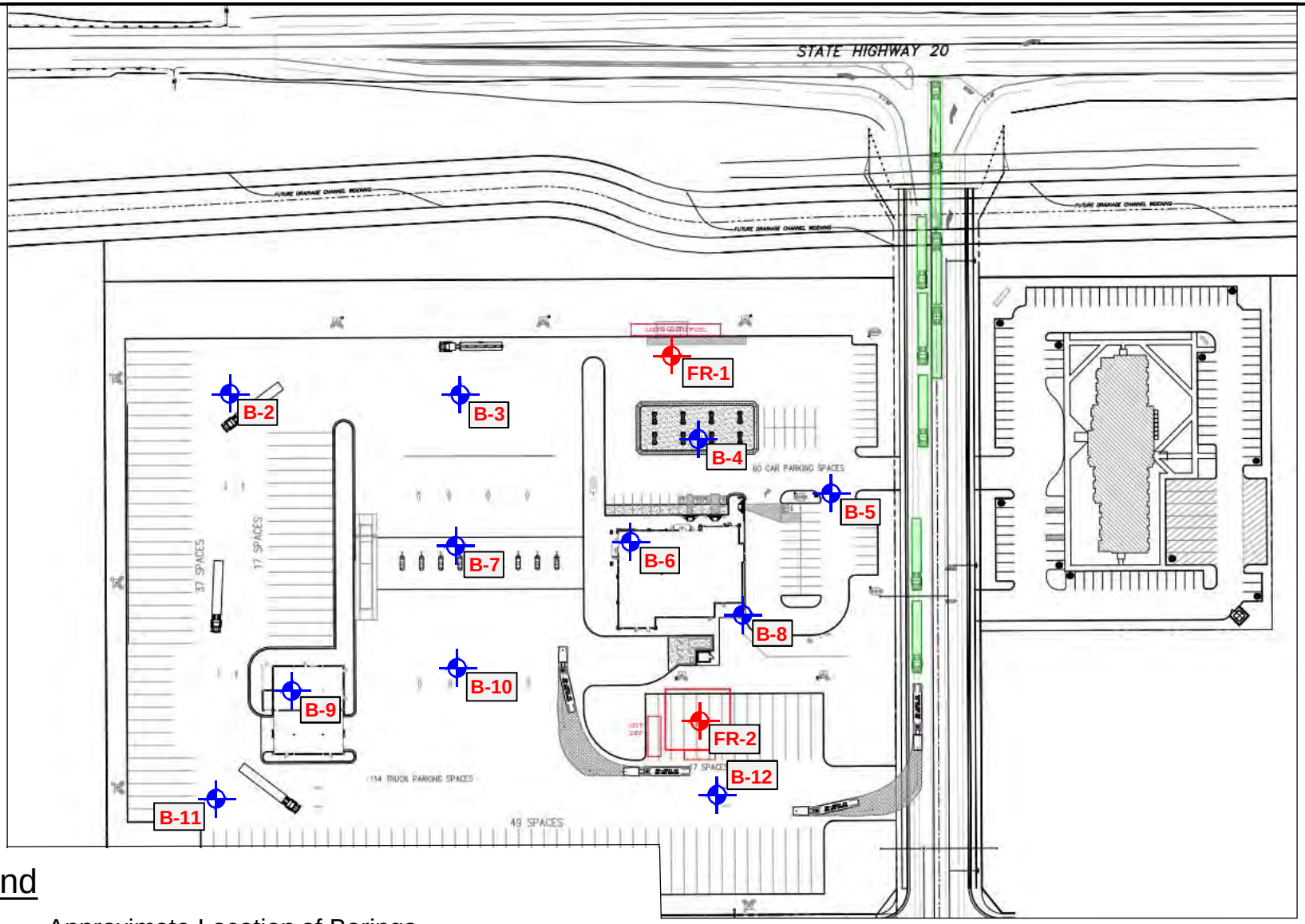
Project Manager: GL	Project No. NB15021
Drawn by: NN	Scale: N.T.S.
Checked by: GL	File Name: Exhibit 1
Approved by: GL	Date: June 2015

Terracon
50 Goldenland Court, Ste. 100.
Sacramento, CA 95834

BORING LOCATION DIAGRAM

Proposed Love's Travel Stop & Hotel
Southeast Quadrant I-5 and CA State Hwy 20
Williams, CA

Exhibit
A-2a



Legend

B-1 Approximate Location of Borings

FR-2 Approximate Location Field Resistivity Testing

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: GL	Project No. NB15021
Drawn by: NN	Scale: N.T.S.
Checked by: GL	File Name: Exhibit 1
Approved by: GL	Date: June 2015

Terracon
50 Goldenland Court, Ste. 100.
Sacramento, CA 95834

BORING LOCATION DIAGRAM

Proposed Love's Travel Stop & Hotel
Southeast Quadrant I-5 and CA State Hwy 20
Williams, CA

Exhibit
A-2b

Field Exploration Description

Our field exploration for this project included performing twelve (12) test borings on March 27, 2015. The approximate exploration locations are shown on Boring Location Plan, Exhibit A-2. Exploration locations were located in the field by measuring from the existing site features shown on an aerial photo. The exploration locations should only be considered accurate to the degree implied by the means and methods used.

The test borings were advanced with a truck-mounted CME-75 drill rig which utilized 8-inch outside diameter (O.D.) hollow-stem augers. A continuous log of the borings was recorded by the field geologist during the drilling operation. At selected intervals, samples of the subsurface materials were taken by driving variable sizes of split-spoon samplers. These logs included visual classifications of the materials encountered during drilling as well as the field geologist's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the geologist's interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

Samples of the soil encountered in the borings were obtained using the split barrel sampling procedures described below. The samples were stored in moisture tight containers, labelled, and transported to our laboratory for further visual classification and testing. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with cement grout prior to the drill crew leaving the site.

Penetration resistance measurements were obtained by driving the split-spoon and Modified California sampler into the subsurface materials with a 140-pound down-hole hammer falling 30 inches. This test is referred to as the standard penetration test (SPT) and displayed on the logs as an "N" value when the standard 2-inch outer diameter sampler is used. The penetration resistance value is a useful index in estimating the consistency or relative density of materials encountered.

A CME automatic SPT hammer was used to advance the split-barrel sampler in the borings performed on this site. A significantly greater efficiency is achieved with the automatic hammer compared to the conventional safety hammer operated with a cathead and rope. This higher efficiency has an appreciable effect on the SPT-N value. The effect of the automatic hammer's efficiency has been considered in the interpretation and analysis of the subsurface information for this report.

BORING LOG NO. B-01

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1649° Longitude: -122.1477°

DEPTH		FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY (CL), trace sand, fine grained, medium plasticity, brown to light brown, medium stiff								
		3-3-5	<1.0	1.25 (HP)		26	90		91
5									
	light brown	3-6-7	<1.0	1.75 (HP)		22	101		
10									
12.5	**SANDY LEAN CLAY (CL)**, fine grained, medium plasticity, light brown, medium stiff	2-3-4	<1.0	0.5 (HP)		22	102	40-16-24	70
15									
18.5	**FAT CLAY (CH)**, high plasticity, light brown, stiff	4-6-9	<1.0	2.75 (HP)		24	96	68-20-48	93
20									
		4-6-11	<1.0	3.75 (HP)		26	96		93
25									

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015

Drill Rig: CME-75 | Driller: R. Anderson

Project No.: NB155021 | Exhibit: A-4

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-01

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1649° Longitude: -122.1477°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FAT CLAY (CH), high plasticity, light brown, stiff *(continued)*											
28.0	**POORLY GRADED SAND WITH CLAY (SP-SC)**, fine grained, light brown, medium dense											
					1-11-8	<1.0			20	98		7
		30										
		35										
38.0	**LEAN CLAY (CL)**, trace sand, fine grained, medium plasticity, light brown, stiff											
					5-7-10	<1.0	1.75 (HP)		21	100	39-17-22	89
		40										
		45										
50.0					5-7-8	<1.0	2.25 (HP)		23	101		
	Boring Terminated at 50 Feet	50										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015

Drill Rig: CME-75 | Driller: R. Anderson

Project No.: NB155021 | Exhibit: A-4

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-02

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1676° Longitude: -122.1451°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown											
	5.0	5										
	Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015
Drill Rig: CME-75 | Driller: R. Anderson
Project No.: NB155021 | Exhibit: A-5

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-03

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1679° Longitude: -122.1443°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown, soft to medium stiff											
					2-3-3	<1.0	1 (HP)		18	98	36-15-21	72
		5										
7.0	**SANDY LEAN CLAY (CL)**, fine grained, medium plasticity, light brown, stiff				3-5-7	<1.0	2.25 (HP)		20	101		56
		10										
12.5	**CLAYEY SAND (SC)**, fine grained, light brown, very loose				WOH	<1.0						15
		15										
17.0	**LEAN CLAY (CL)**, trace sand, fine grained, medium plasticity, light brown, stiff				3-5-7	<1.0	1.75 (HP)		21	90		91
20.0	***Boring Terminated at 20 Feet***	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015	Boring Completed: 3/27/2015
Drill Rig: CME-75	Driller: R. Anderson
Project No.: NB155021	Exhibit: A-6

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-04

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 37.1681° Longitude: -122.1435°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	SANDY LEAN CLAY (CL), fine grained, medium plasticity, brown to light brown, medium stiff											
					3-3-4	<1.0	0.75 (HP)		27	86		
			▽									
		5			3-4-6	<1.0	0.75 (HP)		20	104	29-12-17	56
10.0												
	POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, light brown, very loose	10	▽		1-1-2	<1.0			16	109		9
13.0												
	CLAYEY SAND (SC), fine grained, light brown, loose											
16.0		15			2-3-6	<1.0			27	95		45
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, light brown, stiff											
21.5		20			3-6-7	<1.0	1.5 (HP)		31	90		
	Boring Terminated at 21.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While drilling*

▽ *At completion of drilling*

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015

Drill Rig: CME-75 | Driller: R. Anderson

Project No.: NB155021 | Exhibit: A-7

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-05

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1681° Longitude: -122.143°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown											
	5.0	5										
	Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015	Boring Completed: 3/27/2015
Drill Rig: CME-75	Driller: R. Anderson
Project No.: NB155021	Exhibit: A-8

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-06

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1678° Longitude: -122.1436°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown to light brown, medium stiff											
					3-4-6	<1.0						
		5										
	light brown, stiff				5-7-8	<1.0	2.75 (HP)		19	104	39-17-22	79
		10										
	12.5 **LEAN CLAY (CL)**, medium plasticity, light brown, stiff				2-5-8	<1.0	3.25 (HP)		29	95		97
		15										
	20.0				4-6-8	<1.0	2.25 (HP)		26	89		
	Boring Terminated at 20 Feet	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015	Boring Completed: 3/27/2015
Drill Rig: CME-75	Driller: R. Anderson
Project No.: NB155021	Exhibit: A-9

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-07

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1675° Longitude: -122.1441°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown to light brown, soft											
					2-2-3	<1.0	0.75 (HP)					
		5										
7.5	**SANDY SILTY CLAY (CL-ML)**, fine grained, low plasticity, light brown, stiff				7-8-9	<1.0			21	106		65
		10										
	soft to medium stiff				2-3-3	<1.0			26	97	28-21-7	73
		15										
17.0	**LEAN CLAY WITH SAND (CL)**, fine grained, medium plasticity, light brown, stiff											
					6-8-10	<1.0	4.0 (HP)		22	102		83
20.0	***Boring Terminated at 20 Feet***	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015	Boring Completed: 3/27/2015
Drill Rig: CME-75	Driller: R. Anderson
Project No.: NB155021	Exhibit: A-10

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-08

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1677° Longitude: -122.1431°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	FAT CLAY WITH SAND (CH), fine grained, high plasticity, brown to light brown, medium stiff											
					3-4-5	<1.0						
			▽									
	stiff	5			8-8-8	<1.0	2.0 (HP)		23	94	55-18-37	85
	10.0		▽									
	SANDY LEAN CLAY (CL), fine grained, medium plasticity, light brown, medium stiff	10			2-4-5	<1.0	1.5 (HP)		22	93		70
	soft	15			2-2-3	<1.0	0.25 (HP)		27	91		
	18.0											
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, light brown, medium stiff to stiff	20			3-4-7	<1.0	1.25 (HP)		23	99		77
	21.5											
	Boring Terminated at 21.5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

▽ *While sampling*

▽ *At completion of drilling*

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015

Drill Rig: CME-75 | Driller: R. Anderson

Project No.: NB155021 | Exhibit: A-11

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-09

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1669° Longitude: -122.1443°

DEPTH	Description	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY (CL), medium plasticity, brown to light brown, medium stiff											
					3-4-4	<1.0	1.25 (HP)		20	87		
		5										
7.0	**SANDY LEAN CLAY (CL)**, fine grained, medium plasticity, light brown, soft											
					6-9-13	<1.0	1.0 (HP)		23	104		
		10										
12.5	**LEAN CLAY (CL)**, medium plasticity, light brown, soft											
					2-2-3	<1.0	.25 (HP)		25	92		
		15										
17.0	**CLAYEY SAND (SC)**, fine grained, light brown, very loose											
					1-1-1	<1.0			24	97		
20.0	***Boring Terminated at 20 Feet***	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

While drilling

At completion of drilling

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015

Drill Rig: CME-75 | Driller: R. Anderson

Project No.: NB155021 | Exhibit: A-12

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-10

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1671° Longitude: -122.1437°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY (CL), medium plasticity, brown to light brown											
	5.0	5										
	Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015
Drill Rig: CME-75 | Driller: R. Anderson
Project No.: NB155021 | Exhibit: A-13

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-11

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1666° Longitude: -122.1444°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY WITH SAND (CL), fine grained, medium plasticity, brown											
	5.0	5										
	Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015
Drill Rig: CME-75 | Driller: R. Anderson
Project No.: NB155021 | Exhibit: A-14

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

BORING LOG NO. B-12

PROJECT: Proposed Love's Travel Stop and Hotel

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

SITE: Southeast Quardant I-5 and California State HWY 20, Williams, CA

LOCATION See Exhibit A-2

Latitude: 39.1672° Longitude: -122.1428°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	PID	LABORATORY TORVANE/HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
	LEAN CLAY (CL), medium plasticity, brown to light brown											
	5.0	5										
	Boring Terminated at 5 Feet											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic SPT Hammer

Advancement Method:
8 inch hollow stem auger

Abandonment Method:
Borings backfilled with neat cement grout upon completion

See Exhibit A-3 for description of field procedures.
See Appendix B for description of laboratory procedures and additional data (if any).
See Appendix C for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

Boring Started: 3/27/2015 | Boring Completed: 3/27/2015
Drill Rig: CME-75 | Driller: R. Anderson
Project No.: NB155021 | Exhibit: A-15

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL NB155021 LOGS.GPJ TERRACON2012.GDT 6/18/15

APPENDIX B
SUPPORTING INFORMATION

Laboratory Testing

Samples retrieved during the field exploration were taken to the laboratory for further observation by the project geotechnical engineer and were classified in accordance with the Unified Soil Classification System (USCS) described in Appendix C. At that time, the field descriptions were confirmed or modified as necessary and an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials.

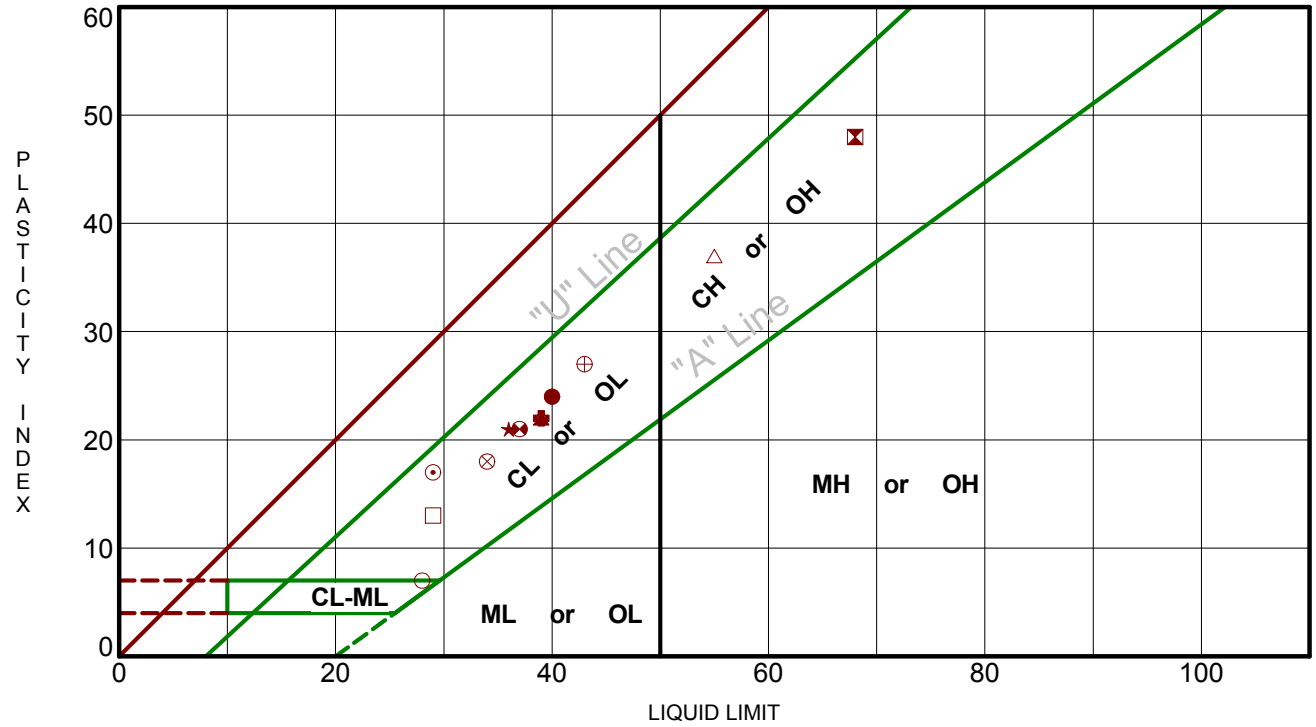
Laboratory tests were conducted on selected soil samples and the test results are presented on the logs of the borings, in the body of the report, and/or in the following Exhibits. The laboratory test results were used for the geotechnical engineering analyses, and the development of engineering, earthwork, and construction recommendations. Laboratory tests were performed in general accordance with the applicable ASTM, local, or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

- In-situ Water Content
- Unit Weight
- Unconfined Compression
- R-Value
- BTEX, MTBE, TPH-Gas, and DRO
- Consolidation
- Percent Passing the No. 200 Sieve
- Atterberg Limits
- Corrosivity tests (sulfate, chloride, resistivity and pH)
- Chemical Resistivity

ATTERBERG LIMITS RESULTS

ASTM D4318



	Boring ID	Depth (Ft)	LL	PL	PI	Fines	USCS	Description
●	B-01	12.5	40	16	24	70	CL	SANDY LEAN CLAY
⊠	B-01	18.5	68	20	48	93	CH	FAT CLAY
▲	B-01	38.5	39	17	22	89	CL	LEAN CLAY
★	B-03	1.0	36	15	21	72	CL	LEAN CLAY with SAND
⊙	B-04	5.0	29	12	17	56	CL	SANDY LEAN CLAY
✿	B-06	7.5	39	17	22	79	CL	LEAN CLAY with SAND
○	B-07	12.5	28	21	7	73	CL-ML	SILTY CLAY with SAND
△	B-08	5.0	55	18	37	85	CH	FAT CLAY with SAND
⊗								
⊕								
□								
⊠								

PROJECT: Proposed Love's Travel Stop and Hotel

SITE: Southeast Quardant I-5 and California State HWY 20
Williams, CA

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

PROJECT NUMBER: NB155021

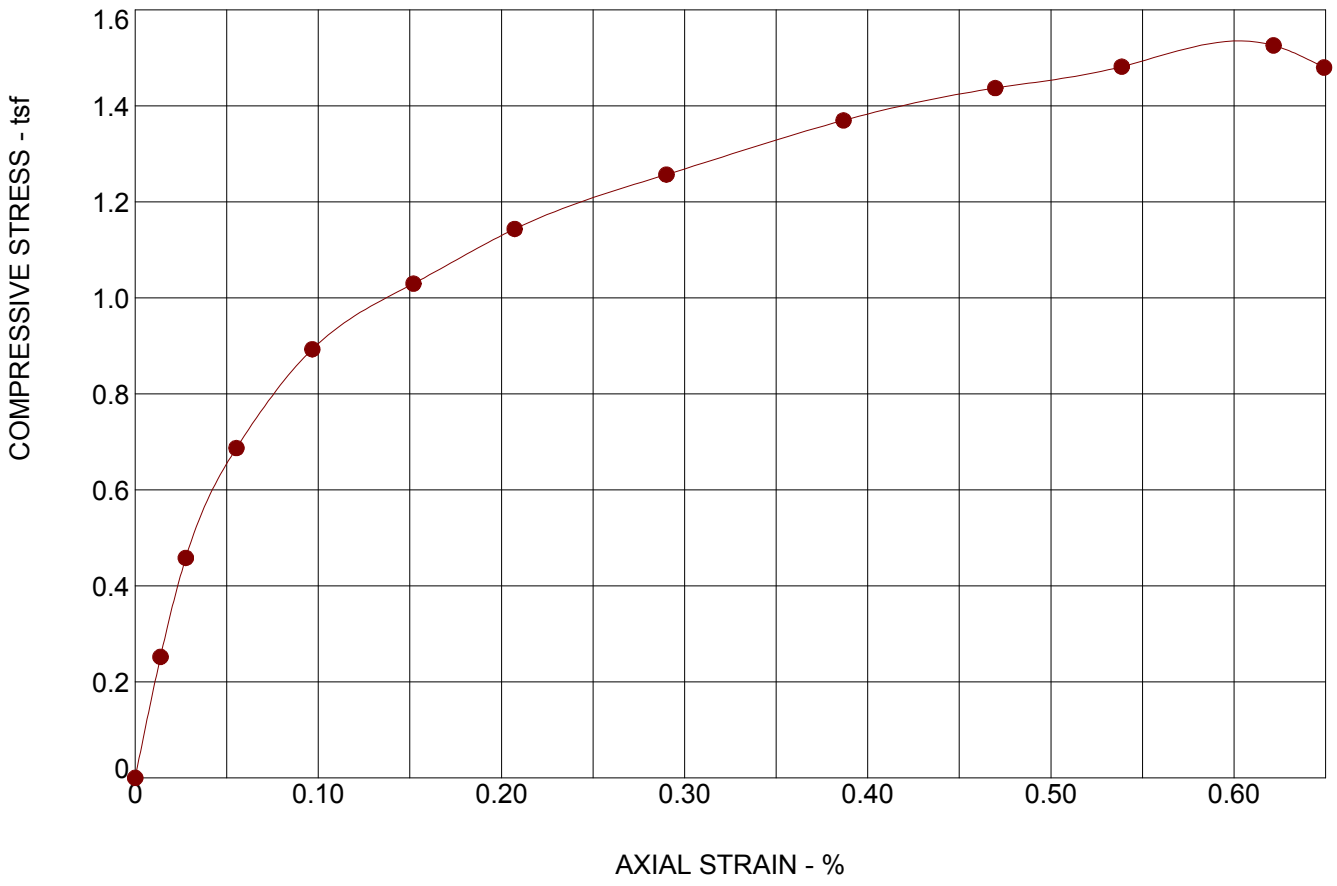
CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

EXHIBIT: B-2

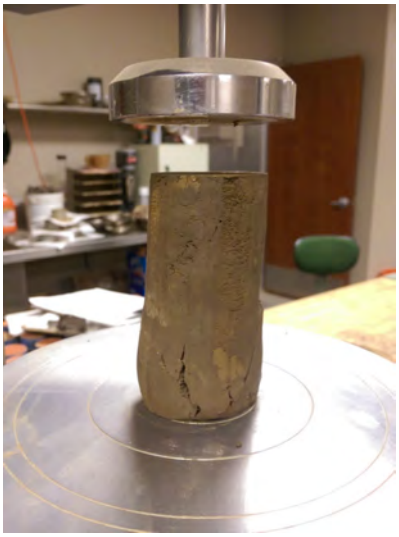
LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS NB155021 LOGS.GPJ TERRACON2012.GDT 4/23/15

UNCONFINED COMPRESSION TEST

ASTM D2166



SPECIMEN FAILURE PHOTOGRAPH



SPECIMEN TEST DATA

Moisture Content:	%	20
Dry Density:	pcf	104
Diameter:	in.	2.00
Height:	in.	5.70
Height / Diameter Ratio:		2.85
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	0.62
Unconfined Compressive Strength	(tsf)	1.53
Undrained Shear Strength:	(tsf)	0.76
Strain Rate:	in/min	
Remarks:		

SAMPLE TYPE: CA RING

SAMPLE LOCATION: B-14 @ 11.0

SAMPLE DESCRIPTION:

LL	PL	PI	Percent < #200 Sieve

PROJECT: Proposed Love's Travel Stop and Hotel

SITE: Southeast Quardant I-5 and California State HWY 20
Williams, CA

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

PROJECT NUMBER: NB155021

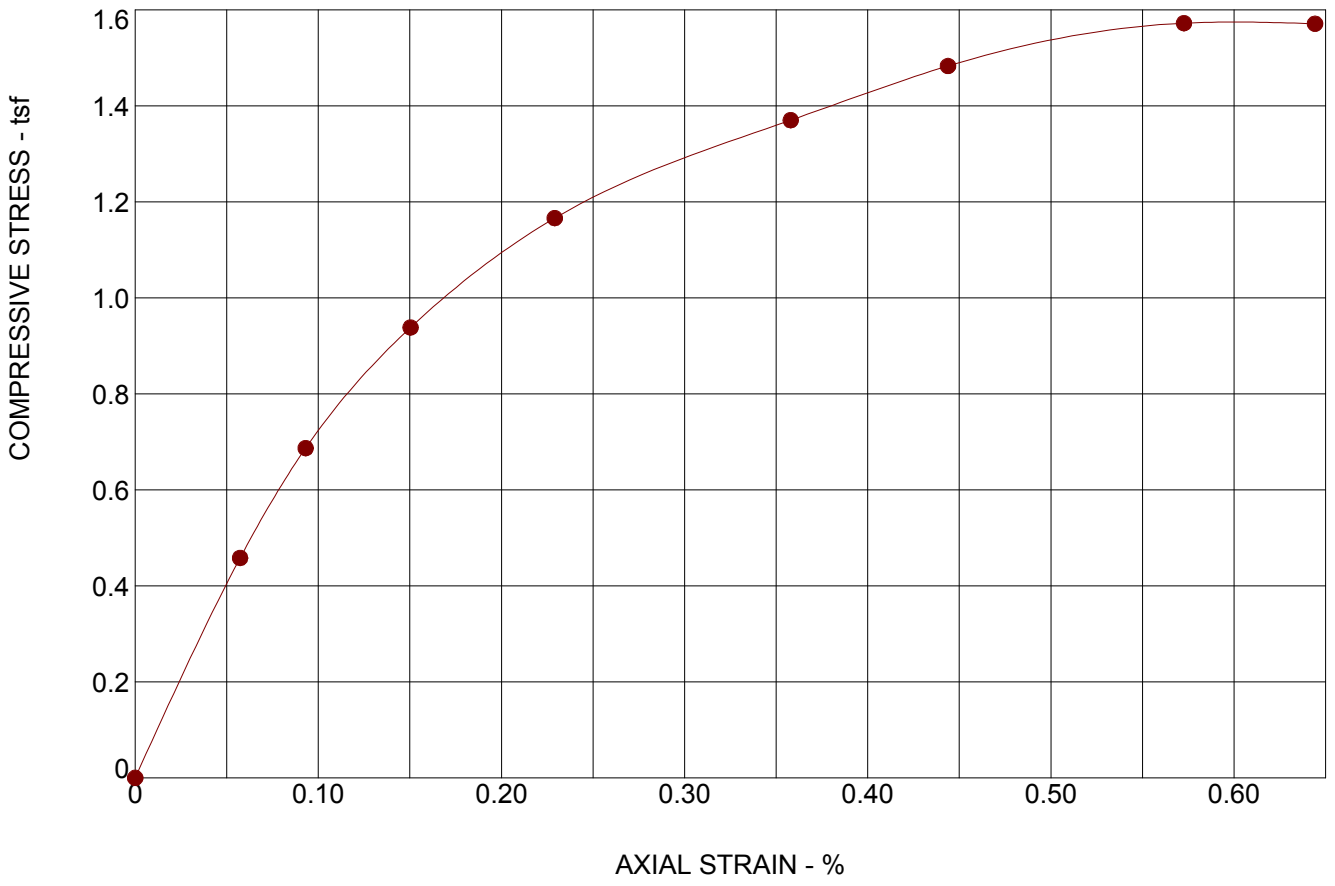
CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS NB155021 LOGS.GPJ TERRACON2012.GDT 4/22/15

UNCONFINED COMPRESSION TEST

ASTM D2166



SPECIMEN FAILURE PHOTOGRAPH

SPECIMEN TEST DATA

Moisture Content:	%	23
Dry Density:	pcf	104
Diameter:	in.	2.00
Height:	in.	5.50
Height / Diameter Ratio:		2.75
Calculated Saturation:	%	
Calculated Void Ratio:		
Assumed Specific Gravity:		
Failure Strain:	%	0.57
Unconfined Compressive Strength	(tsf)	1.57
Undrained Shear Strength:	(tsf)	0.79
Strain Rate:	in/min	
Remarks:		

SAMPLE TYPE: CA RING

SAMPLE LOCATION: B-09 @ 7.57.5

SAMPLE DESCRIPTION:

LL	PL	PI	Percent < #200 Sieve

PROJECT: Proposed Love's Travel Stop and Hotel

SITE: Southeast Quardant I-5 and California State HWY 20
Williams, CA

Terracon
50 Goldenland Ct., Ste. 100
Sacramento, California

PROJECT NUMBER: NB155021

CLIENT: Love's Travel Stop & Country Stores
Oklahoma City, OK

EXHIBIT: B-4

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. UNCONFINED WITH PHOTOS NB155021 LOGS.GPJ TERRACON2012.GDT 4/21/15

ELECTRICAL RESISTIVITY TEST RESULTS

Project Name: Love's Travel Stop and Hotel
Project Number: NB155021

R-1

North-South Orientation			
"a" Spacing	Ohms	Ohm Feet	Ohm Centimeters
5	0.31	9.7	296.7
10	0.17	10.7	325.4
15	0.10	9.4	287.1
20	0.06	7.5	229.7
30	0.02	3.8	114.8
40	0.01	2.5	76.6

East-West Orientation			
"a" Spacing	Ohms	Ohm Feet	Ohm Centimeters
5	0.37	11.6	354.1
10	0.19	11.9	363.7
15	0.11	10.4	315.8
20	0.08	10.0	306.3
30	0.03	5.7	172.3
40	0.02	5.0	153.1

R-2

North-South Orientation			
"a" Spacing	Ohms	Ohm Feet	Ohm Centimeters
5	0.12	3.8	114.8
10	0.07	4.4	134.0
15	0.05	4.7	143.6
20	0.04	5.0	153.1
30	0.02	3.8	114.8
40	0.01	2.5	76.6

East-West Orientation			
"a" Spacing	Ohms	Ohm Feet	Ohm Centimeters
5	0.14	4.4	134.0
10	0.08	5.0	153.1
15	0.05	4.7	143.6
20	0.03	3.8	114.8
30	0.01	1.9	57.4
40	0.01	2.5	76.6

CHEMICAL LABORATORY TEST REPORT

Project Number: NB155021
Service Date: 04/07/15
Report Date: 04/07/15
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Project

Love's Truck Stop
Williams, CA

Sample Submitted By: Terracon (NB) **Date Received:** 4/6/2015 Lab No.: 15-0221

Results of Resistivity Analysis

Sample Number		
Sample Location	B9-1-I	B13-1-I
Sample Depth (ft.)	1.0	1.0
pH Value, AWWA 4500 H	9.23	9.44
Water Soluble Sulfate (SO4), AWWA 4500 E (mg/kg)	660	440
Chlorides, AWWA 4500 Cl B, (mg/kg)	75	63
Resistivity, ASTM G-57, (ohm-cm)	621	1261

Analyzed By: Kurt D. Ergun

Kurt D. Ergun
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Exhibit B-6

Pace Analytical Services, Inc.
2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

April 14, 2015

Nick Novotny
Terracon
50 Goldenland Court
Suite 100
Sacramento, CA 95834

RE: Project: Love's Truck Stop
Pace Project No.: 1245001

Dear Nick Novotny:
Enclosed are the analytical results for sample(s) received by the laboratory on March 27, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Troy G Turpen
troy.turpen@pacelabs.com
Project Manager

Enclosures

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(530) 297-4800

CERTIFICATIONS

Project:	Love's Truck Stop
Pace Project No.:	1245001

Davis Cerification IDs
2795 Second Street Suite 300 Davis, CA 95618
North Dakota Certification #: R-214
Oregon Certification #: CA300002
Washington Certification #: C926-14a
California Certification #: 08263CA

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SAMPLE SUMMARY

Project: Love's Truck Stop
Pace Project No.: 1245001

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1245001001	**B1**	Water	03/27/15 16:45	03/27/15 19:00
1245001002	**B6**	Water	03/27/15 17:20	03/27/15 19:00
1245001003	**B7**	Water	03/27/15 17:05	03/27/15 19:00
1245001004	**B8**	Water	03/27/15 09:20	03/27/15 19:00
1245001005	**B9**	Water	03/27/15 16:51	03/27/15 19:00
1245001006	**B4**	Water	03/27/15 09:30	03/27/15 19:00
1245001007	**B5**	Water	03/27/15 17:13	03/27/15 19:00

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SAMPLE ANALYTE COUNT

Project: Love's Truck Stop
Pace Project No.: 1245001

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1245001001	**B1**	EPA 8015B	DRM	2	PASI-DAV
		EPA 8260B	JMB	9	PASI-DAV
1245001002	**B6**	EPA 8015B	DRM	2	PASI-DAV
		EPA 8260B	JMB	10	PASI-DAV
1245001003	**B7**	EPA 8015B	DRM	2	PASI-DAV
		EPA 8260B	JMB	10	PASI-DAV
1245001004	**B8**	EPA 8015B	DRM	2	PASI-DAV
1245001005	**B9**	EPA 8015B	DRM	2	PASI-DAV
		EPA 8260B	JMB	10	PASI-DAV
1245001006	**B4**	EPA 8015B	DRM	2	PASI-DAV
1245001007	**B5**	EPA 8015B	DRM	2	PASI-DAV
		EPA 8260B	JMB	10	PASI-DAV

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ANALYTICAL RESULTS

Project: Love's Truck Stop
Pace Project No.: 1245001

Sample: B1 **Lab ID: 1245001001** Collected: 03/27/15 16:45 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B	Preparation Method: EPA 3510						
TPH-DRO (C10-C28)	**0.41**	mg/L	0.048	1	04/09/15 11:39	04/12/15 21:25		
Surrogates								
n-Octacosane (S)	135	%.	70-130	1	04/09/15 11:39	04/12/15 21:25	630-02-4	S5
8260 MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		04/10/15 00:41	71-43-2	
Ethylbenzene	ND	ug/L	0.50	1		04/10/15 00:41	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		04/10/15 00:41	1634-04-4	
Toluene	ND	ug/L	0.50	1		04/10/15 00:41	108-88-3	
TPH as Gas	**76.3**	ug/L	50.0	1		04/10/15 00:41		
Xylene (Total)	ND	ug/L	1.0	1		04/10/15 00:41	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%.	70-130	1		04/10/15 00:41	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		04/10/15 00:41	2037-26-5	
4-Bromofluorobenzene (S)	87	%.	70-130	1		04/10/15 00:41	460-00-4	

Sample: B6 **Lab ID: 1245001002** Collected: 03/27/15 17:20 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B	Preparation Method: EPA 3510						
TPH-DRO (C10-C28)	**4.5**	mg/L	0.049	1	04/09/15 11:39	04/12/15 22:00		
Surrogates								
n-Octacosane (S)	107	%.	70-130	1	04/09/15 11:39	04/12/15 22:00	630-02-4	
8260 MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		04/10/15 01:06	71-43-2	
tert-Butyl Alcohol	ND	ug/L	5.0	1		04/10/15 01:06	75-65-0	
Ethylbenzene	ND	ug/L	0.50	1		04/10/15 01:06	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		04/10/15 01:06	1634-04-4	
Toluene	ND	ug/L	0.50	1		04/10/15 01:06	108-88-3	
TPH as Gas	**52.8**	ug/L	50.0	1		04/10/15 01:06		
Xylene (Total)	ND	ug/L	1.0	1		04/10/15 01:06	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%.	70-130	1		04/10/15 01:06	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		04/10/15 01:06	2037-26-5	
4-Bromofluorobenzene (S)	87	%.	70-130	1		04/10/15 01:06	460-00-4	

Sample: B7 **Lab ID: 1245001003** Collected: 03/27/15 17:05 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B	Preparation Method: EPA 3510						
TPH-DRO (C10-C28)	**3.9**	mg/L	0.50	10	04/09/15 11:39	04/12/15 22:35		

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ANALYTICAL RESULTS

Project: Love's Truck Stop
Pace Project No.: 1245001

Sample: B7 **Lab ID: 1245001003** Collected: 03/27/15 17:05 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B		Preparation Method: EPA 3510					
Surrogates								
n-Octacosane (S)	127	%.	70-130	10	04/09/15 11:39	04/12/15 22:35	630-02-4	
8260 MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		04/10/15 01:31	71-43-2	
tert-Butyl Alcohol	ND	ug/L	5.0	1		04/10/15 01:31	75-65-0	
Ethylbenzene	ND	ug/L	0.50	1		04/10/15 01:31	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		04/10/15 01:31	1634-04-4	
Toluene	ND	ug/L	0.50	1		04/10/15 01:31	108-88-3	
TPH as Gas	**257**	ug/L	50.0	1		04/10/15 01:31		
Xylene (Total)	ND	ug/L	1.0	1		04/10/15 01:31	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%.	70-130	1		04/10/15 01:31	17060-07-0	
Toluene-d8 (S)	99	%.	70-130	1		04/10/15 01:31	2037-26-5	
4-Bromofluorobenzene (S)	85	%.	70-130	1		04/10/15 01:31	460-00-4	

Sample: B8 **Lab ID: 1245001004** Collected: 03/27/15 09:20 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B		Preparation Method: EPA 3510					
TPH-DRO (C10-C28)	**0.99**	mg/L	0.049	1	04/09/15 11:39	04/12/15 23:10		
Surrogates								
n-Octacosane (S)	118	%.	70-130	1	04/09/15 11:39	04/12/15 23:10	630-02-4	1V

Sample: B9 **Lab ID: 1245001005** Collected: 03/27/15 16:51 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B		Preparation Method: EPA 3510					
TPH-DRO (C10-C28)	**5.1**	mg/L	0.47	10	04/09/15 11:39	04/12/15 23:45		
Surrogates								
n-Octacosane (S)	118	%.	70-130	10	04/09/15 11:39	04/12/15 23:45	630-02-4	
8260 MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		04/10/15 02:45	71-43-2	
tert-Butyl Alcohol	ND	ug/L	5.0	1		04/10/15 02:45	75-65-0	
Ethylbenzene	ND	ug/L	0.50	1		04/10/15 02:45	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		04/10/15 02:45	1634-04-4	
Toluene	ND	ug/L	0.50	1		04/10/15 02:45	108-88-3	
TPH as Gas	**77.7**	ug/L	50.0	1		04/10/15 02:45		
Xylene (Total)	ND	ug/L	1.0	1		04/10/15 02:45	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	70-130	1		04/10/15 02:45	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		04/10/15 02:45	2037-26-5	

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ANALYTICAL RESULTS

Project: Love's Truck Stop
Pace Project No.: 1245001

Sample: B9 **Lab ID: 1245001005** Collected: 03/27/15 16:51 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV UST	Analytical Method: EPA 8260B							
Surrogates								
4-Bromofluorobenzene (S)	87	%.	70-130	1		04/10/15 02:45	460-00-4	

Sample: B4 **Lab ID: 1245001006** Collected: 03/27/15 09:30 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B	Preparation Method: EPA 3510						
TPH-DRO (C10-C28)	**1.9**	mg/L	0.048	1	04/09/15 11:39	04/13/15 00:20		
Surrogates								
n-Octacosane (S)	153	%.	70-130	1	04/09/15 11:39	04/13/15 00:20	630-02-4	1V,S5

Sample: B5 **Lab ID: 1245001007** Collected: 03/27/15 17:13 Received: 03/27/15 19:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015B	Preparation Method: EPA 3510						
TPH-DRO (C10-C28)	**12.1**	mg/L	0.047	1	04/09/15 11:39	04/13/15 00:55		
Surrogates								
n-Octacosane (S)	107	%.	70-130	1	04/09/15 11:39	04/13/15 00:55	630-02-4	1V
8260 MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	0.50	1		04/10/15 03:10	71-43-2	
tert-Butyl Alcohol	ND	ug/L	5.0	1		04/10/15 03:10	75-65-0	
Ethylbenzene	ND	ug/L	0.50	1		04/10/15 03:10	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		04/10/15 03:10	1634-04-4	
Toluene	ND	ug/L	0.50	1		04/10/15 03:10	108-88-3	
TPH as Gas	**141**	ug/L	50.0	1		04/10/15 03:10		
Xylene (Total)	ND	ug/L	1.0	1		04/10/15 03:10	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	70-130	1		04/10/15 03:10	17060-07-0	
Toluene-d8 (S)	100	%.	70-130	1		04/10/15 03:10	2037-26-5	
4-Bromofluorobenzene (S)	88	%.	70-130	1		04/10/15 03:10	460-00-4	

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QUALITY CONTROL DATA

Project: Love's Truck Stop
Pace Project No.: 1245001

QC Batch: DAOP/1049 Analysis Method: EPA 8015B
QC Batch Method: EPA 3510 Analysis Description: 8015 GCS
Associated Lab Samples: 1245001001, 1245001002, 1245001003, 1245001004, 1245001005, 1245001006, 1245001007

METHOD BLANK: 198955 Matrix: Water
Associated Lab Samples: 1245001001, 1245001002, 1245001003, 1245001004, 1245001005, 1245001006, 1245001007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH-DRO (C10-C28)	mg/L	ND	0.050	04/12/15 20:34	
n-Octacosane (S)	%.	123	70-130	04/12/15 20:34	

LABORATORY CONTROL SAMPLE: 198956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
TPH-DRO (C10-C28)	mg/L	1	1.0	102	70-130	
n-Octacosane (S)	%.			108	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 198989 198990

Parameter	Units	1245135007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH-DRO (C10-C28)	mg/L	0.81	1	.98	1.9	1.8	113	99	70-130	8	25	
n-Octacosane (S)	%.						124	120	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Love's Truck Stop
Pace Project No.: 1245001

QC Batch: DAVM/1144 | Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B | Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 1245001001, 1245001002, 1245001003, 1245001005, 1245001007

METHOD BLANK: 199073 | Matrix: Water
Associated Lab Samples: 1245001001, 1245001002, 1245001003, 1245001005, 1245001007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	0.50	04/09/15 21:20	
Ethylbenzene	ug/L	ND	0.50	04/09/15 21:20	
Methyl-tert-butyl ether	ug/L	ND	0.50	04/09/15 21:20	
tert-Butyl Alcohol	ug/L	ND	5.0	04/09/15 21:20	
Toluene	ug/L	ND	0.50	04/09/15 21:20	
TPH as Gas	ug/L	ND	50.0	04/09/15 21:20	
Xylene (Total)	ug/L	ND	1.0	04/09/15 21:20	
1,2-Dichloroethane-d4 (S)	%.	97	70-130	04/09/15 21:20	
4-Bromofluorobenzene (S)	%.	89	70-130	04/09/15 21:20	
Toluene-d8 (S)	%.	99	70-130	04/09/15 21:20	

LABORATORY CONTROL SAMPLE: 199074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	40	43.5	109	70-130	
Ethylbenzene	ug/L	40	41.2	103	70-130	
Methyl-tert-butyl ether	ug/L	40	46.4	116	70-130	
tert-Butyl Alcohol	ug/L	400	417	104	70-130	
Toluene	ug/L	40	42.3	106	70-130	
Xylene (Total)	ug/L	120	120	100	70-130	
1,2-Dichloroethane-d4 (S)	%.			95	70-130	
4-Bromofluorobenzene (S)	%.			87	70-130	
Toluene-d8 (S)	%.			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 199075 199076

Parameter	Units	1245058003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	0.76	40	40	41.8	42.7	103	105	70-130	2	25	
Ethylbenzene	ug/L	ND	40	40	39.2	40.0	98	100	70-130	2	25	
Methyl-tert-butyl ether	ug/L	2.8	40	40	43.9	44.3	103	104	70-130	1	25	
tert-Butyl Alcohol	ug/L	282	400	400	664	692	96	102	70-130	4	25	
Toluene	ug/L	ND	40	40	39.9	40.2	100	100	70-130	1	25	
Xylene (Total)	ug/L	ND	120	120	113	116	94	97	70-130	3	25	
1,2-Dichloroethane-d4 (S)	%.						97	97	70-130			
4-Bromofluorobenzene (S)	%.						89	91	70-130			
Toluene-d8 (S)	%.						101	102	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Love's Truck Stop
Pace Project No.: 1245001

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-DAV	Pace Analytical Services - Davis

ANALYTE QUALIFIERS

1V	HCL preservative insufficient to extend hold from 7 to 14 days.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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2795 Second Street - Suite 300
Davis, CA 95618
(530) 297-4800

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Love's Truck Stop
Pace Project No.: 1245001

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1245001001	**B1**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001002	**B6**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001003	**B7**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001004	**B8**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001005	**B9**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001006	**B4**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001007	**B5**	EPA 3510	DAOP/1049	EPA 8015B	DASG/1048
1245001001	**B1**	EPA 8260B	DAVM/1144		
1245001002	**B6**	EPA 8260B	DAVM/1144		
1245001003	**B7**	EPA 8260B	DAVM/1144		
1245001005	**B9**	EPA 8260B	DAVM/1144		
1245001007	**B5**	EPA 8260B	DAVM/1144		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:
Company: Terracon
Address: 50 Goldenland Ct. Sacramento, CA
Email To: nmnovotny@terracon.
Phone: (916)531-2242
Requested Due Date/TAT: Standard

Section B Required Project Information:
Report To: Nick Novotny
Copy To:
Purchase Order No.:
Project Name: Love's Truckstop
Project Number: NB155021

Section C Invoice Information:
Attention: Nick Novotny
Company Name: Terracon
Address: 50 Goldenland Ct. Ste100
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

Page: of

REGULATORY AGENCY: NPDES, GROUND WATER, DRINKING WATER, UST, RCRA, OTHER
Site Location STATE:

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE (MARCH)	COLLECTED TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: MTBE	TPH (GRO-DRO)	BTEX	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (1245001)
	B1			27			3									/	/	/		001
	B6			27			3									/	/	/		002
	B7			27			3									/	/	/		003
	B8			27			1									/	/	/		004
	B9			27			3									/	/	/		005
	B4			27			1									/	/	/		006
	B5			27			3									/	/	/		007

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nick Novotny	27	7:00	J. Pace	032715	1900	

Electronic Data Deliverable (EDD): ☐ EQuIS (format) ☐ Excel

State Specific: ☐ CA EDF (Global ID: _____) ☐ WA EIM ☐ CA WriteOn (Site: _____) ☐ Other _____

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Nick Novotny
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Pace Analytical®	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 25Feb2015 Page 1 of 1
	Document No.: **F-DAV-C-002-rev.02**	Issuing Authority: Pace Davis, CA Quality Office

Sample Condition Upon Receipt

Client Name: Terracon

Project #: WO# : 1245001 (1245001)

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☒ Client ☐ Commercial ☐ Pace ☐ OnTrac ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other: **Temp Blank?** ☐ Yes ☐ No

Thermom. Used: ☐ DA1434 ☒ DA2285 **Type of Ice:** ☒ Wet ☐ Blue ☐ Dry Ice ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read(°C): 1.2 **Cooler Temp Corrected(°C):** 1.2 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** 0.0 **Date and Initials of Person Examining Contents:** 032715 TJB

				Comments:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1. Per labels, sample times are 16:45,
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2. 17:20, 17:05, 09:20, 16:51, 09:30, 17:13
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3. for samples 001, 002, 003, 004, 005, 006,
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4. 007, respectively.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	7.
Sufficient Volume?	☐ Yes	☒ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☒ Yes	☐ No	☐ N/A	12. Sample -01 has one container that has 2/27/15 on the label.
All containers needing acid/base preservation have been checked?	☐ Yes	☒ No	☐ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☒ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☒ Yes	☐ No		Initial when completed: Lot # of added preservative: TJB032715
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☐ N/A	14. Sediment in samples ~~001~~, 002,
Trip Blank Present?	☐ Yes	☒ No	☐ N/A	15. 005, 006, 007. Bubbles in 007
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	(VOAs 2, 3 of 3).
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: [signature] **Date:** 4/1/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

APPENDIX C
SUPPORTING DOCUMENTS

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

- Auger
- Split Spoon
- Modified Cal
- Macro Core
- Ring Sampler
- Rock Core
- Grab Sample
- No Recovery

WATER LEVEL

- Water Initially Encountered
- Water Level After a Specified Period of Time
- Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.	Descriptive Term (Consistency)	Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-Value Blows/Ft.	Ring Sampler Blows/Ft.
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.

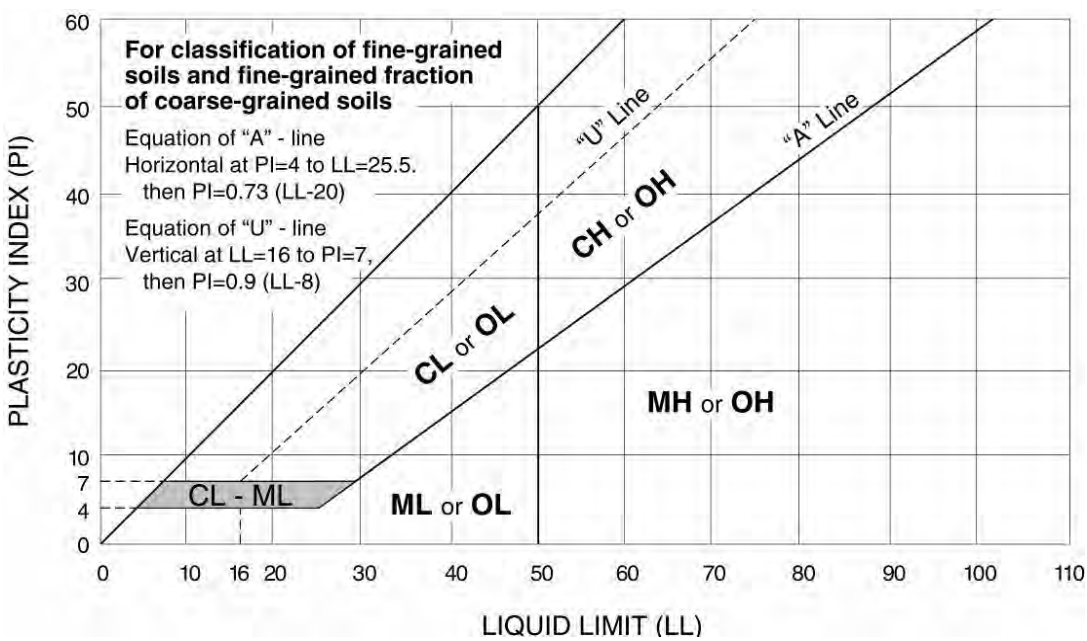

Exhibit: C-2

Appendix F: Initial Site Assessment/ Phase I Environmental Site Assessment

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INITIAL SITE ASSESSMENT/
PHASE I ENVIRONMENTAL SITE ASSESSMENT

State Route 20 between Interstate 5 and Husted Road
Colusa County APNs: 016-070-044, -053, -055, -075 and -101
CITY OF WILLIAMS, CA

Project Number: WIL108-1P1 (ISA)

Prepared for

City of Williams
P.O. Box 310
Williams, CA 95987

Prepared by

HANOVER
ENVIRONMENTAL SERVICES, INC.

1072 Marauder St., Suite 220
Chico, CA 95973

September 10, 2013

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1. Summary

Hanover Environmental Services, Inc. (Hanover) has performed an Initial Site Assessment/Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitation of the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments E 1527-05 for the subject property described as State Route 20 between Interstate 5 and Husted Road and the following Colusa County Assessor's Parcels (APNs 016-070-044, -053, -055, -075 and -101) near the City of Williams, in Colusa County, CA (Site). Any exceptions to, or deletions from this practice are described in Section 2.4 of this report. Within the scope of this investigation, Hanover discovered no evidence of recognized environmental conditions or significant environmental concerns in connection with the subject property.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations. It is Hanover's opinion that a full assessment of the site has been completed. Based on the results of this report, further investigation is *not* warranted at this time.

2. Introduction

2.1. Purpose

As per Section 1.1 of the American Society of Testing and Materials (ASTM) Standard Practice Designation E 1527-05, the purpose of this assessment is to identify recognized environmental conditions, as defined in Section 3.3.31 of the same Standard Practice; that is "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. This practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner defense to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC § 9601(35) (B).

Hanover has conducted this Phase I ESA under the direction of an Environmental Professional, whose signatures appear hereon. This document serves to identify recognized environmental conditions (RECs) in association with the subject property.

2.2. Detailed Scope-of-Services

The Phase I ISA/ESA conducted at the subject property was in general accordance with ASTM Standard E 1527-05 and included the following:

- Records review
- Interviews with regulatory officials and personnel associated with the subject and adjoining properties
- A site visit
- Evaluation of information and preparation of the report provided herein.

Typically, a Phase I ISA/ESA does not include sampling or testing of air, soil, groundwater, surface water, or building materials. These activities would be carried out in a Phase II ESA, if required. For this Phase I ISA/ESA, no additions to the ASTM E 1527-05 standard were made.

2.3. Significant Assumptions

Hanover believes the results, specifications, conclusions and professional opinions to be accurate and relevant but cannot accept responsibility for the accuracy or completeness of public documentation or accuracy, completeness, or possible withholding of information by interviewees or other private parties. We make no other warranty, either expressed or implied.

It is assumed that this investigation is being conducted to identify recognized environmental conditions (RECs) concerning the subject property, and to permit the user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability. This investigation may mention but does not fully address non-scope considerations such as:

Asbestos
Radon
Lead-based paint
Lead in drinking water
Wetlands
Regulatory compliance
Cultural and historic resources
Health and safety
Ecological resources
Endangered species
Air quality
Water quality

This property assessment did not include air, soil or water sampling, or laboratory analysis. Therefore, the results of this investigation do not preclude the possibility of substances that are currently or in the future may be defined as hazardous being present on the property. This report does not purport to address all safety problems, if any, associated with the subject property.

2.4. Limitations, Exceptions, and Data Gaps

The scope of services performed to complete this ISA/Phase I ESA is limited in nature. Site conditions can change in time, and our assessment is not intended to predict future site conditions. Because of the limited nature of this assessment, site history will be developed based only on information provided by the client, an interview process, and a review of available regulatory files on this site and near-by sites. This report is not a complete risk assessment and the scope of services does not include a complete determination of the extent of, nor the environmental or public health impact of, known or suspected hazardous materials or wastes.

Along with all of the limitations set forth in various sections of the ASTM E 1527-05 protocol, the accuracy and completeness of this report may be limited by the following:

Access Limitations – None.
Physical Obstructions to Observations – None.
Outstanding Information Requests – User Questionnaire not completed. Preliminary Title Report was not supplied by the client/user.
Historical Data Source Failure – None.
Other – None.

It should be noted that this assessment did not include a review or audit of operational environmental compliance issues, or of any environmental management systems (EMS) that may exist on the property. Some of the information presented in this report was provided through existing documents and interviews. Although attempts were made, whenever possible, to obtain a minimum of two confirmatory sources of information, Hanover Environmental Services, Inc. in certain instances has been required to assume that the information provided is accurate.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of Hanover based on the data obtained from the work. Due to the nature of investigation and the limited data available, Hanover cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be construed as legal advice.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, we request that this information be brought to our attention so that we may reassess the conclusions provided herein.

The government database search included sites that are within the ASTM search range of the subject property. However, sites exist that are in the general vicinity of the subject property without enough information listed to map these "orphan" sites or determine if they are within the ASTM search range. The Orphan summary indicated that there are twenty-three (23) orphan sites. The subject property does not appear on the orphan summary.

Based on information obtained during the interview process and general knowledge of the history of this vicinity of Colusa County, it is the opinion of the Hanover representative that the historical subject property uses have been adequately defined.

Aside from the aforementioned information limitation, it is the opinion of Will Bono, Environmental Professional that this property assessment provides an appropriate degree of inquiry to determine if RECs exist on the subject property.

2.5. Deviations

No deviations from the recommended scope of ASTM Standard E 1527-05 occurred as part of this Phase I ISA/ESA.

2.6. Special Terms and Conditions

Authorization to perform this assessment was given by the client August 23, 2013. Instructions as to the location of the property, contacts and details of access were supplied by James Saso, with the City of Williams Administration.

2.7. Reliance

This report has been prepared for the sole benefit of the City of Williams, and their assigns. The report may not be relied upon by any other person or entity without the express written consent of Hanover and the client with the following exceptions (s): None.

2.8. Environmental Personnel

This assessment was conducted under the supervision of Will Bono, Environmental Professional. The following personnel contributed to the assessment:

- Will Bono, Environmental Professional, performed site reconnaissance, conducted local reviews, provided supervision and produced and reviewed the report.

- Mallory Brown, Staff Scientist, coordinated and reviewed database searches and produced the report.

3. Site Description

The Hanover representative performed a site inspection on August 27, 2013.

3.1. Location and Legal Description

The subject property is legally defined as a public right-of-way located at State Route 20 between Interstate 5 and Husted Road and the Colusa County Assessor's Parcels (APNs 016-070-044, -053, -055, -75 and -101) near the City of Williams, in Colusa County, CA. The subject property location is shown in Appendix A of this report.

3.2. Site and Vicinity Characteristics

The subject property and proposed project consists of a roadway modification proposed to occur at State Route 20 between Interstate 5 and Husted Road, and affects the following Colusa County Assessor's

Parcels (APNs 016-070-044, -053, -055, -075 and -101) near the City of Williams, in Colusa County, CA. The intersection and adjoining properties are located in agricultural area of Williams, CA. At the time of the August 27, 2013 site inspection, the subject property included Colusa County APNs 016-070-044, -053, -055, -075 and -113.

The site elevation is approximately 72 feet above sea level (aSL) with localized ground surface sloping general east-northeast. The surrounding lands have historically been used for agricultural uses.

EDR® supplied information on August 26, 2013 regarding the physical setting of the subject property. The dominant soil composition in the general area of the subject property is a poorly drained WILLOWS silty clay soil with very slow infiltration rates.

3.3. Current Use of the Property

At the time of the site inspection the subject property served as a public roadway (Highway 20) and agricultural fields. The subject property's use as a public thoroughfare is evidenced as early as 1907.

3.4. Descriptions of Structures, Roads, Other Improvements on the Site

The subject property consists of current Highway 20 which served as the northwest boarder of the project. The proposed new roadway connection will occur on existing agricultural fields to the south.

3.5. Current Uses of the Adjoining Properties

During the vicinity reconnaissance, Hanover observed the following land use on properties in the immediate vicinity of the subject property. The majority of the surrounding properties are dedicated to residential uses.

Direction	Property/Description
North	Agricultural fields
East	Limited commercial uses and agriculture fields
South	Agricultural fields
West	Interstate 5

4. User Provided Information

4.1. Title Records

Due to the nature of the target property, a Preliminary Title Report was *not* supplied by the client/user. It is assumed that the Title Report satisfies the request of the contract in that it is adequate to determine if environmental liens or activity and use limitations exist.

4.2. Environmental Liens or Activity and Use Limitations

No environmental liens, activity, and/or use limitations due to hazardous material issues were reported or recorded on the subject or surrounding properties.

4.3. Specialized Knowledge

No specialized knowledge is available for this site.

4.4. Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information is available for the Site.

4.5. Valuation Reduction for Environmental Issues

No other environmental issues were identified by the user/client that could result in property value reduction.

4.6. Owner, Property Manager, and Occupant Information

No written or verbal communication with the property owner(s), representative and/or tenants revealed any information which suggested that there are (currently or historically) any recognized environmental conditions associated with the subject property.

Property Owner	State of California; Williams Fire Protection Authority; V & R Land Investments, LLC
Property Occupant	Public thoroughfare and rice fields
Property Onsite Contact(s)	Mr. James Saso, City of Williams Administration

4.7. Reason for Performing Phase I

The Phase I ESA is being conducted as part of environmental due diligence prior to construction of road improvements.

4.8. Other

Due to the nature of this Phase I ISA/ESA, the Phase I User Questionnaire was *not* completed. The User Questionnaire includes inquiry regarding site characteristics, documents listed in Section 9.8.1, and user's responsibilities described in Section 5.0 of the ASTM Practice E 1527-05 standard.

5. Records Review

5.1. Standard Environmental Record Sources

Hanover contracted Environmental Data Resources, Inc. (EDR®) to conduct a search of Federal and State databases containing known and suspected sites of environmental contamination. The number of listed sites identified within the approximate minimum search distance (AMSD) from the Federal and State environmental records database listings specified in ASTM Standard E 1527-05 are summarized below. Detailed information for sites identified within the AMSDs is provided below, along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property. Copies of the EDR® research data and a description of the databases are included in Appendix C of this report.

Standard Environmental Record Sources	Additional Environmental Record Sources
Federal NPL Site List	State and Local HIST CAL-SITES
Federal Proposed NPL Site List	State and Local CA BOND EXP PLAN List
Federal Delisted NPL Site List	State and Local SCH List
Federal NPL Liens Site List	State and Local WDS List
Federal LIENS2 List	State and Local NPDES List
Federal CORRACTS List	State and Local Cortese List
Federal US ENG CONTROLS List	State and Local HIST CORTESE List
Federal US INST CONTROL List	State and Local SWRCY List
Federal DOT OPS List	State and Local LEAKING UNDERGROUND STORAGE TANK Sites
Federal US CDL List	State and Local CA FID UNDERGROUND STORAGE TANK Sites
Federal US BROWNFIELDS List	State and Local SLIC List
Federal Department of Defense Site	State and Local UST Sites
Federal Formerly Used Defense Sites	State and Local HIST UST Sites
Federal LUCIS List	State and Local SWEEPS UST List
Federal CONSENT List	State and Local CHMIRS List
Federal ROD List	State and Local ABOVEGROUND STORAGE TANK Sites
Federal UMTRA Sites	State and Local NOTIFY 65 List
Federal DEBRIS REGION 9 List	State and Local VCP List
Federal ODI List	State and Local DRYCLEANERS Sites

Federal MINES List	State and Local RESPONSE List
Federal TSCA List	State and Local HAZNET List
Federal FTTS List	State and Local EMI List
Federal HIST FTTS List	State and Local ENVIROSTAR List
Federal SSTS List	State and Local HWP List
Federal ICIS List	State and Local PROC List
Federal PADS List	State and Local EDR PROPRIETARY RECORDS List
Federal MLTS List	State and Local Toxic Pits List
Federal RADINFO List	State and Local SWF/LF List
Federal RAATS List	State and Local WMUDS/SWAT List
Federal SCRD DRYCLEANERS Sites	State and Local LIENS List
Federal UST HIST CDL List	State and Local LDS List
Federal PCB TRANSFORMER List	State and Local MCS List
Federal Facility Site Information List	State and Local DEED List
Federal COAL ASH DOE List	State and Local WIP List
Federal FEMA UST List	State and Local CDL List
Federal COAL ASH EPA List	State and Local ENF List
Federal CERCLIS List	State and Local HAULERS List
Federal CERCLIS NFRAP List	State and Local MWMP List
Federal RCRA TSDF List	State and Local HWT List
Federal RCRA Large Quantity Generators List	Tribal INDIAN RESERV List
Federal RCRA Small Quantity Generators List	Tribal INDIAN ODL List
Federal RCRA CESQG List	Tribal INDIAN LUST List
Federal RCRA NONGEN List	Tribal INDIAN UST List
Federal ERNS List	Tribal INDIAN VCP List
Federal HMIRS List	
Federal TRIS List	
Federal FINDS List	

Descriptions of the environmental records searched, original source of information, approximate search distance, date information was last updated by EDR®, and date information was last updated by original source are listed in Appendix C. Section 5.3 discusses the results of this review.

5.2. Additional Environmental Record Sources

Information on additional environmental records was provided by EDR® on August 26, 2013. Descriptions of the additional environmental records searched, original source of information, approximate search distance, date information was last updated by EDR®, and date information was last updated by original source are listed in Appendix C. Section 5.3 discusses the results of this review.

The following is a list of additional local environmental and historic record sources contacted/reviewed by the Hanover representative:

- City of Williams / County of Colusa Building Department
- Colusa County Department of Environmental Health
- Colusa County Assessor
- State Water Resources Control Board GeoTracker® Database

Section 5.3 discusses the results of this review.

5.3. Standard and Additional Environmental Record Review Results

A summary of results for EDR® revealed the following sites within the radius search required by the ASTM Standard practice. Surrounding sites were listed in the RCRA-SQG, ENVIROSTOR, SWF/LF, WMUDS/SWAT, HIST UST, CUPA Listings and EDR US Hist Auto Stat databases. The subject property was **not** listed in any of the databases searched by EDR. Based upon reasonably ascertainable information regarding the site and its current status, these database reports are not considered recognized environmental conditions in association with the subject property.

5.3.1. Federal Environmental Records

Sites identified within the search radius of the subject property in the Federal Regulatory records databases are as follows. A complete listing and description of databases that were searched are included in Appendix C.

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. A review of the RCRA-SQG list, as provided by EDR, and dated 06/18/2013 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property. Based on the status and location of these sites, they are not considered recognized environmental conditionals in association with the subject property.

5.3.2. State and Tribal Environmental Records

Sites identified within the search radius of the subject property in the California Regulatory records databases are as follows. A complete listing and description of databases that were searched are included in Appendix C.

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. A review of the ENVIROSTOR list, as provided by EDR, and dated 05/06/2013 has revealed that there are 3 ENVIROSTOR sites within approximately 1 mile of the target property. Based upon the status and location of these sites they are not considered recognized environmental conditions in association with the subject property.

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database. A review of the SWF/LF list, as provided by EDR, and dated 05/20/2013 has revealed that there us 1 SWF/LS site within approximately 0.5 miles of the target property. Based on the status and location of this site, it is not considered a recognized environmental condition in association with the subject property.

5.3.3. Additional Environmental Records

Local Lists of Landfill/Solid Waste Disposal Sites

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board. A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.5 miles of the target property. Based on the status and location of this site, it is not considered a recognized environmental condition in association with the subject property.

Local Lists of Registered Storage Tanks
HIST UST: Historical UST Registered Database. A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property. Based on the status and location of this site, it is not considered a recognized environmental condition in association with the subject property.

Other Ascertainable Records
CUPA Listings: A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities. A review of the CUPA Listings list, as provided by EDR, has revealed that there are 2 CUPA Listings sites within approximately 0.25 miles of the target property. Based on the status and location of these sites, they are not considered recognized environmental conditions in association with the subject property.

EDR High Risk Historical Records

EDR Exclusive Records
EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas stations, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records," or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches. A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US Hist Auto Stat site within approximately 0.25 miles of the target property. Based on the status and location of this site, it is not considered a recognized environmental condition in association with the subject property.

Colusa County Department of Environmental Health
Due to the lack of physical addresses of the subject properties, a review of files from Colusa County Department of Environmental Health was not applicable.

City of Williams/County of Colusa Building Department
Due to the current and historical absence of any buildings on the subject properties, a review of files from the City of Williams and/or County of Colusa Building Department was not applicable.

Colusa County Assessor's Office
The Hanover representative verified ownership of the parcel through the Colusa County Assessor's office and through information provided by the Client/User. The proposed project will affect the following Colusa County Assessor Parcels (APNs 016-070-044, -053, -055, -75 and -101). The parcels are currently zoned for agricultural use. No structural improvements are present on the subject property. No historic data regarding hazardous materials and other hazardous issues for the subject property were identified.

State Water Resources Control Board GeoTracker® Database
The Hanover representative reviewed the on line State Water Resources Control Board GeoTracker® Database. The subject property was not listed in the database. Sites within a 2,000 foot radius of the subject property include a Land Disposal Site located at Husted Road and E Street (Jade Air/Harmon Aviation). Based upon the status and location of the site, it is not considered a recognized environmental condition in association with the subject property. See GeoTracker® Database map search included in Appendix F.

Environmental Lien Search
Hanover personnel reviewed the EDR® Radius report, dated August 26, 2013 for Engineering Controls Sites List (US ENG CONTROLS), the Sites with Institutional Controls (US INST CONTROL), and Deed Restriction Listing (DEED). No liens or issues were found for the subject property. No sites surrounding the subject property were identified.

Previous Assessments on the Subject Property
Hanover has no knowledge of previous environmental assessments on the subject property.

5.4. Physical Setting Sources and Results

The elevation of the subject property is approximately 72 feet above mean sea level, as depicted on the U.S.G.S. 7.5 Minute Series 1994, 39122-B2 WILLIAMS, CA Topographic Map. In addition, EDR® provided information on hydrology, hydrogeology, geology, etc. A list of the original sources and status of data is shown below. Search results can be found in Appendix C.

Hydrologic Information:

<u>FEMA Flood Zone: COLUSA, CA</u>	
FEMA DFIRM Flood Data Electronic Coverage:	YES - refer to the Overview Map and Detail Map
Flood Plain Panel at Target Property:	06011C - FEMA DFIRM Flood data
Additional Panels in search area:	Not Reported
<u>NWI Quad at Target Property: WILLIAMS, CA</u>	
National Wetland Inventory	
Data Electronic Coverage:	YES – refer to the Overview Map and Detail Map

Hydrogeologic Information:

Site-Specific Hydrogeological Data	1.25 Miles
	Not Found

Hyrdrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeoloic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Aquiflow®:	
Search Radius:	1.0 Mile Radius
	Not Found

EDR® has developed the AQUIFLOW® Information System to provide data on the general direction of groundwater flow at specific points. EDR® has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

Geologic Information:

P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale-a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS-11 (1994).

6. Historical Use Information on the Property and Adjoining Properties Sources and Results

Historical information identifying the past site use was obtained from a variety of sources as detailed in Appendix D of this report, including aerial photographs, historical topographic maps, and Sanborn Fire

Insurance map coverage. Due to the lack of physical addresses and lack of structural development of the subject properties, local file reviews were not applicable.

City of Williams Building Department
Due to the past and current absence of any structures on the subject property, a review of files from the City of Williams Building Department was not applicable.

Colusa County Assessor's Office
The Hanover representative verified ownership of the parcel through the Colusa County Assessor's office and through information provided by the Client/User. The proposed project will affect the following Colusa County Assessor Parcels (APNs 016-070-044, -053, -055, -75 and -101). The parcels are currently zoned for agricultural use. No structural improvements are present on the subject property. No historic data regarding hazardous materials and other hazardous issues for the subject property were identified.

Aerial Photographs
Aerial Photographs were reviewed to determine past land use patterns of the subject and surrounding properties. Aerial photographs are included in Appendix D. From this search the following information was gathered:

Year	Scale	Description
1965	1" = 500'	The subject property and surrounding properties appear to be developed agriculturally. A parcel to the southeast is developed structurally.
1975	1" = 500'	The subject property and surrounding properties appear to be developed agriculturally. A canal appears to run through the subject property. Hwy 20 is developed to the north. Interstate 5 is developed to the west.
1983	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
1987	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
1998	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
2005	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
2006	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
2009	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.
2010	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery. Structural development (construction) is present on a property to the immediate south.
2012	1" = 500'	The subject property and surrounding properties are developed similar to previous imagery.

Sanborn® Fire Insurance Maps
Sanborn® Fire Insurance Maps with coverage of the subject property were sought through EDR®. Sanborn® Fire Insurance Maps are detailed drawings of site development, and were typically used by fire insurance companies to determine site fire insurability. According to EDR®, Sanborn® there was no coverage for the subject property. The report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Historical Topographic Maps

Historical topographic maps were reviewed to determine past land use patterns of the subject and surrounding properties. Topographic maps are included in Appendix D. From this search the following information was gathered:

Year	Target Quad	Description
1907	COLUSA	The subject property is structurally undeveloped. A roadway runs directly through the property. Minor structures are developed on the property to the northeast. Town of Williams is depicted to the southwest. Southern Pacific RR is depicted to the west. Salt Creek runs north of the subject property.
1918	WILLIAMS	Similar to previous quad.
1952	WILLIAMS	The subject property is undeveloped. Hwy 20 runs directly through the subject property boundaries A canal is developed along the northern edge of the subject property. An airport landing strip is developed to the east of the subject property.
1953	COLUSA	Similar to previous quad.
1973	WILLIAMS	The subject property is structurally undeveloped. Hwy 20 is developed to the north. Canal(s) appear to be developed on southwestern area of subject property. Small structures are developed on the property to the northeast. Interstate 5 is developed to the immediate west.
1994	WILLIAMS	Subject and surrounding properties are similar to previous quad.

EDR-City Directory Image Report

The EDR® City Directory Image Report was used to assist in determining historical uses for the subject and adjoining properties. For a full detail of the abstract refer to Appendix D of this report. No address returns were available for the subject property.

7. Site Reconnaissance

7.1. Methodology and Limiting Conditions

The site reconnaissance was conducted on August 27, 2013 by Will Bono, Environmental Professional, of Hanover Environmental Services, Inc. Weather conditions at the time of the site reconnaissance were clear and sunny. Hanover personnel systematically traversed the site to provide an overlapping field of view, wherever possible. Photographs of pertinent site features identified during the site reconnaissance are included in Appendix B.

7.2. General Site Setting

The property is public thoroughfare and agricultural fields, consisting of portions of five parcels. The subject property is located east of Interstate 5, south of Highway 20 and west of Husted Road. The relatively flat ground surface slopes to the east-northeast. The subject property is accessed via Ella Street from the south or Husted Road from the East.

7.3. Site Visit Findings

7.3.1. Hazardous Substances

No hazardous substances were identified on the subject property during the site reconnaissance.

7.3.2. Petroleum Products

No petroleum products were observed on the subject property at the time of the inspection.

7.3.3. USTs

No underground storage tanks (USTs) were recorded to exist historically or currently on the subject property.

7.3.4. ASTs

No aboveground storage tanks (ASTs) were identified on the subject property at the time of the inspection.

7.3.5. Other Suspect Containers

No suspect containers were identified on the subject property at the time of the inspection.

7.3.6. Equipment Likely to Contain PCBs

No transformers were observed on subject property at the time of the inspection.

7.3.7. Interior Staining/Corrosion

No interior and exterior staining/corrosion was observed on the subject property.

7.3.8. Discharge Features

No discharge features (floor drains, catch basins, oil/water separators, etc.) were observed on the subject property during the site inspection.

7.3.9. Pits, Ponds, and Lagoons

No pits, ponds or lagoons were observed on the subject property during the site reconnaissance.

7.3.10. Solid Waste Dumping/Landfills

No readily apparent evidence of solid waste dumping, suspect material, or landfill was identified on the subject property during the site inspection.

7.3.11. Stained Soil/Stressed Vegetation

No stressed vegetation was observed on the subject property during the site reconnaissance.

7.3.12. Wells

No wells were observed on the subject property during the site reconnaissance.

8. Interviews

Due to the nature of this Phase I ISA/ESA, no interviews with individuals with knowledge of the history of this site, as related to environmental concerns, were available. A User Questionnaire was not completed by the client/user of this Phase I ISA/ESA.

Current Use of the Subject Property	Public thoroughfare/roadway and rice fields
Past Use(s) of the Subject Property	Public thoroughfare/roadway and rice fields
Current Use of the Surrounding Properties	Public thoroughfare/roadway and rice fields
Past Use(s) of the Surrounding Properties	Agricultural
Current or Past Hazardous/Petroleum Materials on the Subject Property?	NA
Past Releases of Hazardous/Petroleum Materials on the Subject Property?	NA
Other Environmental Information (Permits, Ect.)?	NA
Aware of Any Pending, Threatened or Past Litigation Relevant to Hazardous Substances or Petroleum Products in, on, or from the Subject property.	NA
Aware of Any Pending, Threatened or Past Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products in, on, or from the Subject property?	NA
Aware of Any Pending, Threatened or Past Notices from Any Governmental Entity Regarding Possible Violations of Environmental Laws or Possible Liability Relating to Hazardous Substances or Petroleum Products?	NA

8.1. Regulatory Officials

Due to the lack of physical addresses of the subject properties, a review of files from Colusa County Department of Environmental Health was not applicable.

9. Findings, Opinions, and Conclusions

Hanover Environmental Services, Inc. (Hanover) has performed an Initial Site Assessment/Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitation of the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments E 1527-05 for the subject property described as State Route 20 between Interstate 5 and Husted Road and the Colusa County Assessor's Parcels (APNs 016-070-044, -053, -055, -75 and -101) near the City of Williams, in Colusa County, CA (Site). Any exceptions to, or deletions from this practice are described in Section 2.4 of this report. Within the scope of this investigation, Hanover discovered no evidence of recognized environmental conditions or significant environmental concerns in connection with the subject property.

While no environmental site assessment can fully eliminate the uncertainty regarding the potential for recognized environmental conditions, the ASTM standard does cite the balance between appropriate levels of inquiry and the cost of such exhaustive investigations. It is Hanover's opinion that a full assessment of the site has been completed. Based on the results of this report, further investigation is *not* warranted at this time.

10. Qualification and Signature

Hanover Environmental Services, Inc. has performed this assessment under my supervision in accordance with generally accepted environmental practices and procedures, as of the date of this report. I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. I have employed the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental professionals practicing in this area. The conclusions contained within this assessment are based upon site conditions readily observed or were reasonably ascertainable and present at the time of the site inspection.

The conclusions and recommendations stated in this report are based upon personal observations made by employees of Hanover Environmental Services, Inc. and upon information provided by others. I have no reason to suspect or believe that the information provided is inaccurate.

Will Bono, Environmental Professional

September 10, 2013
Date

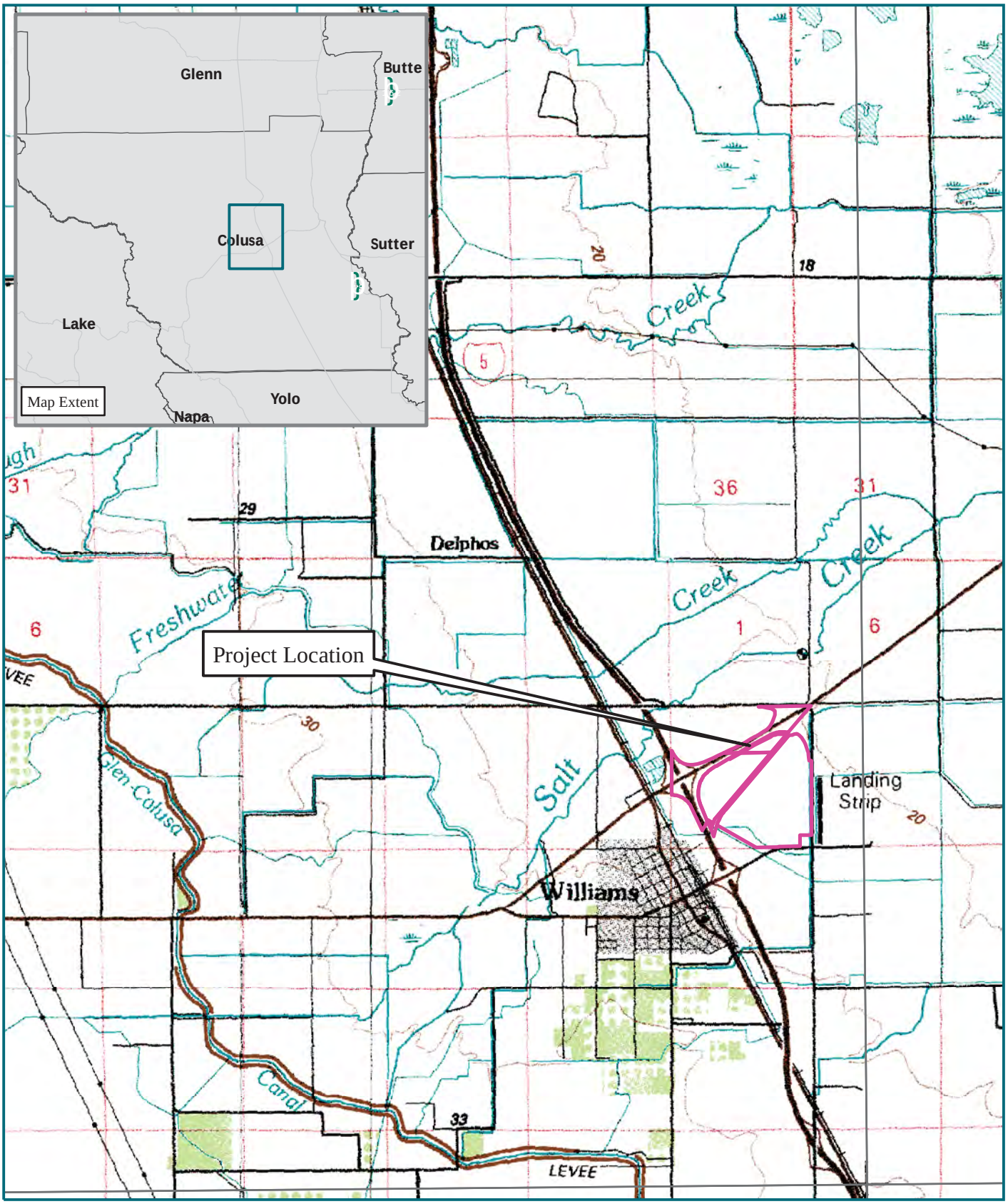
Mallory Brown, Staff Scientist

September 10, 2013
Date

APPENDIX A: MAPS

SITE LOCATION MAP
SITE MAP

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT



Within Section 12 T15N R03W
Williams, Colusa County, CA
Lakeport 100K Quadrangle
Map by M. Brown / 3 Sept 2013

0 0.25 0.5 Miles

HANOVER

0

Within Section 12 T15N R03W
Williams, Colusa County, CA
2012 NAIP Imagery
Map by M. Brown / 3 Sept 2013

0 0.25 0.5 Miles

HANOVER

APPENDIX B: SITE RECONAISSANCE PHOTOGRAPHS

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

State Route 20 at Highway 5, Williams, Colusa County, CA

State Route 20 at Highway 5, Williams, Colusa County, CA

State Route 20 at Highway 5, Williams, Colusa County, CA

State Route 20 at Highway 5, Williams, Colusa County, CA

APPENDIX C: REGULATORY RECORDS REVIEW

THE EDR RADIUS MAP™ REPORT WITH GEOCHECK®

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

SR 20
SR 20
Williams, CA 95987

Inquiry Number: 3707025.2s
August 26, 2013

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

SR 20
WILLIAMS, CA 95987

COORDINATES

Latitude (North):	39.1677000 - 39˚ 10' 3.72''
Longitude (West):	122.1410000 - 122˚ 8' 27.60''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	574208.9
UTM Y (Meters):	4335529.5
Elevation:	72 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	39122-B2 WILLIAMS, CA
Most Recent Revision:	1994
East Map:	39122-B1 COLUSA, CA
Most Recent Revision:	1991

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State and tribal leaking storage tank lists

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
SLIC ..... Statewide SLIC Cases
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
Toxic Pits ..... Toxic Pits Cleanup Act Sites
CDL ..... Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST ..... Facility Inventory Database
SWEEPS UST ..... SWEEPS UST Listing

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LIENS ..... Environmental Liens Listing
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators
DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites
FUDS ..... Formerly Used Defense Sites

EXECUTIVE SUMMARY

CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
UIC	UIC Listing
NPDES	NPDES Permits Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing
Financial Assurance	Financial Assurance Information Listing
LEAD SMELTERS	Lead Smelter Sites
2020 COR ACTION	2020 Corrective Action Program List
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PRP	Potentially Responsible Parties
WDS	Waste Discharge System
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
PROC	Certified Processors Database
MWMP	Medical Waste Management Program Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/18/2013 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SHELL OIL CO	I-5/ HWY 20	W 1/8 - 1/4 (0.139 mi.)	A2	9

Lower Elevation	Address	Direction / Distance	Map ID	Page
HELENA CHEMICAL CO	***3/4 MI S OF HWY 20 HUST***	***NE 1/8 - 1/4 (0.194 mi.)***	***B3***	***10***

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 05/06/2013 has revealed that there are 3 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STANDARD OIL CO. Status: Refer: RWQCB	103 6TH ST	SW 1/2 - 1 (0.542 mi.)	9	16
A & F AUTO DISMANTLERS Status: Refer: Other Agency	6TH & C ST.	SW 1/2 - 1 (0.660 mi.)	10	17
NORTHERN CRANE INC. Status: Refer: Other Agency	***650 D STREET***	***SSW 1/2 - 1 (0.762 mi.)***	***11***	***18***

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 05/20/2013 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
OLD WILLIAMS DUMP	FRESHWATER RD 1/2 MI W/	NE 1/4 - 1/2 (0.279 mi.)	7	14

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
JADE AIR/ HARMON AVIATION	HUSTED AND RD E	SE 1/4 - 1/2 (0.291 mi.)	8	15

Local Lists of Registered Storage Tanks

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CARBAJAL SHELL	INTERSTATE 5/HWY 20	W 1/8 - 1/4 (0.139 mi.)	A1	8

Other Ascertainable Records

CUPA Listings: A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

A review of the CUPA Listings list, as provided by EDR, has revealed that there are 2 CUPA Listings sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WILLIAMS EXPRESS MART	301 VANN ST	S 1/8 - 1/4 (0.248 mi.)	C5	13

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
DE PUE WAREHOUSE COMPANY INC -	***5999 FRESHWATER RD***	***NE 1/8 - 1/4 (0.227 mi.)***	***B4***	***12***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US Hist Auto Stat site within approximately 0.25 miles of the target property.

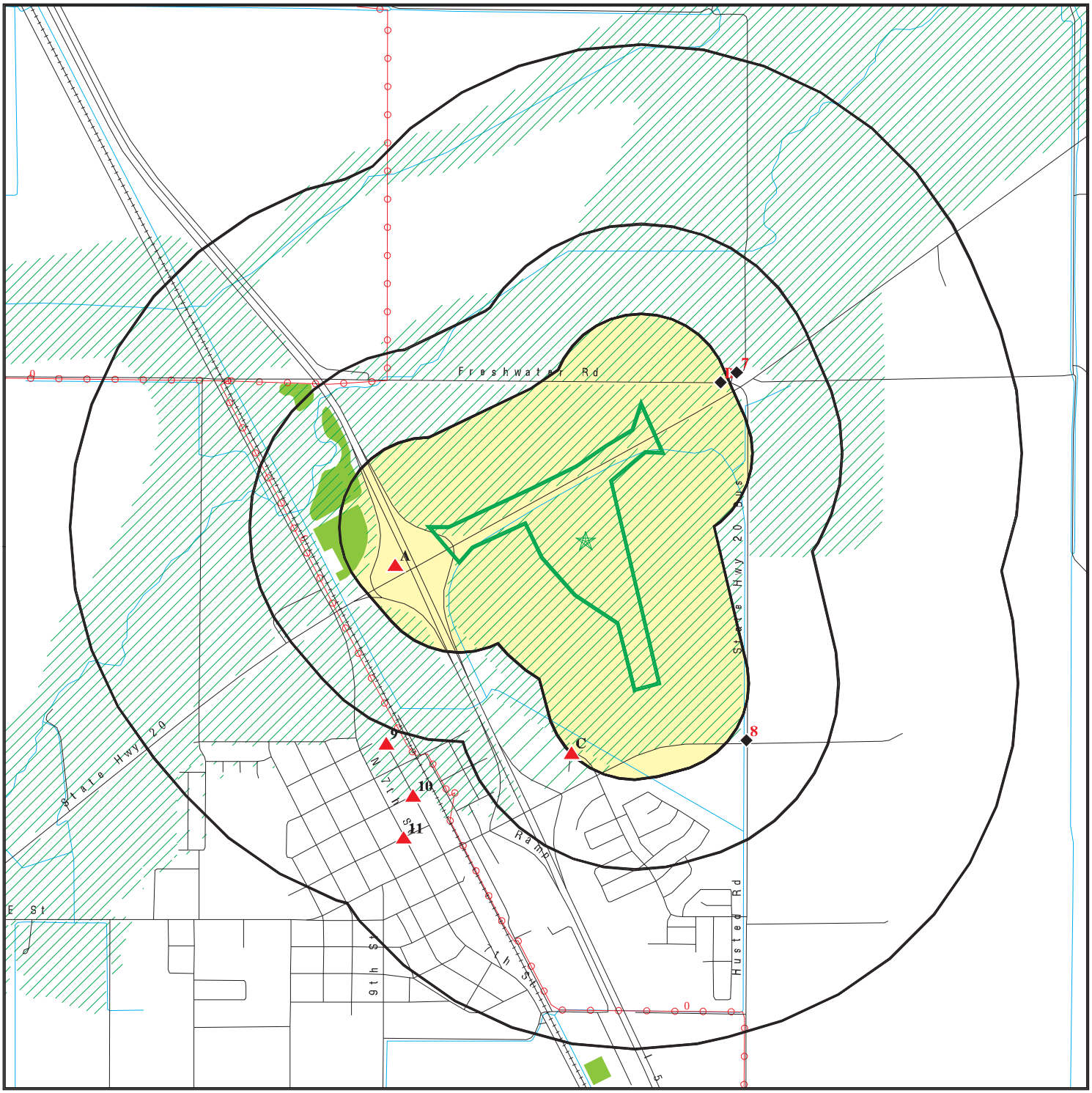
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	301 VANN ST	S 1/8 - 1/4 (0.248 mi.)	C6	13

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 23 records.

Site Name	Database(s)
WILBER SPRINGS FIRE STATI	HIST CORTESE
DHILLION'S WILLIAMS SHELL	SWEEPS UST
ORV'S MINI MART	SWEEPS UST
ROBERT L BOWEN	HIST UST,SWEEPS UST
RALPH A NISSEN	SWEEPS UST
B C STOCKING DISTRIBUTING	SWEEPS UST
WESTSIDE WATER DISTRICT	CUPA
DE PUE WAREHOUSE COMPANY - DELEVAN	CUPA
DE PUE WAREHOUSE COMPANY INC - COR	CUPA
JULIO BRINCATS HIGHTECH TOWING	CUPA
M&K HARVESTING EQUIPMENT	CUPA
ROYALE ENERGY MORROW #1	CUPA
ROYALE ENERGY GODDARD #7-1	CUPA
CDF WILBER SPRINGS FOREST FIRE STA	LUST
B C STOCKING	LUST
ESPARTO	HIST UST
LEESVILLE FFS	HIST UST
WILBUR SPRINGS FOREST FIRE STA	HIST UST
WESTSIDE WATER DIST	AST
TOSCO NORTHWEST CO NO 11135	RCRA-SQG,FINDS
CALIFORNIA NORTHERN RAILROAD	FINDS,RCRA-NLR
CALIFORNIA NORTHERN RAILROAD	FINDS,RCRA-NLR
BC STOCKING DISTRIBUTOR	ENVIROSTOR

OVERVIEW MAP - 3707025.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: SR 20	CLIENT: Hanover Environmental Svs.
ADDRESS: SR 20	CONTACT: Mallory Brown
Williams CA 95987	INQUIRY #: 3707025.2s
LAT/LONG: 39.1677 / 122.141	DATE: August 26, 2013 1:46 pm

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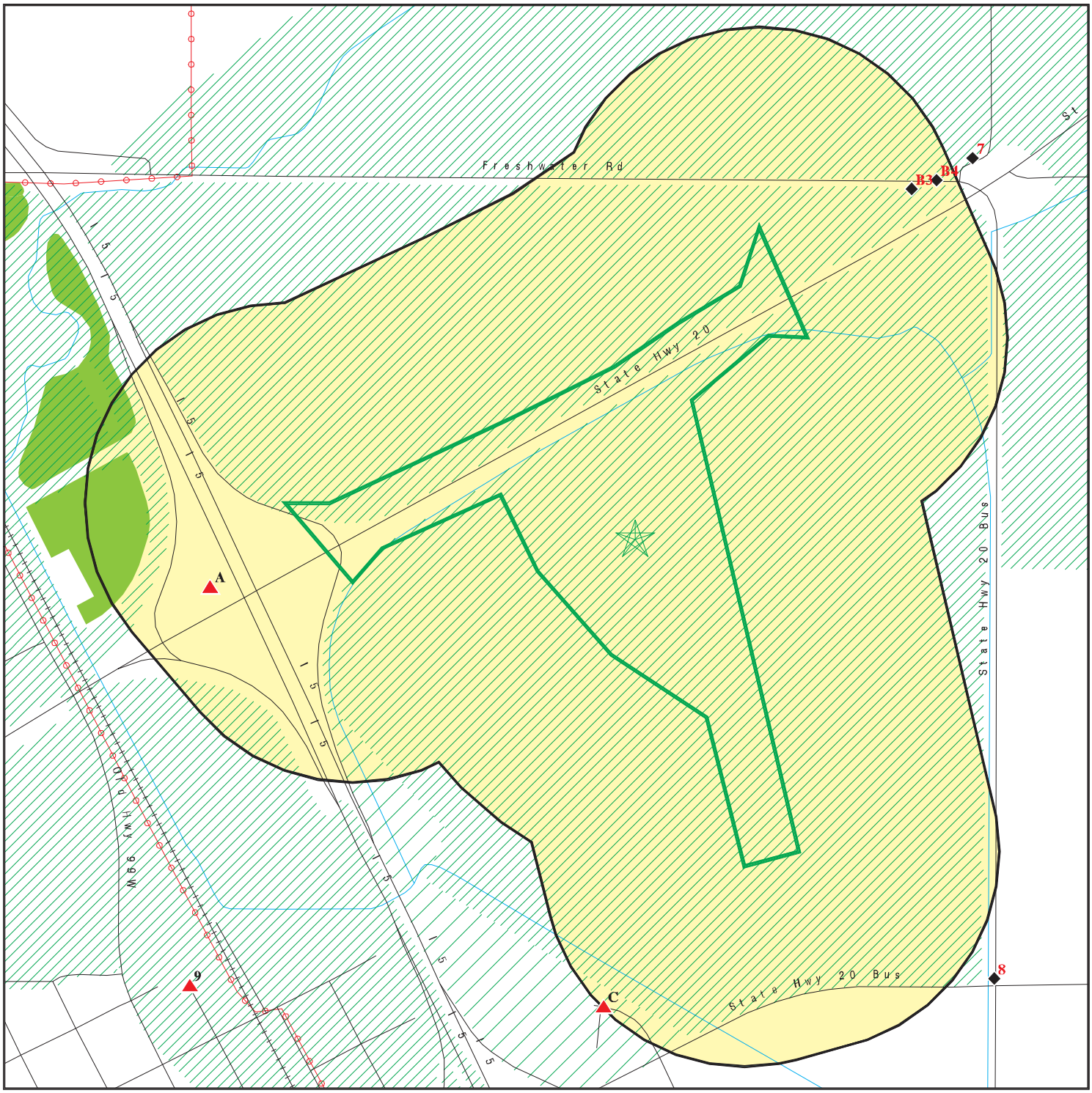
DETAIL MAP - 3707025.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: SR 20 ADDRESS: SR 20 Williams CA 95987 LAT/LONG: 39.1677 / 122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY #: 3707025.2s DATE: August 26, 2013 1:50 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	2	NR	NR	NR	2
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	3	NR	3
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	1	NR	NR	1
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	1	NR	NR	NR	1
SWEEPS UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	2	NR	NR	NR	2
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PROC	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	1	NR	NR	NR	1
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 West 1/8-1/4 0.139 mi. 733 ft. | **CARBAJAL SHELL**
INTERSTATE 5/HWY 20
WILLIAMS, CA 95987

Site 1 of 2 in cluster A

HIST UST | **U001618088**
N/A

Relative: Higher

Actual: 74 ft.

HIST UST:

Region:	STATE
Facility ID:	00000002200
Facility Type:	Gas Station
Other Type:	Not reported
Total Tanks:	0004
Contact Name:	JERRY CARBAJAL
Telephone:	9164735744
Owner Name:	SHELL OIL COMPANY
Owner Address:	P.O. BOX 4848
Owner City,St,Zip:	ANAHEIM, CA 92803
Tank Num:	001
Container Num:	1
Year Installed:	1972
Tank Capacity:	00010000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Tank Construction:	1/4 inches
Leak Detection:	Stock Inventor, 10
Tank Num:	002
Container Num:	2
Year Installed:	1972
Tank Capacity:	00000550
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Tank Construction:	12 gauge
Leak Detection:	Stock Inventor, 10
Tank Num:	003
Container Num:	3
Year Installed:	1972
Tank Capacity:	00008000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Tank Construction:	1/4 inches
Leak Detection:	Stock Inventor, 10
Tank Num:	004
Container Num:	4
Year Installed:	1972
Tank Capacity:	00008000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Tank Construction:	1/4 inches
Leak Detection:	Stock Inventor, 10

A2 West 1/8-1/4 0.139 mi. 733 ft. | **SHELL OIL CO** | **RCRA-SQG** | **1000288738**
I-5/ HWY 20 | **CAD981459423**
WILLIAMS, CA 95987

Site 2 of 2 in cluster A

Relative: Higher

Actual: 74 ft.

RCRA-SQG:

Date form received by agency:	04/08/1998
Facility name:	SHELL OIL CO
Facility address:	I-5/ HWY 20 WILLIAMS, CA 95987
EPA ID:	CAD981459423
Mailing address:	P O BOX 4453 HOUSTON, TX 772104453
Contact:	SONDRA BIENVENU
Contact address:	P O BOX 4453 HOUSTON, TX 772104453
Contact country:	US
Contact telephone:	(713) 241-2258
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	EQUILON ENTERPRISES LLC
Owner/operator address:	P O BOX 4453 HOUSTON, TX 77210
Owner/operator country:	Not reported
Owner/operator telephone:	(713) 241-2258
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

SHELL OIL CO (Continued) **1000288738**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/01/1996
Facility name: SHELL OIL CO
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D018
Waste name: BENZENE

Violation Status: No violations found

B3
NE
1/8-1/4
0.194 mi.
1023 ft.

HELENA CHEMICAL CO **RCRA-SQG** **1000207169**
3/4 MI S OF HWY 20 HUSTED DR **FINDS** **CAD982497257**
WILLIAMS, CA

Site 1 of 2 in cluster B

Relative:
Lower

Actual:
67 ft.

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: HELENA CHEMICAL CO
Facility address: 3/4 MI S OF HWY 20 HUSTED DR
WILLIAMS, CA 95987
EPA ID: CAD982497257
Mailing address: P O BOX 1752
CHICO, CA 95927
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

HELENA CHEMICAL CO (Continued) **1000207169**

Owner/operator name: HELENA CHEMICAL CO
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/21/1990
Facility name: HELENA CHEMICAL CO
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110008279772

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

B4 NE 1/8-1/4 0.227 mi. 1196 ft. | **DE PUE WAREHOUSE COMPANY INC - SPOONER FACILITY**
5999 FRESHWATER RD
WILLIAMS, CA

Site 2 of 2 in cluster B

CUPA Listings **S110420403**
CHMIRS **N/A**

Relative: Lower

Actual: 67 ft.

CUPA COLUSA:

Region:	COLUSA
Facility Id:	FA0000446
Program/Element:	Business Plan Facility

CHMIRS:

OES Incident Number:	'08-8266
OES notification:	11/17/2008
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Residence
Cleanup By:	Unknown
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Unknown
Other:	Not reported
Date/Time:	1415

DE PUE WAREHOUSE COMPANY INC - SPOONER FACILITY (Continued) **S110420403**

Year:	2008
Agency:	NRC
Incident Date:	11/15/2008
Admin Agency:	Colusa Co. Office of Emergency Services
Amount:	Not reported
Contained:	Unknown
Site Type:	Not reported
E Date:	Not reported
Substance:	Natural Gas
Quantity Released:	Unknown
BBLS:	Not reported
Cups:	Not reported
CUFT:	Not reported
Gallons:	Not reported
Grams:	Not reported
Pounds:	Not reported
Liters:	Not reported
Ounces:	Not reported
Pints:	Not reported
Quarts:	Not reported
Sheen:	Not reported
Tons:	Not reported
Unknown:	Not reported
Evacuations:	0
Number of Injuries:	1
Number of Fatalities:	1
Description:	****HISTORICAL REPORT**** Per the NRC report, Company employee was installing a meter. While purging the meter of natural gas the gas caught fire burning the employee.

C5 **WILLIAMS EXPRESS MART** **CUPA Listings** **S110818966**
South **301 VANN ST** **N/A**
1/8-1/4 **WILLIAMS, CA**
0.248 mi.
1307 ft. **Site 1 of 2 in cluster C**

Relative:
Higher

Actual:
75 ft.

CUPA COLUSA:

Region:	COLUSA
Facility Id:	FA0000125
Program/Element:	Hazardous Waste Generator
Region:	COLUSA
Facility Id:	FA0000125
Program/Element:	Business Plan Facility

C6 **EDR US Hist Auto Stat** **1015402323**
South **301 VANN ST** **N/A**
1/8-1/4 **WILLIAMS, CA 95987**
0.248 mi.
1307 ft. **Site 2 of 2 in cluster C**

Relative:
Higher

Actual:
75 ft.

EDR Historical Auto Stations:

Name:	WILLIAMS TEXACO
Year:	2005
Address:	301 VANN ST

(Continued) **1015402323**

Name: SHELL GAS STATION
Year: 2006
Address: 301 VANN ST

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7 NE 1/4-1/2 0.279 mi. 1471 ft.

OLD WILLIAMS DUMP
FRESHWATER RD 1/2 MI W/O HWY 20
WILLIAMS, CA

SWF/LF **S102359834**
N/A

Relative: Lower

Actual: 67 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	06-CR-0001
Lat/Long:	39.1749999 / -122.15000
Owner Name:	Colusa County Farm Supply
Owner Telephone:	9164732851
Owner Address:	Not reported
Owner Address2:	Po Box 1570
Owner City,St,Zip:	Williams, CA 95987
Operational Status:	Closed
Operator:	City Of Williams
Operator Phone:	9164735389
Operator Address:	Not reported
Operator Address2:	Po Box 310
Operator City,St,Zip:	Williams, CA 95987
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	0
Activity:	Solid Waste Disposal Site
Regulation Status:	Unpermitted
Landuse Name:	Rural,Industrial,Agricultural
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Biennial
Accepted Waste:	Not reported
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	0
SWIS Num:	06-CR-0001
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	0
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	0
Remaining Capacity:	0
Remaining Capacity with Units:	Not reported

8 SE 1/4-1/2 0.291 mi. 1535 ft. | **JADE AIR/ HARMON AVIATION HUSTED AND RD E WILLIAMS CA, CA** | **WMUDS/SWAT** | **S103442011 N/A**

Relative: Lower

Actual: 71 ft.

WMUDS/SWAT:

Edit Date:	Not reported
Complexity:	Not reported
Primary Waste:	Washwater Waste (Product washwater wastes: E.G., photo reuse wastewater, vegetable washwater)
Primary Waste Type:	Designated/Influent or Solid Wastes that pose a significant threat to water quality because of their high concentrations (E.G., BOD, Hardness, TRF, Chloride). 'Manageable' hazardous wastes (E.G., inorganic salts and heavy metals) are included in this category.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	Not reported
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	Private
Agency Name:	JADE AIR/ HARMAN AVIATION
Agency Department:	Not reported
Agency Address:	RT. 1 BOX 154
Agency City,St,Zip:	WILLIAMS CA 95987
Agency Contact:	JIM BLUCKER/ROY HARMAN
Agency Telephone:	9164735600
Land Owner Name:	Not reported
Land Owner Address:	Not reported
Land Owner City,St,Zip:	Not reported
Land Owner Contact:	Not reported
Land Owner Phone:	Not reported
Region:	5S
Facility Type:	Agricultural - Facility that treats and/or disposes of the wastes associated with confined and concentrated animal feeding, confined animal feeding, confined animal holding, confined and concentrated aquatic animal production facilities, and aquaculture. the treatment and/or disposal of agricultural return water is included in this category.
Facility Description:	Not reported
Facility Telephone:	Not reported
SWAT Facility Name:	Not reported
Primary SIC:	0721
Secondary SIC:	Not reported
Comments:	Not reported
Last Facility Editors:	Not reported
Waste Discharge System:	True
Solid Waste Assessment Test Program:	False
Toxic Pits Cleanup Act Program:	False
Resource Conservation Recovery Act:	False
Department of Defence:	False
Solid Waste Assessment Test Program:	Not reported
Threat to Water Quality:	Not reported
Sub Chapter 15:	True

JADE AIR/ HARMON AVIATION (Continued) **S103442011**

Regional Board Project Officer:	WLB
Number of WMUDS at Facility:	1
Section Range:	Not reported
RCRA Facility:	Not reported
Waste Discharge Requirements:	A
Self-Monitoring Rept. Frequency:	No Reporting Requirements
Waste Discharge System ID:	5A065014N01
Solid Waste Information ID:	Not reported

9
SW
1/2-1
0.542 mi.
2864 ft.

STANDARD OIL CO.
103 6TH ST
WILLIAMS, CA 95987

ENVIROSTOR **S101479912**
N/A

Relative:
Higher

Actual:
79 ft.

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	1
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Sacramento
Facility ID:	06510018
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	* Rural County Survey Program
Status:	Refer: RWQCB
Status Date:	05/05/1988
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not reported
Latitude:	0
Longitude:	0
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	06510018
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	04/26/1988
Comments:	FACILITY IDENTIFIED ABANDONED.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	05/05/1988
Comments:	SITE SCREENING DONE. ABANDONED BULK OIL FACILITY. PRELIMINARY ASSESSMENT RECOMMENDED BASED ON DRIVE BY.

STANDARD OIL CO. (Continued) **S101479912**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 03/01/1988
Comments: FACILITY IDENTIFIED FROM PHONE BOOK.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

10
SW
1/2-1
0.660 mi.
3487 ft.

A & F AUTO DISMANTLERS
6TH & C ST.
WILLIAMS, CA 95987

ENVIROSTOR **S101479902**
N/A

Relative:
Higher

Actual:
80 ft.

ENVIROSTOR:
Site Type: Evaluation
Site Type Detailed: Evaluation
Acres: 1
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Cleanup Sacramento
Facility ID: 06500003
Site Code: Not reported
Assembly: 04
Senate: 04
Special Program: * Rural County Survey Program
Status: Refer: Other Agency
Status Date: 11/16/1994
Restricted Use: NO
Site Mgmt. Req.: NONE SPECIFIED
Funding: Not reported
Latitude: 39.1575
Longitude: -122.15
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: 06500003
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 03/01/1988
Comments: FACILITY IDENTIFIED 68 PHONE BOOK.

A & F AUTO DISMANTLERS (Continued) **S101479902**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	05/05/1988
Comments:	SITE SCREENING DONE. PRELIMINARY ASSESSMENT (PA) RECOMMENEDED BASED ON DRIVEBY, LENGTH OF OPERATION.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

11
SSW
1/2-1
0.762 mi.
4026 ft.

NORTHERN CRANE INC.
650 D STREET
WILLIAMS, CA 95987

HIST UST **U001618103**
SWEEPS UST **N/A**
ENVIROSTOR

Relative:
Higher

Actual:
82 ft.

HIST UST:

Region:	STATE
Facility ID:	00000011740
Facility Type:	Other
Other Type:	Not reported
Total Tanks:	0003
Contact Name:	HERBERT BALES
Telephone:	9164735533
Owner Name:	HERBERT BALES
Owner Address:	650 D STREET
Owner City,St,Zip:	WILLIAMS, CA 95987
Tank Num:	001
Container Num:	#10
Year Installed:	Not reported
Tank Capacity:	00006500
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	#11
Year Installed:	Not reported
Tank Capacity:	00006500
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Tank Construction:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	#12
Year Installed:	Not reported
Tank Capacity:	00002000
Tank Used for:	WASTE

NORTHERN CRANE INC. (Continued) **U001618103**

Type of Fuel: WASTE OIL
Tank Construction: Not reported
Leak Detection: Stock Inventor

SWEEPS UST:

Status: Not reported
Comp Number: 11740
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 06-000-011740-000001
Actv Date: Not reported
Capacity: 6500
Tank Use: EMPTY
Stg: PRODUCT
Content: DIESEL
Number Of Tanks: 3

Status: Not reported
Comp Number: 11740
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 06-000-011740-000002
Actv Date: Not reported
Capacity: 6500
Tank Use: EMPTY
Stg: PRODUCT
Content: REGULAR UNLE
Number Of Tanks: Not reported

Status: Not reported
Comp Number: 11740
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Tank Status: Not reported
Owner Tank Id: Not reported
Swrcb Tank Id: 06-000-011740-000003
Actv Date: Not reported
Capacity: 3000
Tank Use: EMPTY
Stg: WASTE
Content: WASTE OIL
Number Of Tanks: Not reported

NORTHERN CRANE INC. (Continued) **U001618103**

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	1
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Sacramento
Facility ID:	06420001
Site Code:	Not reported
Assembly:	Not reported
Senate:	Not reported
Special Program:	* Rural County Survey Program
Status:	Refer: Other Agency
Status Date:	11/16/1994
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not reported
Latitude:	0
Longitude:	0
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CAD009473109
Alias Type:	HWTS Identification Code
Alias Name:	06420001
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Screening
Completed Date:	05/05/1988
Comments:	SITE SCREENING DONE. PRELIMINARY ASSESSMENT RECOMMENDED BASED ON DEPARTMENT OF HEALTH SERVICES FILE. WAS STORING HAZARDOUS WASTES ON SITE. NO CLEAN UP DOCUMENTED.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	03/01/1988
Comments:	FACILITY IDENTIFIED DEPARTMENT OF HEALTH SERVICES FILES.

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 23 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
WILLIAMS	1000984892	TOSCO NORTHWEST CO NO 11135	I 5 AND E ST		RCRA-SQG,FINDS
WILLIAMS	1001111602	CALIFORNIA NORTHERN RAILROAD	CFNR STATION OF WILLIAMS	95987	FINDS,RCRA-NLR
WILLIAMS	1001111603	CALIFORNIA NORTHERN RAILROAD	CFNR STATION OF CORTENA	95987	FINDS,RCRA-NLR
WILLIAMS	A100336980	WESTSIDE WATER DIST	5005 OLD HWY 99	95987	AST
WILLIAMS	S101479910	BC STOCKING DISTRIBUTOR	HUSTED & HWY 99	95987	ENVIROSTOR
WILLIAMS	S104233716	WILBER SPRINGS FIRE STATI	1010 HWY 116	95987	HIST CORTESE
WILLIAMS	S105109513	CDF WILBER SPRINGS FOREST FIRE STA	1010 HWY 16	95987	LUST
WILLIAMS	S106923031	B C STOCKING DISTRIBUTING	HUSTED RD	95987	SWEEPS UST
WILLIAMS	S106925353	DHILLION'S WILLIAMS SHELL	I-5 & HWY 20	95987	SWEEPS UST
WILLIAMS	S106930194	ORV'S MINI MART	HWY 20 & VIRGINIA ST	95987	SWEEPS UST
WILLIAMS	S106931070	RALPH A NISSEN	HUSTED RD	95987	SWEEPS UST
WILLIAMS	S108277111	B C STOCKING	1802 HWY 99	95987	LUST
WILLIAMS	S110819166	DE PUE WAREHOUSE COMPANY INC - COR	3334 HWY 99W LURLINE RD		CUPA
WILLIAMS	S110819167	DE PUE WAREHOUSE COMPANY - DELEVAN	4854 HWY 99W		CUPA
WILLIAMS	S110819172	M&K HARVESTING EQUIPMENT	1990 FRESHWATER RD		CUPA
WILLIAMS	S110819176	WESTSIDE WATER DISTRICT	5005 HIGHWAY 20		CUPA
WILLIAMS	S110819231	JULIO BRINCATS HIGHTECH TOWING	1185 FRESHWATER RD		CUPA
WILLIAMS	S112135642	ROYALE ENERGY GODDARD #7-1	HUSTED RD		CUPA
WILLIAMS	S112135644	ROYALE ENERGY MORROW #1	HUSTED RD		CUPA
ESPARTO	U001618092	ESPARTO	ROUTE 16,YOLO STREET	95987	HIST UST
WILLIAMS	U001618099	LEESVILLE FFS	STAR ROUTE	95987	HIST UST
WILLIAMS	U001618113	ROBERT L BOWEN	207 FRESHWATER RD	95987	HIST UST,SWEEPS UST
WILLIAMS	U001618119	WILBUR SPRINGS FOREST FIRE STA	STAR ROUTE	95987	HIST UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 05/09/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 07/08/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/29/2013	Telephone: 703-412-9810
Date Made Active in Reports: 08/09/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 05/09/2013
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/17/2013
Date Made Active in Reports: 02/15/2013
Number of Days to Update: 29

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/01/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 162

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-327-5092
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 45

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/03/2012
Date Made Active in Reports: 11/05/2012
Number of Days to Update: 94

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/07/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 156

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/02/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/16/2013
Number of Days to Update: 60

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/26/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 20

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/12/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 59

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/06/2013
Date Data Arrived at EDR: 05/07/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 49

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/14/2013
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing
Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/14/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 71

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 55

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 55

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 01/15/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/04/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 114

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 112

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013
Date Data Arrived at EDR: 04/11/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013
Date Data Arrived at EDR: 03/21/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 111

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 22

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 03/05/2013
Date Data Arrived at EDR: 03/19/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 8

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 07/05/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 52

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/11/2012
Date Data Arrived at EDR: 12/12/2012
Date Made Active in Reports: 01/04/2013
Number of Days to Update: 23

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/29/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 17

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 41

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 58

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/01/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/02/2013
Date Data Arrived at EDR: 06/13/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 41

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/14/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/21/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 36

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 06/01/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/16/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: N/A

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 04/04/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 97

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List
Cupa Facility List

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 16

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 43

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 8

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 08/09/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/26/2012
Date Data Arrived at EDR: 06/27/2012
Date Made Active in Reports: 08/17/2012
Number of Days to Update: 51

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 58

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 07/08/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 07/22/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 35

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/22/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 03/25/2013
Number of Days to Update: 32

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 04/29/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 18

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 04/16/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 31

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 11/26/2012
Date Data Arrived at EDR: 11/28/2012
Date Made Active in Reports: 01/21/2013
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/21/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2013
Date Data Arrived at EDR: 05/30/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 46

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 28

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 14

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/20/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 6

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 16

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 46

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2013
Date Data Arrived at EDR: 05/31/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 45

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2012
Date Data Arrived at EDR: 11/06/2012
Date Made Active in Reports: 11/30/2012
Number of Days to Update: 24

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 57

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/18/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 49

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 06/10/2013
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/04/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 41

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/06/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 39

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/03/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/16/2013
Date Data Arrived at EDR: 05/17/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 39

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 53

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 61

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 07/05/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 47

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 69

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/14/2013
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 42

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 34

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 49

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/30/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 64

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/12/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/07/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 37

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 09/27/2012
Number of Days to Update: 70

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SR 20
SR 20
WILLIAMS, CA 95987

TARGET PROPERTY COORDINATES

Latitude (North):	39.1677 - 39˚ 10’ 3.72’’
Longitude (West):	122.141 - 122˚ 8’ 27.60’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	574208.9
UTM Y (Meters):	4335529.5
Elevation:	72 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	39122-B2 WILLIAMS, CA
Most Recent Revision:	1994
East Map:	39122-B1 COLUSA, CA
Most Recent Revision:	1991

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

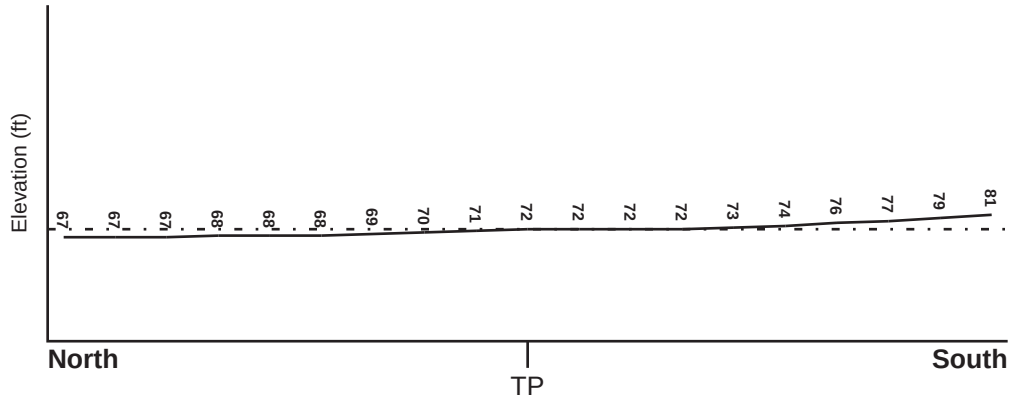
TOPOGRAPHIC INFORMATION

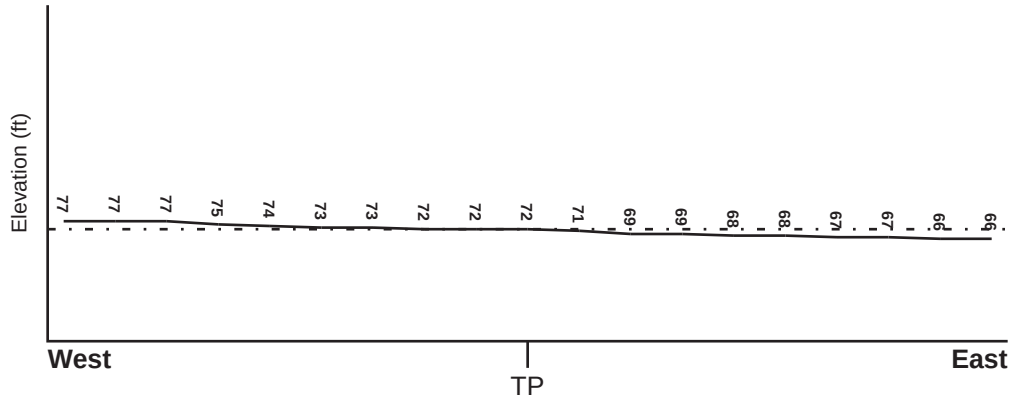
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 72 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
COLUSA, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06011C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
WILLIAMS	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

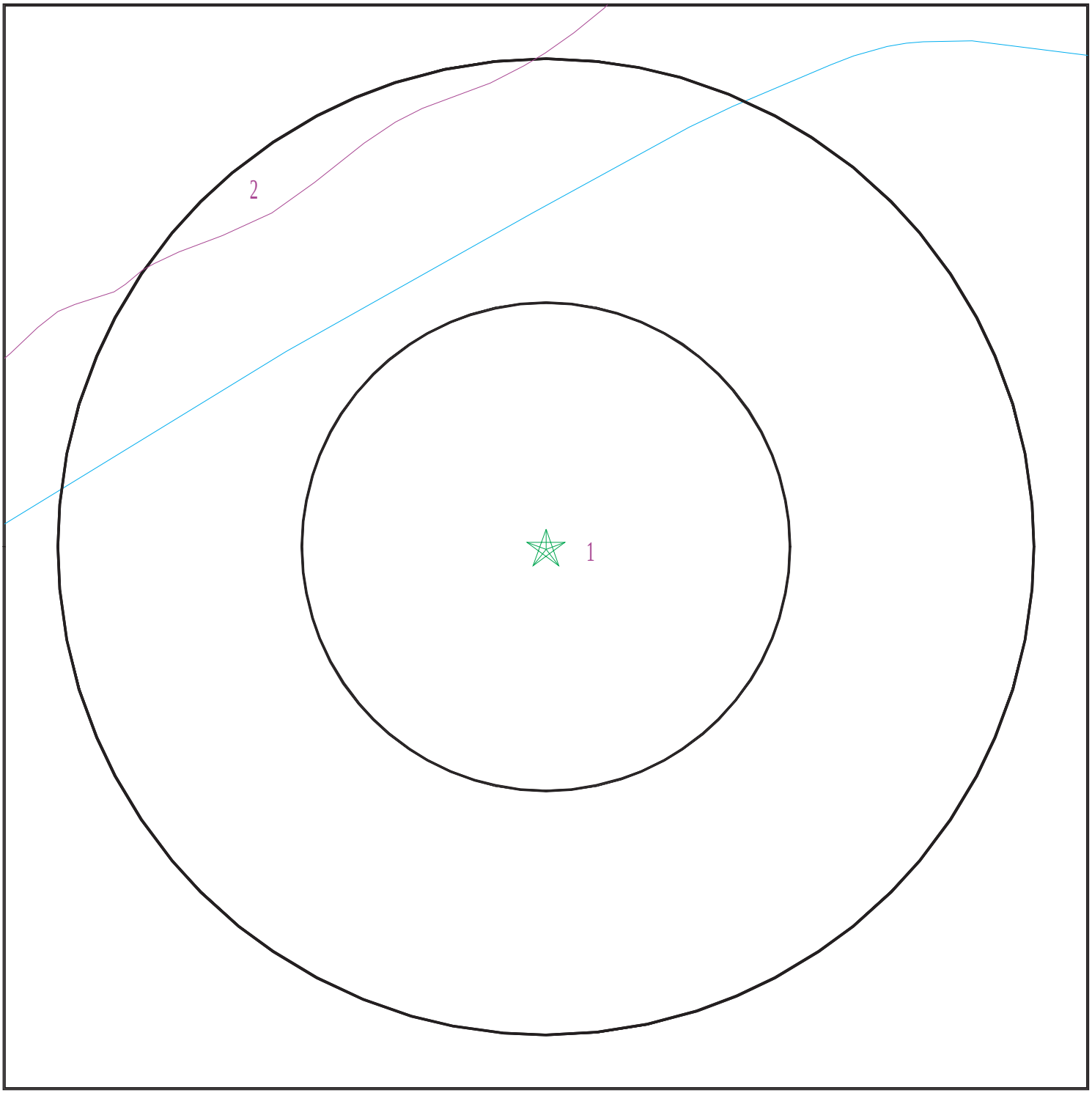
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3707025.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: SR 20 ADDRESS: SR 20 Williams CA 95987 LAT/LONG: 39.1677 / 122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY #: 3707025.2s DATE: August 26, 2013 1:50 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: WILLOWS

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	4 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
2	4 inches	13 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
3	13 inches	19 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
4	19 inches	39 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
5	39 inches	51 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
6	51 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
7	59 inches	71 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: WILLOWS

Soil Surface Texture: silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 122 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	4 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
2	4 inches	13 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
3	13 inches	19 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
4	19 inches	39 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
5	39 inches	51 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
6	51 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6
7	59 inches	71 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
3	USGS40000192258	1/2 - 1 Mile NE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

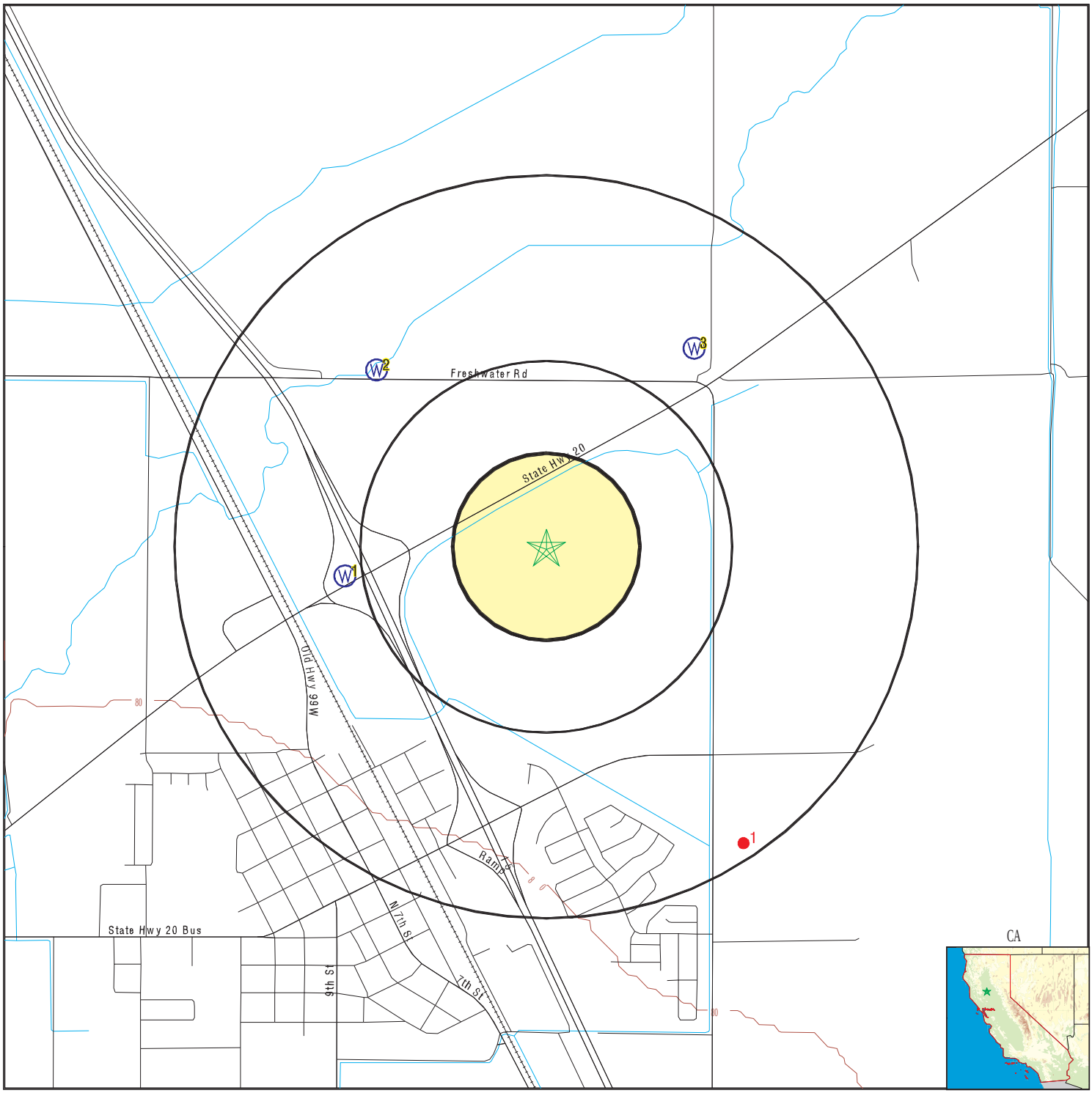
MAP ID	WELL ID	LOCATION FROM TP
1	12603	1/2 - 1 Mile West
2	CADW50000033210	1/2 - 1 Mile NW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG9A000214548	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 3707025.2s



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

N

SITE NAME: SR 20 ADDRESS: SR 20 Williams CA 95987 LAT/LONG: 39.1677 / 122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY #: 3707025.2s DATE: August 26, 2013 1:50 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
1 **West** **1/2 - 1 Mile** **Higher**	**CA WELLS**	**12603**

Water System Information:

Prime Station Code:	15N/03W-14A01 M	User ID:	BUG
FRDS Number:	0610004002	County:	Colusa
District Number:	02	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	391000.0 1220900.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	WELL 03 - "C" STREET		
System Number:	0610004		
System Name:	CITY OF WILLIAMS		
Organization That Operates System:			
	Not Reported		
	WILLIAMS, CA 95987		
Pop Served:	2750	Connections:	827
Area Served:	WILLIAMS		

---

2 **NW** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000033210**

Latitude :	39.1746		
Longitude :	122.1495		
Site code:	391746N1221495W001	Casgem sta:	15N03W01N001M
Local well:	15N03W01N001M	Casgem s 1:	Industrial
County id:	6		
Basin cd:	5-21.52	Basin desc:	Colusa
Org unit n:	Northern Region Office	Site id:	CADW50000033210

---

3 **NE** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000192258**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-391032122075701		
Monloc name:	015N003W01R001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020104	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	39.1754464
Longitude:	-122.1335855	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	66
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19620720	Welldepth:	316
Welldepth units:	ft	Wellholedepth:	316
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

Map ID Direction Distance	Database	EDR ID Number
1 **SSE** **1/2 - 1 Mile**	**OIL_GAS**	**CAOG9A000214548**

Districtnu:	6	Apinumber:	01120082
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Conoco Inc.		
Countyname:	Colusa	Fieldname:	Any Field
Areaname:	Any Area		
Section:	18		
Township:	15N	Range:	02W
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	39.156131		
Glong:	-122.131115		
Gissourcec:	hud		
Comments:	Status Code 006		
Leasename:	Landrus	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	12/30/1899
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	/ /	Completion:	/ /
Gissymbol:	PDH	Site id:	CAOG9A000214548

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95987	1	1

Federal EPA Radon Zone for COLUSA County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for COLUSA COUNTY, CA

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.550 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D: HISTORICAL RESEARCH DOCUMENTATION

HISTORIC AERIAL PHOTOGRAPHS
HISTORICAL TOPOGRAPHIC MAPS
CITY DIRECTORY IMAGE REPORT
SANBORN® FIRE INSURANCE MAP REPORT

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

SR 20

SR 20

Williams, CA 95987

Inquiry Number: 3707025.5

August 28, 2013

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Date EDR Searched Historical Sources:

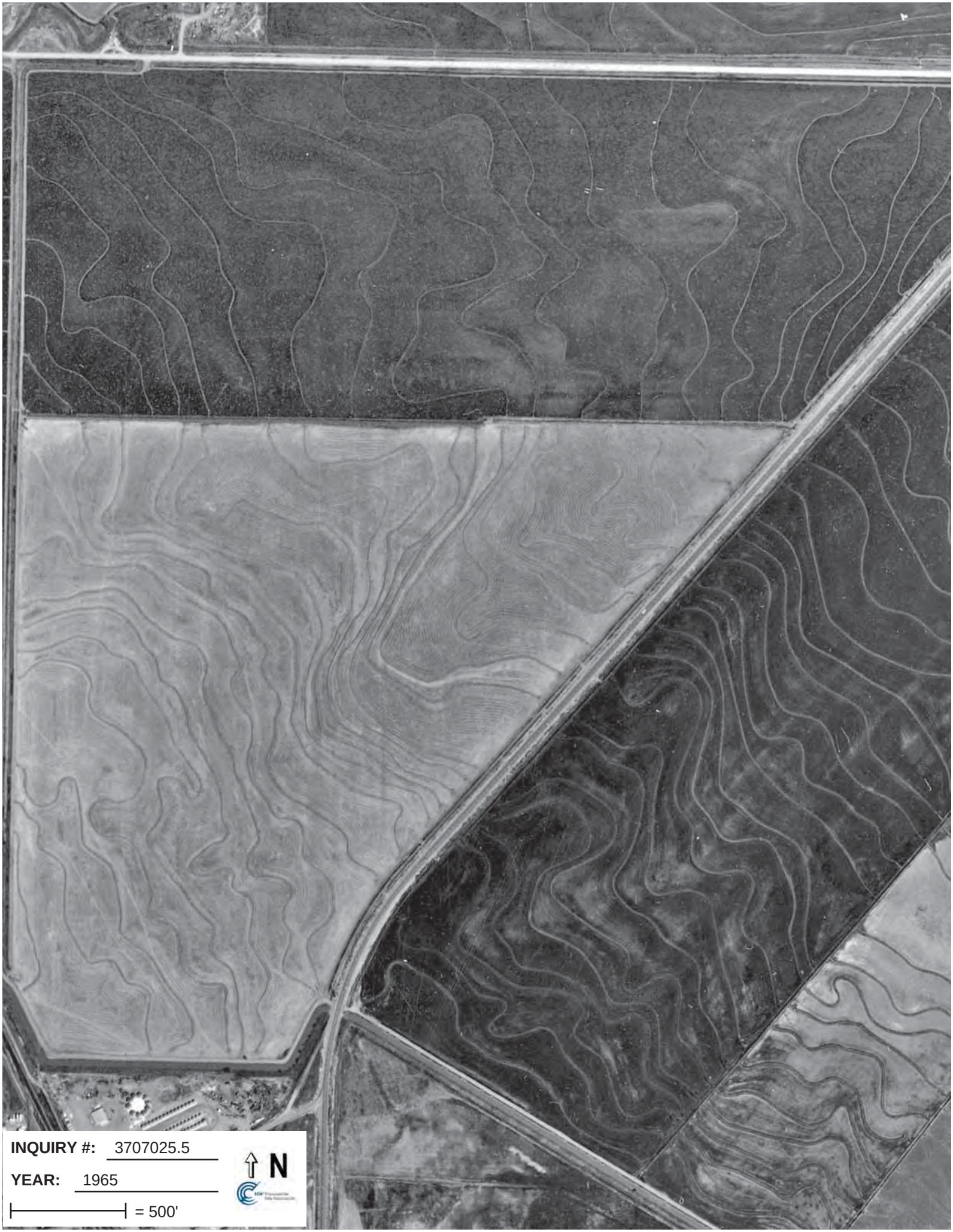
Aerial Photography August 28, 2013

Target Property:

SR 20

Williams, CA 95987

Year	***Scale***	***Details***	***Source***
1965	Aerial Photograph. Scale: 1"=500'	Flight Year: 1965	Cartwright
1975	Aerial Photograph. Scale: 1"=500'	Flight Year: 1975 Best Copy Available from original source	Cartwright
1983	Aerial Photograph. Scale: 1"=500'	Flight Year: 1983	WSA
1987	Aerial Photograph. Scale: 1"=500'	Flight Year: 1987	USGS
1998	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1998	EDR
1998	Aerial Photograph. Scale: 1"=500'	Flight Year: 1998	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR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YEAR: 1965
= 500'
N

INQUIRY #: 3707025.5
YEAR: 1975
= 500'
N

INQUIRY #: 3707025.5
YEAR: 1983
= 500'
N

INQUIRY #: 3707025.5
YEAR: 1987
= 500'
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YEAR: 1998
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INQUIRY #: 3707025.5
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= 500'
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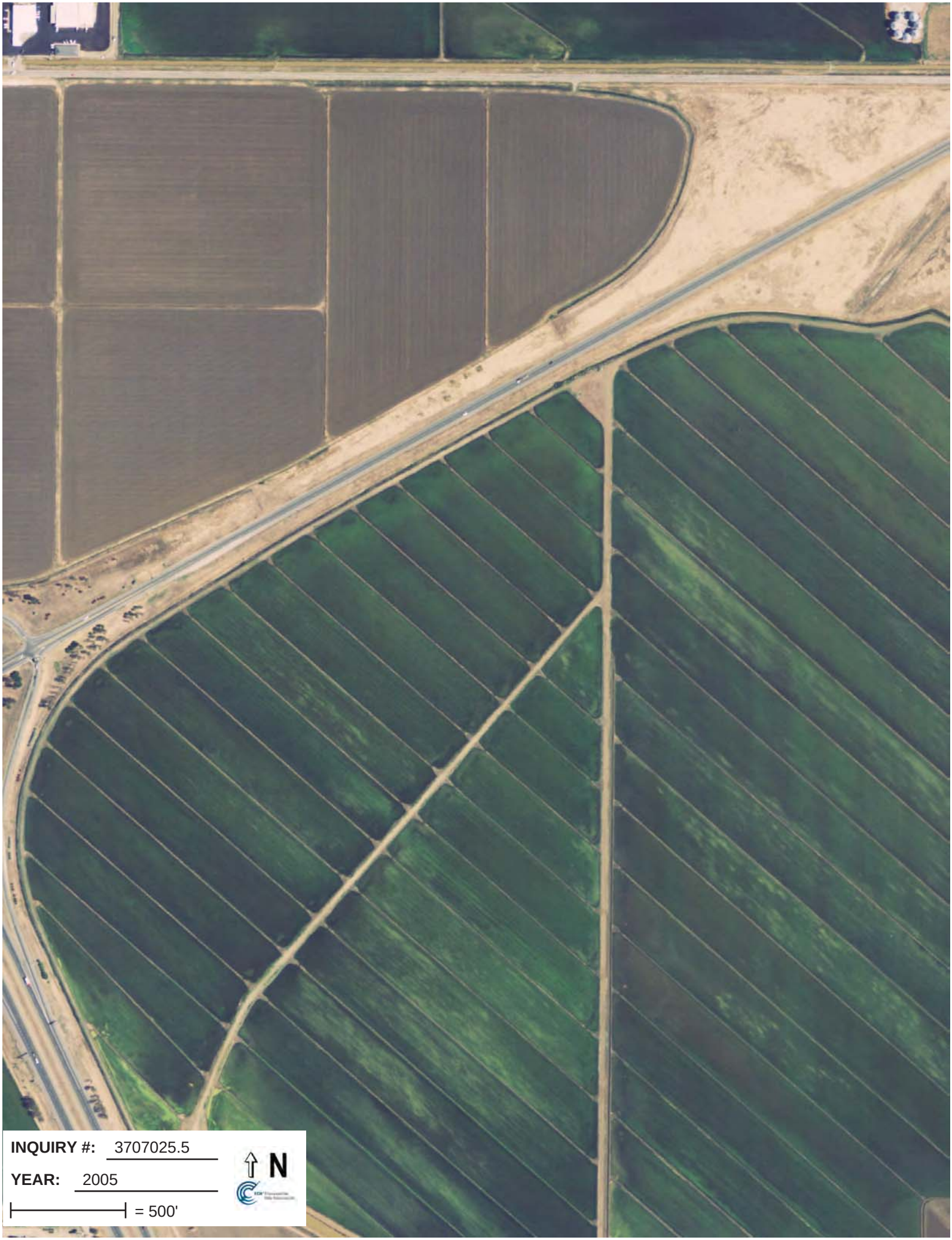
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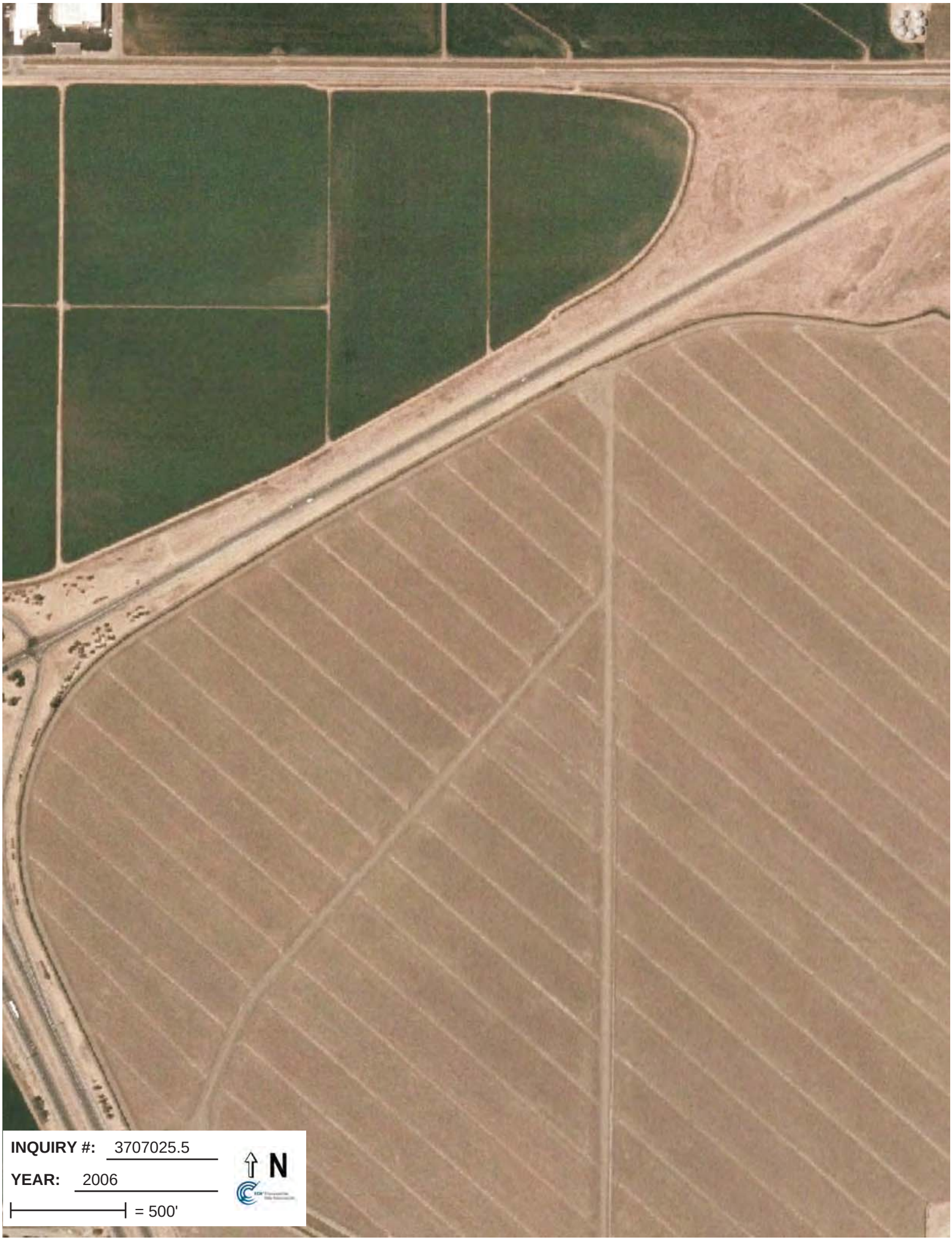
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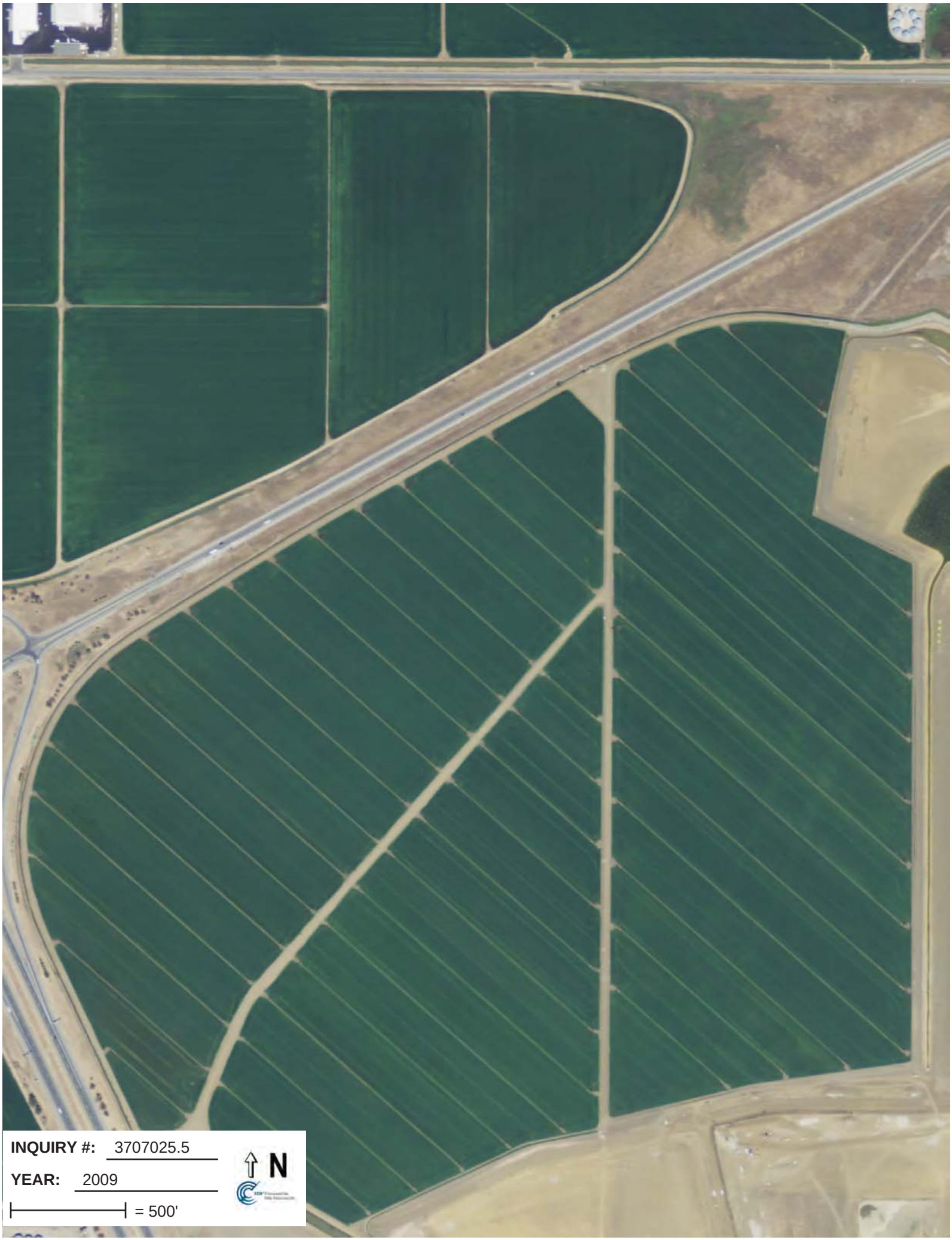
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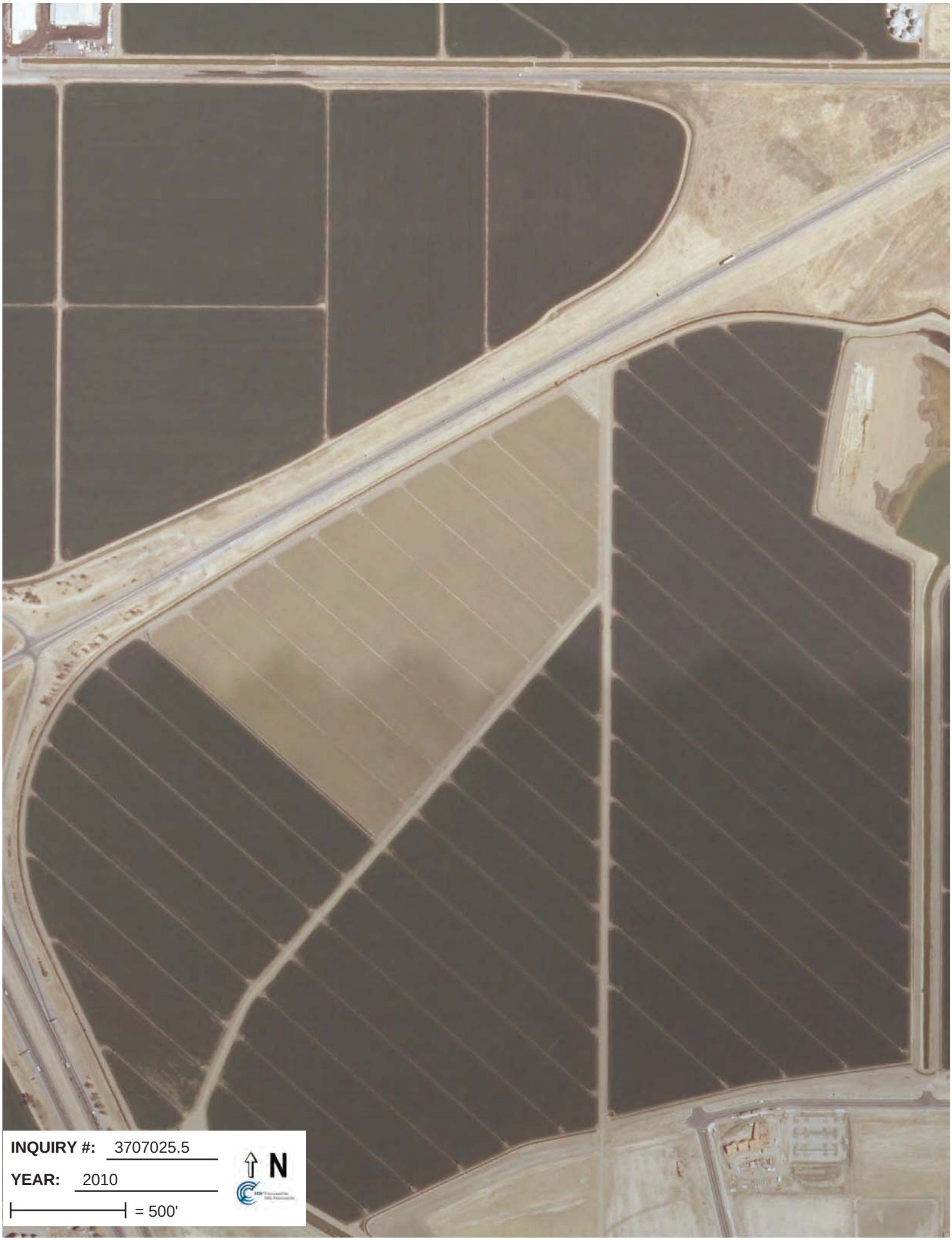
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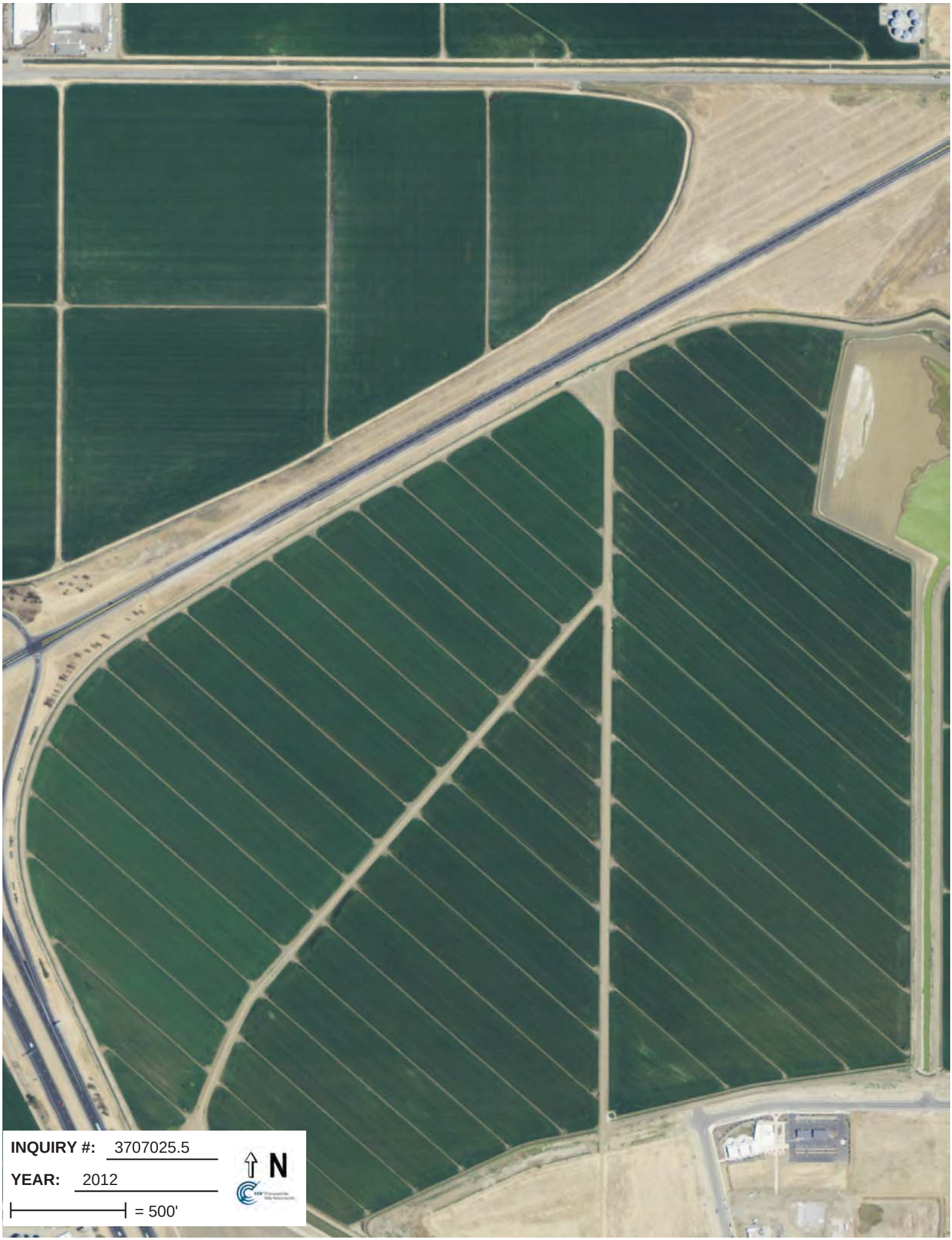
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YEAR: 2012
= 500'
N

SR 20

SR 20

Williams, CA 95987

Inquiry Number: 3707025.4

August 26, 2013

EDR Historical Topographic Map Report

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EDR Historical Topographic Map Report

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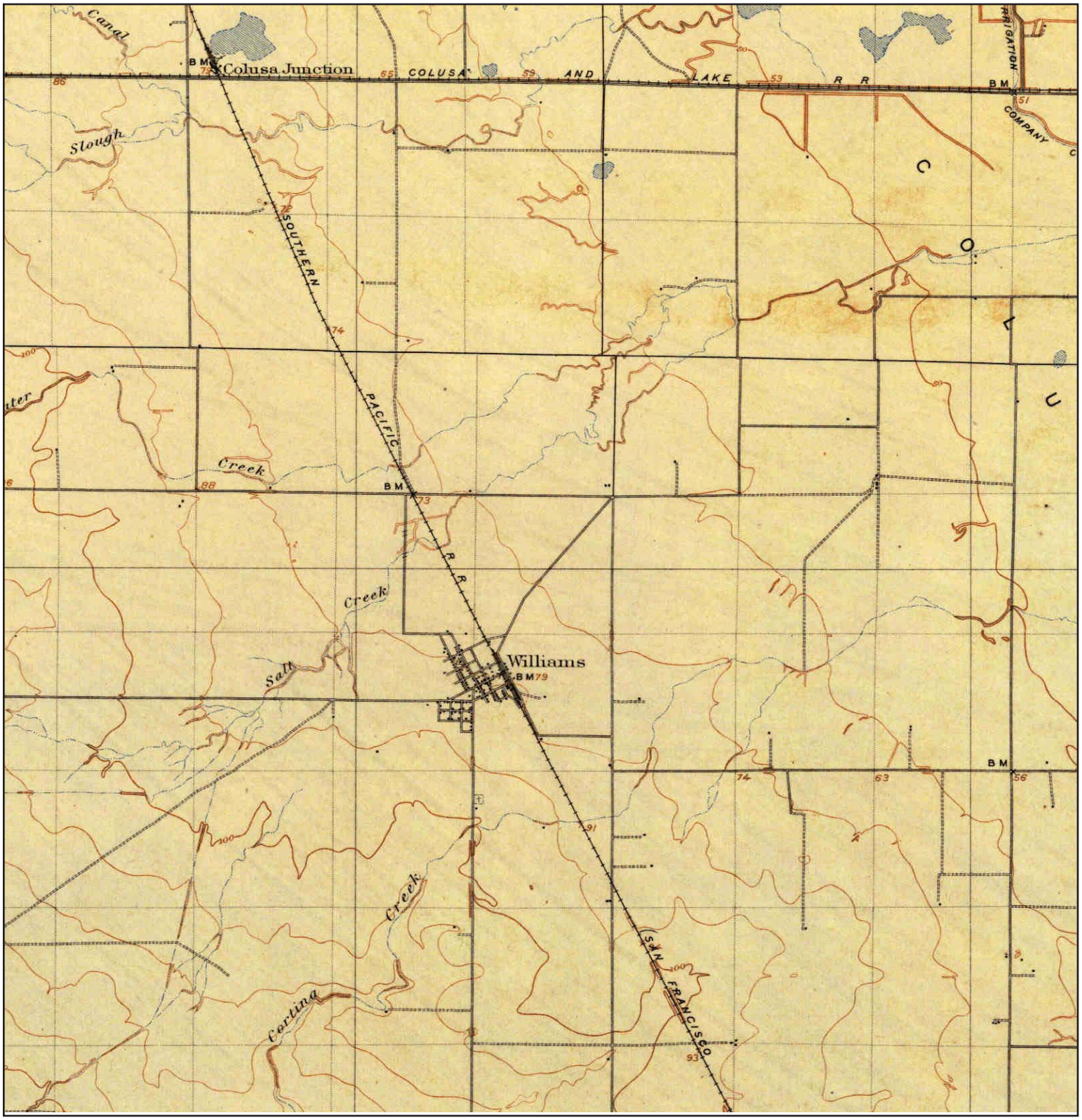
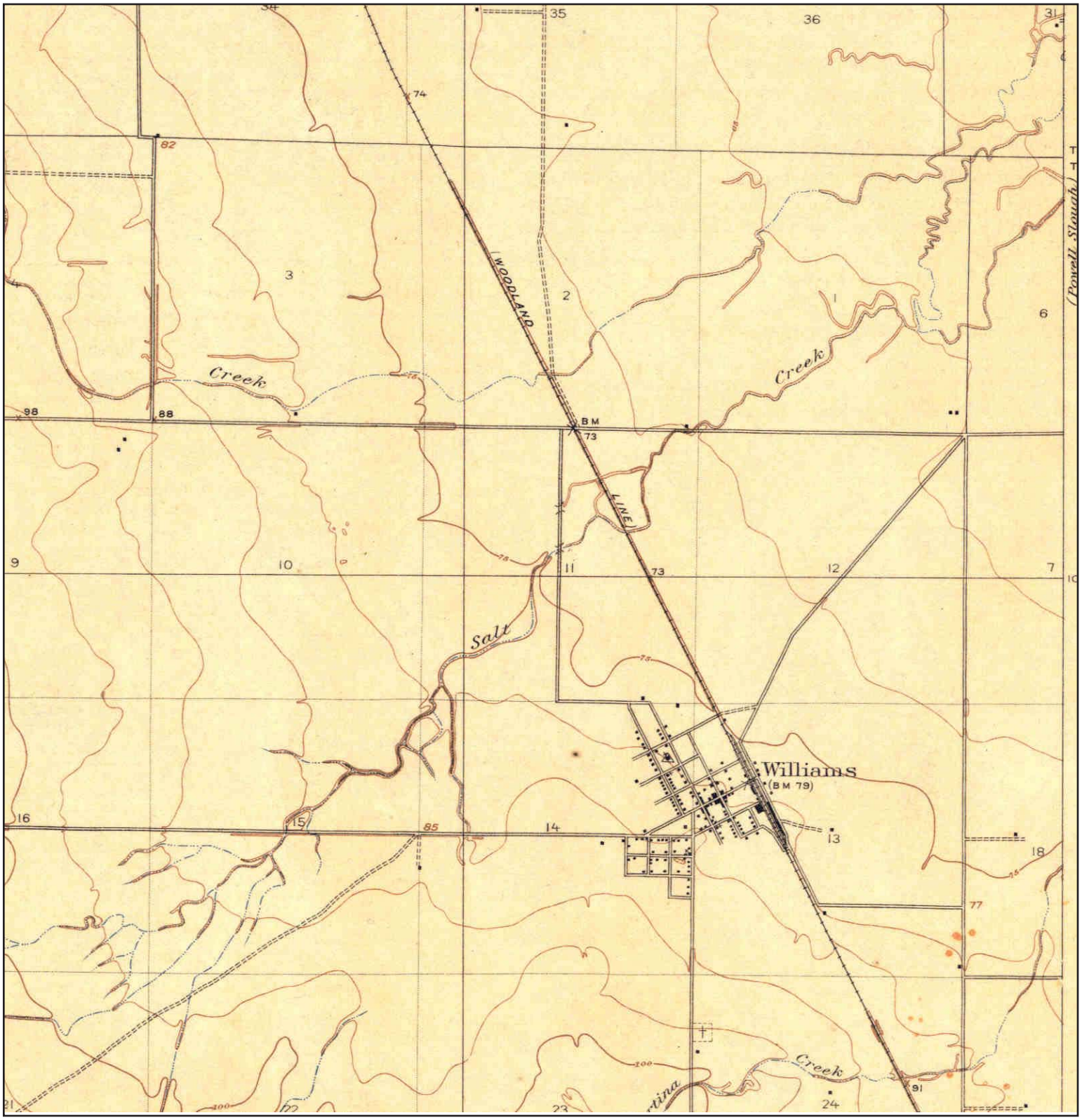
Historical Topographic Map



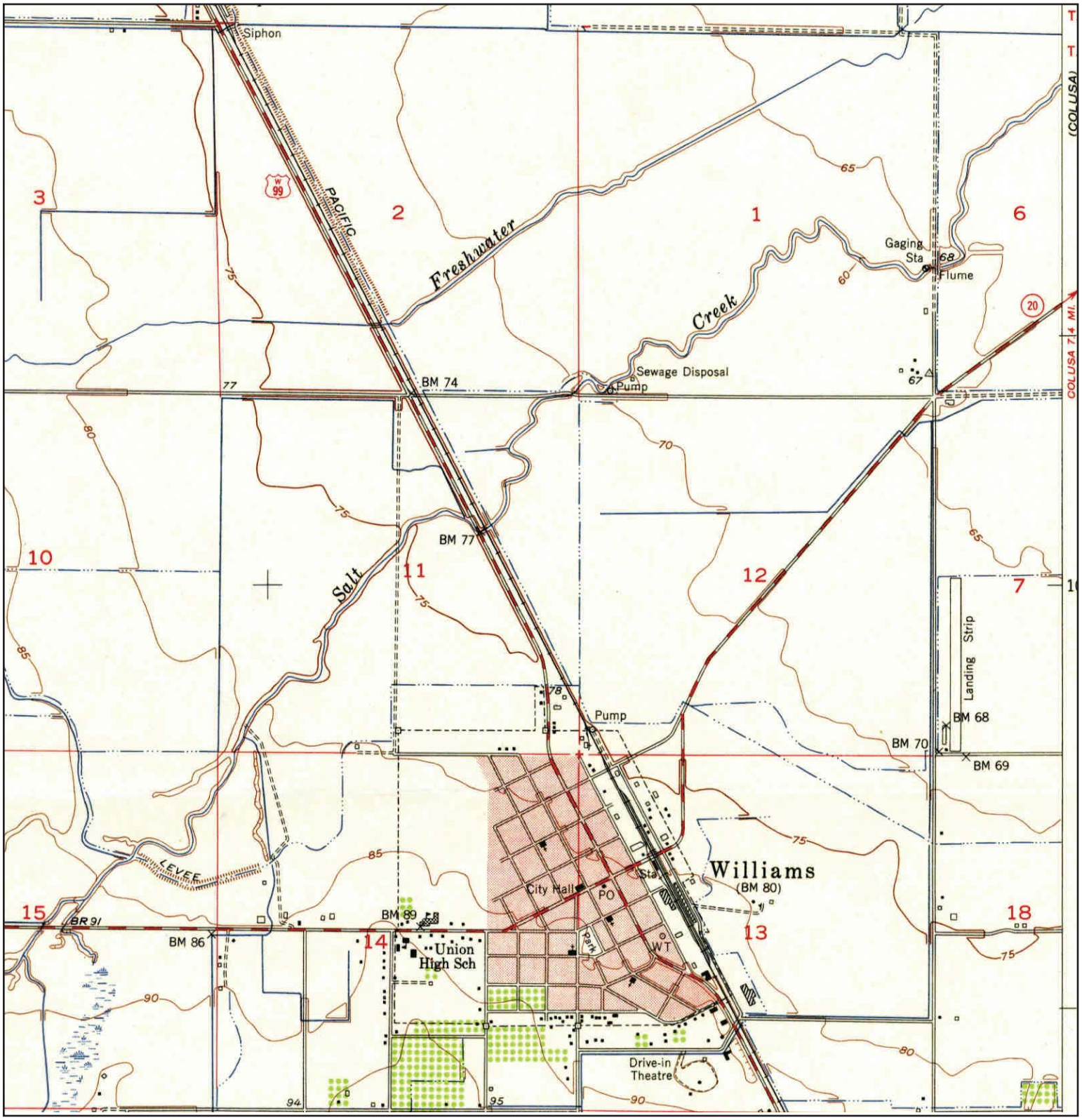
N	TARGET QUAD NAME: COLUSA MAP YEAR: 1907 SERIES: 15 SCALE: 1:62500	SITE NAME: SR 20 ADDRESS: SR 20 Williams, CA 95987 LAT/LONG: 39.1677 / -122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY#: 3707025.4 RESEARCH DATE: 08/26/2013

Historical Topographic Map



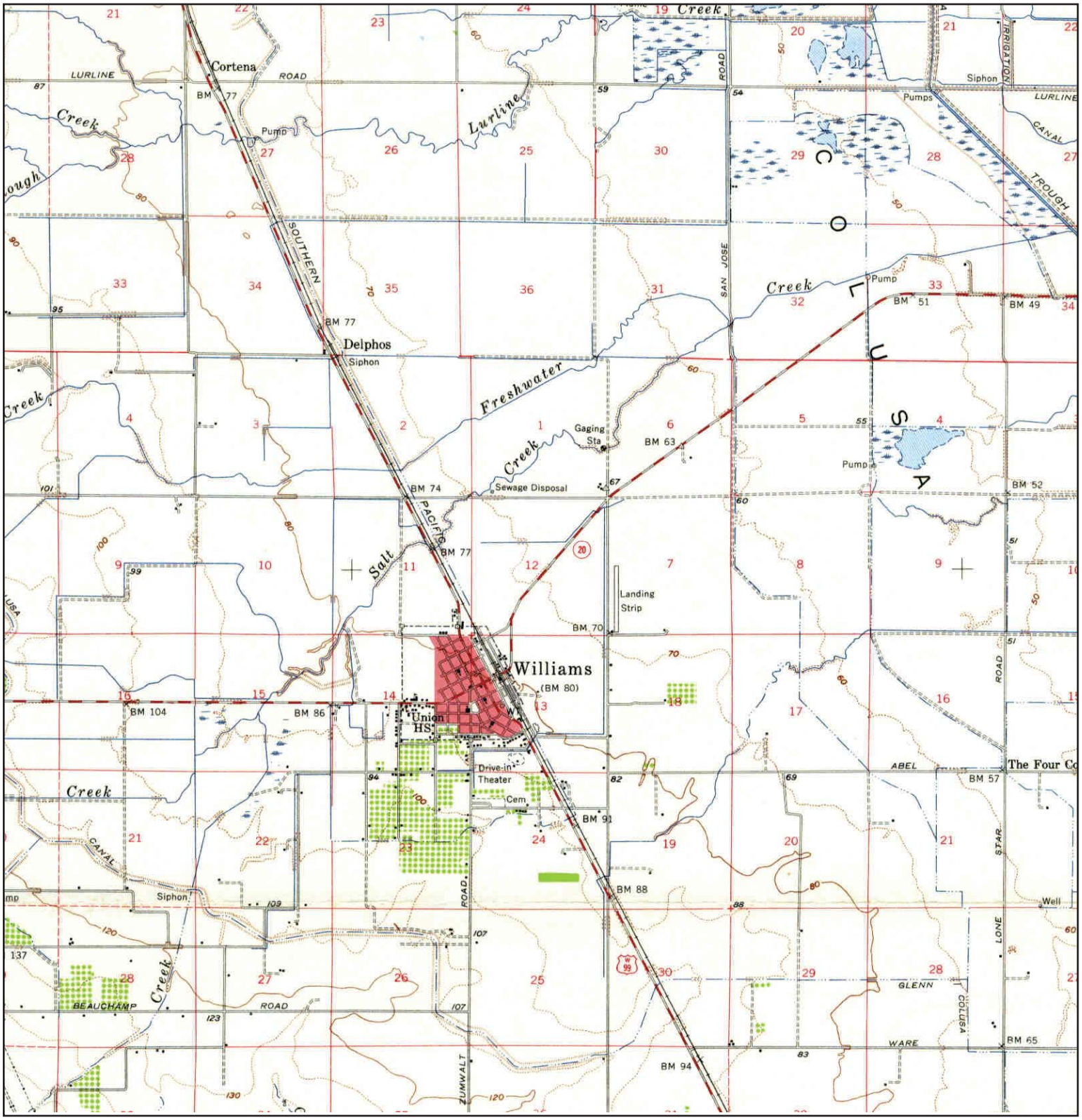
N	TARGET QUAD NAME: WILLIAMS MAP YEAR: 1918 SERIES: 7.5 SCALE: 1:31680	SITE NAME: SR 20 ADDRESS: SR 20 Williams, CA 95987 LAT/LONG: 39.1677 / -122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY#: 3707025.4 RESEARCH DATE: 08/26/2013

Historical Topographic Map



N	TARGET QUAD NAME: WILLIAMS MAP YEAR: 1952 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SR 20 ADDRESS: SR 20 Williams, CA 95987 LAT/LONG: 39.1677 / -122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY#: 3707025.4 RESEARCH DATE: 08/26/2013

Historical Topographic Map



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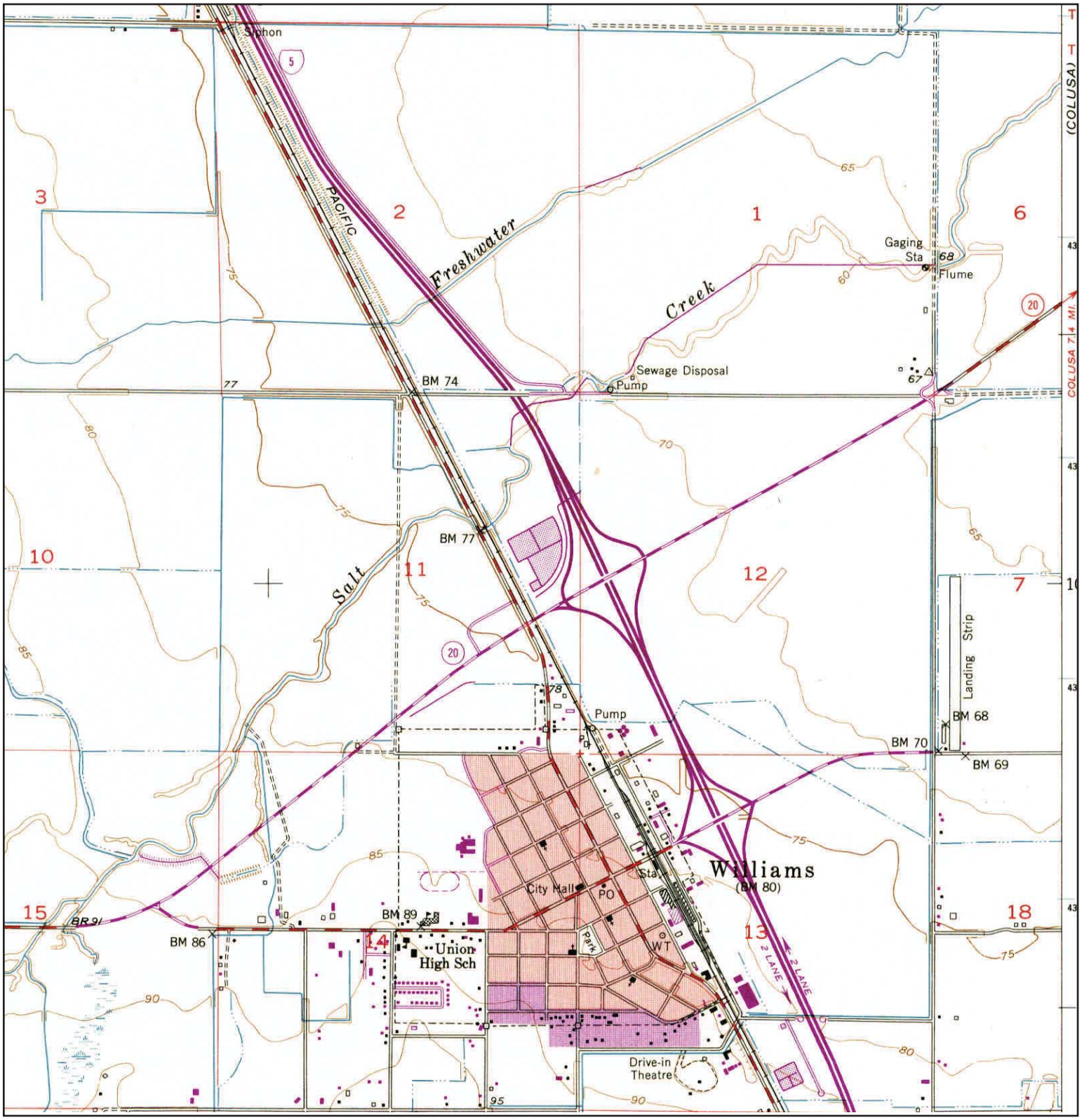
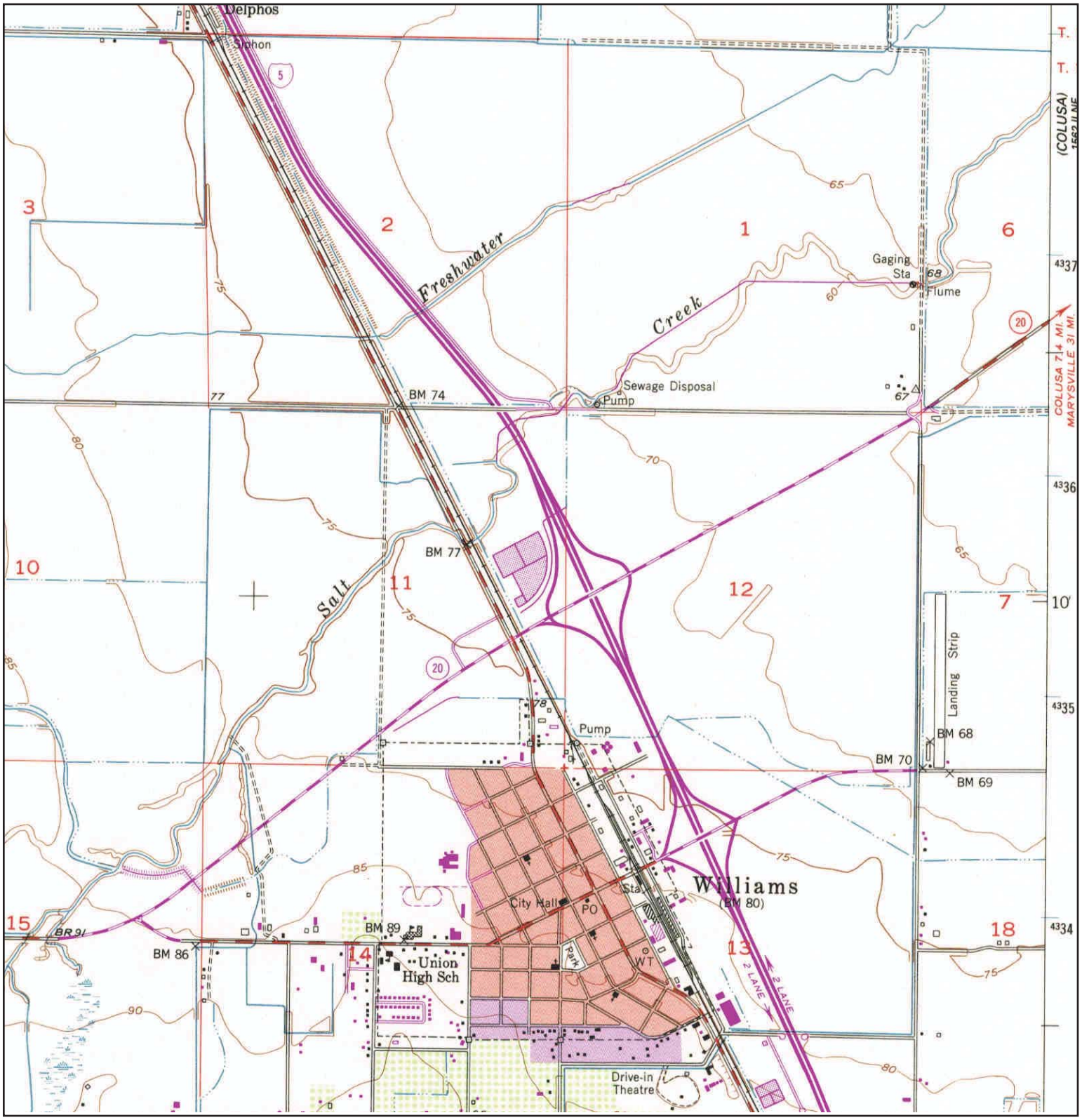
Historical Topographic Map



N	TARGET QUAD NAME: WILLIAMS MAP YEAR: 1973 PHOTOREVISED FROM :1952 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SR 20 ADDRESS: SR 20 Williams, CA 95987 LAT/LONG: 39.1677 / -122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY#: 3707025.4 RESEARCH DATE: 08/26/2013

Historical Topographic Map



N	TARGET QUAD NAME: WILLIAMS MAP YEAR: 1994 REVISED FROM :1952 SERIES: 7.5 SCALE: 1:24000	SITE NAME: SR 20 ADDRESS: SR 20 Williams, CA 95987 LAT/LONG: 39.1677 / -122.141	CLIENT: Hanover Environmental Svs. CONTACT: Mallory Brown INQUIRY#: 3707025.4 RESEARCH DATE: 08/26/2013

SR 20

SR 20

Williams, CA 95987

Inquiry Number: 3707025.3

August 26, 2013

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www.edrnet.com

Certified Sanborn® Map Report

8/26/13

Site Name:
SR 20
SR 20
Williams, CA 95987

EDR Inquiry # 3707025.3

Client Name:
Hanover Environmental Svs.
1072 Marauder Street
Chico, CA 95973

Contact: Mallory Brown

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Certified Sanborn Results:

Site Name: SR 20
Address: SR 20
City, State, Zip: Williams, CA 95987
Cross Street:
P.O. # NA
Project: NA
Certification # 181D-4CD2-9E46

Sanborn® Library search results
Certification # 181D-4CD2-9E46

UNMAPPED PROPERTY

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- ✔ Library of Congress
- ✔ University Publications of America
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SR 20
SR 20
Williams, CA 95987

Inquiry Number: 3707025.6
August 28, 2013

The EDR-City Directory Image Report

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2009	☐	☐	Haines Criss-Cross Directory
2005	☐	☐	Haines Criss-Cross Directory
2001	☐	☐	Haines Criss-Cross Directory
1996	☐	☐	Haines Criss-Cross Directory
1990	☐	☐	Haines Criss-Cross Directory
1985	☐	☐	Haines Criss-Cross Directory
1980	☐	☐	Haines Criss-Cross Directory
1974	☐	☐	Haines Criss-Cross Directory
1970	☐	☐	Haines Criss-Cross Directory

RECORD SOURCES

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FINDINGS

TARGET PROPERTY STREET

SR 20
Williams, CA 95987

Year	CD Image	Source	
SR 20			
2009	-	Haines Criss-Cross Directory	Street not listed in Source
2005	-	Haines Criss-Cross Directory	Street not listed in Source
2001	-	Haines Criss-Cross Directory	Street not listed in Source
1996	-	Haines Criss-Cross Directory	Street not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1974	-	Haines Criss-Cross Directory	Street not listed in Source
1970	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
Ella St.			
2009	-	Haines Criss-Cross Directory	Street not listed in Source
2005	-	Haines Criss-Cross Directory	Street not listed in Source
2001	-	Haines Criss-Cross Directory	Street not listed in Source
1996	-	Haines Criss-Cross Directory	Street not listed in Source
1990	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1974	-	Haines Criss-Cross Directory	Street not listed in Source
1970	-	Haines Criss-Cross Directory	Street not listed in Source

APPENDIX E: QUALIFICATIONS

MR. WILL BONO, ENVIRONMENTAL PROFESSIONAL

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

WILLIAM BONO, R.E.A

PRESIDENT/CEO

EDUCATION

- San Mateo College, A&P Certificate program, 1972
- UC Davis Extension, Site Assessment and Remediation Certificate Program
- Health and Safety Training for Hazardous Waste Sites, 40 hours
- OSHA Health and Safety Training Refresher Course, 8 hours

PROFESSIONAL HISTORY

- Will Bono Construction, Marin Co., CA, President 1976-1993
- Will Bono Environmental Services, Chico, CA, 1993-1995
- Hanover Environmental Services, Inc., Chico, CA; President/CEO, 1995 to present

REPRESENTATIVE EXPERIENCE

As President/CEO of Hanover Environmental Services, Inc. Mr. Bono has managed numerous environmental projects ranging from site assessments to characterization, remediation, and closure. His project experience includes design and construction of commercial buildings, site remediation, commercial fueling system design, and construction projects. Currently as CEO of Hanover Inc., Mr. Bono manages over 40 sites in northern California under the auspices of the Regional Water Quality Control Board, the Air Quality Management District, and local county and fire department leads. His duties include allocation of equipment and personnel, client development and strategic planning.

Mr. Bono has performed and supervised hundreds of Phase I and Phase II Environmental Site Assessments from 1990 through present. He has been a Registered Environmental Assessor since the program began.

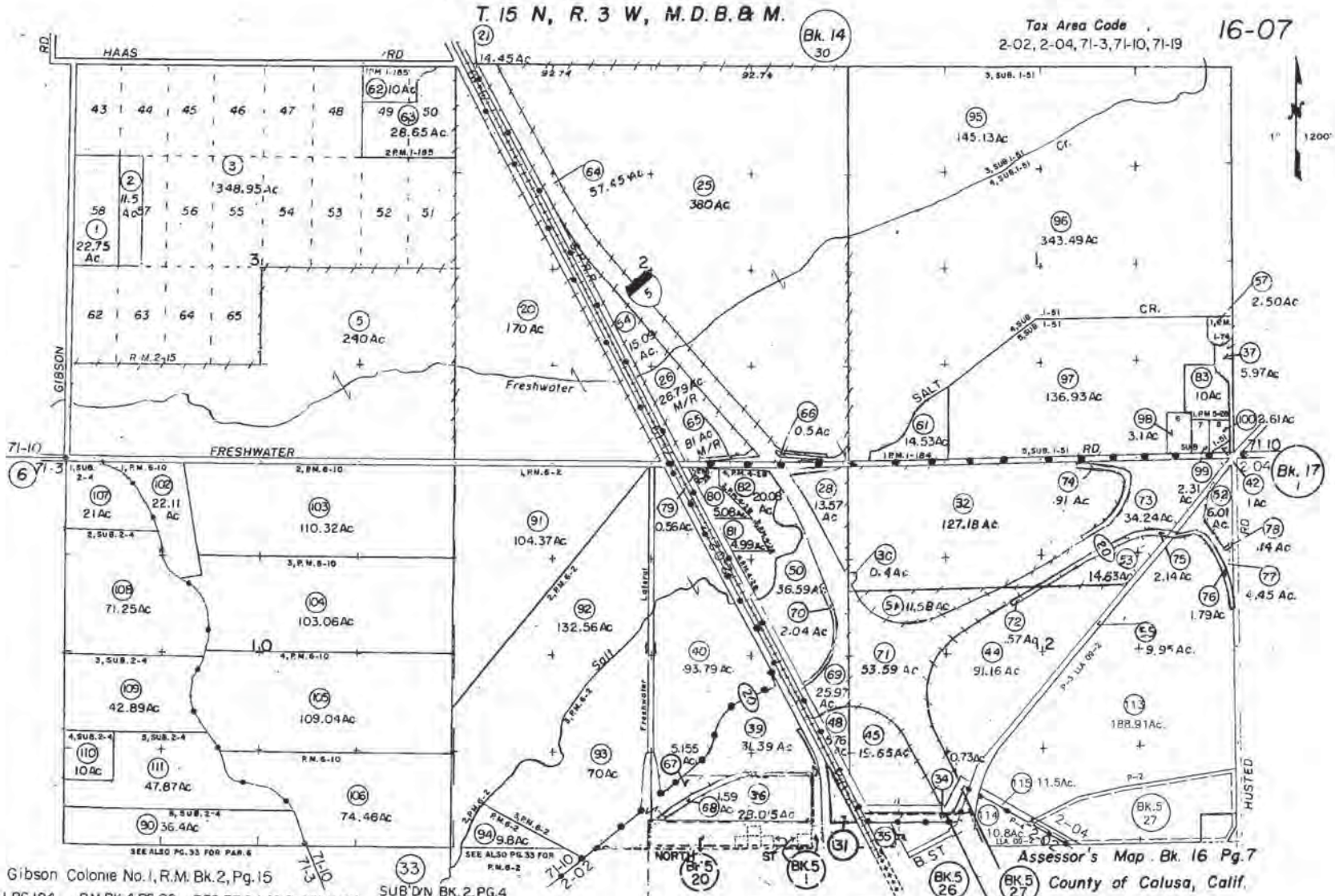
PROFESSIONAL AFFILIATIONS

- California State Contractor License, #323819, Class A, Hazardous Substance Removal
- California State Contractor License, #323819, Class B
- California State Contractor License, #323819, Class C
- Registered Environmental Assessor, Class I REA #04233
- Member, TEC International

APPENDIX F: SUPPORTING DOCUMENTATION

COLUSA COUNTY APN MAP
COLUSA COUNTY ASSESSOR INFORMATION
GEOTRACKER® SITES MAP
PROJECT SITE MAP

ISA/PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT


T. 15 N, R. 3 W, M.D.B.& M.
Tax Area Code
2-02, 2-04, 71-3, 71-10, 71-19
16-07
Bk. 14
30
HAAS RD
GIBSON
FRESHWATER
Freshwater
SALT
CR.
RD.
HUSTED
B. ST
NORTH ST
Bk. 17
Bk. 5
20
Bk. 5
1
Bk. 5
26
Bk. 5
27
Bk. 5
27
1" 1200'
Gibson Colonie No. 1, R.M. Bk. 2, Pg. 15
P.M. BK. 1, PG. 184
P.M. BK. 1, PG. 185
P.M. BK. 4, PG. 28
P.M. BK 5, PG. 28
RES. 77-91 (O.R. 471/484).
P.M. BK. 6, PG. 10
SUB'DN BK. 2, PG. 4
P.M. BK. 6, PG. 2
SUB'DN, BK. 1, PG. 51 LLA 09-2(2009-2323)
NOTE - Assessor's Block Numbers Shown in Ellipses
Assessor's Parcel Numbers Shown in Circles
Assessor's Map Bk. 16 Pg. 7
County of Colusa, Calif.
2009

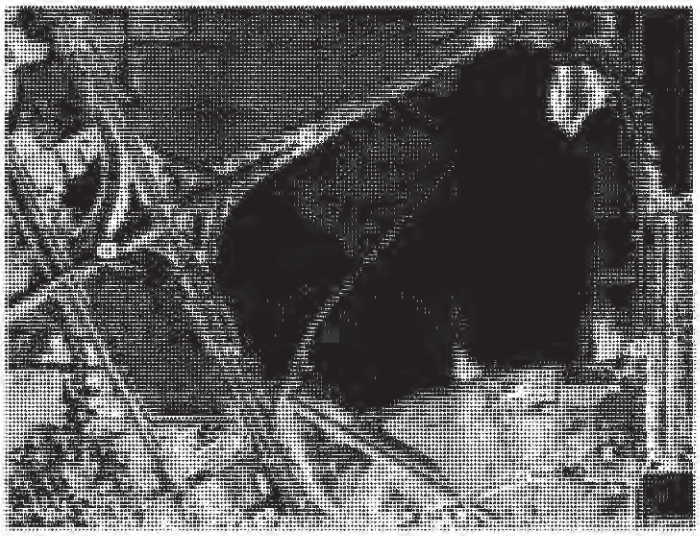
Wayne Zoller , County Assessor

General Information

APN:	016-070-044-000	**Use Type:**	AGRICULTURAL
Situs Address:	WILLIAMS CA 95987	**Tax Rate Area:**	002-004
Mailing Address	365 RUGGIERI WAY WILLIAMS CA 95987		
Legal Desciption:	91.16 AC POR SEC 12 T15N R3W		

Assessment

Year Assd:	2013
Land:	$236,077
Structure(s):	
Other:	
Total Land and Improv:	$236,077
HO Exempt?:	N
Exemption Amt:	



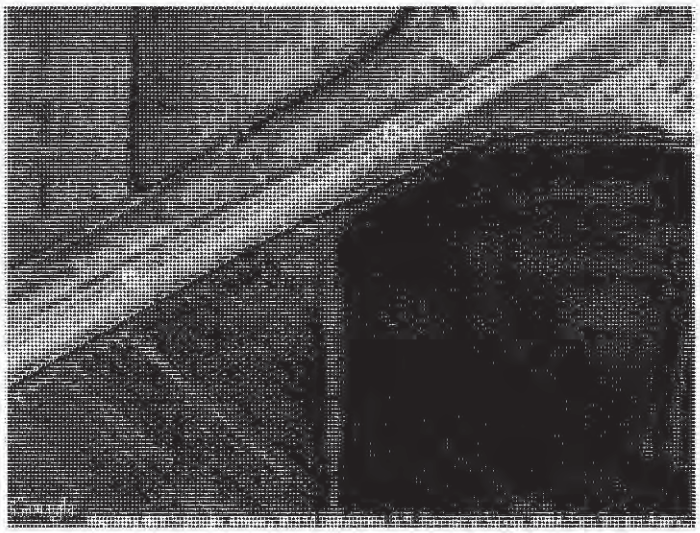
Wayne Zoller , County Assessor

General Information

APN:	016-070-053-000	**Use Type:**	AGRICULTURAL
Situs Address:	WILLIAMS CA 95987	**Tax Rate Area:**	002-004
Mailing Address	365 RUGGIERI WAY WILLIAMS CA 95987		
Legal Desciption:	14.63 AC POR SEC 12 T15N R3W		

Assessment

Year Assd:	2013
Land:	$37,877
Structure(s):	
Other:	
Total Land and Improv:	$37,877
HO Exempt?:	N
Exemption Amt:	



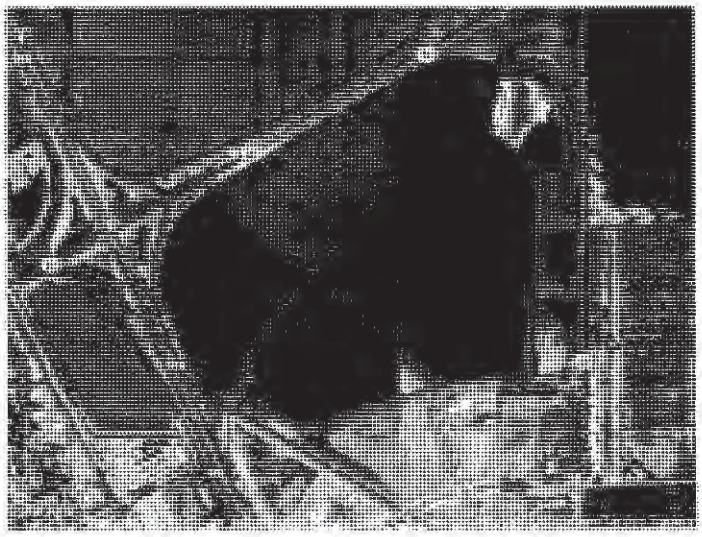
Wayne Zoller , County Assessor

General Information

APN:	016-070-055-000	**Use Type:**	AGRICULTURAL
Situs Address:	WILLIAMS CA 95987	**Tax Rate Area:**	002-004
Mailing Address	365 RUGGIERI WAY WILLIAMS CA 95987		
Legal Desciption:	9.95 AC POR SEC 12 T15N R3W		

Assessment

Year Assd:	2013
Land:	$25,757
Structure(s):	
Other:	
Total Land and Improv:	$25,757
HO Exempt?:	N
Exemption Amt:	



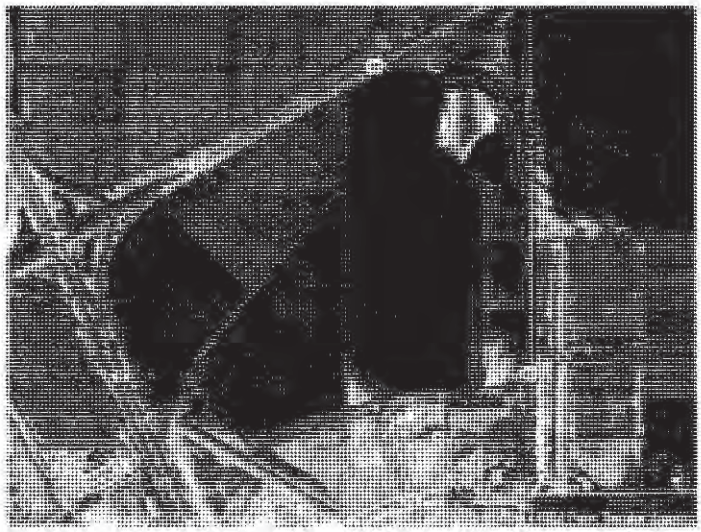
Wayne Zoller , County Assessor

General Information

APN:	016-070-113-000	**Use Type:**	AGRICULTURAL
Situs Address:	WILLIAMS CA 95987	**Tax Rate Area:**	002-002
Mailing Address	365 RUGGIERI WAY WILLIAMS CA 95987		
Legal Description:	168.91 AC POR SEC 12 T15N R3W		

Assessment

Year Assd:	2013
Land:	$467,874
Structure(s):	
Other:	
Total Land and Improv:	$467,874
HO Exempt?:	N
Exemption Amt:	



Wayne Zoller , County Assessor

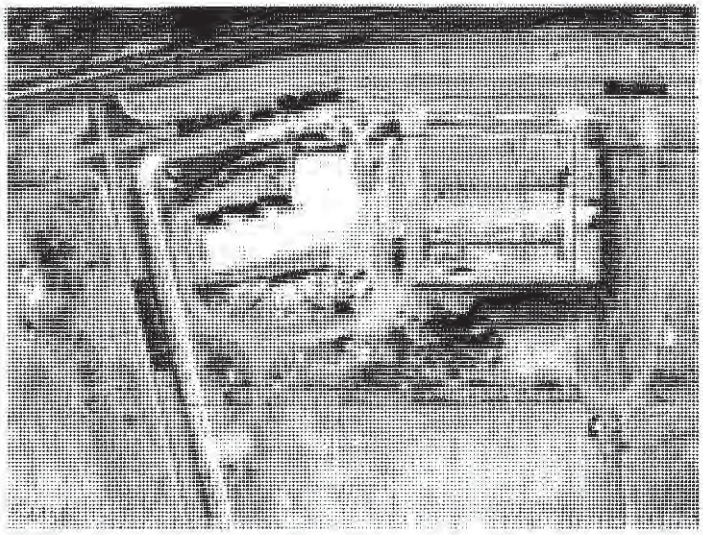
Adjoining

General Information

APN:	005-270-030-000	**Use Type:**	VACANT
Situs Address:	99 ELLA ST WILLIAMS CA 95987-5811	**Tax Rate Area:**	002-014
Mailing Address	2088 N BEALE RD MARYSVILLE CA 95901-7605		
Legal Desciption:	4.26 AC EASTSIDE PROJECT UNIT 2 PHASE 2		

Assessment

Year Assd:	2013
Land:	
Structure(s):	
Other:	
Total Land and Improv:	
HO Exempt?:	N
Exemption Amt:	



LINK TO THIS MAP

GEOTRACKER

LAYERS

☒ SIGNIFIES A CLOSED SITE

- ☑ Leaking Underground Tank (LUST) Cleanup Sites
- ☑ Other Cleanup Sites
- ☑ Land Disposal Sites
- ☑ Military Sites
- ☑ WDR Sites
- ☑ Permitted Underground Storage Tank (UST) Facilities
- ☑ Monitoring Wells*

* ZOOM IN TO SEE MWS

- ☑ DTSC Cleanup Sites
- ☑ DTSC Haz Waste Permit

MAP SIZE

640x480

OPTIONS

☑ Site List - EXPORT TO EXCEL

1 Sites

☑ SHOW SITES WITHIN 2000 FEET OF THE FOLLOWING ADDRESS: Ella St at Marguerite St Williams CA Go

SITE LIST

SITE NAME	GLOBAL ID	FAC ID	CLEANUP STATUS	ADDRESS	CITY
JADE AIR/ HARMON AVIATION	L10005979417		OPEN	HUSTED AND RD E	WILLIAMS

MAP AN ADDRESS: Go!

MARK THOMAS & COMPANY
7300 FOLSOM BOULEVARD, SUITE 203
SACRAMENTO, CALIFORNIA 95826
(916) 381-9100 FAX: (916)381-9180

CITY OF WILLIAMS
NEW SR 20 CONNECTION PROJECT
PID PHASE

Appendix G: Environmental Noise Assessment

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Environmental Noise Assessment

Love's Country Store EIR

Williams, California

BAC Job # 2016-010

Prepared For:

Sycamore Environmental Consultants, Inc.

Attn: Adam C. Forbes
6355 Riverside Boulevard, Suite C
Sacramento, CA 95831

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

June 7, 2016

BOLLARD
Acoustical Consultants

3551 Bankhead Road • Loomis, CA 95650 • Phone: (916) 663-0500 • Fax: (916) 663-0501 • BACNOISE.COM

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Existing Roadway Traffic Noise 5
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Noise Impact Analysis 11
Project-Related Traffic Noise Increases 11
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Environmental Setting

Project Location and Description

The proposed Project is the construction and operation of a Love's Country Store in the City of Williams, California. The project site is located to the southeast of the Interstate 5 (I-5) and State Route 20 (SR 20) intersection on approximately 11.15 acres. The proposed project would include a fuel dispensing area with 22 fueling positions to dispense gasoline and diesel fuel to passenger vehicles and trucks. The project would include a 13,582 square-foot convenience store with an attached restaurant space for three vendors and a separate 6,322 square-foot tire shop. The project area and site plan are shown in Figures 1 and 2, respectively.

Acoustical Fundamentals and 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 designated as sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or Hertz (Hz). Definitions of acoustical terminology are shown in Appendix A.

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 sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting 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.

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}). The L_{eq} is the foundation of the day/night average noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

Figure 1

Project Area, Noise Measurement Locations, and Nearest Noise-Sensitive Land Uses
Love's Travel Stop EIR - Williams, California

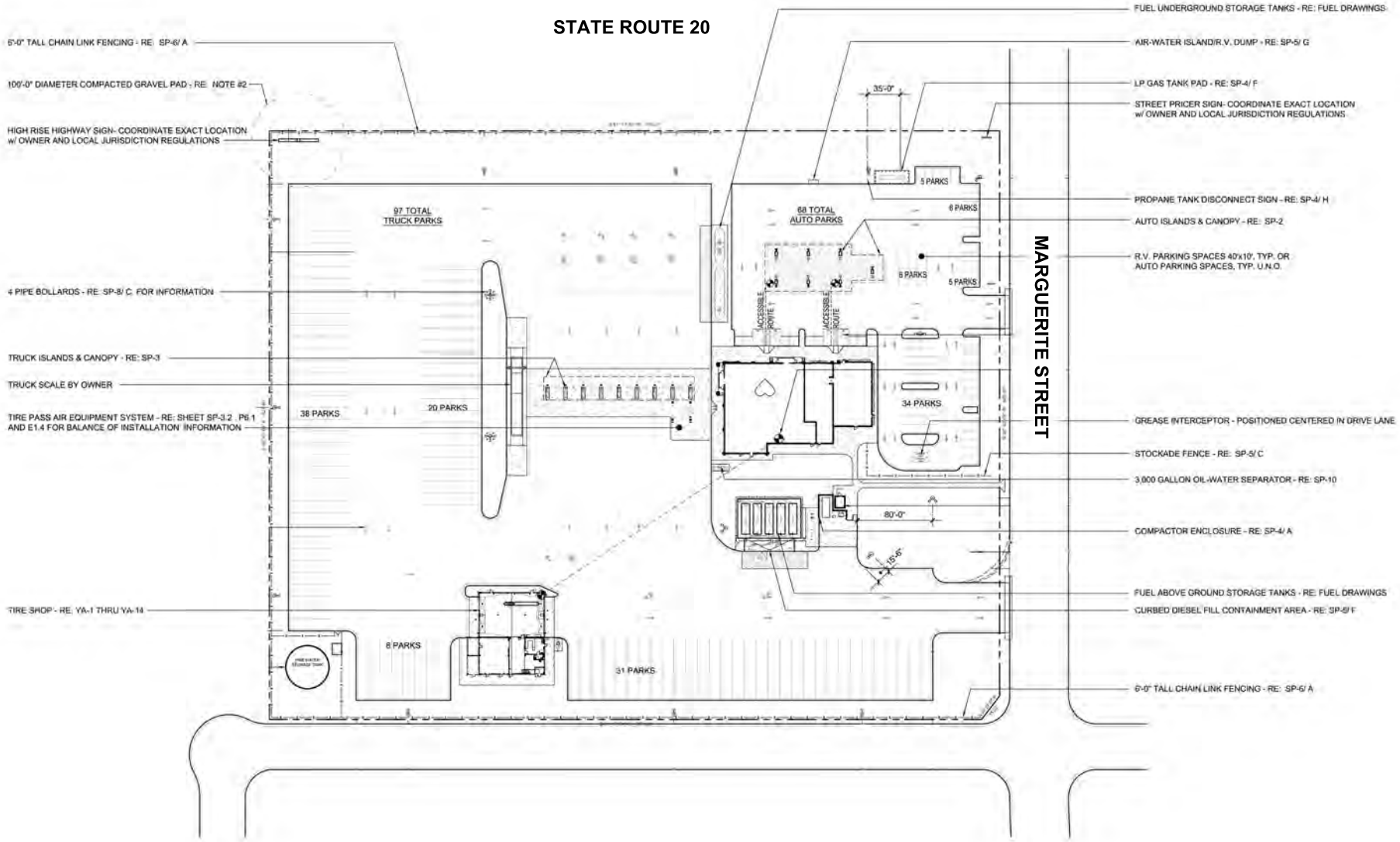
BOLLARD
Acoustical Consultants

Scale (feet)
0 600 1200

Figure 2

Proposed Project Site Plan

Love's Travel Stop EIR - Williams, California



BOLLARD
Acoustical Consultants

Scale (feet)
0 100 200

The Day-night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

It is commonly understood that sound decreases with distance. But the propagation of sound is dependent on considerably more variables than distance alone. Those variables include the type of noise source (point, moving point, or line sources), the directionality of the noise source, the frequency content of the source (low frequency sound is absorbed in the atmosphere at a slower rate than high-frequency sound and therefore “carries” farther), atmospheric conditions (wind, temperature, humidity, gradients), ground type (dirt, grass fields, concrete, etc.), shielding (structures, noise barriers, topography), and vegetation.

Existing Land Uses in the Project Vicinity

The project site and surrounding parcels are zoned Business Park. As illustrated on Figure 1, the existing land uses surrounding the project site consist solely of agricultural lands. Known noise-sensitive land uses in the project vicinity include existing single-family residential (receivers A and D), multi-family residential (receiver C), and school land uses (receiver B). The residential land uses are located in excess of 3,300 feet from the project property. The school land uses are located approximate 2,500 feet to the southeast of the project property. These uses may be affected by increased project-related traffic noise on local area roadways and on-site noise sources.

Existing Ambient Noise Environment

The existing noise environment within the overall project area is primarily defined by traffic noise emanating from Interstate 5 (I-5) and State Route 20. To quantify the existing ambient noise environment at the project site, short-term ambient noise level measurements were conducted at four (4) locations within the proposed project area on the afternoon of January 28, 2016. The locations of the short-term noise monitoring sites are shown on Figure 1.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the short-term ambient noise level measurement survey. The meter was calibrated before use with an LDL Model CAL200 acoustical calibrators to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute.

The results of the short-term ambient noise measurement survey is summarized in Table 1. The Table 1 data indicate that existing noise levels within the project area vary depending on location of the noise monitoring site relative to State Route 20. Inspection of the data showed that monitoring locations with the most direct view of State Route 20 recorded the highest noise levels during sampling.

Table 1
Measured Baseline Noise Levels at Short-Term Monitoring Sites – January 28, 2016
Love's Country Store EIR – Williams, California

			Measured Baseline Noise Levels[2] (dB)			
Site[1]	**Location**	**Time of Day**	**L_{eq}**	**L_{max}**	**L_{50}**	**L_{90}**
1	NE corner of project area	12:17 PM	57	77	50	44
2	SE corner of project area	12:35 PM	45	52	45	43
3	SW corner near project area	12:57 PM	57	75	52	49
4	NW corner near project area	1:12 PM	65	86	55	50

Notes:
1. Noise level measurement sites are shown on Figure 1.
2. Noise level measurements were 15 minutes in duration.

Source: Bollard Acoustical Consultants, Inc. (BAC)

The Table 1 data indicate that the noise monitoring locations on the project site were exposed to existing traffic noise levels ranging from 45 to 65 dB L_{eq}. Site 4 was exposed to the highest traffic noise levels due to its proximity to Interstate 5 and State Route 20.

Existing Roadway Traffic Noise

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to predict existing noise levels due to traffic in the project vicinity. The Model is based on the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks – with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the project site. The model is generally considered to be accurate within 1.5 dB if the input variables are properly accounted for.

The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. A day/night traffic distribution of 83%/17% was factored into the Model calculations to estimate 24-hour average noise exposure (L_{dn}). Traffic volumes for existing conditions were obtained from the project traffic study. Specifically, average daily traffic volumes along the project roadway segments were estimated by conservatively multiplying the sum of the AM and PM peak hour traffic movements provided by the transportation consultant by a factor of 5. Truck volume percentages were obtained from the published 2014 Caltrans annual average daily truck traffic report.

Table 2 shows the existing traffic noise levels in terms of L_{dn} at a reference distance of 100 feet from the centerlines of existing project-area roadways. This is considered to be the baseline condition. The table also includes the distances to existing traffic noise contours. Please see Appendix B for the Model input data and Appendices C and D for the Model output data.

Table 2
Existing (Baseline) Traffic Noise Levels and Distances to Traffic Noise Contours
Love's Country Store EIR – Williams, California

Roadway	Segment	L_{dn} (dB) @ 100 feet	Distance (feet) 70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
Interstate 5	North of State Route 20	73	154	332	715
Interstate 5	South of State Route 20	74	172	371	798
State Route 20	West of Interstate 5 SB Ramps	64	40	86	186
State Route 20	Interstate 5 to Margurite Street	64	38	81	175
State Route 20	Margurite Street to Husted Road	64	38	81	175
State Route 20	East of Husted Road	66	52	113	243
Margurite Street	South of State Route 20	N/A	N/A	N/A	N/A
Husted Road	South of State Route 20	58	15	33	71
Freshwater Road	North of State Route 20	51	5	11	23

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc.

Regulatory Setting

In order to limit population exposure to physically and/or psychologically damaging noise levels, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. The City of Williams General Plan Noise Element and CEQA provide regulations regarding noise exposure relevant to the proposed project. The following provides a general overview of the existing regulations established by the City of Williams General Plan and CEQA.

City of Williams General Plan

The following goals and policies are presented in the City's General Plan Noise Element and are applicable to the proposed project:

<u>Goals</u>

- Protect the existing and future citizens of Williams from the harmful effects of exposure to excessive noise. More specifically, the goal is to protect existing noise-sensitive land uses from new uses that would generate noise levels which are incompatible with those uses, and to discourage new noise-sensitive land uses from being developed near sources of high noise levels.

New Development and Transportation Projects

Policies

6.1 All noise analyses prepared to determine compliance with the noise level standards contained within this Noise Element shall be prepared as described in Action 6.

6.2 The City should have the flexibility in its ordinance and policies to consider the application of the 5 dB less restrictive exterior noise standards than those prescribed in Table 3 (Table 6.2 of the General Plan), Noise Guidelines for New Uses Affected by Transportation Noise Sources, and Table 4 (Table 6.4 of the General Plan), Non-Transportation Noise Guidelines, in cases where it is impractical or infeasible to reduce exterior noise levels within infill projects to a state of compliance with their standards. In such cases, the rationale for such consideration should be clearly presented and disclosure statements and noise easements should be included as conditions of project approval.

Actions

6.a. The City of Williams shall adopt an ordinance requirement for an acoustical analysis to be prepared with subdivision processes and site plan applications. This analysis shall include the following provisions:

1. Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.
2. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
3. Estimate projected future (20 year) noise levels, and compare those levels to the adopted policies of this general plan and adopted ordinance standards.
4. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of this general plan and ordinance standards.
5. Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented. The City of Williams shall adopt a local amendment to the Building Code to address interior noise standards.

6.b. Any extreme noise producer not specifically exempt shall be discouraged or prohibited by City Codes and policies.

Table 3
Noise Guidelines for New Uses Affected by Transportation Noise Sources
City of Williams General Plan Noise Element

New Land Use	Sensitive[1] Outdoor Area (dBA CNEL)	Sensitive Interior Area[2] (dBA CNEL)	Notes
Residential	60	45	5
Residences in Ag. Zones	65	45	6
Transient Lodging	65	45	3,5
Hospitals & Nursing Homes	60	45	3, 4, 5
Theaters & Auditoriums	---	35	3
Churches, Meeting Halls, Schools, Libraries, etc.	60	40	3
Office Buildings	65	45	3
Commercial Buildings	65	50	3
Playgrounds, Parks, etc.	70	---	
Industry	65	50	3

Notes:

1. Sensitive areas are defined acoustic terminology section.
2. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed positions.
3. Where there are no sensitive exterior spaces proposed for these uses, only the interior noise level standard shall apply.
4. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5. If this use is affected by railroad or aircraft noise, a maximum (L_{max}) noise level standard of 70 dB shall be applied to all sleeping rooms with windows closed to reduce the potential for sleep disturbance during nighttime noise events.
6. Due to the noise-generating nature of agricultural activities, it is understood that residences constructed on agriculturally-designated land uses may be exposed to elevated noise levels. As a result, a 65 dB CNEL exterior noise level standard is applied to noise-sensitive outdoor areas of these uses.

Transportation Noise Sources

Policies

6.3 For City projects that involve capacity enhancing roadways, or the construction of new roadways, an acoustical analysis shall be prepared. If the project would result in a significant noise level increase as defined below, or if the project would cause noise levels to exceed the noise standards of Table 3 (Table 6.2 of the General Plan), Noise Guidelines for New Uses Affected by Transportation Noise Source, noise mitigation measures should shall be considered to reduce traffic noise levels to a state of compliance with Table 3 (Table 6.2 of the General Plan). A significant increase is defined as follows:

Pre-Project Noise Environment (L_{dn})	Significant Increase
Less than 60 dB	5+ dB
60 – 65 dB	3+ dB
Greater than 65 dB	1.5 dB

There are various factors which may affect the feasibility or reasonableness of the mitigation which shall be considered including the following:

1. The severity of the impact;
2. The cost and effectiveness of the mitigation;
3. The number of properties which would benefit from the mitigation; and
4. Aesthetic, safety, and engineering considerations.

6.4 If noise-reducing pavement is to be utilized in conjunction with a roadway improvement project, the acoustical benefits of such pavement shall be included in the noise analysis prepared for the project.

6.5 The City of Williams shall work with the State to mitigate noise levels to within acceptable levels as described in this chapter when the State expands or extends roadways that impacts existing residential development.

Actions

6.c. The City of Williams shall adopt an ordinance regulations to require implementation of noise mitigation to newly constructed roadways in new subdivision developments.

Non-Transportation Noise Sources – General Service Commercial & Light Industrial Uses

Policies

6.9 Prevent the introduction of new noise-producing uses in noise-sensitive areas.

6.10 Prevent the encroachment of noise-sensitive uses upon existing noise-producing facilities.

Actions

6.f. Adopt noise performance standards for new noise-producing uses.

6.g. Adopt noise mitigation measures that will apply to new noise-sensitive uses if placed in proximity to noise producing facilities.

6.h. Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element (Table 4), development standards for new commercial sites shall require the use of setbacks and site design, and thereby keep use of noise barriers at a minimum.

Table 4
Non-Transportation Noise Guidelines[1]
City of Williams General Plan Noise Element

	--------- Average (L_{eq}) / Maximum (L_{max}) ---------			
	Outdoor Area[2] (dB)		Interior[3] (dB)	
Receiving Land Use	**Daytime**	**Nighttime**	**Day & Night**	**Notes**
All Residential	55 / 75	50 / 70	35 / 55	
Transient Lodging	55 / 75	---	35 / 55	4
Hospitals & Nursing Homes	55 / 75	---	35 / 55	5, 6
Theaters & Auditoriums	---	---	30 / 50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	6
Office Buildings	60 / 75	---	45 / 65	6
Commercial Buildings	55 / 75	---	45 / 65	6
Playgrounds, Parks, etc.	65 / 75	---	---	6
Industry	60 / 80	---	50 / 70	6

Notes:

1. The standards in this table shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds these standards, then the noise level standards shall be increased in 5 dB increments to encompass the ambient.
2. Sensitive areas are defined in the Acoustic Terminology section.
3. Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and exterior doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.

Significance of Project-Related Noise Level Increases

Table 5 is based upon recommendations made in August 1992 by Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. The recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these criteria have been applied to other sources of noise similarly described in terms of cumulative noise exposure metrics such as the L_{dn}.

Table 5
Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project (L_{dn})	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

According to Table 5, an increase in noise from similar sources of 5 dB or more would be noticeable where the ambient level is less than 60 dB. Where the ambient level is between 60 and 65 dB, an increase in noise of 3 dB or more would be noticeable, and an increase of 1.5 dB or more would be noticeable where the ambient noise level exceeds 65 dB L_{dn}. The rationale for the Table 5 criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

Noise Impact Analysis

The identified, primary noise-producing elements associated with the project are increased traffic on the local roadway network, on-site noise sources associated with truck stop activities, and construction activities.

Project-Related Traffic Noise Increases

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels were predicted at a representative distance (100 feet from the roadway centerlines) for the existing, existing plus project, cumulative, and cumulative plus project scenarios. The traffic noise levels were predicted using the same modeling methodology used for the existing scenario described in the Environmental Setting section above. Results of the traffic noise analyses are summarized in Tables 6 and 7. Please see Appendix B for Model input data and Appendices C and D for Model output data.

Table 6
Existing vs. Existing Plus Project Traffic Noise Levels
Love's Country Store EIR – Williams, California

Roadway	Segment	Existing	Existing + Project	Change	Substantial Increase?
Interstate 5	North of State Route 20	72.8	72.9	0.1	No
Interstate 5	South of State Route 20	73.5	73.6	0.1	No
State Route 20	West of Interstate 5 SB Ramps	64.0	64.0	0.0	No
State Route 20	Interstate 5 to Margurite Street	63.7	65.9	2.2	No
State Route 20	Margurite Street to Husted Road	63.7	63.8	0.1	No
State Route 20	East of Husted Road	65.8	65.9	0.1	No
Margurite Street	South of State Route 20	N/A	57.2	N/A	N/A
Husted Road	South of State Route 20	57.7	57.8	0.1	No
Freshwater Road	North of State Route 20	50.5	50.5	0.0	No

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc.

Table 7
Cumulative vs. Cumulative Plus Project Traffic Noise Levels
Love's Country Store EIR – Williams, California

Roadway	Segment	Cumulative	Cumulative + Project	Change	Substantial Increase?
Interstate 5	North of State Route 20	76.1	76.1	0.0	No
Interstate 5	South of State Route 20	76.6	76.6	0.0	No
State Route 20	West of Interstate 5 SB Ramps	66.4	66.4	0.0	No
State Route 20	Interstate 5 to Margurite Street	68.0	69.0	1.0	No
State Route 20	Margurite Street to Husted Road	67.0	67.1	0.1	No
State Route 20	East of Husted Road	68.8	68.9	0.1	No
Margurite Street	South of State Route 20	58.5	60.8	2.3	No
Husted Road	South of State Route 20	62.5	62.6	0.1	No
Freshwater Road	North of State Route 20	60.8	60.8	0.0	No

Sources: FHWA-RD-77-108, project traffic study, and Bollard Acoustical Consultants, Inc.

As indicated in Tables 6 and 7, traffic noise level increases due to the project were calculated to range from 0 to 2.3 dB. Relative to the significance criteria presented in Table 5, substantial traffic noise level increases were not identified along any of the studied roadways.

On-site Operation Noise

Noise sources associated with daily operations on the project site will include truck hitching, fueling, idling, and departure. BAC utilized reference data for truck noise collected at a comparable facility to predict noise levels at the proposed facility.

The project proposes on-site parking for 97 truck stalls. Based on a worst-case hour, it is assumed that no more than 50 project trucks would depart the project site during a given daytime or nighttime hour. Noise exposure from these operations is calculated based on the following equation.

$$Hourly\ L_{eq} = SEL + 10Log(N) - 35.6 - A$$

Here, the SEL is the sound exposure level produced by a truck event (83 dB SEL at 50 feet), N is the number of operations in a given hour (50), 35.6 is ten times the log of the number of seconds in an hour, and A is the attenuation due to distance (spherical spreading loss, -6 dB per doubling of distance). For this project, primary truck movements in the parking area of the project site would be expected to produce unmitigated hourly noise exposure of 64 dB L_{eq} at 50 feet. The nearest noise-sensitive land uses are located approximately 2,500 feet from the project site. At that distance, truck movements in the parking area would be expected to be 30 dB L_{eq}.

In addition to the truck stalls, the project proposes 68 passenger vehicle stalls. The SEL produced by a passenger vehicle event is 70 dB at 50 feet. Because the SEL of a passenger vehicle event is significantly lower than the SEL produced by a truck event (-13 dB), only truck events were considered in this analysis. Furthermore, because there is a difference of more than 10 dB from truck and passenger vehicle SEL's, due the logarithmic nature of sound, the addition of the two events would result in an increase of less than 1 dB.

Project Construction Noise

During project construction, heavy equipment would be used for demolition, grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project site would also vary depending on the proximity of construction activities to that point. Standard construction equipment, such as graders, backhoes, loaders, and trucks, would be used for this work.

The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is provided in Table 8. The noise values represent maximum noise generation, or full-power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

Table 8
Construction Equipment Noise Emission Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pneumatic tool	85
Pump	76
Roller	74
Saw	76
Truck	88

Source: Federal Transit Administration, 2006.

Specific Impacts and Mitigation Statements

Impact 1: Project-Related Traffic Noise

The project would generate increased traffic on local area roadways. As described in Tables 6 and 7, project-related traffic noise level impacts were not identified along any of the studied roadway segments. *This impact is less than significant.*

Mitigation for Impact 1: None required.

Impact 2: On-site Operation Noise

Based on a conservative estimate of 50 trucks entering or leaving the facility during a busy worst-case hour, predicted on-site truck movement noise levels were predicted to be 30 dB L_{eq} at the nearest identified noise-sensitive receivers. As mentioned previously, the nearest noise-sensitive receivers are located approximately 2,500 feet from the project site. The predicted on-

site noise levels of 30 dB L_{eq} would be well within compliance with the nighttime non-transportation noise level standard applied to residential land uses of 50 dB L_{eq} (Table 4) and the 55 dB L_{eq} daytime noise level standard applied to school land uses. In addition, the predicted on-site project noise levels at the nearest noise-sensitive land uses are well below measured ambient noise levels in the project vicinity. *This impact is less than significant.*

Mitigation for Impact 2: None required.

Impact 3: Construction Noise

Activities associated with the project construction would result in elevated noise levels, with maximum noise levels as high as 89 at 50 feet as shown in Table 8. However, the nearest identified noise-sensitive receivers are located approximately 2,500 feet from the project area. Construction noise levels may be audible at the nearest existing noise-sensitive land uses, but they would be temporary in nature and would likely occur during normal daytime working hours. *Nonetheless, because construction activities would result in periods of elevated noise levels, this impact would be potentially significant.*

Mitigation 3

To mitigate construction noise impacts, activities should be limited to normal daytime hours (7 a.m.-6 p.m.), and all internal combustion engines should be fitted with factory specified mufflers. Staging areas for heavy construction equipment should be positioned well away from neighboring residential areas.

Implementation of the mitigation measures would reduce this impact to a less than significant level.

This concludes our environmental noise assessment for the Love's Country Store EIR in Williams, California. Please contact Paul Bollard at (916) 663-0500 or paulb@bacnoise.com with any questions or require 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-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-010
Description: Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Interstate 5	North of State Route 20	12,710	83		17	6.7	21.9	70	100	
2	Interstate 5	South of State Route 20	14,425	83		17	4.9	24.2	70	100	
3	State Route 20	West of Interstate 5	4,315	83		17	1.8	8.9	55	100	
4	State Route 20	Interstate 5 to Margurite Street	3,190	83		17	8	11	55	100	
5	State Route 20	Margurite Street to Husted Road	3,190	83		17	8	11	55	100	
6	State Route 20	East of Husted Road	5,205	83		17	8	11	55	100	
7	Margurite Street	South of State Route 20	N/A	83		17	2	2	40	100	
8	Husted Road	South of State Route 20	2,030	83		17	2	2	50	100	
9	Freshwater Road	North of State Route 20	385	83		17	2	2	50	100	

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Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-010
Description: Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Interstate 5	North of State Route 20	13,000	83		17	6.7	21.9	70	100	
2	Interstate 5	South of State Route 20	14,740	83		17	4.9	24.2	70	100	
3	State Route 20	West of Interstate 5	4,315	83		17	1.8	8.9	55	100	
4	State Route 20	Interstate 5 to Margurite Street	5,385	83		17	8	11	55	100	
5	State Route 20	Margurite Street to Husted Road	3,300	83		17	8	11	55	100	
6	State Route 20	East of Husted Road	5,295	83		17	8	11	55	100	
7	Margurite Street	South of State Route 20	2,980	83		17	2	2	40	100	
8	Husted Road	South of State Route 20	2,050	83		17	2	2	50	100	
9	Freshwater Road	North of State Route 20	385	83		17	2	2	50	100	

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Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-010
Description: Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Interstate 5	North of State Route 20	26,930	83		17	6.7	21.9	70	100	
2	Interstate 5	South of State Route 20	29,215	83		17	4.9	24.2	70	100	
3	State Route 20	West of Interstate 5	7,350	83		17	1.8	8.9	55	100	
4	State Route 20	Interstate 5 to Margurite Street	8,750	83		17	8	11	55	100	
5	State Route 20	Margurite Street to Husted Road	6,950	83		17	8	11	55	100	
6	State Route 20	East of Husted Road	10,500	83		17	8	11	55	100	
7	Margurite Street	South of State Route 20	4,000	83		17	2	2	40	100	
8	Husted Road	South of State Route 20	6,150	83		17	2	2	50	100	
9	Freshwater Road	North of State Route 20	4,100	83		17	2	2	50	100	

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Appendix B-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2016-010
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Interstate 5	North of State Route 20	27,230	83		17	6.7	21.9	70	100	
2	Interstate 5	South of State Route 20	29,415	83		17	4.9	24.2	70	100	
3	State Route 20	West of Interstate 5	7,350	83		17	1.8	8.9	55	100	
4	State Route 20	Interstate 5 to Margurite Street	10,795	83		17	8	11	55	100	
5	State Route 20	Margurite Street to Husted Road	7,060	83		17	8	11	55	100	
6	State Route 20	East of Husted Road	10,590	83		17	8	11	55	100	
7	Margurite Street	South of State Route 20	6,835	83		17	2	2	40	100	
8	Husted Road	South of State Route 20	6,170	83		17	2	2	50	100	
9	Freshwater Road	North of State Route 20	4100	83		17	2	2	50	100	

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Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2016-010
Description: Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Interstate 5	North of State Route 20	67.0	62.5	70.9	73
2	Interstate 5	South of State Route 20	67.6	61.7	71.9	74
3	State Route 20	West of Interstate 5	60.3	50.4	61.3	64
4	State Route 20	Interstate 5 to Margurite Street	58.6	55.6	60.9	64
5	State Route 20	Margurite Street to Husted Road	58.6	55.6	60.9	64
6	State Route 20	East of Husted Road	60.7	57.7	63.1	66
7	Margurite Street	South of State Route 20	N/A	N/A	N/A	N/A
8	Husted Road	South of State Route 20	56.1	47.0	51.2	58
9	Freshwater Road	North of State Route 20	48.9	39.8	44.0	51

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Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2016-010
Description: Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Interstate 5	North of State Route 20	67.1	62.6	71.0	73
2	Interstate 5	South of State Route 20	67.7	61.8	72.0	74
3	State Route 20	West of Interstate 5	60.3	50.4	61.3	64
4	State Route 20	Interstate 5 to Margurite Street	60.8	57.9	63.2	66
5	State Route 20	Margurite Street to Husted Road	58.7	55.8	61.1	64
6	State Route 20	East of Husted Road	60.8	57.8	63.1	66
7	Margurite Street	South of State Route 20	55.0	47.1	52.0	57
8	Husted Road	South of State Route 20	56.2	47.0	51.2	58
9	Freshwater Road	North of State Route 20	48.9	39.8	44.0	51

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Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2016-010
Description: Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Interstate 5	North of State Route 20	70.3	65.7	74.2	76
2	Interstate 5	South of State Route 20	70.6	64.7	74.9	77
3	State Route 20	West of Interstate 5	62.6	52.8	63.6	66
4	State Route 20	Interstate 5 to Margurite Street	62.9	60.0	65.3	68
5	State Route 20	Margurite Street to Husted Road	61.9	59.0	64.3	67
6	State Route 20	East of Husted Road	63.7	60.8	66.1	69
7	Margurite Street	South of State Route 20	56.3	48.4	53.2	58
8	Husted Road	South of State Route 20	61.0	51.8	56.0	63
9	Freshwater Road	North of State Route 20	59.2	50.0	54.2	61

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Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Levels

Project #: 2016-010
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Interstate 5	North of State Route 20	70.3	65.8	74.2	76
2	Interstate 5	South of State Route 20	70.7	64.8	75.0	77
3	State Route 20	West of Interstate 5	62.6	52.8	63.6	66
4	State Route 20	Interstate 5 to Margurite Street	63.9	60.9	66.2	69
5	State Route 20	Margurite Street to Husted Road	62.0	59.1	64.4	67
6	State Route 20	East of Husted Road	63.8	60.8	66.1	69
7	Margurite Street	South of State Route 20	58.6	50.7	55.6	61
8	Husted Road	South of State Route 20	61.0	51.8	56.0	63
9	Freshwater Road	North of State Route 20	59.2	50.0	54.2	61

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Appendix D-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2016-010
Description: Existing
Ldn/CNEL: Ldn
Hard/Soft: Soft

			------ Distances to Traffic Noise Contours ------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Interstate 5	North of State Route 20	71	154	332	715	1540
2	Interstate 5	South of State Route 20	80	172	371	798	1720
3	State Route 20	West of Interstate 5	19	40	86	186	401
4	State Route 20	Interstate 5 to Margurite Street	18	38	81	175	378
5	State Route 20	Margurite Street to Husted Road	18	38	81	175	378
6	State Route 20	East of Husted Road	24	52	113	243	524
7	Margurite Street	South of State Route 20	N/A	N/A	N/A	N/A	N/A
8	Husted Road	South of State Route 20	7	15	33	71	152
9	Freshwater Road	North of State Route 20	2	5	11	23	50

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Appendix D-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2016-010
Description: Existing Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

			------ Distances to Traffic Noise Contours ------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Interstate 5	North of State Route 20	73	156	337	725	1563
2	Interstate 5	South of State Route 20	81	175	376	810	1745
3	State Route 20	West of Interstate 5	19	40	86	186	401
4	State Route 20	Interstate 5 to Margurite Street	25	54	115	249	536
5	State Route 20	Margurite Street to Husted Road	18	39	83	179	386
6	State Route 20	East of Husted Road	25	53	114	246	530
7	Margurite Street	South of State Route 20	7	14	30	65	141
8	Husted Road	South of State Route 20	7	15	33	71	153
9	Freshwater Road	North of State Route 20	2	5	11	23	50

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Appendix D-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2016-010
Description: Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

			------ Distances to Traffic Noise Contours ------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Interstate 5	North of State Route 20	118	254	547	1179	2540
2	Interstate 5	South of State Route 20	128	275	593	1278	2754
3	State Route 20	West of Interstate 5	27	57	123	265	572
4	State Route 20	Interstate 5 to Margurite Street	34	74	160	344	740
5	State Route 20	Margurite Street to Husted Road	29	63	137	295	635
6	State Route 20	East of Husted Road	39	84	180	388	836
7	Margurite Street	South of State Route 20	8	17	37	79	171
8	Husted Road	South of State Route 20	15	32	69	148	318
9	Freshwater Road	North of State Route 20	11	24	52	113	243

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Appendix D-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Noise Contour Output

Project #: 2016-010
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

			------ Distances to Traffic Noise Contours ------				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Interstate 5	North of State Route 20	119	256	551	1188	2558
2	Interstate 5	South of State Route 20	128	277	596	1284	2766
3	State Route 20	West of Interstate 5	27	57	123	265	572
4	State Route 20	Interstate 5 to Margurite Street	40	85	183	395	852
5	State Route 20	Margurite Street to Husted Road	30	64	138	298	642
6	State Route 20	East of Husted Road	39	84	181	390	841
7	Margurite Street	South of State Route 20	11	24	53	113	244
8	Husted Road	South of State Route 20	15	32	69	148	319
9	Freshwater Road	North of State Route 20	11	24	52	113	243

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Appendix H: Traffic Report Love's Country Store

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Final Traffic Report

Love's Country Store (Williams, CA)

Prepared for:
City of Williams

August 2016

RS16-3403

Prepared By:

FEHR PEERS

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EXECUTIVE SUMMARY

This report provides traffic operations analysis—including freeway and intersection level of service—for the Love's Country Store project in Williams, California. The project site is located on Margurite Street in the City of Williams, south of State Route 20 (SR 20), east of Interstate 5 (I-5), and west of Husted Road. The report analyzes the potential impacts of the proposed project on the surrounding transportation system including roadways, bicycle/pedestrian facilities, and transit facilities/services. Significant impacts of the proposed project are identified and mitigation measures to reduce their significance are recommended. Key details and findings from each studied scenario are outlined in the following sections.

PROJECT DESCRIPTION

The proposed project includes the following land uses:

- A gasoline/diesel station with 22 fueling stations and a convenience market
- 3 high-turnover sit-down restaurants totaling approximately 4,530 square feet
- A tire shop totaling 6,040 square feet

Vehicular access to the site would be provided by two driveways on Margurite Street—one for cars and one for trucks.

EXISTING CONDITIONS

- All study freeway segments currently operate at LOS B or better during the AM and PM peak hours. The northbound and southbound weaving sections of Interstate 5 (I-5) between E Street and State Route (SR) 20 are out of the realm of weaving based on the Leisch Method; therefore, these sections were analyzed using HCM 2010 methodology.
- All study intersections currently operate at LOS A during the AM and PM peak hours with side street stop controls.

EXISTING PLUS PROJECT CONDITIONS

- All study freeway segments would operate at LOS B or better during the AM and PM peak hours. As in existing conditions, the northbound and southbound weaving sections of I-5 between E Street and SR 20 are out of the realm of weaving based on the Leisch Method and are therefore analyzed using HCM 2010 methodology. Since none of the study freeway segments worsen from acceptable to unacceptable levels, the proposed project's impact to freeway operations is less than significant and no mitigation is required.

- All study intersections would operate at LOS A during the AM and PM peak hours with side-street stop controls. Therefore, impacts to study intersections are less than significant and no mitigation would be required.
- Construction of the proposed project would generate a variety of truck and employee trips. Since the magnitude of these trips during peak hours would be less than that of the proposed project, traffic impacts when compared to project operations would not be significant. The project applicant will develop a Construction Traffic Management Plan (TMP) to the satisfaction of the City's Department of Public Works. The overall goal of the Construction TMP will be to minimize traffic impacts to public streets and maintain a high level of safety for all roadway users.

CUMULATIVE CONDITIONS

- The study freeway segments would operate at LOS B or better during the AM and PM peak hours under cumulative conditions. Weave segments were analyzed using the Leisch Method.
- Both the AM and PM peak hour signal warrants (rural) are met for each intersection except for SR 20/Margurite Street, where the AM peak hour signal warrant is not met.
- The following study intersections would operate at unacceptable levels of service with side street stop controls under cumulative conditions:
    - SR 20/Husted Road/Freshwater Road – AM and PM peak hours
- All other study intersections will operate at LOS D or better during AM and PM peak hours.

CUMULATIVE PLUS PROJECT CONDITIONS

- The study freeway segments would operate at LOS B or better during the AM and PM peak hours under cumulative plus project conditions. Weave segments were analyzed using the Leisch Method. Since none of the study freeway segments worsen from acceptable to unacceptable levels, the proposed project's impact to freeway operations under cumulative conditions is less than significant and no mitigation is required.
- Both the AM and PM peak hour signal warrants (rural) are met for each intersection.
- The proposed project would cause a cumulatively considerable impact to the SR 20/I-5 southbound ramps, SR 20/I-5 northbound ramps, and SR 20/Husted Road/Freshwater Road intersections. These impacts and the recommended mitigations are described below. All mitigation measures are contained within the City of Williams General Plan and are recommended improvements to be implemented under cumulative conditions.

Impacts

- SR 20/I-5 SB Ramps (Intersection 1) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour. According to established significance criteria, this is a cumulatively considerable impact.
- SR 20/I-5 NB Ramps (Intersection 2) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour. According to established significance criteria, this is a cumulatively considerable impact.
- SR 20/Husted Rd/Freshwater Rd (Intersection 4) – This intersection will operate at LOS F under cumulative conditions during the AM and PM peak hours. According to established significance criteria, this is a cumulatively considerable impact.

Mitigations

Mitigation for the impacts above will entail payment of the Project's fair share cost for the signalization improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections. With mitigation, all intersections operate acceptably.

Despite payment of the Project's fair share cost for the signalization improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections, the impacts will not be reduced to less than significant for the following reasons:

- The improvements are to a State road system the construction of which the City has no control;
- The City cannot guarantee the improvement will be constructed by the time the cumulative impact occurs.

The City of Williams does not own and control the Project intersections requiring improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections, there is no guarantee the improvements will be constructed by the time the cumulative impact occurs. Therefore, these impacts remain significant and unavoidable.

CHAPTER 1. INTRODUCTION

This report provides traffic operations analysis—including freeway and intersection level of service—for the Love's Country Store project in Williams, California. The report analyzes the potential impacts of the proposed project on the surrounding transportation system including roadways, bicycle/pedestrian facilities, and transit facilities/services. Significant impacts of the proposed project are identified and mitigation measures to reduce their significance are recommended. All technical calculations can be found in Appendix A.

PURPOSE

This study analyzes the transportation impacts associated with the Love's Country Store project. The proposed project is located on 11.15 acres in the southwest corner of the State Route 20 (SR 20)/Margurite Street intersection in the City of Williams, CA. The potential off-site traffic impacts of the project are analyzed under existing and cumulative conditions. Impacts to transit, bicycle, parking, and pedestrian circulation are also evaluated.

STUDY AREA

The proposed project would be located on Margurite Street in the City of Williams, south of SR 20. The study area includes the following four intersections along SR 20. These intersections were selected based on their proximity to the project site, and expected usage by project traffic; the proposed project is expected to draw traffic from major travel routes such as I-5 and SR 20.

1. SR 20 / I-5 Southbound Ramps
2. SR 20 / I-5 Northbound Ramps
3. SR 20 / Margurite Street (constructed but not open to traffic)
4. SR 20 / Husted Road / Freshwater Road

Additionally, four I-5 freeway facilities are also analyzed. These facilities were selected because the proposed project is expected to draw traffic from I-5 in the form of net new and diverted-linked trips.

1. I-5 Northbound between E St and SR 20 (Weave)
2. SR 20 On-Ramp to I-5 Northbound (Merge)
3. SR 20 Off-Ramp from I-5 Southbound (Diverge)
4. I-5 Southbound between SR 20 and E Street (Weave)

Figure 1 shows the study facilities outlined above.

PROJECT DESCRIPTION

The proposed project includes the following land uses:

- A gasoline/diesel station with 22 fueling stations and a convenience market
- 3 high-turnover sit-down restaurants totaling approximately 4,530 square feet
- A tire shop of about 6,040 square feet

Vehicular access to the site would be provided by two driveways along Margurite Street—one for cars and one for trucks.

ANALYSIS PERIODS AND SCENARIOS

This study focuses on project impacts during the weekday AM peak hour, which is the busiest one-hour period of travel from 7 to 9 AM, and the PM peak hour, which is the busiest one-hour period of travel from 4 to 6 PM. The weekday AM and PM peak hours were analyzed for the following scenarios:

- Existing Conditions – represents the baseline condition, upon which project impacts are measured. The baseline condition represents conditions in winter 2016.
- Existing Plus Project Conditions – reflects changes in travel conditions associated with implementation of the proposed project.
- Cumulative Conditions – reflects travel conditions in the horizon year (2035) assuming the proposed project is developed. Through a trip/delay accounting process, the project's contribution to any cumulatively unacceptable operations is calculated to assess cumulatively considerable impacts.

1 Study Intersection

Project Location

Figure 1

Study Area

CHAPTER 2. ANALYSIS METHODOLOGY

The methodologies for conducting the traffic operations analysis and for developing cumulative and "cumulative plus project" traffic volume forecasts are summarized below.

OPERATIONS ANALYSIS

INTERSECTIONS

All intersections were analyzed for weekday AM and PM peak hour conditions using procedures and methodologies contained in the *Highway Capacity Manual (HCM) 2010* (Transportation Research Board, 2010) for calculating delay at intersections. These methodologies were applied using the SimTraffic micro-simulation software, which considers the effects of lane utilization, turn pocket storage lengths, and upstream/downstream queue spillbacks on intersection queuing and delays. A SimTraffic micro-simulation model of the SR 20 study corridor, including the I-5/SR 20 interchange, and the SR 20/Margurite Street and SR 20/Husted Drive intersections was built. SimTraffic was chosen as the operations tool to more accurately estimate intersection delay, LOS, and vehicle queues by simulating SR 20 intersection operations as a system rather than as isolated intersections.

Per standard practice for micro-simulation models, SimTraffic models are calibrated to match volume served and observed vehicle queue lengths. In this case, volumes on SR 20 are so low that existing queues on side-street stops are minimal. The average of 10 runs was used to represent the reported conditions.

The following procedures and assumptions were applied in the development of the SimTraffic model:

- Roadway geometric data were gathered using aerial photographs, project files, and field observations.
- Peak hour traffic volumes were entered into the model according to the corridor-wide peak hour of the study intersections.
- Corridor-wide AM and PM peak hour factors (PHF) were calculated using count data. This allows for proper volume balancing in the SimTraffic model. These PHFs were used in analyzing existing and existing plus project conditions.
- The PHF utilized in the cumulative conditions analysis was 0.92, which represents an increase in PHF due to the increase in volumes under cumulative conditions.
- Heavy vehicle percentage was calculated for each movement under every scenario and time period.

- Speeds for the model network were based on the posted speed limits or engineering judgment.
- Due to the high-speed and rural nature of SR 20 and the lack of pedestrian and bicycle facilities, zero bicycle and pedestrian traffic was assumed under all scenarios and peak hours. This assumption was supported by field work performed during a weekday PM peak hour in Williams.

Level of service is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions. Table 1 presents the intersection LOS thresholds as defined in the *HCM 2010*. For signalized intersections, LOS is determined by comparing the average control delay for all vehicles approaching the intersection to the delay thresholds in the third column. The LOS at unsignalized, all way stop controlled intersections is determine by comparing the average delay experienced on all approaches to the thresholds in the last column. At side street stop controlled intersections, LOS is calculated for the stopped movements and the left-turn movement from the major street.

TABLE 1
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	General Description	Average Control Delay (sec/veh)[1]	
		Signalized Intersections	Unsignalized Intersections
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	> 10 to 20	> 10 to 15
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	> 20 to 35	> 15 to2
D	Represents high-density, but stable flow.	> 35 to 55	> 25 to 35
E	Represents operating conditions at or near the capacity level.	> 55 to 80	> 35 to 50
F	Represents forced or breakdown flow.	> 80	> 50

Sources:
[1] *Highway Capacity Manual 2010*, Chapter 16, Signalized Intersections – Average control delay in seconds per vehicle (sec/veh)
[2] *Highway Capacity Manual 2010*, Chapter 17, Unsignalized Intersections – Average control delay in seconds per vehicle (sec/veh)

Signal warrant analysis was conducted for all study intersections using the rural peak hour signal warrant from the *California Manual on Uniform Traffic Control Devices* (2014).

FREEWAY FACILITIES

The traffic operations analysis addresses four freeway facilities on I-5 from just north of E Street to north of the SR 20 interchange. Merge and diverge sections were analyzed using the HCM 2010 procedures, and weave sections were analyzed using the Leisch Method (*Highway Design Manual* Section 504.7). If the analysis under the Leisch Method showed that a weave segment was "out of the realm of weaving," then the weave segment was analyzed as a basic segment, per the January 2013 errata to the *HCM 2010* (see Exhibit 1 below).

HIGHWAY CAPACITY MANUAL 2010

Approved Corrections and Clarifications as of January 2013

Chapter 10, Freeway Facilities

Page 10-23 (Clarification, approved January 2013): Change the third paragraph to read: "If the distance between the merge and diverge points is greater than L_{wMAX}, then the merge and diverge segments are too far apart to form a weaving segment. As shown in Exhibit 10-13(b), the ~~merge and diverge~~ segment~~s~~ ~~are treated separately, and any distance remaining between the merge and diverge influence areas~~ is treated as a basic freeway segment." Replace Exhibit 10-13(b) with the following:

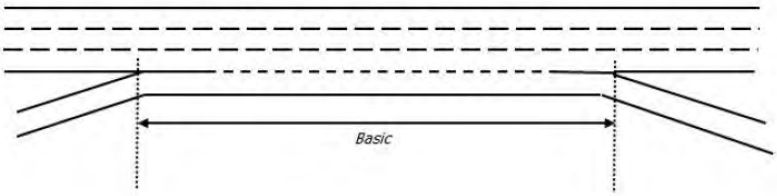


Exhibit 1: Highway Capacity Manual 2010, January 2013 Errata

The following input parameters were applied to the I-5 study freeway facilities analysis:

- Freeway mainline and on- and off-ramp peak hour factors (PHFs) were calculated based on existing AM and PM peak period counts of I-5 and at the I-5/SR 20 interchange ramp-terminal intersections. For cumulative conditions, the PHFs were set to a value of 0.92 to account for increased volumes in the future that will likely increase the PHF. If the PHF of a given mainline or ramp was already 0.92 or higher, then it was not altered.
- Heavy vehicle percentages for freeway facilities were based on existing vehicle classification counts on the I-5 mainline (collected between the on- and off-ramps at the E Street interchange)

and turning movement counts at the SR 20/I-5 ramp-terminal intersections. For cumulative conditions, heavy vehicle percentages were adjusted to maintain volume balancing.

- Free Flow Speed (FFS) – 70 mph for the freeway mainline; 45 mph for the ramps
- Recreational Vehicle (RV) Percentage – 0% (Accounted for in heavy vehicle percentage)
- Passenger Car Equivalent – 1.5 (Leisch Method)
- Weave Section Length – 1,485 feet southbound; 1,590 feet northbound

Tables 2 and 3 present the LOS thresholds for freeway mainline sections and ramp merge and diverge sections, respectively.

TABLE 2
FREEWAY MAINLINE LEVEL OF SERVICE CRITERIA

Level of Service	Description	Density (pcpmpl)[1]
A	Represents free flow. Vehicles are almost completely unaffected in their ability to maneuver within the traffic stream.	≤ 11
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 to 18
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 to 35
E	Operation at capacity. Virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45
F	Represents forced or breakdown flow.	> 45

- Notes: [1] pcpmpl = passenger cars per mile per lane
- Source: *Highway Capacity Manual 2010*, Chapter 10, Freeway Facilities

TABLE 3 RAMP MERGE AND DIVERGE LEVEL OF SERVICE CRITERIA		
Level of Service	**Description**	**Density (pcpmpl)[1]**
A	Represents free flow. Vehicles are almost completely unaffected in their ability to maneuver within the traffic stream.	< 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 28 to 35
E	Operation at capacity. Virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 43
F	Represents forced or breakdown flow.	> 43

Notes: [1] pcpmpl = passenger cars per mile per lane
Source: *Highway Capacity Manual 2010*, Chapter 13, Freeway Merge and Diverge Segments

Table 4 presents the LOS thresholds for weave sections.

TABLE 4 FREEWAY WEAVING LEVEL OF SERVICE CRITERIA BASED ON LEISCH METHOD			
Level of Service	**Service Flow (pcpmpl)[1]**		
	2 Lanes	**3 Lanes**	**4 Lanes**
A	750	800	850
B	1,000	1,100	1,200
C	1,250	1,350	1,450
D	1,550	1,450	1,650
E	1,900	1,900	1,900
F	Demand Exceeds Capacity	Demand Exceeds Capacity	Demand Exceeds Capacity

Notes: [1] pcpmpl = passenger cars per mile per lane
Source: *Highway Design Manual (HDM),* 5th Edition, Caltrans

ANALYSIS EVALUATION CRITERIA

Since the study intersections are all located on SR 20 and there are two I-5 ramp terminal intersections, all of the study intersections fall under the evaluation criteria of Caltrans. The *Transportation Concept Report State Route* 20 document (Caltrans, 2013) gives a 20-year concept LOS of D for the section of SR 20 that lies in the study area. Additionally, the *Transportation Corridor Concept Report Interstate 5* document (Caltrans, 2010) gives a 20-year concept LOS of D for the section of I-5 that lies in the study area. However, Caltrans also provided analysis evaluation criteria in their January 12, 2012 comment letter on the City of Williams General Plan Draft EIR. In that letter, Caltrans identified LOS E or better operations on freeways and LOS D or better operations on highways as acceptable.

Based on the criteria from Caltrans, LOS D was used as the evaluation criteria for intersections on SR 20 and LOS E was used as the evaluation criteria for I-5 freeway facilities.

CHAPTER 3. EXISTING CONDITIONS

The existing conditions analysis presents information regarding the physical and operational characteristics of the existing roadway system near the proposed project. This information establishes a baseline for project evaluation.

STUDY AREA

State Route 20 and the I-5 / SR 20 interchange provide direct access to and from the project site. Other key roadways in the project vicinity include Husted Road/Freshwater Road and Margurite Street. These roadways are described below.

INTERSTATE 5

Interstate 5 (I-5) is a facility of interregional significance extending the length of California into Oregon and Washington. It is used extensively by local and regional commuters and for goods movement throughout northern California. In the study area, I-5 has four lanes north of SR 20 and six lanes between SR 20 and E Street (four lanes with a northbound and southbound weaving lane between the interchanges). Interchanges exist at the SR 20 junction and at E Street.

STATE ROUTE 20

State Route (SR) 20 is generally an east-west state highway that begins in Fort Bragg to the west and ends at Interstate 80 approximately 25 miles west of Truckee, California. Most of SR 20, including through the project study area, is a two lane facility. Access to SR 20 from I-5 is provided by a tight-diamond configuration interchange with side-street stop control (SSSC) at the ramp terminals.

HUSTED ROAD

Husted Road is a north-south, two-lane roadway that borders the east side of Williams. Husted Road serves agricultural land uses north and south of SR 20 and is a designated truck route according to the Williams 2010 General Plan. The Husted Road / SR 20 intersection has side-street stop control (SSSC) intersection. Husted Road becomes Freshwater Road north of SR 20.

MARGURITE STREET

Margurite Street is a north-south, two-lane roadway that connects E Street and SR 20. It was recently extended from Ella Street to connect with SR 20 in January, 2016 but remains unopened at the time of this study. Margurite Street contains both sidewalks and bike lanes and would provide direct access to the project site via two full-access driveways, one for passenger vehicles (the northernmost driveway) and one for trucks (the southernmost driveway). The Margurite Street / SR 20 intersection has side-street stop control (SSSC).

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian and bicycle facilities are not provided on SR 20. However, the unopened segment of Margurite Street between SR 20 and E Street does include sidewalks and on-street Class II bike lanes. Since adjacent properties are either undeveloped or consist of agricultural uses, the demand for pedestrian and bicycle travel in the area is limited. None of the existing study intersections have crosswalks.

EXISTING TRANSIT SERVICE

The public transit is administered by Colusa County Transit Agency (CCTA). The bus system provides regional connectivity to residents of Williams, Colusa, and Arbuckle. Currently, there is no public transit system that serves the project site. However, riders may call the Colusa County Transit Agency to schedule a ride.

The transit system operates the following service:

- County Hopper Deviated Fixed Route Bus Service – connects Williams with Arbuckle, Colusa, Grimes, Maxwell, Princeton, Sties, and Stonyford. Each bus can deviate from its normal route in order to accommodate the general population as well as ADA passengers.

EXISTING RAIL

The study area includes a Union Pacific Railroad (UPRR) track that runs through Williams west of I-5. SR 20 has a grade-separated crossing of the railroad. There is no existing commuter rail service within the study area.

DATA COLLECTION

Freeway mainline and SR 20 intersection turning movement counts were collected at the study intersections during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods in February 2016. Traffic counts were collected midweek (Tuesday through Thursday), during a non-holiday week with clear and dry weather conditions and when school was in session. The traffic counts also included vehicle classification. Lane configurations, speed limits, and traffic controls were verified during field visits.

Collision records in the study area were obtained from the Traffic Accident Surveillance and Analysis System (TASAS) for the most recent three year period available (January 2012 through December 2014). Study intersection peak hour traffic volumes, intersection controls, and lane configurations within the study area are shown on Figure 2. Figure 3 displays the freeway volumes under existing conditions.

TRAFFIC OPERATIONS – LEVEL OF SERVICE RESULTS

The following sections summarize the results of the existing conditions operations analysis.

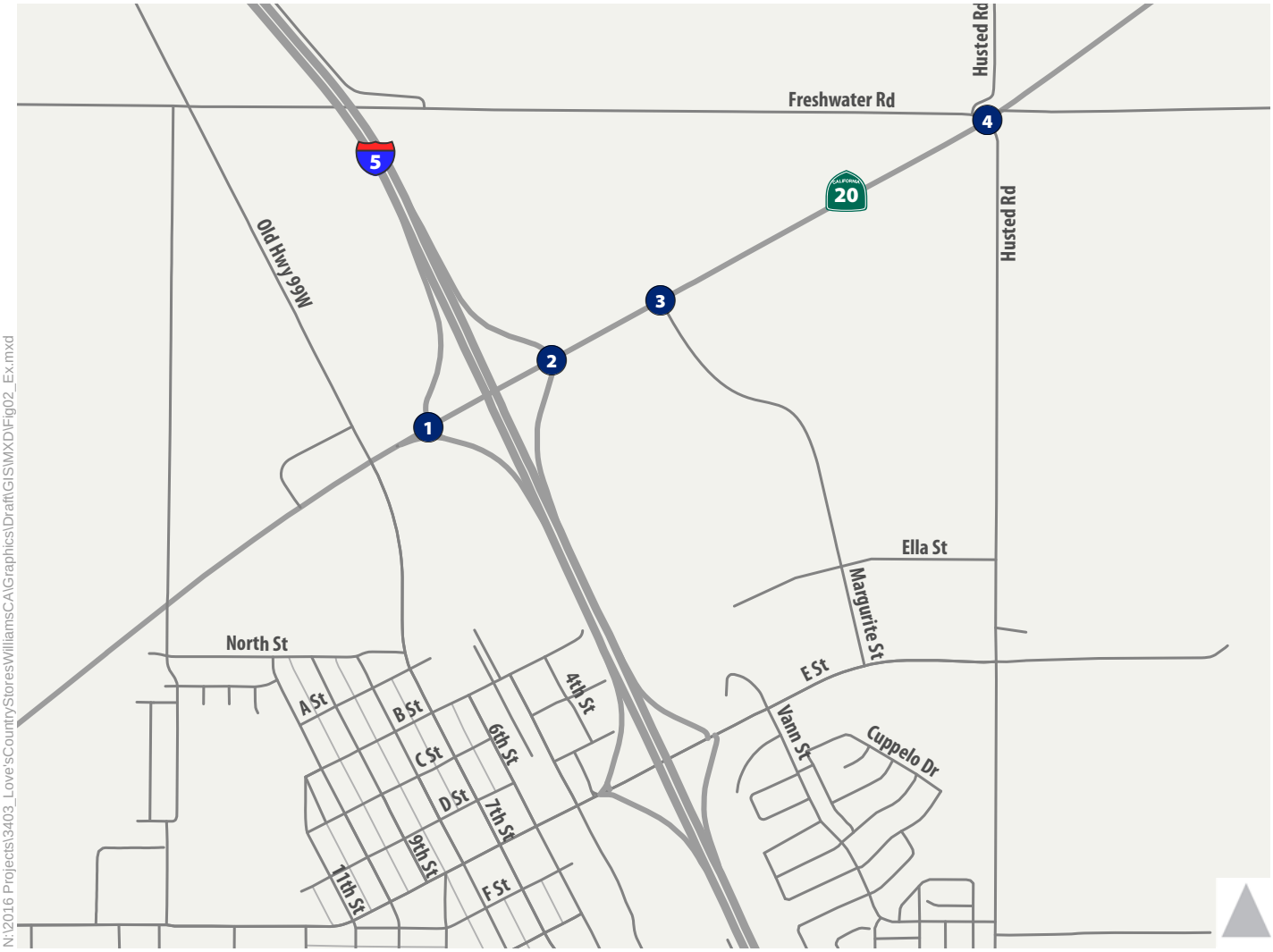
INTERSECTIONS

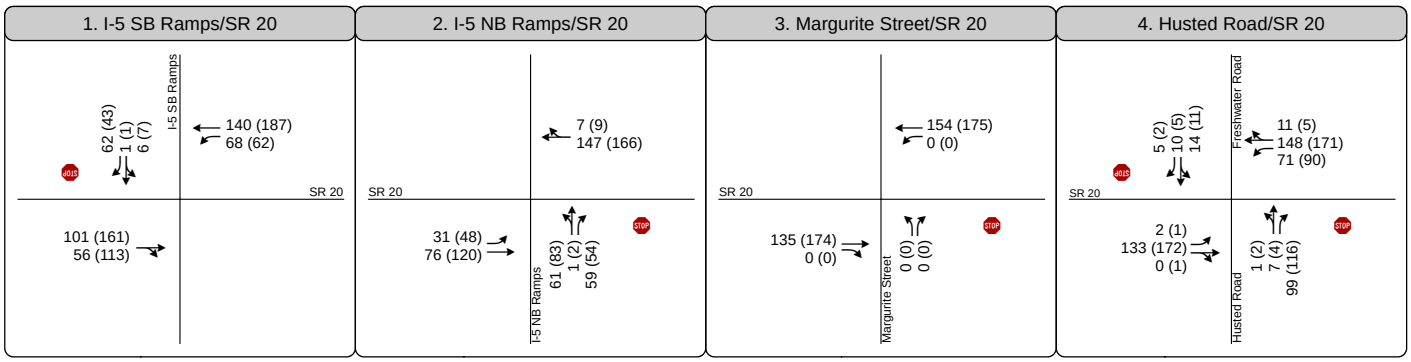
As shown in Table 5, all of the study intersections have side-street stop control and operate at LOS A. The worst movements' level of service and delay are shown in parenthesis.

TABLE 5
INTERSECTION LEVEL OF SERVICE RESULTS – EXISTING CONDITIONS

Intersection	Control Type[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	SSSC	2 (6)	A (A)	2 (3)	A (A)
2. SR 20/I-5 NB Ramps	SSSC	2 (5)	A (A)	2 (6)	A (A)
3. SR 20/Margurite Street	SSSC	1 (1)	A (A)	1 (1)	A (A)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	2 (9)	A (A)	2 (9)	A (A)

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement) for side street stop control intersections.
Source: Fehr & Peers, 2016





*Note: Margurite Street at SR-20 is contructed but not currently open.

1	Study Intersection
	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
	Stop Sign

Figure 2

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

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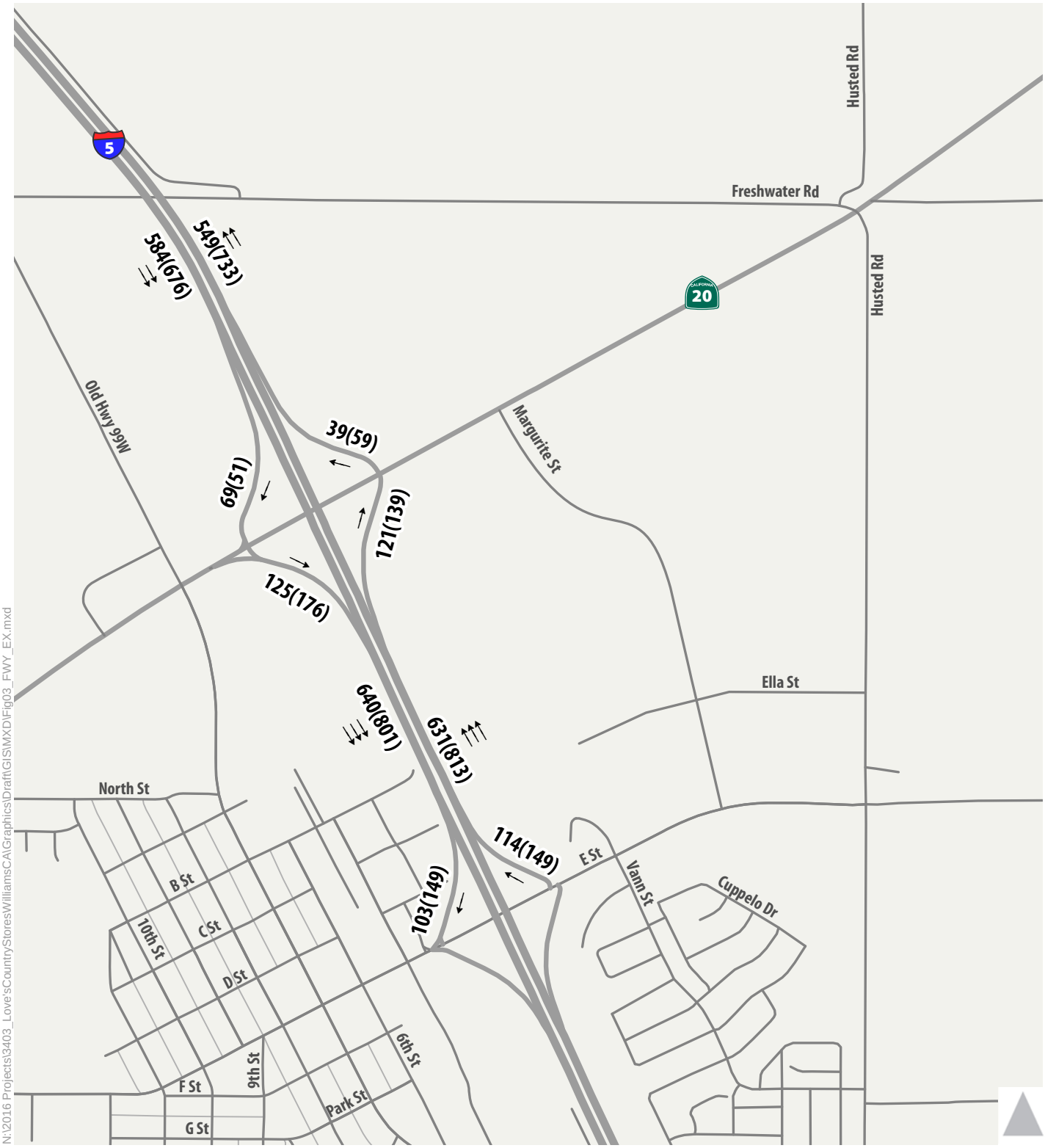


Lane

AM(PM) Peak Hour Freeway Volume

Figure 3

Peak Hour Freeway Mainline & Ramp Volumes - Existing Conditions

AM and PM peak hour signal warrant analyses were performed for the four study intersections under existing conditions. The AM and PM peak hour signal warrants were not satisfied due to low traffic volumes near study intersections. The technical calculations are provided in Appendix A.

FREEWAY SEGMENTS

Freeway segment operations were analyzed for I-5 north of SR 20 and for the weaving sections (northbound and southbound) between the E Street and SR 20 interchanges. The volume in the weaving section is out of the realm of weaving according to the Leisch Method Weaving Analysis; therefore, they were analyzed as basic freeway segments. As shown in Table 6, all study facilities operate acceptably.

TABLE 6
FREEWAY OPERATIONS – EXISTING CONDITIONS

Ramp Junction	Facility Type	Minimum Acceptable LOS	AM Peak Hour		PM Peak Hour	
			Density (pcplpm)[1]	LOS	Density (pcplpm)[1]	LOS
I-5 NB E St to SR 20	Weave/Basic[2]	E	6	A	8	A
I-5 NB on-ramp from SR 20	Merge	E	7	A	9	A
I-5 SB off-ramp to SR 20	Diverge	E	9	A	10	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	6	A	8	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment fell outside of the realm of weaving and was analyzed as a basic segment
Source: Fehr & Peers, 2016

TRAFFIC SAFETY

Table 7 summarizes the three-year collision history at the study intersections. The section of I-5 from Freshwater Road to the E Street interchange has the highest collision rate, with all of the reported collisions along this freeway segment being injury-related. The I-5 NB ramps/SR 20 intersection had the second greatest number of collisions; both collisions involved automobile right-of-way issues.

At all study intersections, the most common collision type was between automobiles; the second most common collision type was between automobiles and fixed objects. The majority of primary collision factors were related to automobile right-of-way and improper turning. These accident patterns are typical on major arterials that accommodate heavy volumes of through traffic and experience stop-and-go conditions.

TABLE 7
COLLISION HISTORY AT STUDY INTERSECTIONS

Location	Number of Collisions					Most Common Collision Type	Most Common Primary Collision Factor (PCF)	Collision Rate[2]
	3-Year Total[1]	Average Per Year	Total Injury Collisions	Total Fatal Collisions	Total Involving Peds or Bicyclists			
Husted Road / SR 20	1	0.33	1	0	0	Fixed Object	Driving Under the Influence of Alcohol or Drug	0.59
I-5 Freeway (Freshwater Road to E Street)	9	3	28	0	0	Other Motor Vehicle	Improper Turning	0.33
I-5 NB Ramps/SR 20	2	0.66	2	0	0	Other Motor Vehicle	Automobile Right-of-Way	0.66

Notes: [1] Total number of collisions from January 2012 through December 2014
[2] The collision rate is expressed as accidents per million vehicles entering the intersection.
Source: Fehr & Peers, 2016

QUEUEING

Table 8 displays the queueing results for existing conditions. During both the AM and PM peak hours, queueing at the I-5 off-ramps is minor and does not exceed the storage length.

TABLE 8
INTERSECTION QUEUE LENGTHS – EXISTING CONDITIONS

Intersection	Approach - Movement	Storage Length	Maximum Queue Length (ft)[1]	
			AM Peak Hour	PM Peak Hour
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	75	50
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	75	75

Notes: [1] All queues rounded up to the nearest 25 feet.
Source: Fehr & Peers, 2016

CHAPTER 4. PROJECT TRAVEL CHARACTERISTICS

This section presents the project and describes the project's expected travel characteristics including the anticipated number of vehicle trips, expected trip distribution, and expected travel routes.

PROJECT DESCRIPTION

The Love's Country Store project is located at the adjacent to SR 20 and Margurite Street in the City of Williams, CA. Vehicular access to the site would be provided by driveways along Margurite Street—one for cars and one for trucks. The proposed project would comprise of the following land uses:

- A gasoline/diesel station with 22 fueling stations and a convenience market
- 3 high-turnover sit-down restaurants totaling approximately 4,530 square feet
- A tire shop of about 6,040 square feet

PROJECT TRAFFIC CHARACTERISTICS

Traffic generated by the Proposed Project is assigned to the roadway network using the following three-step process:

1. Trip Generation – estimates the amount of traffic generated by the proposed plans based on the planned land uses
2. Trip Distribution – distributes project trips based on origins and destinations in the region
3. Trip Assignment – assigns project trips to the roadway network based on the proposed project's trip generation and distribution

Trip Generation

Traffic generated by the proposed project was estimated using trip rates contained in the *Institute of Transportation Engineer's (ITE) 9th Edition Trip Generation Manual* (2012) for project-specific land uses. Love's Country Store has advised that the actual trip generation for the tire shop is lower than the resulting trip generation using ITE rates. However, in the absence of empirical data quantifying trip generation specific to tire shops on Love's property, use of ITE rates will result in a conservative (i.e. on the high side) analysis.

Given the location of the project and mix of proposed land use, project trips can be categorized as follows:

- New external trips: trips that are added to the transportation network due to the project. These trips have either their origin or destination outside the project.
- Internal trips: trips generated by the project that have both their origin and destination within the project. Since these trips stay within the project, they do not affect the external transportation network. Accounting for trip internalization is necessary because ITE trip generation rates reflect gross trips and not internal capture that occurs due to complimentary land uses, such as the restaurant and retail being proposed by the project. ITE's standard methodology for estimating internalization was applied to calculate the amount of internalization.
- Diverted-linked trips: existing trips on the transportation network (i.e. I-5) that are diverted to the project due to the project's proposed land use and proximity to I-5. Since these trips already exist on I-5, they do not add traffic to the I-5 mainline; these trips, however, do add traffic to the I-5 ramps and SR 20 because these facilities provide access to the project. A diverted-link trip adjustment of 75% was applied to the total trips at the project driveways to estimate the number of diverted-linked trips. The diverted-linked reduction was estimated based on data contained in the *ITE Trip Generation User's Guide and Handbook 2nd Edition* (2012).

As shown in Table 8, the project would generate 4,307 daily gross project trips. Of these daily gross project trips, 406 trips would be internal to the project and 2,926 trips would be existing trips on I-5 the roadway network that are diverted to the project. After accounting for internal trips and diverted-linked trips, the project would generate 975 daily new external trips; of these daily new external trips, 65 would occur during the AM peak hour and 83 would occur during the PM peak hour.

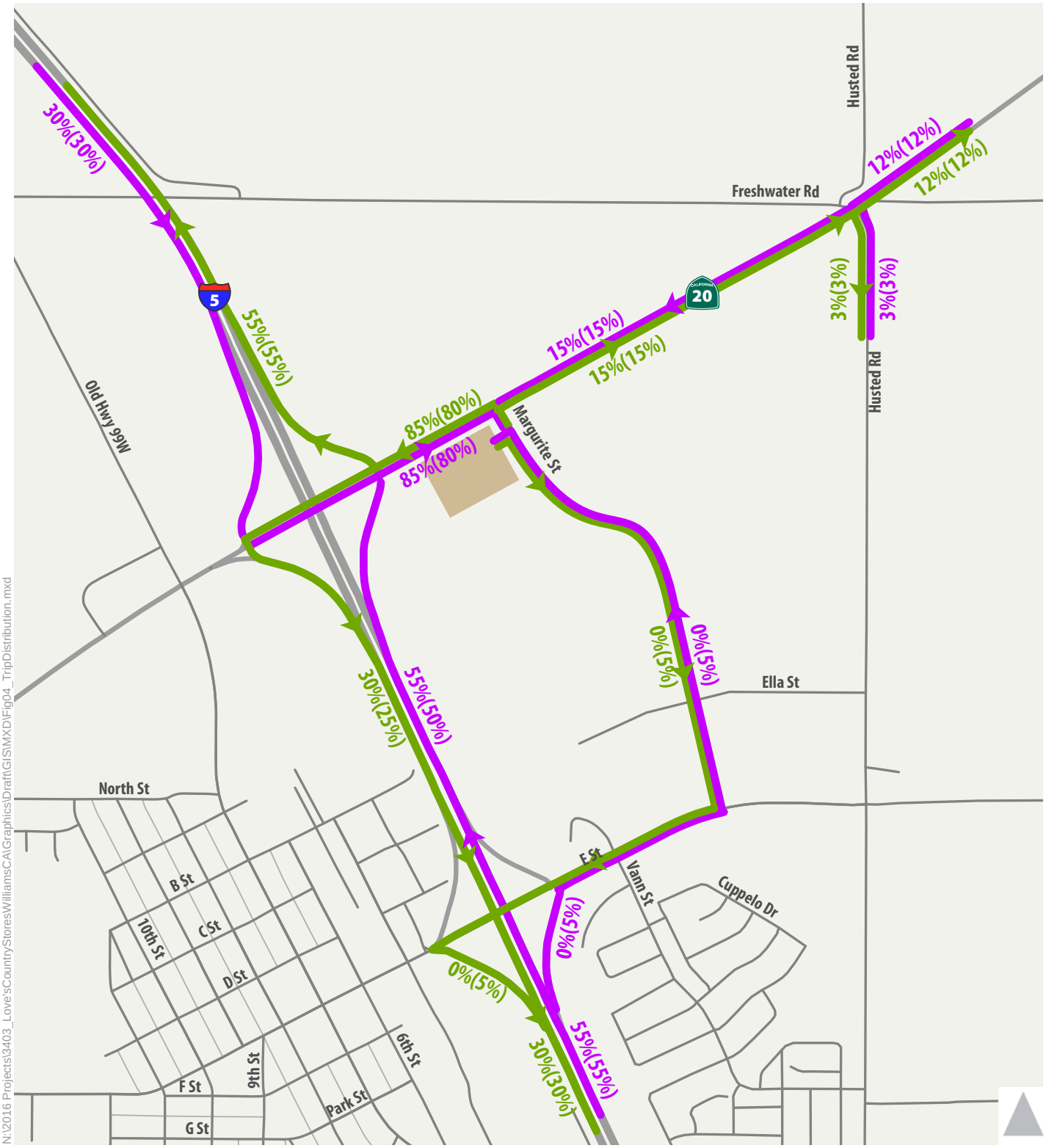
TABLE 9
LOVE'S COUNTRY STORE (WILLIAMS, CA) TRIP GENERATION

Land Use (ITE Code)[1]	Quantity	Unit	Daily		AM Peak Hour			PM Peak Hour		
			Rate	Trips	Total	In	Out	Total	In	Out
Gasoline/Service Station with Convenience Market (945)	22	Fueling Stations	162.78	3,581	224	112	112	298	149	149
High-Turnover (Sit-Down) Restaurant (932)	4.53	KSF	127.15	576	49	27	22	45	27	18
Tire Shop (848)	6.04	KSF	24.87	150	17	11	6	25	11	14
Gross Project Trips:				4,307	290	150	140	368	187	181
Internal Trip Reduction:				-406	-32	-16	-16	-30	-15	-15
Total Trips at Site Driveways:				**3,901**	**258**	**134**	**124**	**338**	**172**	**166**
Diverted-Link Trip Adjustment:				-2,926	-193	-100	-93	-255	-130	-125
Net New External Trips:				**975**	**65**	**34**	**31**	**83**	**42**	**41**

Notes: [1] Trip Generation, 9th Edition (Institute of Transportation Engineers, 2012) was used to develop trip generation rates.
Source: Fehr & Peers, 2016

Trip Distribution

This study relies on a review of travel characteristics within the study area to estimate the distribution of project trips. The project is likely to attract trips travelling along I-5 and SR 20. Existing counts collected at the ramp terminals were used to estimate the directional split of project trips on these two main facilities. Figure 3 displays the project trip distribution under both the AM and PM peak hours for both existing plus project and cumulative plus project conditions.



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Trip Distribution

Project Location

Inbound

Outbound

1% (5%) Existing (Cumulative) Distribution

Figure 4

Project Trip Distribution

CHAPTER 5. EXISTING PLUS PROJECT CONDITIONS

This chapter analyzes the potential traffic impacts of the proposed project on the surrounding roadway system under existing plus project conditions.

STUDY AREA

Although the existing connection of Margurite Street and SR 20 is constructed but not open, the existing plus project scenario assumes that the segment of Margurite Street between the project driveways and SR 20 would be open. This allows access to the project driveways, which front only on to Margurite Street. All other roadway facilities remain the same as under existing conditions.

TRAFFIC VOLUME FORECASTS

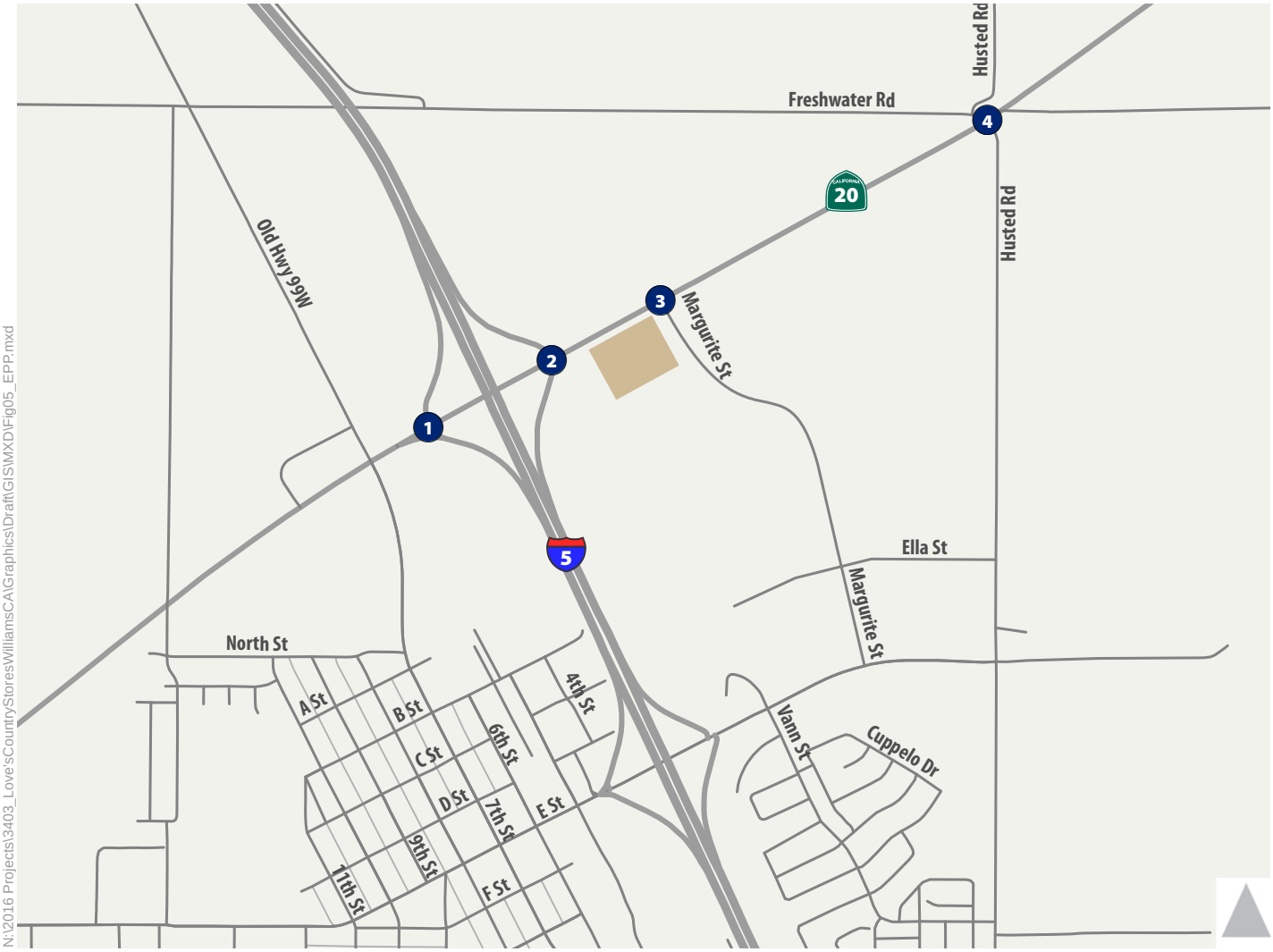
Existing plus project traffic volume forecasts were developed using the trip generation summarized in Table 9 and the trip distribution shown in Figure 3. The assignment of project trips was unique for each trip type.

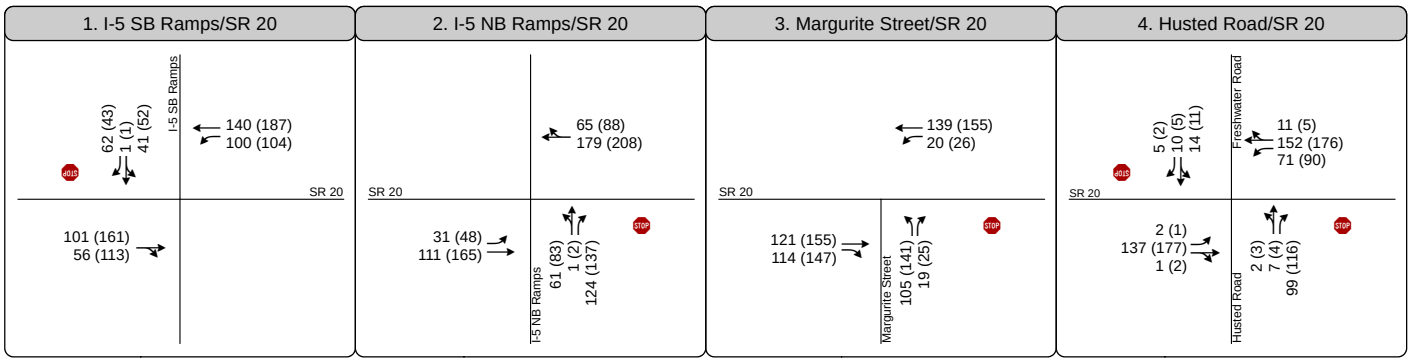
- New external trips: project trips not already on the roadway network were manually added to existing volumes.
- Diverted-linked trips: project trips that are already on the existing roadway network and are re-routed to the project.
- Internal trips: project trips that stay on-site. These trips do not use the external roadway network.

Peak hour traffic volumes, intersection controls, and lane configurations within the study area are shown on Figure 5. Figure 6 displays the freeway volumes under existing plus project conditions.

TRAFFIC OPERATIONS – LEVEL OF SERVICE RESULTS

The following sections summarize the results of the existing plus project operations analysis.

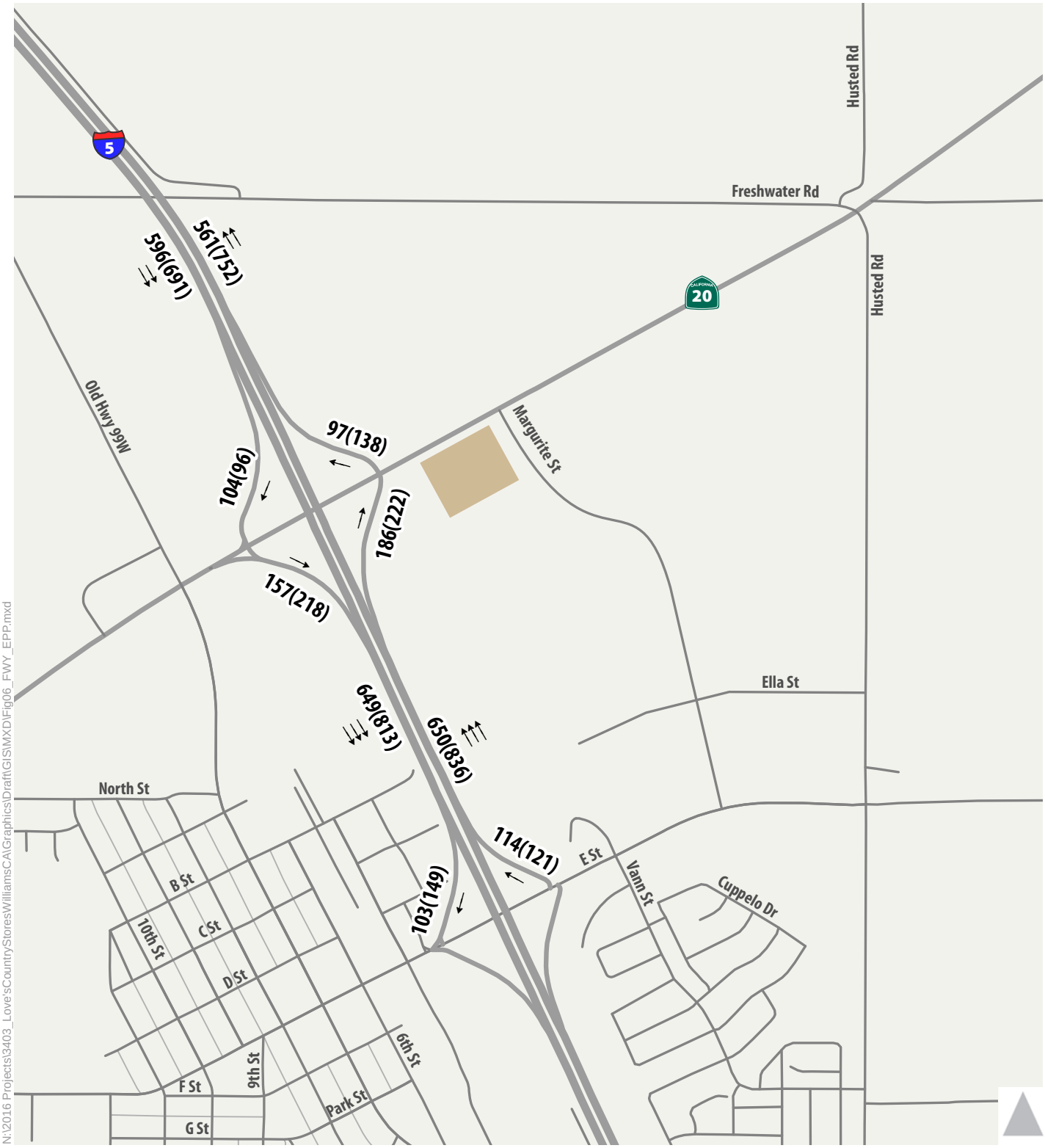




1	Study Intersection
	Project Location
	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
	Stop Sign

Figure 5

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions



Lane

AM(PM) Peak Hour Freeway Volume

Project Location

Figure 6

Peak Hour Freeway Mainline & Ramp Volumes - Existing Plus Project Conditions

INTERSECTIONS

AM and PM peak hour intersection level of service analysis was performed using SimTraffic software, which utilizes HCM 2010 methodology. As shown in Table 10, all of the study intersections would continue to operate at LOS A under existing plus project conditions. The worst movements' level of service and delay are shown in parenthesis.

AM and PM peak hour signal warrant analyses were performed for the four study intersections under existing plus project conditions. The AM and PM peak hour signal warrants were not satisfied due to low traffic volumes near study intersections. The technical calculations are provided in Appendix A.

TABLE 10
INTERSECTION LEVEL OF SERVICE RESULTS – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control Type[1]	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay[2]	LOS	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	SSSC	AM	2 (6)	A (A)	3 (7)	A (A)
		PM	2 (3)	A (A)	3 (9)	A (A)
2. SR 20/I-5 NB Ramps	SSSC	AM	2 (5)	A (A)	4 (8)	A (A)
		PM	2 (6)	A (A)	4 (9)	A (A)
3. SR 20/Margurite Street	SSSC	AM	1 (1)	A (A)	4 (7)	A (A)
		PM	1 (1)	A (A)	4 (7)	A (A)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	AM	2 (9)	A (A)	2 (9)	A (A)
		PM	2 (9)	A (A)	2 (7)	A (A)

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement).
Source: Fehr & Peers, 2016

FREEWAY SEGMENTS

Table 11 summarizes AM and PM peak hour freeway operations. As shown in Table 11, I-5 would continue to operate at acceptable levels of service under existing plus project conditions. The existing plus project traffic volumes within the weaving section are out of the realm of weaving according to the Leisch Method Weaving Analysis; therefore, these sections were analyzed as basic freeway segments.

TABLE 11
FREEWAY OPERATIONS – EXISTING PLUS PROJECT CONDITIONS

Ramp Junction	Facility Type	Minimum Acceptable LOS	Peak Hour	Existing Conditions		Existing Plus Project	
				Density (pcplpm)[1]	LOS	Density (pcplpm)[1]	LOS
I-5 NB E St to SR 20	Weave/Basic[2]	E	AM	6	A	6	A
			PM	8	A	8	A
I-5 NB on-ramp from SR 20	Merge	E	AM	7	A	7	A
			PM	9	A	9	A
I-5 SB off-ramp to SR 20	Diverge	E	AM	9	A	9	A
			PM	10	B	10	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	AM	6	A	6	A
			PM	8	A	8	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment fell outside of the realm of weaving and was analyzed as a basic segment
Source: Fehr & Peers, 2016

QUEUEING

Table 12 displays the queueing results for existing plus project conditions. As shown, the maximum vehicle queues during the AM and PM peak hours would not exceed available storage. The southern leg of the SR 20/Margurite Street intersection is currently not open to traffic, so no queues are reported under existing conditions.

TABLE 12
INTERSECTION QUEUE LENGTHS – EXISTING PLUS PROJECT CONDITIONS

Intersection	Approach - Movement	Storage Length	Peak Hour	Maximum Queue Length (ft)	
				Existing Conditions	Existing Plus Project
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	AM	75	100
			PM	50	100
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	AM	75	125
			PM	75	125
3. SR 20/Margurite Street	EB Right	480	AM	0	25
			PM	0	25
	NB Left	225	AM	0	125
			PM	0	100
	NB Right	3,100	AM	0	75
			PM	0	75
	WB Left	390	AM	0	25
			PM	0	50

Notes: [1] All queues rounded up to the nearest 25 feet.
Source: Fehr & Peers, 2016

CHAPTER 7. CUMULATIVE CONDITIONS

This chapter presents the development and analysis of the project under cumulative conditions.

FORECAST DEVELOPMENT

Cumulative (year 2035) no project traffic volume forecasts were developed through the difference method process. For this study, the difference method relies on *SR 20 Connection* (2013) traffic forecasts to apply incremental growth to existing volumes using the following formula:

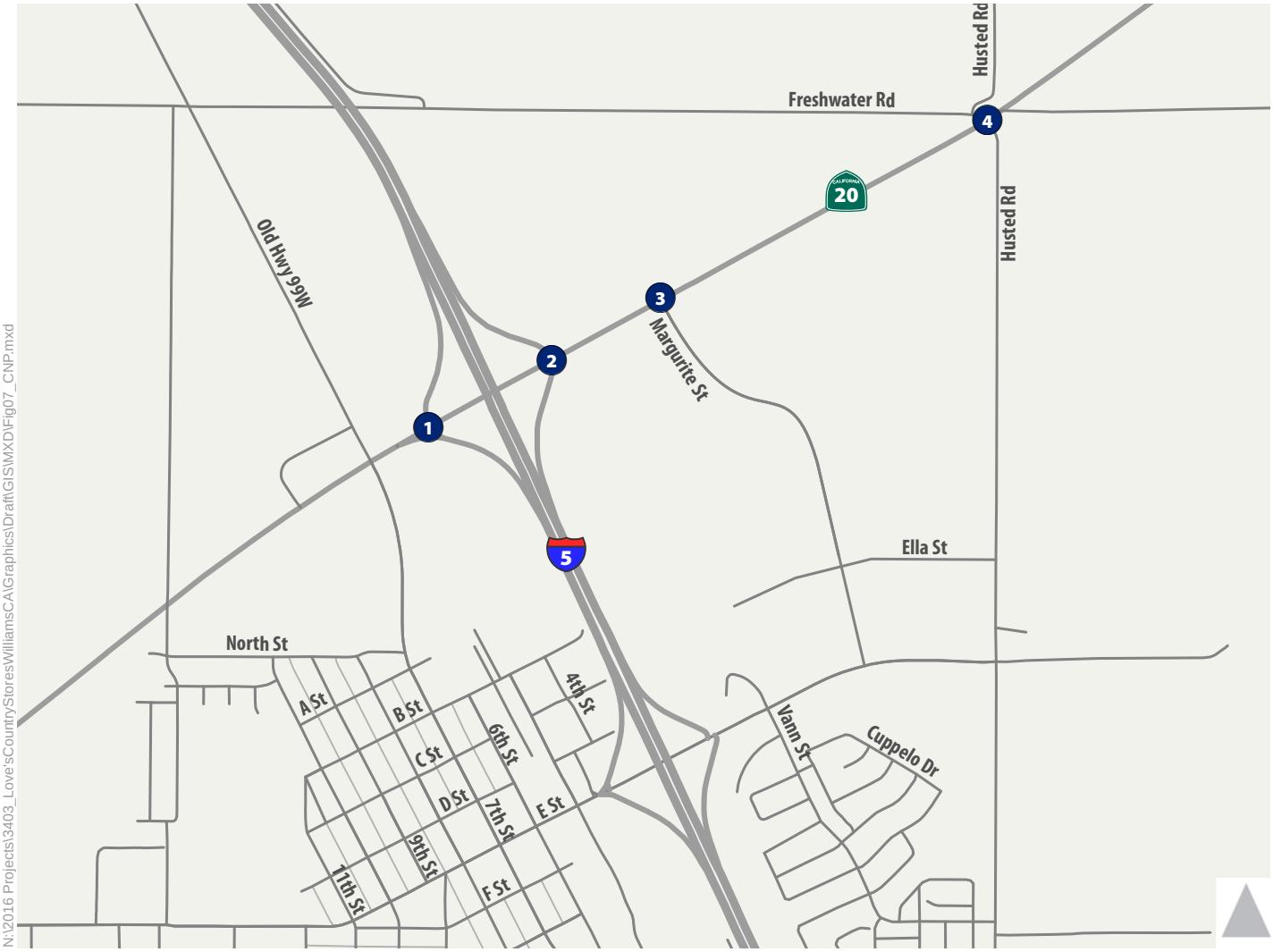
Cumulative Forecasts = Existing Traffic Count +
(SR 20 Connection Study Cumulative Volume – SR 20 Connection Study Base Year Volume)

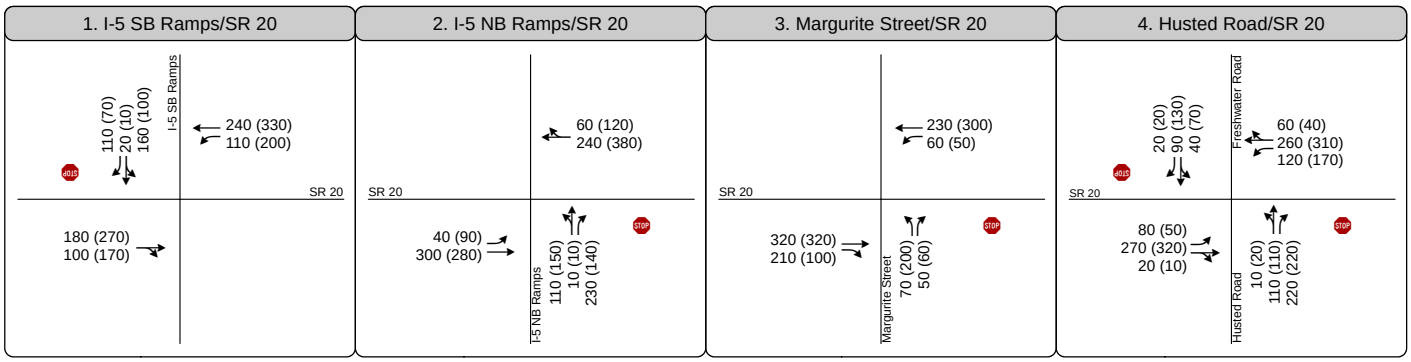
Following the development of cumulative no project traffic forecasts, cumulative plus project traffic forecasts were developed by manually adding project trips assigned to the network according to a cumulative project distribution shown in Figure 4. Figures 7 and 8 display the cumulative no project intersection and freeway volumes, respectively, while Figures 9 and 10 display the cumulative plus project intersection and freeway volumes.

The City of Williams General Plan identifies the following transportation system improvements in the study area under buildout conditions.

- Widen SR 20 from two lanes to four lanes from I-5 to Margurite Street
- Install traffic signals on SR 20 at the following intersections:
  - I-5 NB and SB Ramps
  - Husted Road

Since the above improvements are not programmed, the cumulative operations analysis assumes the existing roadway network.



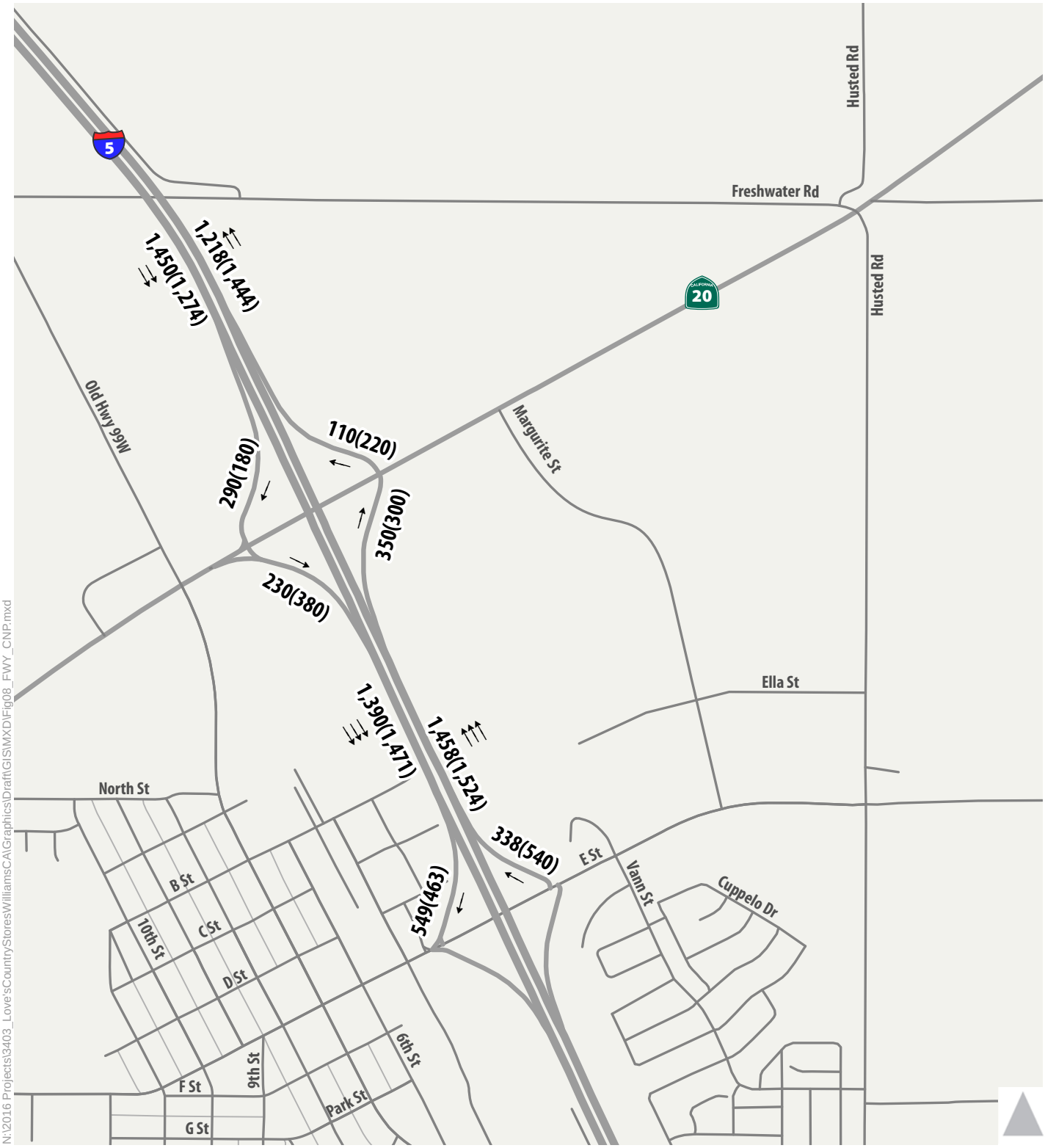


1	Study Intersection
	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
	Stop Sign

Figure 7

Peak Hour Traffic Volumes and Lane Configurations - Cumulative No Project Conditions

me

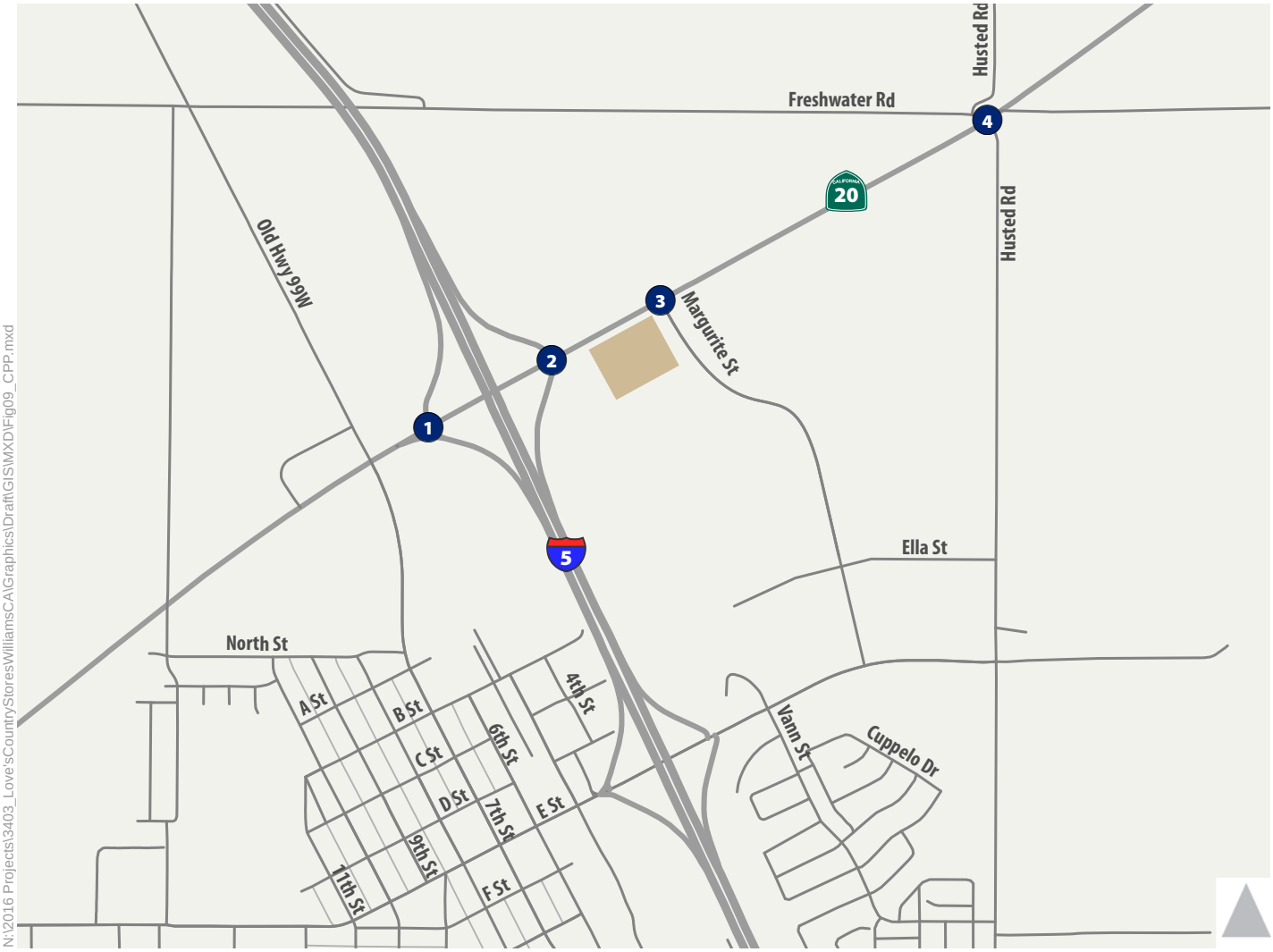


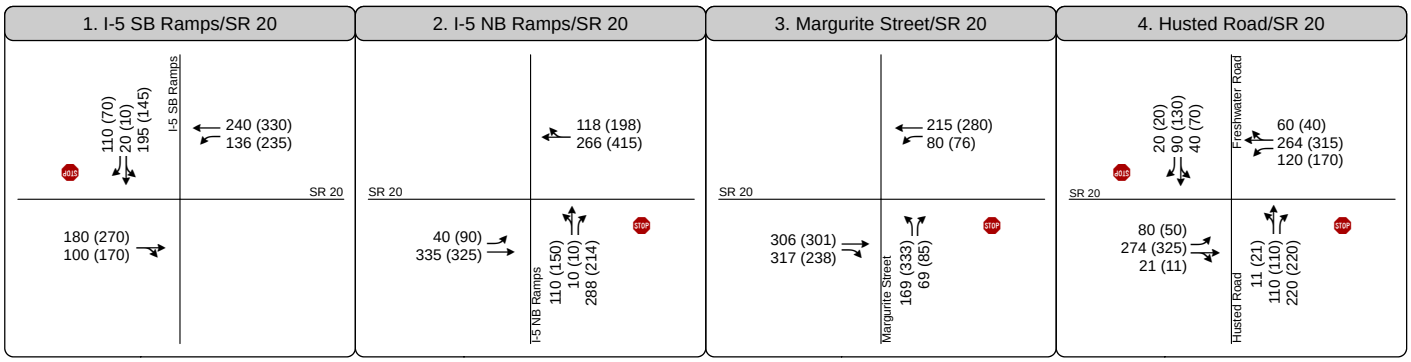
Lane

AM(PM) Peak Hour Freeway Volume

Figure 8

Peak Hour Freeway Mainline & Ramp Volumes - Cumulative No Project Conditions





1 Study Intersection

Project Location

Turn Lane

AM (PM) Peak Hour Traffic Volume

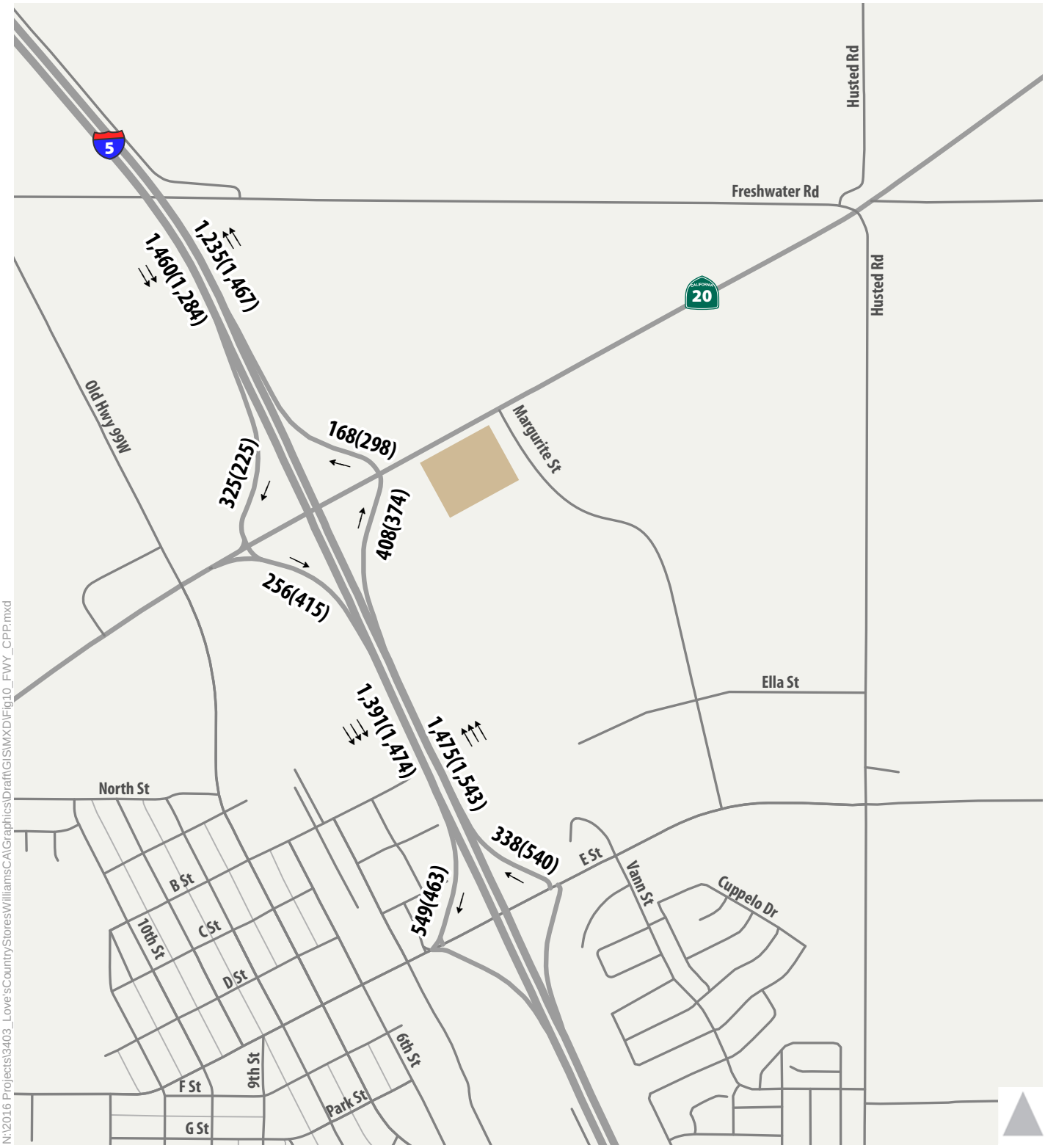
Traffic Signal

Stop Sign

Figure 9

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus Project Conditions

me



Lane

AM(PM) Peak Hour Freeway Volume

Project Location

Figure 10

Peak Hour Freeway Mainline & Ramp Volumes - Cumulative Plus Project Conditions

TRAFFIC OPERATIONS – LEVEL OF SERVICE RESULTS

The following sections summarize the results of the cumulative conditions operations analysis.

INTERSECTIONS

Table 13 displays the intersection level of service results for cumulative conditions. As shown, the SR 20/Husted Road intersection would operate unacceptably at LOS F during both the AM and PM peak hours under cumulative no project and cumulative plus project conditions. The project would cause LOS F operations at the SR 20/I-5 SB Ramp and SR 20/I-5 NB Ramp intersections during the PM peak hour. The SR 20/Margurite Street intersection would operate acceptably during both peak hours.

Intersection geometry at SR 20/Margurite Street differs from the three other study intersections as follows:

- turn pockets on all approaches
- a channelized eastbound right turn that yields to westbound left turn movement
- dedicated eastbound and westbound acceleration lanes to receive traffic turning on to SR 20 from Margurite Street

As a result of the above features, the intersection of SR 20/Margurite Street would operate acceptably with side street stop control under cumulative plus project conditions.

TABLE 13 INTERSECTION LEVEL OF SERVICE RESULTS – CUMULATIVE CONDITIONS						
Intersection	**Control Type[1]**	**Peak Hour**	**Cumulative Conditions**		**Cumulative Plus Project**	
			Delay[2]	**LOS**	**Delay[2]**	**LOS**
1. SR 20/I-5 SB Ramps	SSSC	AM	6 (17)	A (C)	9 (23)	A (C)
		PM	7 (23)	A (C)	**16 (73)**	**C (F)**
2. SR 20/I-5 NB Ramps	SSSC	AM	9 (23)	A (C)	**20 (60)**	**C (F)**
		PM	9 (28)	A (D)	**20 (77)**	**C (F)**
3. SR 20/Margurite Street	SSSC	AM	6 (9)	A (A)	10 (27)	B (D)
		PM	5 (11)	A (B)	11 (25)	B (D)
4. SR 20/Husted Rd/Freshwater Rd	SSSC	AM	**20 (58)**	**C (F)**	**23 (66)**	**C (F)**
		PM	**35 (130)**	**D (F)**	**35 (110)**	**D (F)**

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement)
Source: Fehr & Peers, 2016

FREEWAY SEGMENTS

Table 14 summarizes AM and PM peak hour freeway operations. The cumulative traffic volumes within the weaving section were analyzed according to the Leisch Method Weaving Analysis. As shown in Table 14, I-5 would continue to operate at acceptable levels of service under both cumulative no project and cumulative plus project conditions.

TABLE 14 FREEWAY OPERATIONS – CUMULATIVE CONDITIONS							
Ramp Junction	**Facility Type**	**Minimum Acceptable LOS**	**Peak Hour**	**Cumulative Conditions**		**Cumulative Plus Project**	
				Density (pcplpm)[1]	**LOS**	**Density (pcplpm)[1]**	**LOS**
I-5 NB E St to SR 20	Weave/Basic[2]	E	AM	-	A	-	A
			PM	-	A	-	A
I-5 NB on-ramp from SR 20	Merge	E	AM	14	B	14	B
			PM	16	B	16	B
I-5 SB off-ramp to SR 20	Diverge	E	AM	18	B	19	B
			PM	16	B	16	B
I-5 SB SR 20 to E St	Weave/Basic[2]	E	AM	-	A	-	A
			PM	-	A	-	A

Notes: [1] pcplpm = passenger cars per lane per mile
[2] Segment analyzed using Leisch Method (pcplpm not provided)
Source: Fehr & Peers, 2016

QUEUEING

Table 15 displays the queueing results for cumulative conditions. During both the AM and PM peak hours, queueing at the I-5 off-ramps and at the SR 20/Margurite Street intersection does not exceed the storage length.

TABLE 15
INTERSECTION QUEUE LENGTHS – CUMULATIVE CONDITIONS

Intersection	Approach - Movement	Storage Length	Peak Hour	Maximum Queue Length (ft)	
				Cumulative Conditions	Cumulative Plus Project
1. SR 20/I-5 SB Ramps	SB Shared Left/Right	1,900	AM	125	200
			PM	125	250
2. SR 20/I-5 NB Ramps	NB Shared Left/Right	1,900	AM	300	475
			PM	300	600
3. SR 20/Margurite Street	EB Right	480	AM	75	100
			PM	25	100
	NB Left	225	AM	75	175
			PM	100	225
	NB Right	3,100	AM	75	100
			PM	75	150
	WB Left	390	AM	50	75
			PM	25	50

Notes: [1] All queues rounded up to the nearest 25 feet.
Source: Fehr & Peers, 2016

IMPACTS AND MITIGATION MEASURES

Project impacts were determined by comparing conditions with the project to conditions with the project in accordance with the established significance criteria presented in the Thresholds of Significance section.

The cumulative conditions analysis results presented in Table 14 indicate that the addition of the project would, with other cumulative growth, result in unacceptable operations at three study intersections. The following discusses these impacts and associated mitigations.

IMPACTS

The project would cause impacts at the following intersections:

- SR 20/I-5 SB Ramps (Intersection 1) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour. According to established significance criteria, this is a cumulatively considerable impact.

- SR 20/I-5 NB Ramps (Intersection 2) – This intersection will operate at LOS F under cumulative conditions during the PM peak hour. According to established significance criteria, this is a cumulatively considerable impact.
- SR 20/Husted Rd/Freshwater Rd (Intersection 4) – This intersection will operate at LOS F under cumulative conditions during the AM and PM peak hours. According to established significance criteria, this is a cumulatively considerable impact.

MITIGATION

Mitigation for the impacts above will entail payment of the Project's fair share cost for the signalization improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections.[1] Table 16 summarizes the AM and PM peak hour intersection operations under cumulative plus project conditions with proposed mitigation.

TABLE 16
INTERSECTION LEVEL OF SERVICE RESULTS – CUMULATIVE CONDITIONS WITH MITIGATION

Intersection	Peak Hour	Cumulative Plus Project			Cumulative Plus Project with Mitigation		
		Control Type[1]	Delay[2]	LOS	Control Type[1]	Delay[2]	LOS
1. SR 20/I-5 SB Ramps	AM	SSSC	8 (18)	A (C)	Signal	19	B
	PM	SSSC	**13 (52)**	**B (F)**	Signal	24	C
2. SR 20/I-5 NB Ramps	AM	SSSC	12 (30)	B (D)	Signal	19	B
	PM	SSSC	**16 (60)**	**C (F)**	Signal	27	C
3. SR 20/Margurite Street	AM	SSSC	7 (14)	A (B)	Signal	11	B
	PM	SSSC	8 (19)	A (C)	Signal	13	B
4. SR 20/Husted Rd/Freshwater Rd	AM	SSSC	**19 (58)**	**C (F)**	Signal	32	C
	PM	SSSC	**26 (83)**	**D (F)**	Signal	33	C

Notes: [1] SSSC = Side Street Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection (worst movement).
Source: Fehr & Peers, 2016

The developers will be responsible for the Project's fair share of all feasible physical improvements necessary and available to reduce the severity of the Project's significant transportation-related impacts, based on cumulative plus project conditions consistent with the policies and exceptions set forth in the

[1] The fair share cost for the Project's cumulatively considerable impact to the three State controlled intersections is separate and independent from the Project's payment of the City's 'Commercial Building Impact Fees'. Resolution 11-23 established the City's Commercial Building Impact Fees, which include a traffic fee.

Transportation and Circulation Element of the 2010 City of Williams General Plan. Improvements will include installation of traffic signal control and associated improvements necessary to achieve an acceptable LOS during AM and PM peak hours at the three intersections.

An approximate cost needed to complete the necessary intersection improvements is $500,000 per intersection and assumes no major widening is required. The Project's approximate fair share contribution (per intersection) to the required intersection improvements under cumulative plus project conditions is based on the following equation from the Caltrans' Guide for the Preparation of Traffic Impact Studies:

$P=T/(T_B - T_{E)}$

Where:

- P = The fair share cost for the Proposed Project
- T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour.
- T_B = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible).
- T_E = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened

Using the equation above an approximate range of fair share costs was developed for both:

- Cumulative Plus Project conditions where the traffic volumes are based on market-level forecasts of the expected population and employment growth over a 20 year horizon; and
- General Plan Buildout conditions where the traffic volumes are based on the theoretical buildout of the City's General Plan.

The approximate fair share cost percentages were calculated to include and exclude existing traffic. By excluding existing traffic from the fair share calculation, the full cost of the future improvement is allocated to future development and produces a higher proportional share. Including existing traffic in the fair share calculation produces a lower proportional share. Including existing traffic is an acceptable method if there is a reasonable expectation that outside funding would be available to cover the existing traffic's share (e.g. State sources as SR-20 and I-5 are State transportation facilities).

Based on these parameters and using the above equation, the following approximate range fair share costs percentages were calculated for the Project (shown in Table 17).

TABLE 17
APPROXIMATE FAIR SHARE COSTS PERCENTAGES

Intersection	Existing Traffic	Cumulative Plus Project Conditions	Buildout Conditions
1. SR 20/I-5 SB Ramps	Excluded	23%	10%
	Included	14%	8%
2. SR 20/I-5 NB Ramps	Excluded	23%	10%
	Included	14%	8%
4. SR 20/Husted Rd/Freshwater Rd	Excluded	1.3%	0.6%
	Included	0.8%	0.5%

Source: Fehr & Peers, 2016

Since there is no assurance of funding to cover the share of existing development, the City has determined that the approximate fair share cost range for the Love's Project will be calculated using cumulative plus Project conditions and will exclude existing traffic. However, if other funding sources can contribute to the payment share of existing development, the fair share calculation may be revised to include existing traffic.

The SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection improvements are listed in Appendix B of the adopted City General Plan (Circulation Improvements) with the following note "*The following intersection improvements will be necessary to mitigate circulation impacts from anticipated growth in the General Plan to acceptable/tolerable levels of service…*" The City is currently in the process of updating its Capital Improvement Program (CIP). The CIP update will include an engineer's cost estimates to complete the intersection improvements.

TRAFFIC-1(a)

Prior to the issuance of a Certificate of Occupancy the Applicant will either:

- Pay its fair share cost for each of the three intersections requiring signalization/ improvement. The fair share cost will be based on the City's updated CIP and be calculated using cumulative plus Project conditions, excluding existing traffic.

OR

- Enter into an agreement with the City of Williams to pay a fair share cost based on an engineer's estimate acceptable to the City Engineer for the design and construction of the intersections signalization improvements. The fair share cost will be calculated using cumulative plus Project conditions, excluding existing traffic.

TRAFFIC-1(b)

- Regardless of which option is selected under measure TRAFFIC-1(a) the fair share payment would be held in an escrow account until such time as Caltrans implements the required signalization/ improvements. If within 10 years of construction of the Love's Country Store, Caltrans and the City have not yet completed the required signalization/ improvements Love's will be reimbursed the fair share cost paid.

Level of Significance after Mitigation. Implementation of TRAFFIC-1(a) and 1(b) will not reduce potential impacts to less than significant for the following reasons:

- The improvements are to a State road system the construction of which the City has no control;
- The City cannot guarantee the improvement will be constructed by the time the cumulative impact occurs.

The City of Williams does not own and control the Project intersections requiring improvement under cumulative plus Project conditions. Absent a cooperative agreement between the City of Williams and Caltrans in which Caltrans commits funds to complete its fair share portion of the improvements to the SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersections there is no guarantee the improvements will be constructed by the time the cumulative impact occurs.

Even with implementation of TRAFFIC-1 the Project will have a cumulatively considerable impact to the SR 20/I-5 southbound ramp, SR 20/I-5 northbound ramp, and SR 20/Husted Road/Freshwater Road intersection under cumulative plus Project conditions. <u>This impact is significant and unavoidable.</u>

CHAPTER 8. VMT ESTIMATION

This section documents the quantification of vehicle miles of travel (VMT) to be used for energy and greenhouse gas analysis.

To estimate project VMT, new external project trips and diverted link trips were calculated separately due to their unique travel patterns.

- New External Project Trips: average trip length of new external trips was calculated according to the gravity theorem, which considers population size and distance when determining the amount of interaction between two locations. The gravity theorem was applied according to the following equation.

  $$\text{Relative Proportion of Daily New Trips} = (\text{Population} / \text{Distance}^2)$$

  Communities with populations of at least 1,000 and located within approximately 25 miles of the project site were included in the gravity model. As seen in Table 20, six communities met these criteria, including the City of Williams.

- Diverted Link Trips: since diverted link trips are existing trips on the roadway network that are rerouted to the project, the average increase in VMT per trip is lower than that of new external trips. Given the project's proximity to Interstate 5 and State Route 20, an average increase in VMT of one half mile per trip was assumed.

As seen in Table 17, the total project VMT is estimated to be an increase of 3,402 vehicle miles of travel per day. The total number of new external trips and diverted-linked trips correspond to the daily trip generation totals for each trip type shown in Table 9. Of the new external trips generated by the project, most originate within the City of Williams due to its relatively large population size and the location of the project within the City. Minor amounts of new external trips originate from the surrounding towns due to their smaller population sizes and farther distance from the project site.

TABLE 18 PROJECT VMT ESTIMATES				
New External Trips				
City/Town	**Population**	**Distance**	**Daily New Trips**	**Daily VMT**
Arbuckle	3,028	12 miles	8	96
Colusa	5,950	8 miles	37	296
Dunnigan	1,416	22 miles	1	22
Maxwell	1,103	9 miles	5	45
Williams	5,178	1.5 miles	920	1,380
Willows	6,100	25 miles	4	100
Sub Total			**975**	**1,939**
Diverted Link Trips				
Distance		**Daily New Trips**		**Daily VMT**
0.5		2,926		1,463
			Total Project VMT	**3,402**

Notes:
[1] Colusa County VMT estimates are based on data from the California Air Resources Board 2013 Almanac.
Source: Fehr & Peers, 2016

APPENDIX A:
EXISTING CONDITIONS TECHNICAL CALCULATIONS

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	6	7	109.3%	6.3	4.7	A
	Through	1	1	131.2%	3.1	4.2	A
	Right Turn	62	58	93.1%	2.5	0.5	A
	Subtotal	69	66	95.1%	2.9	0.7	A
EB	Left Turn						
	Through	101	93	92.6%	1.5	0.4	A
	Right Turn	56	65	115.4%	1.8	0.2	A
	Subtotal	157	158	100.7%	1.6	0.3	A
WB	Left Turn	68	64	93.6%	1.8	0.7	A
	Through	140	138	98.6%	2.1	0.6	A
	Right Turn						
	Subtotal	208	202	97.0%	2.0	0.5	A
Total		434	425	98.0%	2.0	0.4	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	61	63	103.2%	5.3	1.2	A
	Through	1	1	65.6%	1.2	3.8	A
	Right Turn	59	49	82.3%	3.0	0.7	A
	Subtotal	121	112	92.7%	4.3	0.8	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	31	35	112.2%	1.2	0.5	A
	Through	76	68	88.9%	1.6	0.3	A
	Right Turn						
	Subtotal	107	102	95.6%	1.4	0.3	A
WB	Left Turn						
	Through	147	141	95.9%	0.9	0.3	A
	Right Turn	7	8	112.5%	0.2	0.1	A
	Subtotal	154	149	96.7%	0.8	0.3	A
Total		382	363	95.1%	2.1	0.5	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	135	114	84.8%	0.7	0.2	A
	Right Turn						
	Subtotal	135	114	84.8%	0.7	0.2	A
WB	Left Turn						
	Through	154	150	97.3%	1.3	0.4	A
	Right Turn						
	Subtotal	154	150	97.3%	1.3	0.4	A
Total		289	264	91.5%	1.1	0.2	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	1	98.4%	1.2	2.7	A
	Through	7	7	93.7%	7.6	5.4	A
	Right Turn	99	97	98.1%	3.0	0.4	A
	Subtotal	107	105	97.8%	3.5	0.5	A
SB	Left Turn	14	15	110.1%	8.7	4.5	A
	Through	10	8	82.0%	8.9	5.2	A
	Right Turn	5	5	98.4%	2.2	2.0	A
	Subtotal	29	29	98.4%	7.8	3.9	A
EB	Left Turn	2	3	131.2%	0.4	0.9	A
	Through	133	110	82.4%	1.7	0.4	A
	Right Turn						
	Subtotal	135	112	83.1%	1.6	0.4	A
WB	Left Turn	71	70	98.4%	1.3	0.5	A
	Through	148	142	96.2%	0.8	0.1	A
	Right Turn	11	9	80.5%	0.1	0.1	A
	Subtotal	230	221	96.1%	0.9	0.2	A
Total		501	466	93.1%	2.1	0.4	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Queue Length | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
SB	Left/Through	2,100	25	8	50	21	50	22	1%	0%
	Right Turn	50	50	6	75	13	75	9	5%	0%
WB	Left Turn	125	25	5	25	14	50	16	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
EB	Through/Right	1,025	25	0	25	0	25	0	0%	0%
0										

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	6	50	25	50	30	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
NB	Left/Through	1,575	50	10	75	16	75	16	7%	0%
	Right Turn	50	50	7	75	8	75	8	5%	0%
WB	Through/Right	1,350	25	0	25	0	25	0	0%	0%
0										

SimTraffic Post-Processor **Love's Country Stores**
Average Results from 10 Runs **Existing Conditions**
Queue Length **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
0	Through								#N/A	#N/A
NB	Left Turn	425	25	0	25	0	25	0	0%	0%
	Right Turn	425	25	0	25	0	25	0	0%	0%
EB	Through	200	25	0	25	0	25	0	0%	0%
	Right Turn	200	25	0	25	0	25	0	0%	0%
WB	Left Turn	375	25	0	25	0	25	0	0%	0%
	Through	375	25	0	25	0	25	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	150	25	1	25	3	25	4	0%	0%
NB	Left/Through	1,300	25	6	50	13	50	14	1%	0%
	Right Turn	50	50	4	75	11	75	10	8%	0%
SB	Left/Through	1,100	25	9	50	22	50	22	2%	0%
	Right Turn	50	25	5	50	15	50	16	1%	0%
WB	Left Turn	325	25	3	25	5	50	10	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	7	5	67.6%	2.2	2.1	A
	Through	1	0	36.4%	0.9	2.8	A
	Right Turn	43	45	105.0%	2.5	0.4	A
	Subtotal	51	50	98.5%	2.7	0.6	A
EB	Left Turn						
	Through	161	175	108.7%	2.1	0.4	A
	Right Turn	113	111	98.6%	2.2	0.3	A
	Subtotal	274	286	104.6%	2.1	0.3	A
WB	Left Turn	62	60	97.5%	2.0	0.7	A
	Through	187	195	104.3%	1.8	0.2	A
	Right Turn						
	Subtotal	249	256	102.6%	1.9	0.3	A
Total		574	592	103.2%	2.1	0.2	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	83	92	110.5%	5.9	0.8	A
	Through	2	1	72.8%	3.1	5.4	A
	Right Turn	54	42	78.2%	4.1	1.3	A
	Subtotal	139	135	97.4%	5.2	0.6	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	48	44	92.5%	1.4	0.4	A
	Through	120	134	111.3%	1.5	0.2	A
	Right Turn						
	Subtotal	168	178	106.0%	1.5	0.2	A
WB	Left Turn						
	Through	166	162	97.6%	1.0	0.3	A
	Right Turn	9	8	93.0%	0.1	0.1	A
	Subtotal	175	170	97.3%	1.0	0.3	A
Total		482	484	100.4%	2.4	0.3	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	174	175	100.4%	0.4	0.1	A
	Right Turn						
	Subtotal	174	175	100.4%	0.4	0.1	A
WB	Left Turn						
	Through	175	170	96.9%	1.1	0.3	A
	Right Turn						
	Subtotal	175	170	96.9%	1.1	0.3	A
Total		349	344	98.7%	0.8	0.2	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	91.0%	2.1	3.6	A
	Through	4	4	109.2%	8.8	5.2	A
	Right Turn	116	122	105.1%	3.0	0.7	A
	Subtotal	122	128	105.0%	3.3	0.6	A
SB	Left Turn	11	7	62.9%	6.1	3.6	A
	Through	5	5	109.2%	6.5	4.7	A
	Right Turn	2	3	163.8%	0.4	0.5	A
	Subtotal	18	16	87.0%	5.9	2.1	A
EB	Left Turn	1	0	36.4%	0.2	0.7	A
	Through	172	173	100.3%	1.8	0.4	A
	Right Turn	1	1	109.2%	0.0	0.0	A
	Subtotal	174	174	100.0%	1.7	0.4	A
WB	Left Turn	90	84	93.8%	1.2	0.4	A
	Through	171	173	101.1%	0.6	0.2	A
	Right Turn	5	4	80.1%	0.1	0.1	A
	Subtotal	266	261	98.3%	0.8	0.2	A
Total		580	579	99.8%	1.8	0.3	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Queue Length | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
SB	Left/Through	2,100	25	8	25	21	25	20	1%	0%
	Right Turn	50	50	4	50	6	50	7	4%	0%
WB	Left Turn	125	25	3	50	7	50	9	0%	0%
	Through	1,300	25	1	25	5	25	7	0%	0%
EB	Through/Right	1,025	25	0	25	0	25	0	0%	0%
0										

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	4	25	17	50	22	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
NB	Left/Through	1,575	50	6	75	14	100	20	10%	0%
	Right Turn	50	50	7	75	3	50	5	4%	0%
WB	Through/Right	1,350	25	0	25	0	25	0	0%	0%
0										

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Conditions**
Queue Length | **PM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
0	Through								#N/A	#N/A
NB	Left Turn	425	25	0	25	0	25	0	0%	0%
	Right Turn	425	25	0	25	0	25	0	0%	0%
EB	Through	200	25	0	25	0	25	0	0%	0%
	Right Turn	200	25	0	25	0	25	0	0%	0%
WB	Left Turn	375	25	0	25	0	25	0	0%	0%
	Through	375	25	0	25	0	25	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Left/Through	1,300	25	8	50	20	50	19	1%	0%
	Right Turn	50	50	4	75	9	75	11	9%	0%
SB	Left/Through	1,100	25	4	25	13	50	18	1%	0%
	Right Turn	50	25	2	25	7	25	9	0%	0%
WB	Left Turn	325	25	4	50	5	25	3	0%	0%
0										

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	41	33	80.8%	6.9	1.6	A
	Through	1	1	98.4%	2.9	4.7	A
	Right Turn	62	61	98.4%	4.0	1.3	A
	Subtotal	104	95	91.5%	5.0	1.4	A
EB	Left Turn						
	Through	101	107	106.2%	1.6	0.4	A
	Right Turn	56	57	102.5%	1.8	0.2	A
	Subtotal	157	165	104.9%	1.7	0.3	A
WB	Left Turn	100	90	89.9%	3.4	1.2	A
	Through	140	142	101.4%	3.4	1.0	A
	Right Turn						
	Subtotal	240	232	96.6%	3.4	1.0	A
Total		501	492	98.1%	3.2	0.7	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	61	59	96.8%	8.0	1.2	A
	Through	1	1	98.4%	4.1	8.7	A
	Right Turn	124	125	100.5%	5.5	0.7	A
	Subtotal	186	185	99.3%	6.5	0.8	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	31	28	88.9%	4.8	4.4	A
	Through	111	115	104.0%	2.5	0.6	A
	Right Turn						
	Subtotal	142	143	100.7%	2.9	1.0	A
WB	Left Turn						
	Through	179	180	100.8%	3.6	1.1	A
	Right Turn	65	69	106.5%	1.4	0.9	A
	Subtotal	244	250	102.3%	3.0	0.9	A
Total		572	577	100.9%	4.1	0.4	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	105	106	101.2%	6.7	1.0	A
	Through						
	Right Turn	19	13	70.8%	1.8	0.3	A
	Subtotal	124	120	96.5%	6.1	0.9	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	121	124	102.2%	2.9	0.5	A
	Right Turn	114	116	101.6%	3.7	0.6	A
	Subtotal	235	239	101.9%	3.3	0.5	A
WB	Left Turn	20	19	93.5%	2.4	1.2	A
	Through	139	144	103.4%	1.8	0.5	A
	Right Turn						
	Subtotal	159	162	102.1%	1.9	0.5	A
Total		518	522	100.7%	3.5	0.3	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	0	16.4%	0.7	2.1	A
	Through	7	6	84.3%	7.6	5.7	A
	Right Turn	99	104	105.0%	3.3	0.7	A
	Subtotal	108	110	102.0%	3.7	1.0	A
SB	Left Turn	14	14	98.4%	7.9	6.2	A
	Through	10	10	98.4%	8.6	1.6	A
	Right Turn	5	7	137.8%	1.7	1.9	A
	Subtotal	29	31	105.2%	6.9	2.4	A
EB	Left Turn	2	2	114.8%	0.9	1.3	A
	Through	137	137	100.1%	1.8	0.6	A
	Right Turn	1	1	65.6%	0.0	0.0	A
	Subtotal	140	140	100.0%	1.8	0.6	A
WB	Left Turn	71	70	97.9%	1.3	0.3	A
	Through	152	152	99.7%	0.8	0.2	A
	Right Turn	11	10	89.5%	0.3	0.3	A
	Subtotal	234	231	98.7%	0.9	0.2	A
Total		511	512	100.1%	2.1	0.5	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
SB	Left/Through	2,100	50	13	100	25	100	34	5%	0%
	Right Turn	50	50	7	75	12	75	11	6%	0%
WB	Left Turn	125	25	8	75	21	75	25	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
EB	Through/Right	1,025	25	0	25	0	25	0	0%	0%
0										

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	4	50	10	75	16	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
NB	Left/Through	1,575	75	7	125	14	125	18	9%	0%
	Right Turn	50	75	3	75	2	75	1	14%	0%
WB	Through/Right	1,350	25	0	25	0	25	0	0%	0%
0										

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	150	25	0	25	0	25	0	0%	0%
	Right Turn	150	25	5	25	23	25	37	0%	0%
NB	Left Turn	225	75	8	125	24	125	32	0%	0%
	Right Turn	375	25	7	75	12	75	8	0%	0%
WB	Left Turn	325	25	6	25	24	25	31	0%	0%
	Through	325	25	0	25	0	25	0	0%	0%
0										

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	150	25	1	25	4	25	6	0%	0%
	Through/Right	150	25	0	25	0	25	0	0%	0%
NB	Left/Through	1,300	25	9	50	28	50	31	1%	0%
	Right Turn	50	50	6	75	9	75	7	9%	0%
SB	Left/Through	1,100	25	6	50	16	50	20	2%	0%
	Right Turn	50	25	7	50	25	50	28	1%	0%
WB	Left Turn	325	25	2	25	5	25	5	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	52	46	88.2%	8.5	3.3	A
	Through	1	1	145.6%	5.5	10.2	A
	Right Turn	43	47	110.0%	3.7	1.0	A
	Subtotal	96	95	98.6%	5.9	1.9	A
EB	Left Turn						
	Through	161	154	95.9%	2.4	0.5	A
	Right Turn	113	113	99.9%	2.2	0.2	A
	Subtotal	274	267	97.5%	2.3	0.3	A
WB	Left Turn	104	106	102.2%	3.5	0.8	A
	Through	187	181	96.7%	3.2	0.6	A
	Right Turn						
	Subtotal	291	287	98.7%	3.3	0.6	A
Total		661	649	98.2%	3.3	0.5	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	83	79	94.7%	9.0	1.6	A
	Through	2	1	72.8%	2.5	5.3	A
	Right Turn	137	142	103.4%	5.8	1.0	A
	Subtotal	222	222	99.9%	7.0	1.0	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	48	47	97.8%	3.3	1.0	A
	Through	165	151	91.8%	3.3	0.6	A
	Right Turn						
	Subtotal	213	198	93.1%	3.3	0.6	A
WB	Left Turn						
	Through	208	211	101.7%	3.6	0.6	A
	Right Turn	88	87	98.4%	1.4	0.6	A
	Subtotal	296	298	100.7%	2.9	0.5	A
Total		731	718	98.2%	4.3	0.4	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	141	141	100.2%	6.9	0.6	A
	Through						
	Right Turn	25	21	84.4%	2.1	0.7	A
	Subtotal	166	162	97.8%	6.3	0.6	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	155	151	97.2%	3.1	0.4	A
	Right Turn	147	140	95.1%	3.9	0.5	A
	Subtotal	302	290	96.2%	3.5	0.5	A
WB	Left Turn	26	23	89.6%	2.0	0.9	A
	Through	155	157	101.5%	1.4	0.2	A
	Right Turn						
	Subtotal	181	181	99.7%	1.4	0.3	A
Total		649	633	97.6%	3.6	0.4	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	3	2	72.8%	6.8	11.9	A
	Through	4	1	36.4%	3.1	4.1	A
	Right Turn	116	107	92.3%	2.3	0.5	A
	Subtotal	123	111	90.0%	2.6	0.6	A
SB	Left Turn	11	10	92.7%	5.4	5.0	A
	Through	5	3	65.5%	5.4	4.8	A
	Right Turn	2	2	109.2%	0.4	1.0	A
	Subtotal	18	16	87.0%	6.3	4.4	A
EB	Left Turn	1	1	109.2%	0.1	0.3	A
	Through	177	169	95.2%	1.6	0.3	A
	Right Turn	2	1	72.8%	0.0	0.0	A
	Subtotal	180	171	95.0%	1.6	0.3	A
WB	Left Turn	90	84	93.0%	1.3	0.5	A
	Through	176	173	98.2%	0.7	0.2	A
	Right Turn	5	5	94.6%	0.3	0.6	A
	Subtotal	271	261	96.4%	0.9	0.2	A
Total		592	559	94.4%	1.5	0.2	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Existing Plus Project Conditions**
Queue Length | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
SB	Left/Through	2,100	50	13	100	12	100	13	7%	0%
	Right Turn	50	50	4	75	6	50	8	4%	0%
WB	Left Turn	125	25	12	50	24	75	22	0%	0%
	Through	1,300	25	1	25	6	25	18	0%	0%
EB	Through/Right	1,025	25	0	25	0	25	0	0%	0%
0										

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	7	50	17	50	19	0%	0%
	Through	125	25	0	25	0	25	0	0%	0%
NB	Left/Through	1,575	75	11	125	28	125	35	12%	0%
	Right Turn	50	75	3	100	5	75	0	14%	0%
WB	Through/Right	1,350	25	0	25	0	25	0	0%	0%
0										

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	150	25	0	25	0	25	0	0%	0%
	Right Turn	150	25	6	25	24	25	33	0%	0%
NB	Left Turn	225	75	5	100	12	100	17	0%	0%
	Right Turn	375	25	8	75	14	75	16	0%	0%
WB	Left Turn	325	25	6	50	25	50	31	0%	0%
	Through	325	25	0	25	0	25	0	0%	0%
0										

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Left/Through	1,300	25	4	25	19	50	24	1%	0%
	Right Turn	50	50	4	50	9	50	10	7%	0%
SB	Left/Through	1,100	25	3	25	5	25	6	1%	0%
	Right Turn	50	25	2	25	10	25	11	0%	0%
WB	Left Turn	325	25	5	50	14	50	18	0%	0%
	Through/Right	150	25	0	25	0	25	0	0%	0%
EB	Left Turn	150	25	0	25	0	25	0	0%	0%
	Through/Right	150	25	0	25	0	25	0	0%	0%

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	517	510
On Ramp Volume	114	39
Off Ramp Volume	121	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	517	510
PHF	0.94	0.94
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	40.0%	37.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.833	0.844
f_P	1.00	1.00
Flow (pcph)	660	643
Flow (pcphpl)	330	321
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.14	0.13
Speed (mph)	70.0	70.0
Density (pcphpl)	4.7	4.6
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	803	699
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.17	0.15
Flow Rate (pcphpl)	401	350
Speed (mph)	70.0	70.0
Density (pcphpl)	5.7	5.0
LOS	A	A
Operations for Exiting GP Lanes		
Flow (pcph)	639	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.13	
Flow Rate (pcphpl)	320	
Speed (mph)	70.0	
Density (pcphpl)	4.6	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	114	39

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.82	0.82
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	36.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.847
f_P	1.00	1.00
Flow (pcph)	143	56
Flow Rate (pcphpl)	143	56
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.07	0.03
Off Ramp Flow Rate		
Volume (vph)	121	
PHF	0.82	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	21.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.905	
f_P	1.00	
Flow (pcph)	163	
Flow Rate (pcphpl)	163	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.08	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		643
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		643
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		643
v_{R12a} (pcph)		699
Speed Index		0.27
Area Speed		62.3
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.3
v/c ratio		0.15

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		7.1
LOS		A
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.95	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	3.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.985	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	114	
PHF	0.82	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	143	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	121	
PHF	0.82	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	21.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.905	
f_P	1.00	
ML to Off Flow (pcph)	163	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	396	
PHF	0.94	

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Northbound I-5

Alternative: Existing Conditions
Time Period: AM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

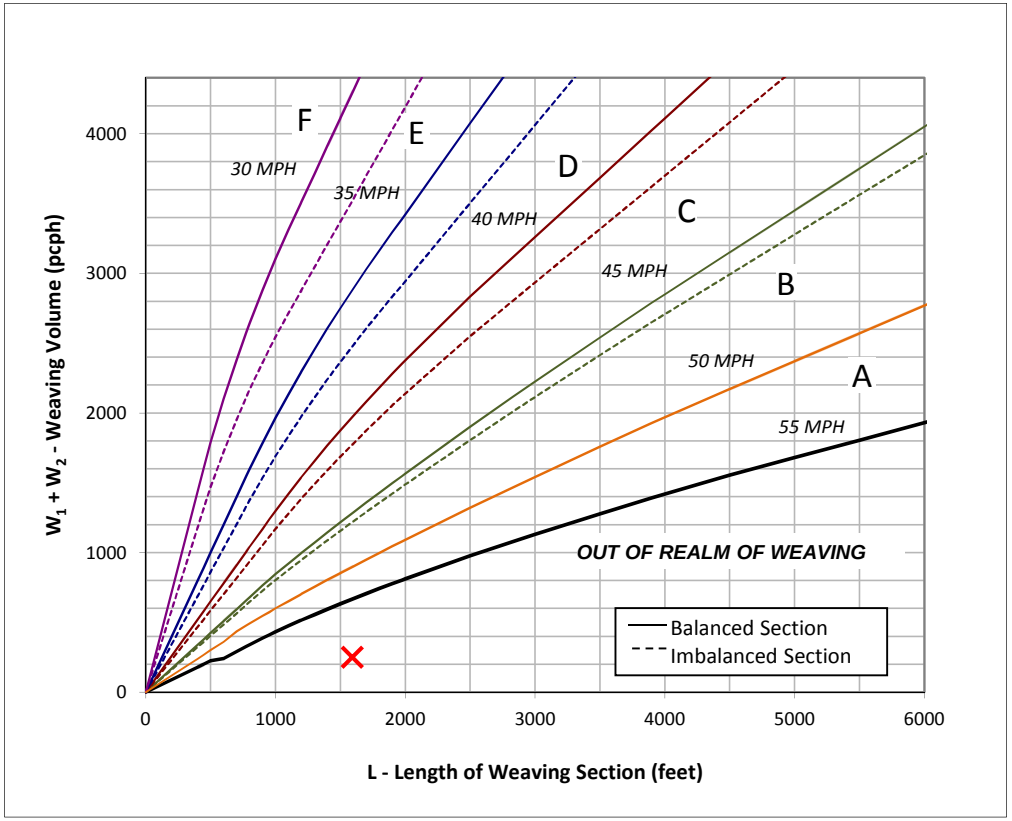
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	46.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.813	
f_P	1.00	
GP to GP Flow (pcph)	518	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	306	
Non-Weave Flow	518	
Segment Flow	824	
Max Weave Length	6,357	
Length Check	OK	
Ideal Weave Capacity	2,035	
f_{HV}	0.859	
f_P	0.996	
Capacity Condition 1	5,225	
Capacity Condition 2	5,536	
v/c ratio	0.13	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	306	
Weave LC Rate	849	
Non-Weave LC Rate 1	391	
Non-Weave LC Rate 2	1,805	
Non-Weave LC Rate 3	-2,377	
Segment LC Rate	1,240	
Weave Intensity Factor	0.186	
Weave Speed	61.4	
Non-Weave Speed	66.5	
Segment Speed	64.5	
Density	4.3	
LOS	A	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.17	0.15
Segment Density	5.7	7.1
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

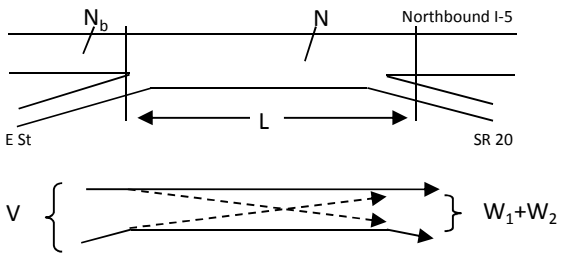
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	631	Volume (vph)*	114	Volume (vph)*	121
Truck Percentage	33.7%	Truck Percentage	5.0%	Truck Percentage	21.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	737	Volume (pcph)	117	Volume (pcph)	134



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	692	674
On Ramp Volume	121	59
Off Ramp Volume	139	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	692	674
PHF	0.87	0.87
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	29.0%	30.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.873	0.870
f_P	1.00	1.00
Flow (pcph)	911	891
Flow (pcphpl)	455	445
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.19	0.19
Speed (mph)	70.0	70.0
Density (pcphpl)	6.5	6.4
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,047	960
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.22	0.20
Flow Rate (pcphpl)	524	480
Speed (mph)	70.0	70.0
Density (pcphpl)	7.5	6.9
LOS	A	A
Operations for Exiting GP Lanes		
Flow (pcph)	888	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.19	
Flow Rate (pcphpl)	444	
Speed (mph)	70.0	
Density (pcphpl)	6.3	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	121	59

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.91	0.91
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	14.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.935
f_P	1.00	1.00
Flow (pcph)	136	69
Flow Rate (pcphpl)	136	69
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.06	0.03
Off Ramp Flow Rate		
Volume (vph)	139	
PHF	0.91	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	8.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.962	
f_P	1.00	
Flow (pcph)	159	
Flow Rate (pcphpl)	159	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.08	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		891
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		891
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		891
v_{R12a} (pcph)		960
Speed Index		0.28
Area Speed		62.2
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.2
v/c ratio		0.21

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		9.2
LOS		A
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	121	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	136	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	139	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	8.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.962	
f_P	1.00	
ML to Off Flow (pcph)	159	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	553	
PHF	0.87	

Location	1	2

Key

<> Express Lane (HOV)

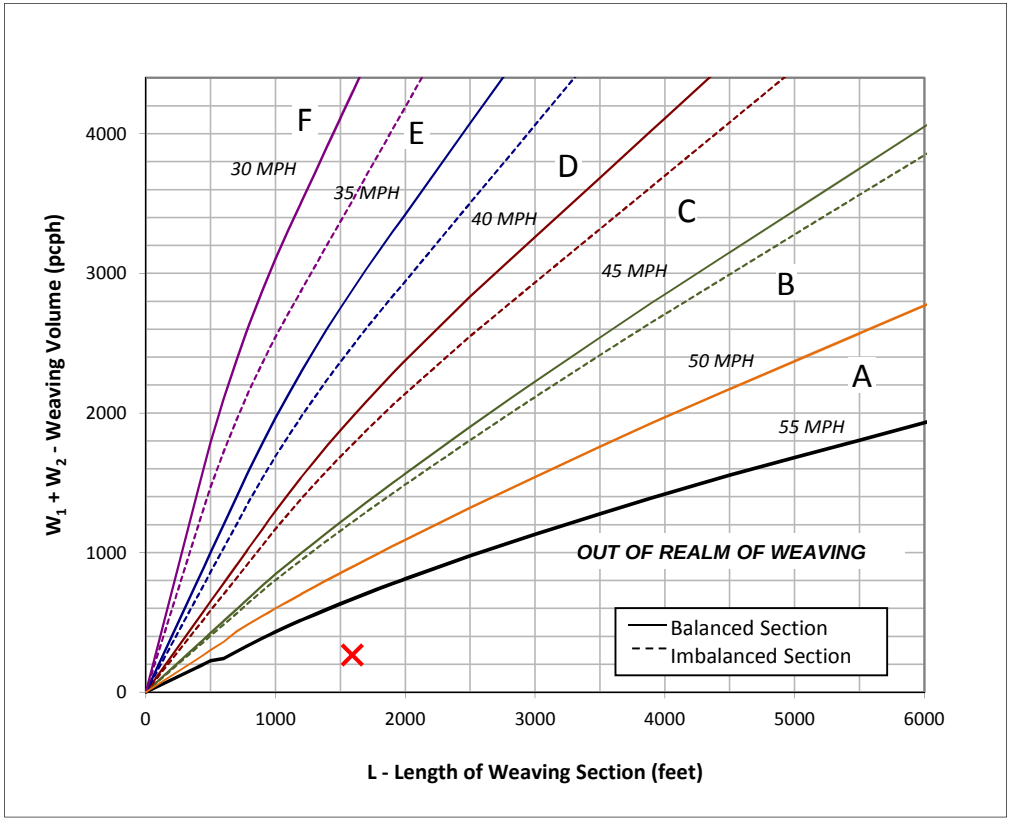
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	35.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.851	
f_P	1.00	
GP to GP Flow (pcph)	747	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	295	
Non-Weave Flow	747	
Segment Flow	1,042	
Max Weave Length	5,405	
Length Check	OK	
Ideal Weave Capacity	2,108	
f_{HV}	0.884	
f_P	0.997	
Capacity Condition 1	5,574	
Capacity Condition 2	7,468	
v/c ratio	0.16	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	295	
Weave LC Rate	839	
Non-Weave LC Rate 1	438	
Non-Weave LC Rate 2	1,856	
Non-Weave LC Rate 3	-2,311	
Segment LC Rate	1,277	
Weave Intensity Factor	0.190	
Weave Speed	61.2	
Non-Weave Speed	66.2	
Segment Speed	64.7	
Density	5.4	
LOS	A	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.22	0.21
Segment Density	7.5	9.2
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

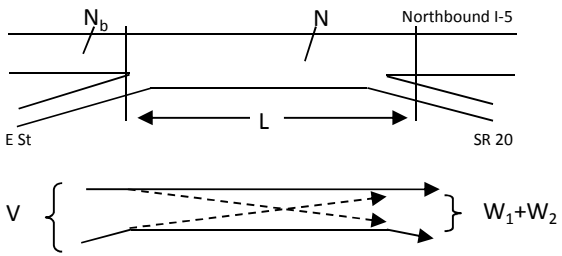
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	813	Volume (vph)*	121	Volume (vph)*	139
Truck Percentage	25.4%	Truck Percentage	5.0%	Truck Percentage	8.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	916	Volume (pcph)	124	Volume (pcph)	145



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	584	515
On Ramp Volume		125
Off Ramp Volume	69	103
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	584	515
PHF	0.87	0.87
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	36.0%	39.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.847	0.837
f_P	1.00	1.00
Flow (pcph)	792	707
Flow (pcphpl)	396	354
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.17	0.15
Speed (mph)	70.0	70.0
Density (pcphpl)	5.7	5.1
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)		880
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.18
Flow Rate (pcphpl)		440
Speed (mph)		70.0
Density (pcphpl)		6.3
LOS		A
Operations for Exiting GP Lanes		
Flow (pcph)	702	751
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.15	0.16
Flow Rate (pcphpl)	351	375
Speed (mph)	70.0	70.0
Density (pcphpl)	5.0	5.4
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		125

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.82
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		26.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.885
f_P		1.00
Flow (pcph)		172
Flow Rate (pcphpl)		172
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.08
Off Ramp Flow Rate		
Volume (vph)	69	103
PHF	0.82	0.82
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	14.0%	5.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.935	0.976
f_P	1.00	1.00
Flow (pcph)	90	129
Flow Rate (pcphpl)	90	129
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.04	0.06
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	792	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.736	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	792	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	792	
Speed Index	0.31	
Area Speed	61.4	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.4	
v/c ratio	0.18	
Density	9.2	
LOS	A	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.95
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		125
PHF		0.82
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		26.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.885
f_P		1.00
On to ML Flow (pcph)		172
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		103
PHF		0.82
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		5.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.976
f_P		1.00
ML to Off Flow (pcph)		129
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		412
PHF		0.87

Location	1	2

Key

<> Express Lane (HOV)

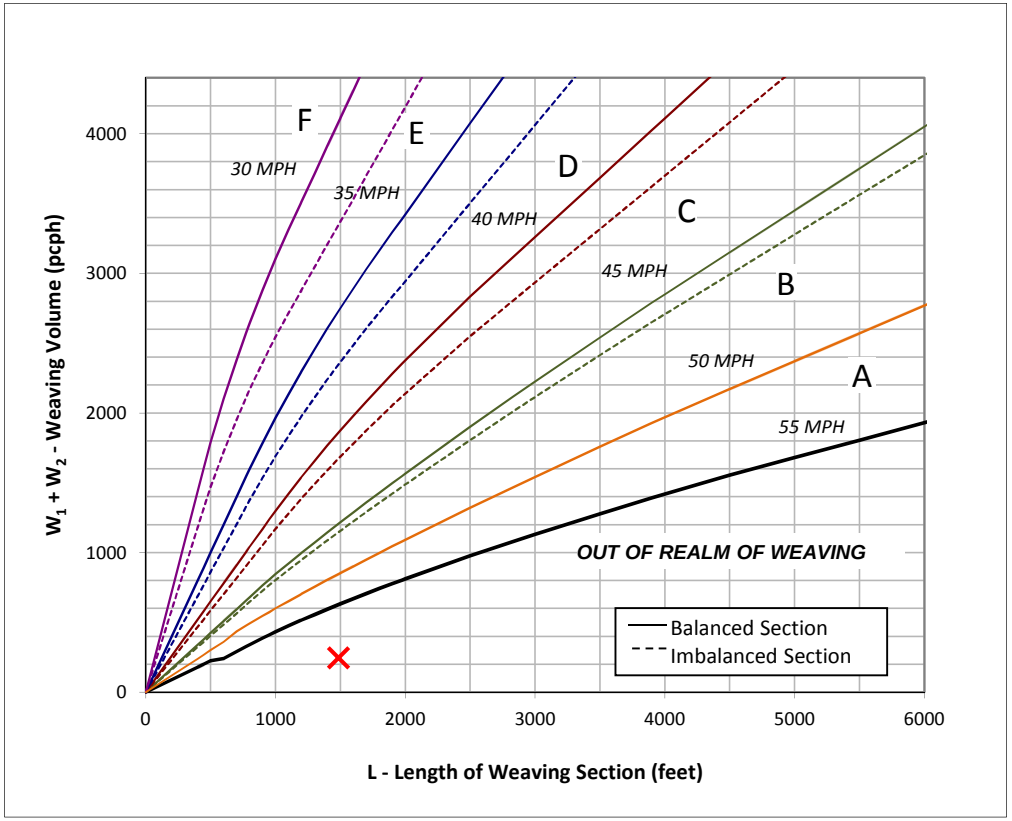
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		47.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.810
f_P		1.00
GP to GP Flow (pcph)		585
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		301
Non-Weave Flow		585
Segment Flow		886
Max Weave Length		6,015
Length Check		OK
Ideal Weave Capacity		2,053
f_{HV}		0.848
f_P		0.978
Capacity Condition 1		5,110
Capacity Condition 2		5,859
v/c ratio		0.14
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		301
Weave LC Rate		804
Non-Weave LC Rate 1		348
Non-Weave LC Rate 2		1,819
Non-Weave LC Rate 3		-2,531
Segment LC Rate		1,151
Weave Intensity Factor		0.185
Weave Speed		61.4
Non-Weave Speed		66.4
Segment Speed		64.6
Density		4.6
LOS		A
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.18	0.18
Segment Density	9.2	6.3
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

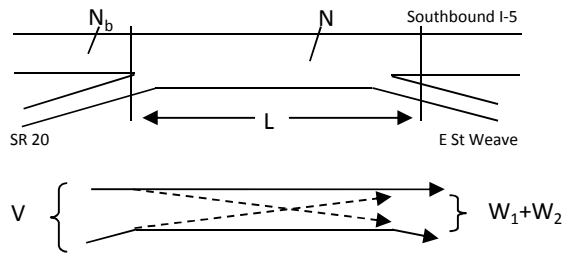
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions AM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St Weave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	640	Volume (vph)*	125	Volume (vph)*	103
Truck Percentage	36.5%	Truck Percentage	26.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	757	Volume (pcph)	141	Volume (pcph)	106



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, 2014

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	676	625
On Ramp Volume		176
Off Ramp Volume	51	149
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	676	625
PHF	0.86	0.86
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	29.0%	31.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.873	0.866
f_P	1.00	1.00
Flow (pcph)	900	839
Flow (pcphpl)	450	420
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.19	0.17
Speed (mph)	70.0	70.0
Density (pcphpl)	6.4	6.0
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)		1,047
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.22
Flow Rate (pcphpl)		524
Speed (mph)		70.0
Density (pcphpl)		7.5
LOS		A
Operations for Exiting GP Lanes		
Flow (pcph)	843	879
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.18	0.18
Flow Rate (pcphpl)	421	440
Speed (mph)	70.0	70.0
Density (pcphpl)	6.0	6.3
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		176

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.91
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		15.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.930
f_P		1.00
Flow (pcph)		208
Flow Rate (pcphpl)		208
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.10
Off Ramp Flow Rate		
Volume (vph)	51	149
PHF	0.91	0.91
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	4.0%	5.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.980	0.976
f_P	1.00	1.00
Flow (pcph)	57	168
Flow Rate (pcphpl)	57	168
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.03	0.08
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	900	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.735	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	900	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	900	
Speed Index	0.30	
Area Speed	61.5	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.5	
v/c ratio	0.20	
Density	10.1	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.91
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		176
PHF		0.91
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		15.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.930
f_P		1.00
On to ML Flow (pcph)		208
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		149
PHF		0.91
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		5.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.976
f_P		1.00
ML to Off Flow (pcph)		168
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		476
PHF		0.86

Location	1	2

Key

<> Express Lane (HOV)

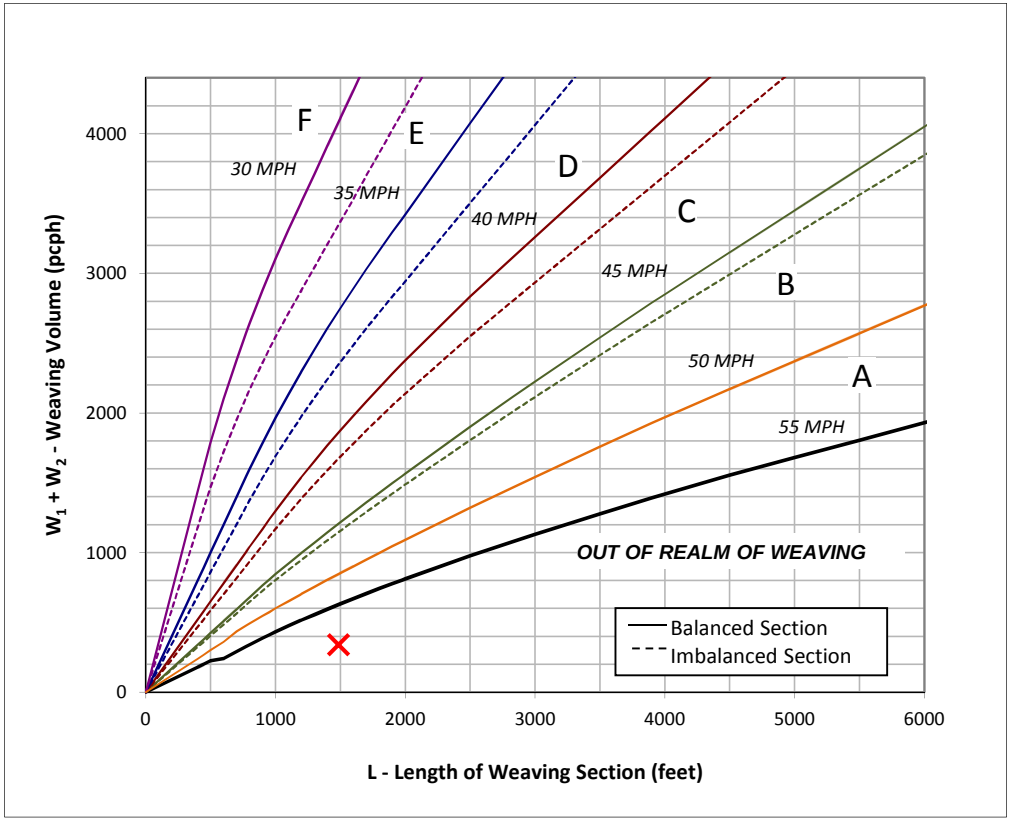
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		39.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.837
f_P		1.00
GP to GP Flow (pcph)		661
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		376
Non-Weave Flow		661
Segment Flow		1,037
Max Weave Length		6,262
Length Check		OK
Ideal Weave Capacity		2,035
f_{HV}		0.878
f_P		0.986
Capacity Condition 1		5,284
Capacity Condition 2		5,735
v/c ratio		0.17
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		376
Weave LC Rate		878
Non-Weave LC Rate 1		363
Non-Weave LC Rate 2		1,836
Non-Weave LC Rate 3		-2,509
Segment LC Rate		1,242
Weave Intensity Factor		0.196
Weave Speed		61.0
Non-Weave Speed		65.6
Segment Speed		63.9
Density		5.4
LOS		A
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.20	0.22
Segment Density	10.1	7.5
Segment LOS	B	A
Over Capacity		

Leisch Method for Weaving Analysis

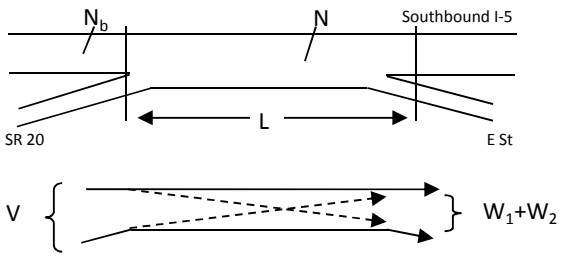
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions PM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	801	Volume (vph)*	176	Volume (vph)*	149
Truck Percentage	27.5%	Truck Percentage	15.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	911	Volume (pcph)	189	Volume (pcph)	153



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	536	464
On Ramp Volume	114	97
Off Ramp Volume	186	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	536	464
PHF	0.94	0.94
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	40.0%	36.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.833	0.847
f_P	1.00	1.00
Flow (pcph)	684	582
Flow (pcphpl)	342	291
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.14	0.12
Speed (mph)	70.0	70.0
Density (pcphpl)	4.9	4.2
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	827	729
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.17	0.15
Flow Rate (pcphpl)	413	365
Speed (mph)	70.0	70.0
Density (pcphpl)	5.9	5.2
LOS	A	A
Operations for Exiting GP Lanes		
Flow (pcph)	567	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.12	
Flow Rate (pcphpl)	284	
Speed (mph)	70.0	
Density (pcphpl)	4.1	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	114	97

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.82	0.82
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	48.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.806
f_P	1.00	1.00
Flow (pcph)	143	147
Flow Rate (pcphpl)	143	147
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.07	0.07
Off Ramp Flow Rate		
Volume (vph)	186	
PHF	0.82	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	29.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.873	
f_P	1.00	
Flow (pcph)	260	
Flow Rate (pcphpl)	260	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.13	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		582
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		582
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		582
v_{R12a} (pcph)		729
Speed Index		0.28
Area Speed		62.3
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.3
v/c ratio		0.16

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		7.3
LOS		A
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.95	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	114	
PHF	0.82	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	143	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	186	
PHF	0.82	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	29.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.873	
f_P	1.00	
ML to Off Flow (pcph)	260	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	350	
PHF	0.94	

Location	1	2

Key

<> Express Lane (HOV)

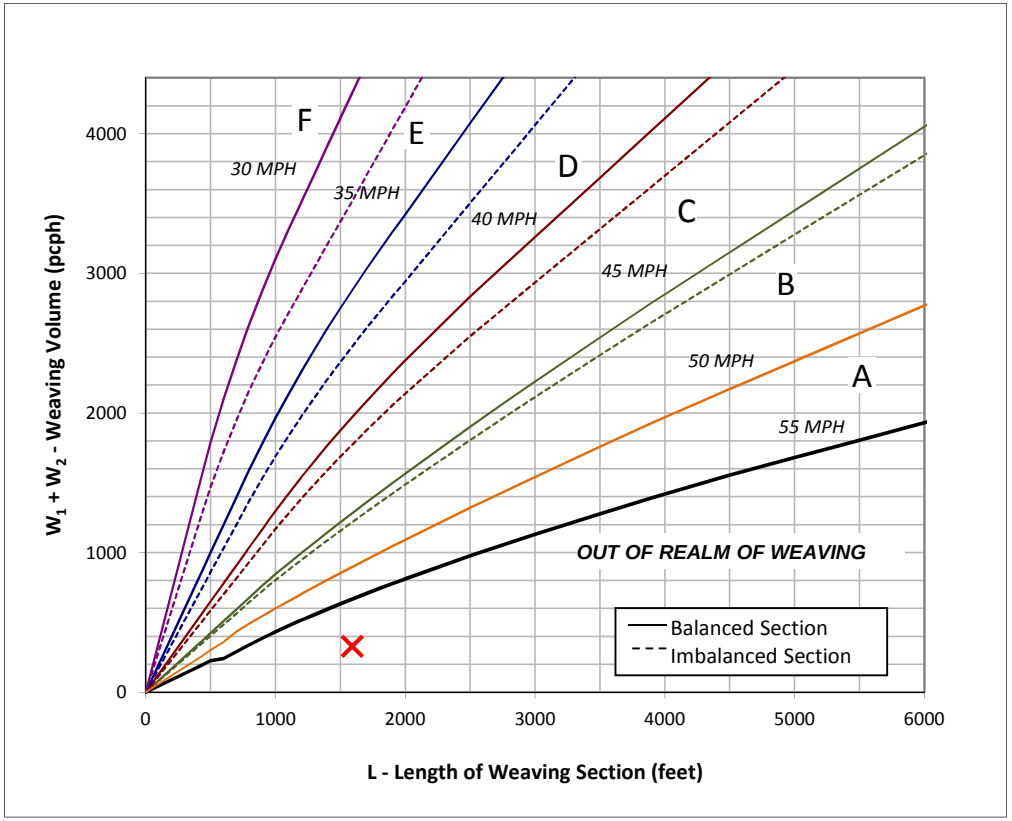
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	46.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.813	
f_P	1.00	
GP to GP Flow (pcph)	458	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	402	
Non-Weave Flow	458	
Segment Flow	860	
Max Weave Length	7,450	
Length Check	OK	
Ideal Weave Capacity	1,952	
f_{HV}	0.858	
f_P	0.996	
Capacity Condition 1	5,004	
Capacity Condition 2	4,387	
v/c ratio	0.17	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	402	
Weave LC Rate	946	
Non-Weave LC Rate 1	378	
Non-Weave LC Rate 2	1,791	
Non-Weave LC Rate 3	-2,395	
Segment LC Rate	1,324	
Weave Intensity Factor	0.196	
Weave Speed	61.0	
Non-Weave Speed	65.7	
Segment Speed	63.4	
Density	4.5	
LOS	A	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.17	0.16
Segment Density	5.9	7.3
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project AM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	650	Volume (vph)*	114	Volume (vph)*	186
Truck Percentage	33.9%	Truck Percentage	5.0%	Truck Percentage	29.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	760	Volume (pcph)	117	Volume (pcph)	213



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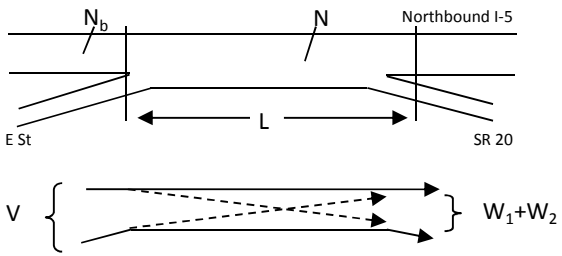


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	715	614
On Ramp Volume	121	138
Off Ramp Volume	222	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	715	614
PHF	0.87	0.87
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	30.0%	27.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.870	0.881
f_P	1.00	1.00
Flow (pcph)	945	801
Flow (pcphpl)	473	401
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.20	0.17
Speed (mph)	70.0	70.0
Density (pcphpl)	6.8	5.7
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,081	974
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.23	0.20
Flow Rate (pcphpl)	541	487
Speed (mph)	70.0	70.0
Density (pcphpl)	7.7	7.0
LOS	A	A
Operations for Exiting GP Lanes		
Flow (pcph)	807	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.17	
Flow Rate (pcphpl)	403	
Speed (mph)	70.0	
Density (pcphpl)	5.8	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	121	138

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.91	0.91
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	28.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.877
f_P	1.00	1.00
Flow (pcph)	136	173
Flow Rate (pcphpl)	136	173
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.06	0.08
Off Ramp Flow Rate		
Volume (vph)	222	
PHF	0.91	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	25.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.889	
f_P	1.00	
Flow (pcph)	274	
Flow Rate (pcphpl)	274	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.14	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		801
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		801
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		801
v_{R12a} (pcph)		974
Speed Index		0.28
Area Speed		62.2
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.2
v/c ratio		0.21

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		9.2
LOS		A
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	121	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	136	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	222	
PHF	0.91	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	25.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.889	
f_P	1.00	
ML to Off Flow (pcph)	274	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	493	
PHF	0.87	

Location	1	2

Key

<> Express Lane (HOV)

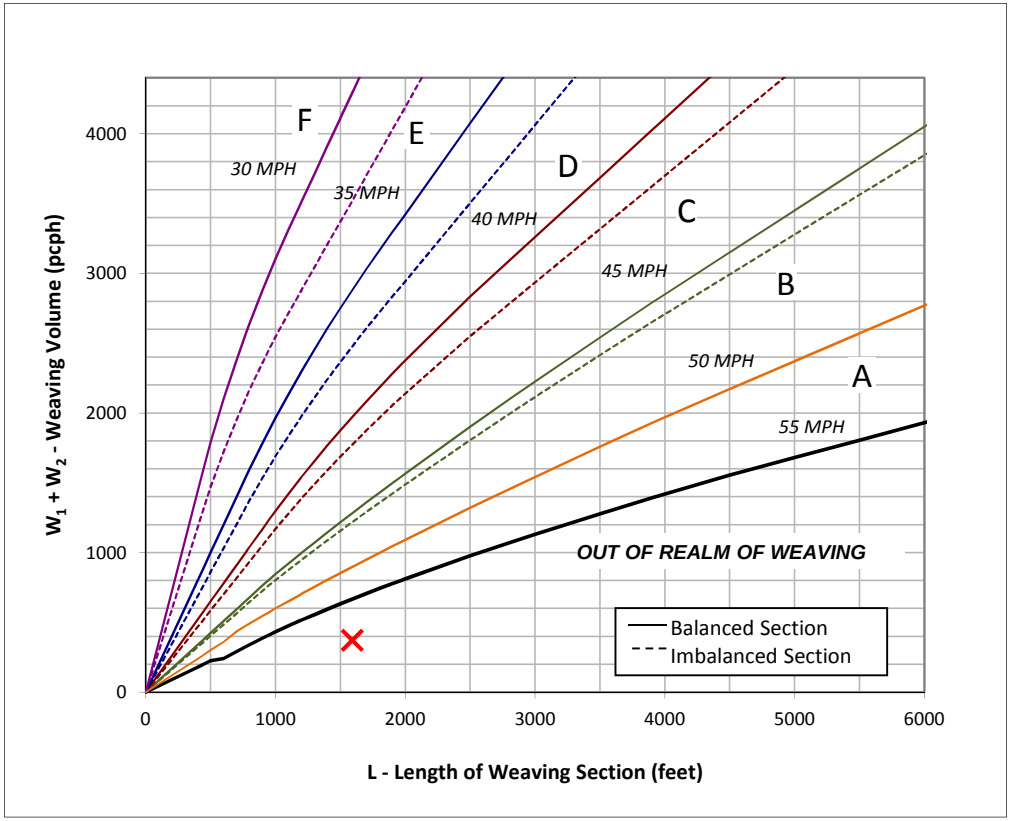
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	32.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.862	
f_P	1.00	
GP to GP Flow (pcph)	657	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	411	
Non-Weave Flow	657	
Segment Flow	1,068	
Max Weave Length	6,509	
Length Check	OK	
Ideal Weave Capacity	2,024	
f_{HV}	0.883	
f_P	0.997	
Capacity Condition 1	5,347	
Capacity Condition 2	5,496	
v/c ratio	0.18	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	411	
Weave LC Rate	954	
Non-Weave LC Rate 1	419	
Non-Weave LC Rate 2	1,836	
Non-Weave LC Rate 3	-2,337	
Segment LC Rate	1,374	
Weave Intensity Factor	0.201	
Weave Speed	60.8	
Non-Weave Speed	65.3	
Segment Speed	63.5	
Density	5.6	
LOS	A	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.23	0.21
Segment Density	7.7	9.2
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

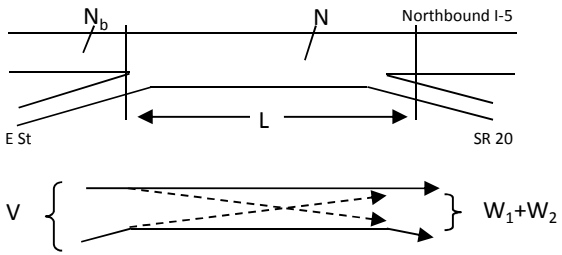
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project PM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	836	Volume (vph)*	121	Volume (vph)*	222
Truck Percentage	26.4%	Truck Percentage	5.0%	Truck Percentage	25.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	946	Volume (pcph)	124	Volume (pcph)	250



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Plus Project Conditions
Time Period: AM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	596	492
On Ramp Volume		157
Off Ramp Volume	104	103
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	596	492
PHF	0.87	0.87
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	36.0%	38.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.847	0.840
f_P	1.00	1.00
Flow (pcph)	808	673
Flow (pcphpl)	404	336
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.17	0.14
Speed (mph)	70.0	70.0
Density (pcphpl)	5.8	4.8
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)		895
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.19
Flow Rate (pcphpl)		448
Speed (mph)		70.0
Density (pcphpl)		6.4
LOS		A
Operations for Exiting GP Lanes		
Flow (pcph)	666	766
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.14	0.16
Flow Rate (pcphpl)	333	383
Speed (mph)	70.0	70.0
Density (pcphpl)	4.8	5.5
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		157

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.82
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		32.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.862
f_P		1.00
Flow (pcph)		222
Flow Rate (pcphpl)		222
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.11
Off Ramp Flow Rate		
Volume (vph)	104	103
PHF	0.82	0.82
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	24.0%	5.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.893	0.976
f_P	1.00	1.00
Flow (pcph)	142	129
Flow Rate (pcphpl)	142	129
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.07	0.06
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	808	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.733	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	808	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	808	
Speed Index	0.31	
Area Speed	61.3	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.3	
v/c ratio	0.18	
Density	9.3	
LOS	A	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.95
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		157
PHF		0.82
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		32.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.862
f_P		1.00
On to ML Flow (pcph)		222
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		103
PHF		0.82
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		5.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.976
f_P		1.00
ML to Off Flow (pcph)		129
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		389
PHF		0.87

Location	1	2

Key

<> Express Lane (HOV)

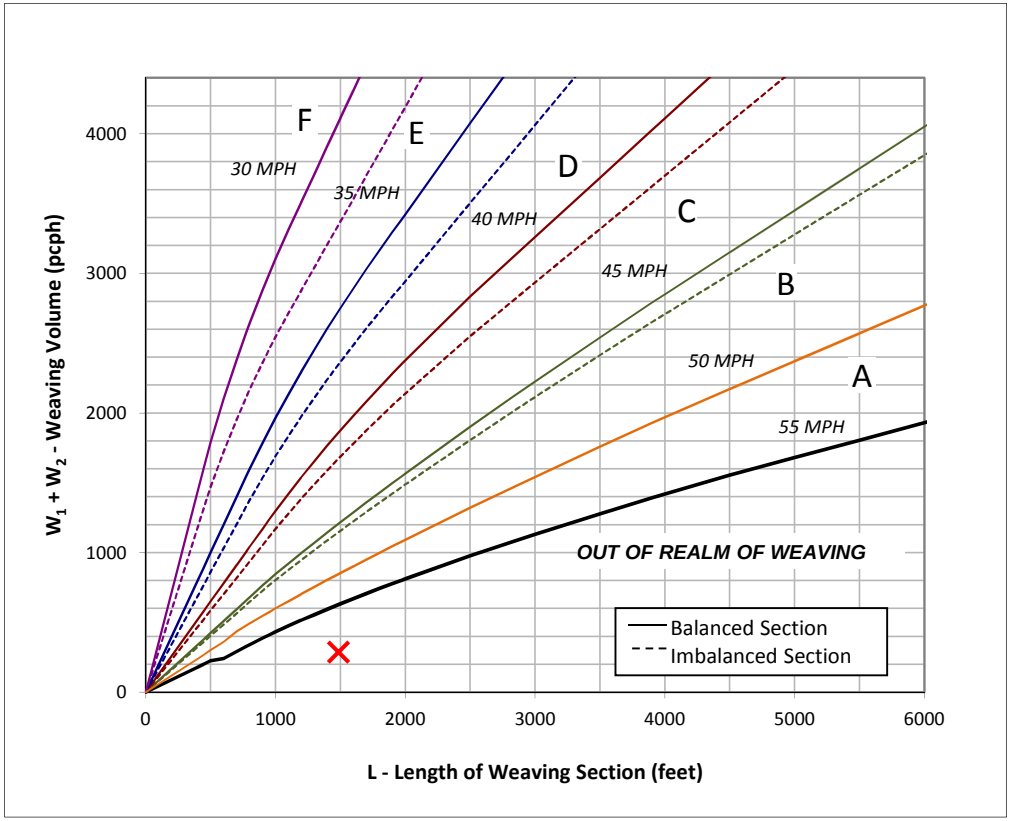
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		47.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.810
f_P		1.00
GP to GP Flow (pcph)		552
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		351
Non-Weave Flow		552
Segment Flow		903
Max Weave Length		6,553
Length Check		OK
Ideal Weave Capacity		2,012
f_{HV}		0.846
f_P		0.966
Capacity Condition 1		4,935
Capacity Condition 2		5,050
v/c ratio		0.15
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		351
Weave LC Rate		853
Non-Weave LC Rate 1		341
Non-Weave LC Rate 2		1,812
Non-Weave LC Rate 3		-2,540
Segment LC Rate		1,194
Weave Intensity Factor		0.190
Weave Speed		61.2
Non-Weave Speed		66.0
Segment Speed		64.1
Density		4.7
LOS		A
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.18	0.19
Segment Density	9.3	6.4
Segment LOS	A	A
Over Capacity		

Leisch Method for Weaving Analysis

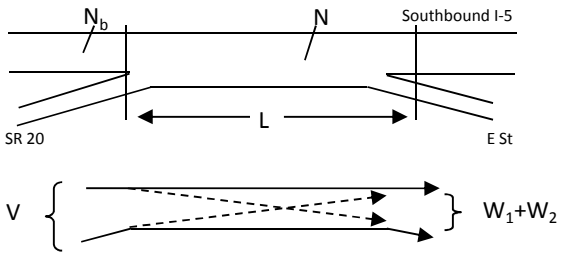
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project AM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	649	Volume (vph)*	157	Volume (vph)*	103
Truck Percentage	36.5%	Truck Percentage	32.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	768	Volume (pcph)	182	Volume (pcph)	106



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, 2014

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Plus Project Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	691	595
On Ramp Volume		218
Off Ramp Volume	96	149
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	691	595
PHF	0.86	0.86
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	30.0%	31.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.870	0.866
f_P	1.00	1.00
Flow (pcph)	924	799
Flow (pcphpl)	462	400
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.19	0.17
Speed (mph)	70.0	70.0
Density (pcphpl)	6.6	5.7
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)		1,061
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.22
Flow Rate (pcphpl)		531
Speed (mph)		70.0
Density (pcphpl)		7.6
LOS		A
Operations for Exiting GP Lanes		
Flow (pcph)	804	894
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.17	0.19
Flow Rate (pcphpl)	402	447
Speed (mph)	70.0	70.0
Density (pcphpl)	5.7	6.4
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		218

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Plus Project Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.91
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		19.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.913
f_P		1.00
Flow (pcph)		262
Flow Rate (pcphpl)		262
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.12
Off Ramp Flow Rate		
Volume (vph)	96	149
PHF	0.91	0.91
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	28.0%	5.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.877	0.976
f_P	1.00	1.00
Flow (pcph)	120	168
Flow Rate (pcphpl)	120	168
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.06	0.08
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Plus Project Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	924	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.731	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	924	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	924	
Speed Index	0.31	
Area Speed	61.4	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.4	
v/c ratio	0.21	
Density	10.3	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.95
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		218
PHF		0.91
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		19.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.913
f_P		1.00
On to ML Flow (pcph)		262
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		149
PHF		0.91
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		5.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.976
f_P		1.00
ML to Off Flow (pcph)		168
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		446
PHF		0.86

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Existing Plus Project Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

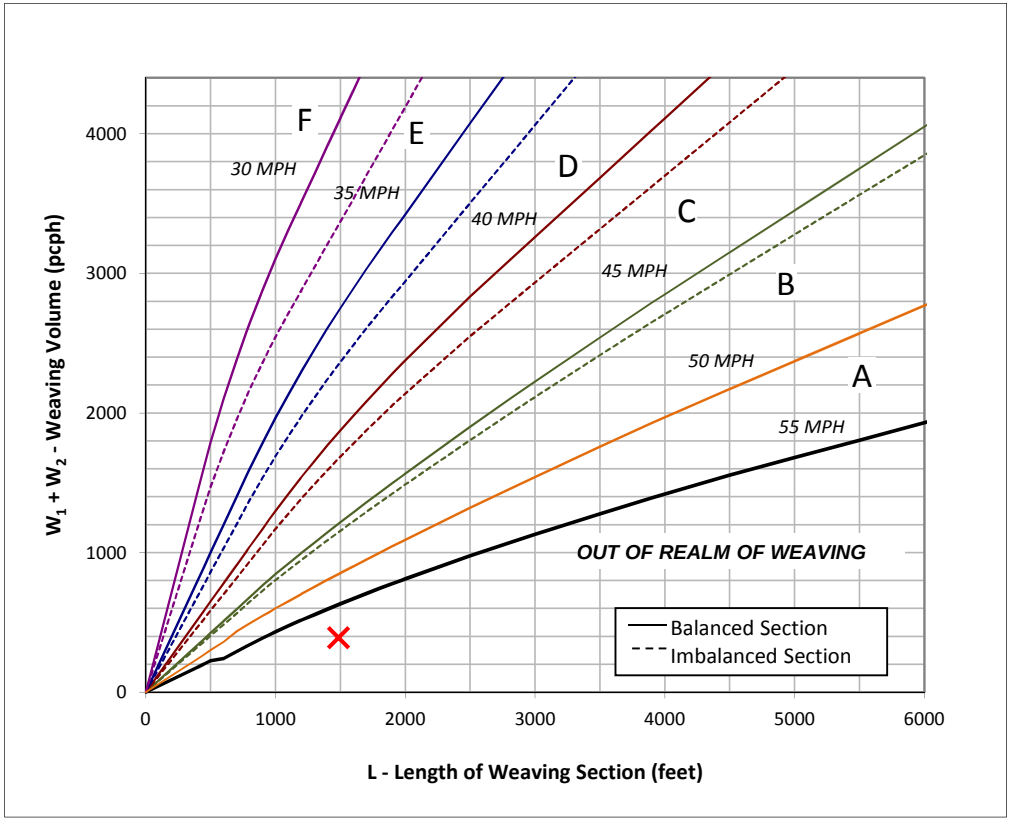
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		39.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.837
f_P		1.00
GP to GP Flow (pcph)		620
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		430
Non-Weave Flow		620
Segment Flow		1,050
Max Weave Length		6,790
Length Check		OK
Ideal Weave Capacity		1,994
f_{HV}		0.878
f_P		0.978
Capacity Condition 1		5,139
Capacity Condition 2		5,032
v/c ratio		0.18
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		430
Weave LC Rate		933
Non-Weave LC Rate 1		355
Non-Weave LC Rate 2		1,827
Non-Weave LC Rate 3		-2,521
Segment LC Rate		1,288
Weave Intensity Factor		0.202
Weave Speed		60.8
Non-Weave Speed		65.2
Segment Speed		63.3
Density		5.5
LOS		A
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.21	0.22
Segment Density	10.3	7.6
Segment LOS	B	A
Over Capacity		

Leisch Method for Weaving Analysis

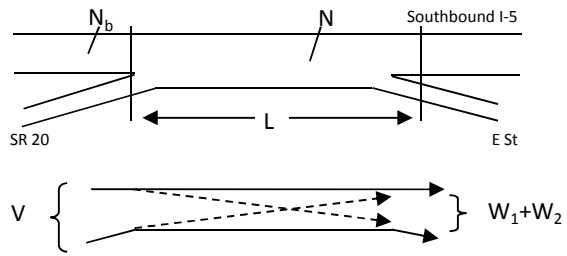
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project PM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	813	Volume (vph)*	218	Volume (vph)*	149
Truck Percentage	27.8%	Truck Percentage	19.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	926	Volume (pcph)	239	Volume (pcph)	153



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   55 MPH and **-**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **-**
4. Weaving Intensity Factor (k) **-**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **-**

6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

APPENDIX B:
CUMULATIVE CONDITIONS TECHNICAL CALCULATIONS

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative No Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	160	151	94.5%	13.0	2.9	B
	Through	20	26	128.8%	16.9	4.3	C
	Right Turn	110	105	95.0%	8.7	2.0	A
	Subtotal	290	282	97.1%	11.7	2.2	B
EB	Left Turn						
	Through	180	181	100.4%	3.3	0.7	A
	Right Turn	100	103	102.7%	2.4	0.3	A
	Subtotal	280	283	101.2%	3.0	0.5	A
WB	Left Turn	110	105	95.3%	4.7	0.9	A
	Through	240	240	100.0%	4.8	0.5	A
	Right Turn						
	Subtotal	350	345	98.5%	4.8	0.5	A
Total		920	910	98.9%	6.4	1.0	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	109	99.0%	22.5	6.9	C
	Through	10	9	92.0%	17.5	5.5	C
	Right Turn	230	230	100.0%	17.1	6.0	C
	Subtotal	350	348	99.5%	18.9	5.8	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	40	39	96.6%	4.8	1.5	A
	Through	300	291	97.0%	4.2	0.6	A
	Right Turn						
	Subtotal	340	330	97.0%	4.2	0.6	A
WB	Left Turn						
	Through	240	239	99.5%	3.7	0.6	A
	Right Turn	60	60	99.4%	1.1	0.3	A
	Subtotal	300	298	99.5%	3.2	0.5	A
Total		990	976	98.6%	9.3	2.6	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative No Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	74	106.2%	9.3	1.9	A
	Through						
	Right Turn	50	57	113.3%	2.2	0.5	A
	Subtotal	120	131	109.2%	6.3	1.4	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	320	311	97.2%	4.5	0.5	A
	Right Turn	210	208	99.0%	5.6	0.9	A
	Subtotal	530	519	97.9%	4.9	0.6	A
WB	Left Turn	60	58	96.3%	7.9	2.5	A
	Through	230	225	97.8%	5.9	1.3	A
	Right Turn						
	Subtotal	290	283	97.5%	6.3	1.5	A
Total		940	933	99.2%	5.5	0.4	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	84.6%	48.0	38.1	E
	Through	110	106	96.3%	57.9	14.3	F
	Right Turn	220	203	92.3%	41.3	13.4	E
	Subtotal	340	318	93.4%	46.9	13.8	E
SB	Left Turn	40	39	98.4%	53.7	16.8	F
	Through	90	89	98.5%	42.7	13.6	E
	Right Turn	20	14	69.9%	27.2	15.5	D
	Subtotal	150	142	94.7%	43.8	12.6	E
EB	Left Turn	80	78	98.0%	8.0	2.1	A
	Through	270	262	96.9%	6.7	1.0	A
	Right Turn	20	19	95.7%	3.0	2.4	A
	Subtotal	370	359	97.1%	6.7	0.7	A
WB	Left Turn	120	115	96.0%	4.6	1.5	A
	Through	260	258	99.1%	4.3	0.8	A
	Right Turn	60	56	93.2%	1.2	0.6	A
	Subtotal	440	429	97.4%	4.0	0.8	A
Total		1,300	1,248	96.0%	20.3	3.7	C

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative No Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
SB	Left/Through	2,077	77	21	118	26	122	29	31%	0%
	Right Turn	25	50	5	66	4	67	1	13%	0%
WB	Left Turn	105	18	5	54	13	57	16	0%	0%
	Through	1,285	2	3	7	14	13	20	0%	0%
EB	Through/Right	1,000	0	0	0	0	0	0	0%	0%

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	105	13	8	39	23	48	21	0%	0%
	Through	1,285	0	1	2	5	2	7	0%	0%
NB	Shared	1,564	166	37	294	80	295	81	0%	0%
WB	Through/Right	1,028	1	1	5	7	6	10	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative No Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	133	1	1	3	7	5	10	0%	0%
	Right Turn	133	24	10	81	32	93	39	0%	0%
NB	Left Turn	220	41	6	78	17	81	25	0%	0%
	Right Turn	357	38	8	74	8	64	2	0%	0%
WB	Left Turn	308	20	10	52	22	47	16	0%	0%
	Through	308	0	0	0	0	0	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	20	8	47	12	45	8	0%	0%
	Through/Right	3,086	0	1	1	4	2	5	0%	0%
NB	Left/Through	1,292	196	102	328	163	333	146	50%	0%
	Right Turn	25	52	2	59	8	59	8	39%	0%
SB	Left/Through	1,094	96	34	169	59	186	74	44%	0%
	Right Turn	25	26	10	65	17	58	11	3%	0%
WB	Left Turn	300	21	4	46	8	47	14	0%	0%
	Through/Right	1,058	4	4	17	20	22	27	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative No Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	100	106	105.6%	19.8	3.8	C
	Through	10	11	110.4%	22.9	15.1	C
	Right Turn	70	61	87.8%	10.3	3.8	B
	Subtotal	180	178	99.0%	16.9	3.9	C
EB	Left Turn						
	Through	270	275	101.7%	4.7	0.6	A
	Right Turn	170	174	102.2%	3.1	0.3	A
	Subtotal	440	448	101.9%	4.1	0.5	A
WB	Left Turn	200	197	98.6%	6.8	2.1	A
	Through	330	322	97.7%	5.2	1.1	A
	Right Turn						
	Subtotal	530	520	98.0%	5.8	1.4	A
Total		1,150	1,146	99.6%	6.9	1.2	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	150	140	93.2%	24.1	7.2	C
	Through	10	11	110.4%	27.5	8.5	D
	Right Turn	140	142	101.5%	16.3	7.7	C
	Subtotal	300	293	97.6%	20.4	7.1	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	90	88	97.7%	7.6	1.8	A
	Through	280	293	104.5%	4.7	0.6	A
	Right Turn						
	Subtotal	370	381	102.8%	5.4	0.6	A
WB	Left Turn						
	Through	380	380	100.0%	5.2	1.0	A
	Right Turn	120	120	100.3%	1.7	0.8	A
	Subtotal	500	500	100.1%	4.4	0.8	A
Total		1,170	1,174	100.3%	8.7	1.9	A

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative No Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	196	98.1%	11.1	3.8	B
	Through						
	Right Turn	60	60	99.4%	2.7	0.4	A
	Subtotal	260	256	98.4%	9.2	3.0	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	320	334	104.4%	2.6	0.3	A
	Right Turn	100	98	97.9%	3.3	0.4	A
	Subtotal	420	432	102.9%	2.8	0.2	A
WB	Left Turn	50	45	89.8%	4.2	0.4	A
	Through	300	303	101.1%	3.2	0.5	A
	Right Turn						
	Subtotal	350	348	99.5%	3.4	0.4	A
Total		1,030	1,036	100.6%	4.5	0.6	A

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	13	62.6%	112.7	40.7	F
	Through	110	97	88.3%	102.7	26.9	F
	Right Turn	220	166	75.6%	81.2	33.0	F
	Subtotal	350	276	78.9%	90.0	30.3	F
SB	Left Turn	70	47	66.8%	130.0	45.6	F
	Through	130	104	80.1%	126.5	51.7	F
	Right Turn	20	14	69.9%	93.9	51.6	F
	Subtotal	220	165	74.9%	124.1	47.4	F
EB	Left Turn	50	41	82.4%	5.2	1.4	A
	Through	320	344	107.5%	5.2	0.4	A
	Right Turn	10	8	77.3%	2.6	3.7	A
	Subtotal	380	393	103.4%	5.1	0.4	A
WB	Left Turn	170	152	89.2%	4.7	1.0	A
	Through	310	321	103.4%	3.4	0.3	A
	Right Turn	40	44	110.4%	0.9	0.2	A
	Subtotal	520	516	99.3%	3.6	0.3	A
Total		1,470	1,350	91.8%	35.7	7.4	E

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative No Project Conditions**
Queue Length | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through/Right	636	3	5	11	21	16	23	0%	0%
SB	Left/Through	2,077	65	12	114	22	121	41	28%	0%
	Right Turn	25	40	5	60	7	52	5	7%	0%
WB	Left Turn	1,105	34	10	71	26	74	24	0%	0%
	Through	1,285	4	6	21	33	29	46	0%	0%

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	105	33	10	66	15	64	16	0%	0%
	Through	105	0	0	0	0	0	0	0%	0%
NB	Shared	1,564	159	42	288	86	287	56	0%	0%
WB	Through/Right	1,028	1	3	5	10	7	12	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative No Project Conditions**
Queue Length | **PM Peak Hour**
Intersection 3 **Margurite Street/SR 20** | **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	133	0	0	0	0	0	0	0%	0%
	Right Turn	133	4	6	19	23	25	28	0%	0%
NB	Left Turn	220	49	6	83	15	88	19	0%	0%
	Right Turn	357	37	9	71	14	68	17	0%	0%
WB	Left Turn	308	9	3	30	5	29	2	0%	0%
	Through	308	0	0	0	0	0	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	16	7	44	16	44	16	0%	0%
	Through/Right	3,086	1	3	6	13	12	21	0%	0%
NB	Left/Through	1,292	277	70	540	199	507	198	64%	0%
	Right Turn	25	51	4	62	7	62	7	41%	0%
SB	Left/Through	1,094	299	130	567	325	542	260	83%	0%
	Right Turn	25	11	6	35	9	35	0	3%	0%
WB	Left Turn	300	31	5	57	16	64	21	0%	0%
	Through/Right	1,058	4	4	13	15	16	16	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative Plus Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	195	201	103.0%	19.6	6.6	C
	Through	20	22	110.4%	22.8	12.3	C
	Right Turn	110	116	105.7%	14.5	7.6	B
	Subtotal	325	339	104.4%	18.0	6.7	C
EB	Left Turn						
	Through	180	190	105.3%	3.9	1.1	A
	Right Turn	100	102	101.6%	2.5	0.4	A
	Subtotal	280	291	104.0%	3.4	0.7	A
WB	Left Turn	136	118	87.1%	5.7	1.1	A
	Through	240	229	95.5%	5.4	0.8	A
	Right Turn						
	Subtotal	376	348	92.5%	5.5	0.7	A
Total		981	978	99.7%	9.2	2.6	A

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	102	93.0%	51.2	28.8	F
	Through	10	13	132.5%	59.5	54.1	F
	Right Turn	288	293	101.8%	43.9	25.3	E
	Subtotal	408	409	100.2%	46.1	26.6	E
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	40	41	103.0%	6.3	2.1	A
	Through	335	347	103.6%	5.6	0.7	A
	Right Turn						
	Subtotal	375	388	103.5%	5.7	0.8	A
WB	Left Turn						
	Through	266	252	94.9%	6.1	1.1	A
	Right Turn	118	116	98.5%	2.9	1.2	A
	Subtotal	384	369	96.0%	5.1	1.0	A
Total		1,167	1,166	99.9%	19.7	9.3	C

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 11 Runs | **Cumulative Plus Project Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	169	163	96.7%	26.7	10.5	D
	Through						
	Right Turn	69	67	96.5%	4.6	2.6	A
	Subtotal	238	230	96.6%	20.5	9.2	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	306	319	104.1%	6.6	0.5	A
	Right Turn	317	321	101.1%	9.1	0.9	A
	Subtotal	623	639	102.6%	7.8	0.8	A
WB	Left Turn	80	81	101.2%	9.3	1.9	A
	Through	215	207	96.4%	7.3	1.7	A
	Right Turn						
	Subtotal	295	288	97.7%	7.9	1.7	A
Total		1,156	1,157	100.1%	10.4	1.8	B

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	10	87.0%	65.2	38.6	F
	Through	110	98	88.7%	66.1	22.1	F
	Right Turn	220	198	89.8%	57.2	29.0	F
	Subtotal	341	305	89.4%	60.5	26.3	F
SB	Left Turn	40	35	88.3%	49.1	14.9	E
	Through	90	86	95.7%	44.1	19.1	E
	Right Turn	20	21	104.9%	27.8	20.0	D
	Subtotal	150	142	94.9%	43.0	17.0	E
EB	Left Turn	80	81	100.7%	8.6	2.3	A
	Through	274	269	98.0%	7.2	1.1	A
	Right Turn	21	25	119.2%	4.2	2.0	A
	Subtotal	375	374	99.8%	7.3	1.3	A
WB	Left Turn	120	123	102.1%	4.7	1.2	A
	Through	264	258	97.6%	4.4	1.1	A
	Right Turn	60	64	107.3%	1.6	0.6	A
	Subtotal	444	445	100.1%	4.1	0.9	A
Total		1,310	1,266	96.6%	23.1	7.5	C

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative Plus Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through/Right	636	3	6	16	30	22	42	0%	0%
SB	Left/Through	2,077	117	34	205	74	216	70	43%	0%
	Right Turn	25	51	5	67	7	65	5	14%	0%
WB	Left Turn	1,105	25	12	60	23	64	27	0%	0%
	Through	1,285	2	3	6	11	8	13	0%	0%

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	105	17	10	49	22	52	22	0%	0%
	Through	1,285	1	1	3	7	4	9	0%	0%
NB	Shared	1,564	276	73	457	138	470	182	0%	0%
WB	Through/Right	1,028	2	3	8	13	10	16	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative Plus Project Conditions**
Queue Length | **AM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	133	1	2	2	7	3	10	0%	0%
	Right Turn	133	38	11	96	27	102	36	0%	0%
NB	Left Turn	220	89	22	154	41	163	47	0%	0%
	Right Turn	357	50	15	92	54	94	80	0%	0%
WB	Left Turn	308	23	10	62	15	66	12	0%	0%
	Through	308	0	0	0	0	0	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	28	11	63	17	71	21	0%	0%
	Through/Right	3,086	2	3	7	15	10	21	0%	0%
NB	Left/Through	1,292	172	38	292	58	302	65	51%	0%
	Right Turn	25	52	2	60	6	62	6	40%	0%
SB	Left/Through	1,094	102	59	208	126	224	135	43%	0%
	Right Turn	25	25	9	67	13	62	8	3%	0%
WB	Left Turn	300	27	6	50	10	49	11	0%	0%
	Through/Right	1,058	7	8	24	23	29	27	0%	0%

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 15 Runs | **Cumulative Plus Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	145	135	92.9%	65.2	40.5	F
	Through	10	8	77.3%	73.1	67.7	F
	Right Turn	70	75	106.7%	46.1	38.9	E
	Subtotal	225	217	96.5%	59.0	40.3	F
EB	Left Turn						
	Through	270	278	102.9%	5.6	1.0	A
	Right Turn	170	170	100.0%	3.5	0.3	A
	Subtotal	440	448	101.8%	4.8	0.7	A
WB	Left Turn	235	240	101.9%	9.2	1.5	A
	Through	330	326	98.7%	7.5	1.0	A
	Right Turn						
	Subtotal	565	565	100.0%	8.2	1.2	A
Total		1,230	1,230	100.0%	16.0	7.0	C

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	150	133	88.6%	65.7	36.0	F
	Through	10	10	99.4%	76.6	51.4	F
	Right Turn	214	181	84.4%	52.5	26.4	F
	Subtotal	374	323	86.5%	58.8	30.6	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	90	89	98.5%	16.6	8.4	C
	Through	325	319	98.2%	6.7	0.9	A
	Right Turn						
	Subtotal	415	408	98.3%	8.8	2.2	A
WB	Left Turn						
	Through	415	436	105.1%	9.2	1.1	A
	Right Turn	198	194	97.8%	4.3	1.0	A
	Subtotal	613	630	102.7%	7.7	1.0	A
Total		1,402	1,361	97.1%	20.0	7.1	C

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 15 Runs | **Cumulative Plus Project Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	333	354	106.3%	25.1	8.5	D
	Through						
	Right Turn	85	84	98.7%	5.9	3.9	A
	Subtotal	418	438	104.8%	21.4	7.6	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	301	276	91.6%	5.2	0.5	A
	Right Turn	238	227	95.4%	7.3	1.4	A
	Subtotal	539	503	93.3%	6.1	1.0	A
WB	Left Turn	76	68	89.1%	5.2	0.5	A
	Through	280	279	99.8%	3.6	0.5	A
	Right Turn						
	Subtotal	356	347	97.5%	3.9	0.4	A
Total		1,313	1,288	98.1%	10.8	2.4	B

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	21	17	80.6%	87.2	23.4	F
	Through	110	88	80.3%	89.8	30.8	F
	Right Turn	220	184	83.8%	81.3	34.7	F
	Subtotal	351	290	82.5%	84.8	32.4	F
SB	Left Turn	70	64	92.0%	110.1	27.1	F
	Through	130	93	71.9%	108.2	33.7	F
	Right Turn	20	23	114.1%	103.0	63.2	F
	Subtotal	220	181	82.1%	107.6	33.0	F
EB	Left Turn	50	50	100.1%	6.0	2.9	A
	Through	325	296	91.2%	5.2	0.8	A
	Right Turn	11	10	90.3%	2.7	2.8	A
	Subtotal	386	356	92.3%	5.2	0.9	A
WB	Left Turn	170	176	103.5%	5.1	0.5	A
	Through	315	311	98.8%	3.7	0.5	A
	Right Turn	40	41	102.1%	1.4	0.4	A
	Subtotal	525	528	100.6%	4.0	0.3	A
Total		1,482	1,355	91.4%	35.0	7.6	D

SimTraffic Post-Processor | **Love's Country Stores**
Average Results from 10 Runs | **Cumulative Plus Project Conditions**
Queue Length | **PM Peak Hour**

Intersection 1 **I-5 SB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through/Right	636	4	5	17	21	21	26	0%	0%
SB	Left/Through	2,077	141	40	239	71	235	64	59%	0%
	Right Turn	25	43	6	60	6	53	9	8%	0%
WB	Left Turn	1,105	46	9	83	22	83	22	0%	0%
	Through	1,285	8	5	33	21	43	27	0%	0%

Intersection 2 **I-5 NB Ramps/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	105	38	12	72	22	84	28	1%	0%
	Through	1,285	3	9	14	44	35	74	0%	0%
NB	Shared	1,564	337	139	599	255	588	246	0%	0%
WB	Through/Right	1,028	22	50	100	240	135	332	0%	0%

Intersection 3 **Margurite Street/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	133	0	0	0	0	0	0	0%	0%
	Right Turn	1,161	27	17	85	42	92	39	0%	0%
NB	Left Turn	220	123	24	205	45	208	33	4%	0%
	Right Turn	357	69	48	143	136	138	132	0%	1%
WB	Left Turn	308	21	8	51	18	47	23	0%	0%
	Through	308	0	0	0	0	0	0	0%	0%

Intersection 4 **Husted Road-Freshwater Road/SR 20** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	19	9	54	25	58	28	0%	0%
	Through/Right	3,086	1	1	2	6	3	8	0%	0%
NB	Left/Through	1,292	272	111	489	247	486	307	64%	0%
	Right Turn	25	53	2	62	5	63	5	45%	0%
SB	Left/Through	1,094	250	135	460	287	472	278	79%	0%
	Right Turn	25	18	7	42	5	35	0	4%	0%
WB	Left Turn	300	31	5	55	9	56	11	0%	0%
	Through/Right	1,058	2	2	8	7	10	7	0%	0%

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	1,120	1,108
On Ramp Volume	338	110
Off Ramp Volume	350	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,120	1,108
PHF	0.94	0.94
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	42.0%	38.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.826	0.840
f_P	1.00	1.00
Flow (pcph)	1,442	1,403
Flow (pcphpl)	721	701
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.30	0.29
Speed (mph)	70.0	70.0
Density (pcphpl)	10.3	10.0
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,818	1,544
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.38	0.32
Flow Rate (pcphpl)	909	772
Speed (mph)	70.0	70.0
Density (pcphpl)	13.0	11.0
LOS	B	B
Operations for Exiting GP Lanes		
Flow (pcph)	1,398	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.29	
Flow Rate (pcphpl)	699	
Speed (mph)	70.0	
Density (pcphpl)	10.0	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	338	110

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	36.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.847
f_P	1.00	1.00
Flow (pcph)	377	141
Flow Rate (pcphpl)	377	141
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.18	0.07
Off Ramp Flow Rate		
Volume (vph)	350	
PHF	0.92	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	21.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.905	
f_P	1.00	
Flow (pcph)	420	
Flow Rate (pcphpl)	420	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.21	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		1,403
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		1,403
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		1,403
v_{R12a} (pcph)		1,544
Speed Index		0.29
Area Speed		62.0
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.0
v/c ratio		0.34

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		13.7
LOS		B
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.95	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	338	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	377	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	350	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	21.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.905	
f_P	1.00	
ML to Off Flow (pcph)	420	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	770	
PHF	0.94	

Location	1	2

Key

<> Express Lane (HOV)

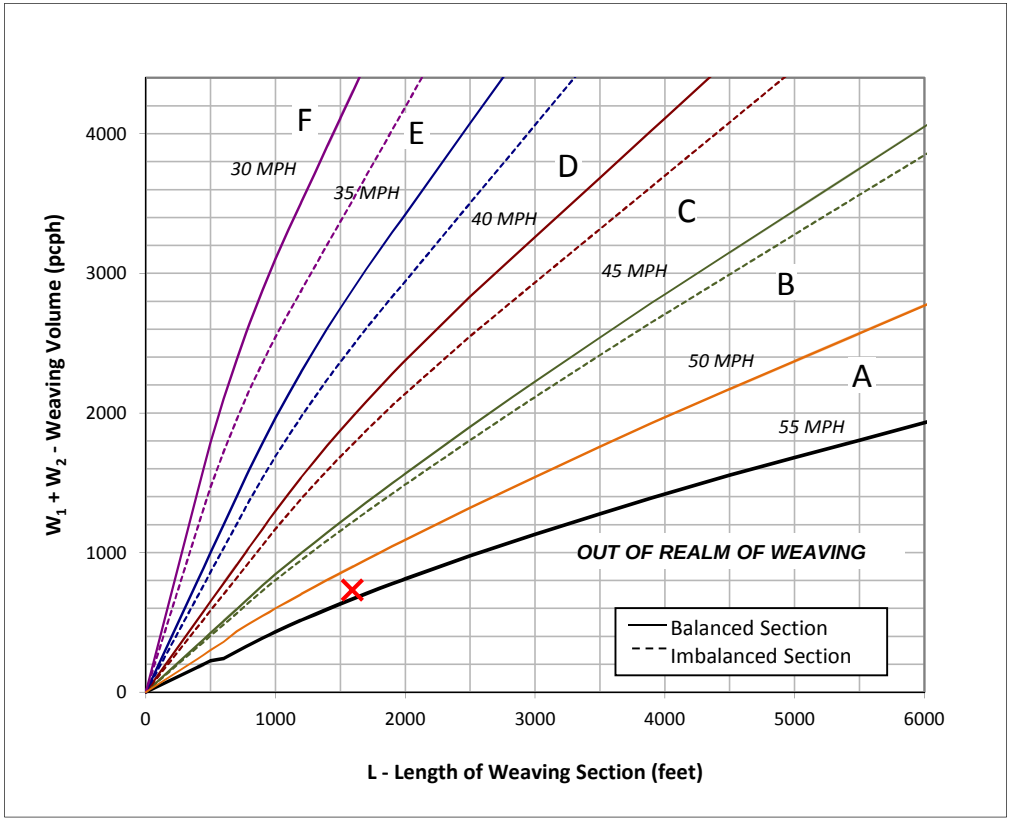
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	52.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.794	
f_P	1.00	
GP to GP Flow (pcph)	1,032	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	797	
Non-Weave Flow	1,032	
Segment Flow	1,829	
Max Weave Length	7,085	
Length Check	OK	
Ideal Weave Capacity	1,980	
f_{HV}	0.857	
f_P	0.995	
Capacity Condition 1	5,062	
Capacity Condition 2	4,695	
v/c ratio	0.33	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	797	
Weave LC Rate	1,341	
Non-Weave LC Rate 1	497	
Non-Weave LC Rate 2	1,919	
Non-Weave LC Rate 3	-2,229	
Segment LC Rate	1,837	
Weave Intensity Factor	0.253	
Weave Speed	58.9	
Non-Weave Speed	61.3	
Segment Speed	60.2	
Density	10.1	
LOS	B	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.33	0.34
Segment Density	10.1	13.7
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

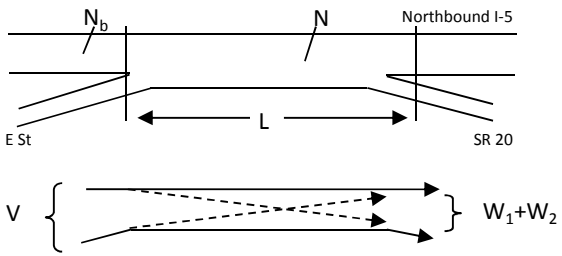
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Conditions AM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	1,458	Volume (vph)*	338	Volume (vph)*	350
Truck Percentage	33.4%	Truck Percentage	5.0%	Truck Percentage	21.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,702	Volume (pcph)	346	Volume (pcph)	387



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   50 MPH and **55 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **53.5**
4. Weaving Intensity Factor (k) **1.00**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **567**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	984	1,224
On Ramp Volume	540	220
Off Ramp Volume	300	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	984	1,224
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	37.0%	31.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.844	0.866
f_P	1.00	1.00
Flow (pcph)	1,267	1,537
Flow (pcphpl)	634	768
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.26	0.32
Speed (mph)	70.0	70.0
Density (pcphpl)	9.1	11.0
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,872	1,793
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.39	0.37
Flow Rate (pcphpl)	936	896
Speed (mph)	70.0	70.0
Density (pcphpl)	13.4	12.8
LOS	B	B
Operations for Exiting GP Lanes		
Flow (pcph)	1,533	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.32	
Flow Rate (pcphpl)	766	
Speed (mph)	70.0	
Density (pcphpl)	10.9	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	540	220

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	6.0%	14.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.971	0.935
f_P	1.00	1.00
Flow (pcph)	605	256
Flow Rate (pcphpl)	605	256
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.29	0.12
Off Ramp Flow Rate		
Volume (vph)	300	
PHF	0.92	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	8.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.962	
f_P	1.00	
Flow (pcph)	339	
Flow Rate (pcphpl)	339	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.17	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		1,537
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		1,537
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		1,537
v_{R12a} (pcph)		1,793
Speed Index		0.29
Area Speed		61.9
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		61.9
v/c ratio		0.39

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		15.6
LOS		B
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	540	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	6.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.971	
f_P	1.00	
On to ML Flow (pcph)	605	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	300	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	8.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.962	
f_P	1.00	
ML to Off Flow (pcph)	339	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	684	
PHF	0.92	

Location	1	2

Key

<> Express Lane (HOV)

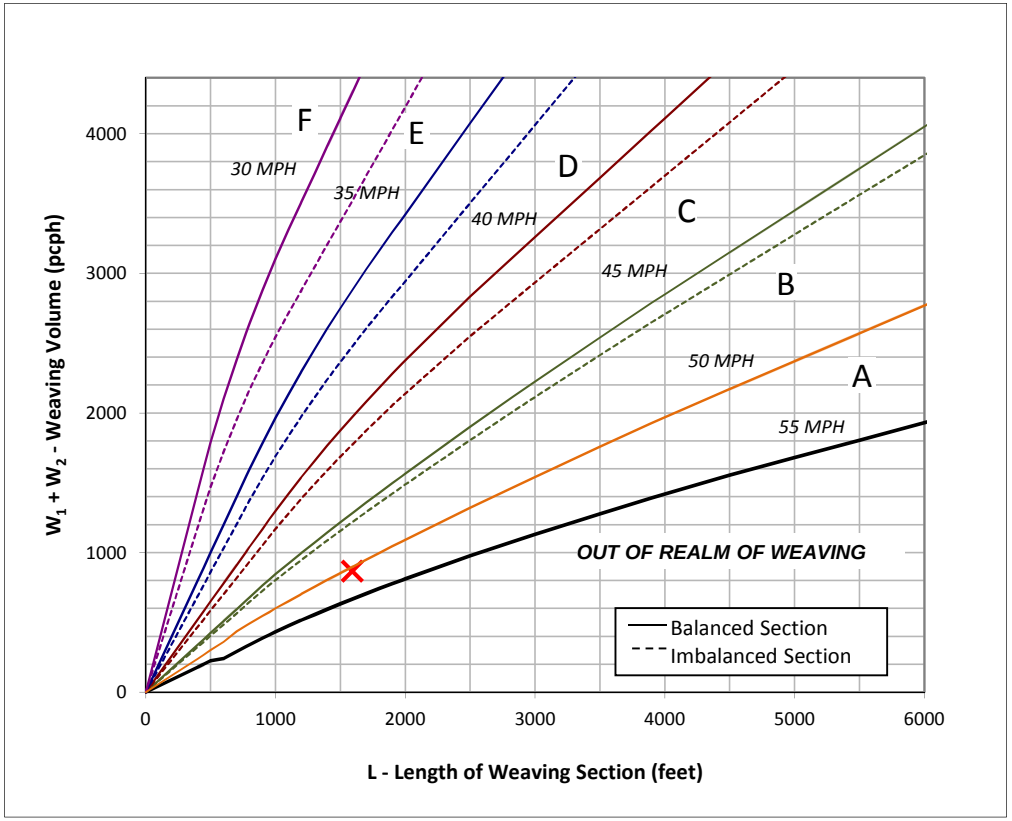
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	50.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.800	
f_P	1.00	
GP to GP Flow (pcph)	929	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	944	
Non-Weave Flow	929	
Segment Flow	1,873	
Max Weave Length	7,871	
Length Check	OK	
Ideal Weave Capacity	1,919	
f_{HV}	0.884	
f_P	0.991	
Capacity Condition 1	5,045	
Capacity Condition 2	4,173	
v/c ratio	0.39	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	944	
Weave LC Rate	1,487	
Non-Weave LC Rate 1	475	
Non-Weave LC Rate 2	1,896	
Non-Weave LC Rate 3	-2,259	
Segment LC Rate	1,963	
Weave Intensity Factor	0.267	
Weave Speed	58.4	
Non-Weave Speed	60.2	
Segment Speed	59.3	
Density	10.5	
LOS	B	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.39	0.39
Segment Density	10.5	15.6
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

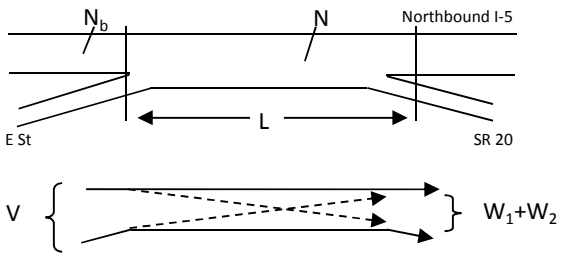
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Conditions PM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	1,524	Volume (vph)*	540	Volume (vph)*	300
Truck Percentage	26.0%	Truck Percentage	6.0%	Truck Percentage	8.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,722	Volume (pcph)	556	Volume (pcph)	312



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   50 MPH and **55 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **50.6**
4. Weaving Intensity Factor (k) **1.00**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **574**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Cumulative No Project Conditions
Time Period: AM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	1,450	1,160
On Ramp Volume		230
Off Ramp Volume	290	549
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,450	1,160
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	36.0%	41.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.847	0.830
f_P	1.00	1.00
Flow (pcph)	1,860	1,519
Flow (pcphpl)	930	760
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.39	0.32
Speed (mph)	70.0	70.0
Density (pcphpl)	13.3	10.9
LOS	B	A
Operations for Segment GP Lanes		
Flow (pcph)		1,802
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.38
Flow Rate (pcphpl)		901
Speed (mph)		70.0
Density (pcphpl)		12.9
LOS		B
Operations for Exiting GP Lanes		
Flow (pcph)	1,523	1,184
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.32	0.25
Flow Rate (pcphpl)	761	592
Speed (mph)	70.0	70.0
Density (pcphpl)	10.9	8.5
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		230

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.92
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		26.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.885
f_P		1.00
Flow (pcph)		283
Flow Rate (pcphpl)		283
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.13
Off Ramp Flow Rate		
Volume (vph)	290	549
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	14.0%	7.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.935	0.966
f_P	1.00	1.00
Flow (pcph)	337	618
Flow Rate (pcphpl)	337	618
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.16	0.29
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	1,860	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.698	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	1,860	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	1,860	
Speed Index	0.33	
Area Speed	60.8	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	60.8	
v/c ratio	0.42	
Density	18.4	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		230
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		26.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.885
f_P		1.00
On to ML Flow (pcph)		283
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		549
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		7.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.966
f_P		1.00
ML to Off Flow (pcph)		618
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		611
PHF		0.92

Location	1	2

Key

<> Express Lane (HOV)

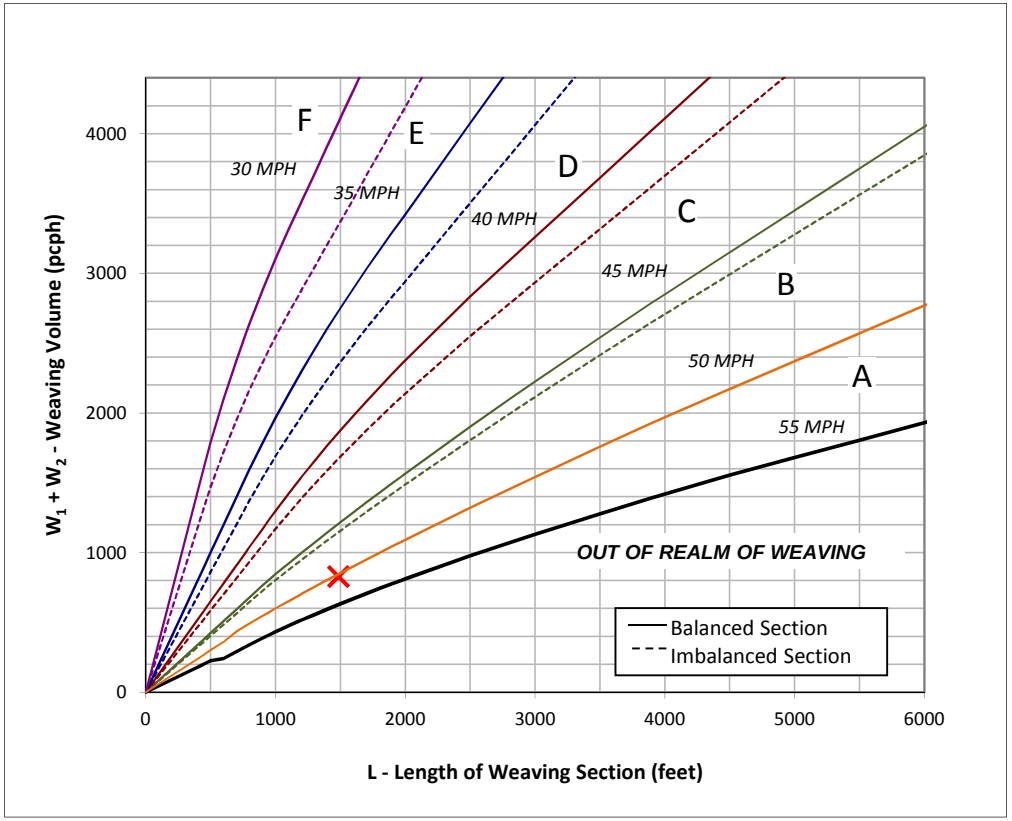
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		72.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.735
f_P		1.00
GP to GP Flow (pcph)		903
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		900
Non-Weave Flow		903
Segment Flow		1,803
Max Weave Length		7,816
Length Check		OK
Ideal Weave Capacity		1,916
f_{HV}		0.838
f_P		0.982
Capacity Condition 1		4,728
Capacity Condition 2		3,956
v/c ratio		0.38
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		900
Weave LC Rate		1,403
Non-Weave LC Rate 1		413
Non-Weave LC Rate 2		1,890
Non-Weave LC Rate 3		-2,440
Segment LC Rate		1,816
Weave Intensity Factor		0.265
Weave Speed		58.5
Non-Weave Speed		60.6
Segment Speed		59.5
Density		10.1
LOS		B
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.42	0.38
Segment Density	18.4	10.1
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

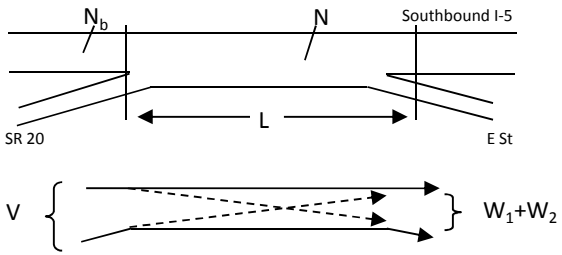
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Conditions AM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	1,390	Volume (vph)*	230	Volume (vph)*	549
Truck Percentage	38.5%	Truck Percentage	26.0%	Truck Percentage	7.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,658	Volume (pcph)	260	Volume (pcph)	568



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   50 MPH and **55 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **50.4**
4. Weaving Intensity Factor (k) **0.93**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **546**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Project: Love's Country Stores (Williams, CA)
Freeway Corridor: Southbound I-5

Alternative: Cumulative No Project Conditions
Time Period: PM Peak Hour

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	1,271	1,091
On Ramp Volume		380
Off Ramp Volume	180	463
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,271	1,091
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	29.0%	33.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.873	0.858
f_P	1.00	1.00
Flow (pcph)	1,582	1,382
Flow (pcphpl)	791	691
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.33	0.29
Speed (mph)	70.0	70.0
Density (pcphpl)	11.3	9.9
LOS	B	A
Operations for Segment GP Lanes		
Flow (pcph)		1,826
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.38
Flow Rate (pcphpl)		913
Speed (mph)		70.0
Density (pcphpl)		13.0
LOS		B
Operations for Exiting GP Lanes		
Flow (pcph)	1,382	1,307
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.29	0.27
Flow Rate (pcphpl)	691	654
Speed (mph)	70.0	70.0
Density (pcphpl)	9.9	9.3
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		380

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.92
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		15.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.930
f_P		1.00
Flow (pcph)		444
Flow Rate (pcphpl)		444
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.21
Off Ramp Flow Rate		
Volume (vph)	180	463
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	4.0%	6.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.980	0.971
f_P	1.00	1.00
Flow (pcph)	200	518
Flow Rate (pcphpl)	200	518
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.10	0.25
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	1,582	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.711	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	1,582	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	1,582	
Speed Index	0.32	
Area Speed	61.2	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.2	
v/c ratio	0.36	
Density	16.0	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		380
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		15.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.930
f_P		1.00
On to ML Flow (pcph)		444
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		463
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		6.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.971
f_P		1.00
ML to Off Flow (pcph)		518
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		628
PHF		0.92

Location	1	2

Key

<> Express Lane (HOV)

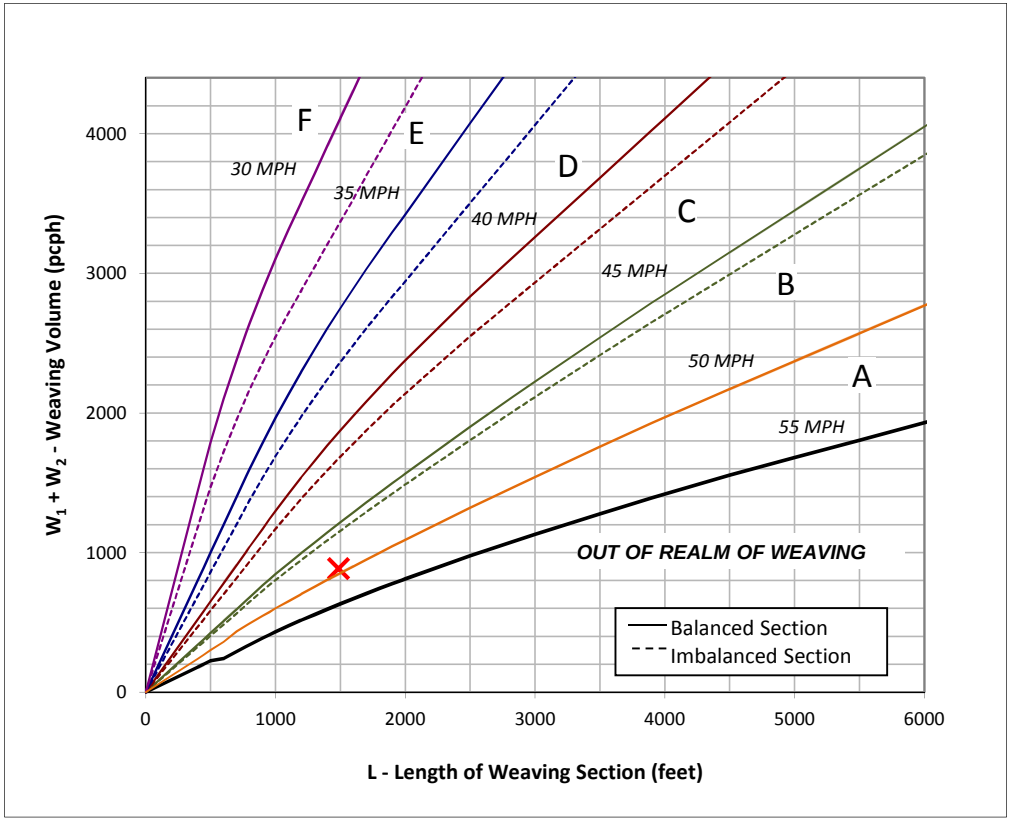
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		53.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.791
f_P		1.00
GP to GP Flow (pcph)		864
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		962
Non-Weave Flow		864
Segment Flow		1,826
Max Weave Length		8,145
Length Check		OK
Ideal Weave Capacity		1,891
f_{HV}		0.876
f_P		0.983
Capacity Condition 1		4,882
Capacity Condition 2		3,920
v/c ratio		0.40
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		962
Weave LC Rate		1,465
Non-Weave LC Rate 1		405
Non-Weave LC Rate 2		1,882
Non-Weave LC Rate 3		-2,451
Segment LC Rate		1,870
Weave Intensity Factor		0.271
Weave Speed		58.3
Non-Weave Speed		60.1
Segment Speed		59.1
Density		10.3
LOS		B
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.36	0.40
Segment Density	16.0	10.3
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

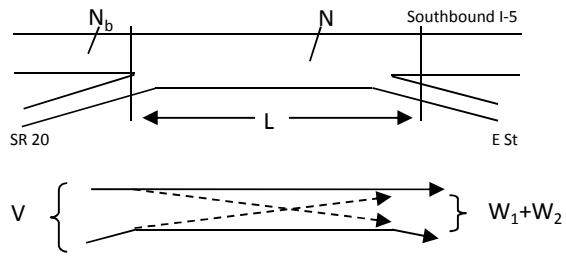
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Conditions PM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	1,471	Volume (vph)*	380	Volume (vph)*	463
Truck Percentage	28.4%	Truck Percentage	15.0%	Truck Percentage	6.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,680	Volume (pcph)	409	Volume (pcph)	477



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   45 MPH and **50 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **49.3**
4. Weaving Intensity Factor (k) **1.05**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **567**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	1,137	1,067
On Ramp Volume	338	168
Off Ramp Volume	408	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,137	1,067
PHF	0.94	0.94
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	42.0%	37.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.826	0.844
f_P	1.00	1.00
Flow (pcph)	1,464	1,345
Flow (pcphpl)	732	673
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.30	0.28
Speed (mph)	70.0	70.0
Density (pcphpl)	10.5	9.6
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,840	1,567
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.38	0.33
Flow Rate (pcphpl)	920	783
Speed (mph)	70.0	70.0
Density (pcphpl)	13.1	11.2
LOS	B	B
Operations for Exiting GP Lanes		
Flow (pcph)	1,341	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.28	
Flow Rate (pcphpl)	671	
Speed (mph)	70.0	
Density (pcphpl)	9.6	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	338	168

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	5.0%	43.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.976	0.823
f_P	1.00	1.00
Flow (pcph)	377	222
Flow Rate (pcphpl)	377	222
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.18	0.11
Off Ramp Flow Rate		
Volume (vph)	408	
PHF	0.92	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	25.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.889	
f_P	1.00	
Flow (pcph)	499	
Flow Rate (pcphpl)	499	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.25	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		1,345
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		1,345
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		1,345
v_{R12a} (pcph)		1,567
Speed Index		0.29
Area Speed		62.0
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		62.0
v/c ratio		0.34

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		13.8
LOS		B
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.95	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	338	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	5.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.976	
f_P	1.00	
On to ML Flow (pcph)	377	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	408	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	25.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.889	
f_P	1.00	
ML to Off Flow (pcph)	499	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	729	
PHF	0.94	

Location	1	2

Key

<> Express Lane (HOV)

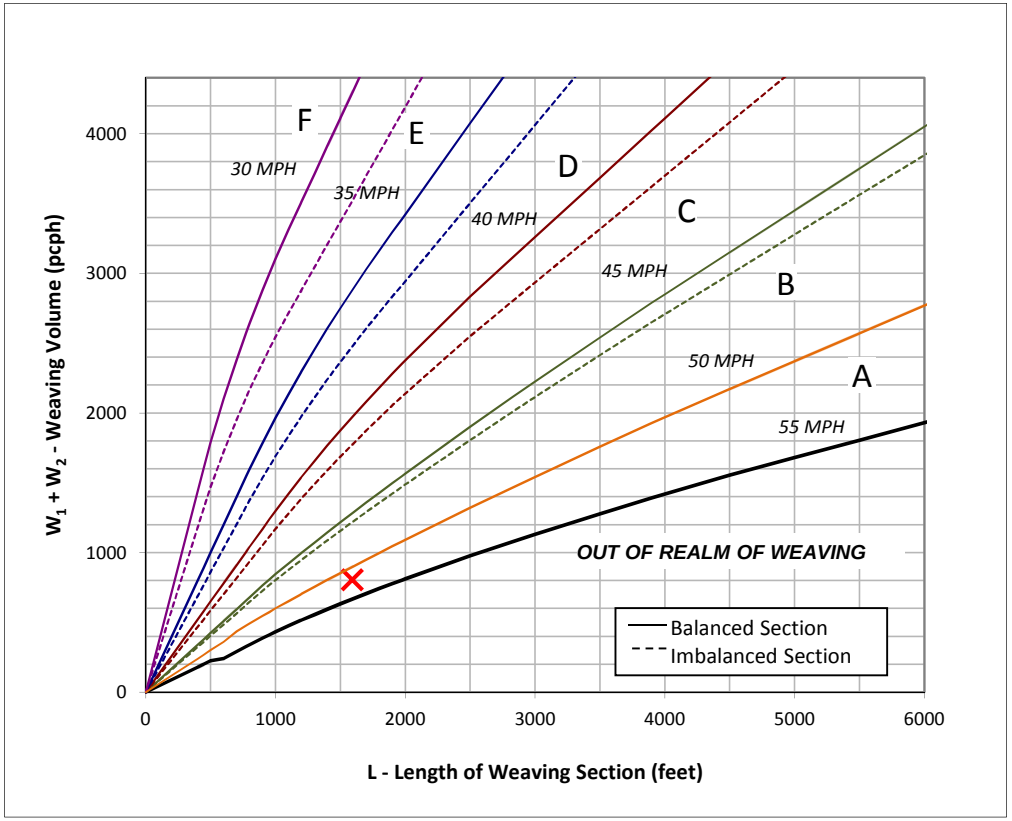
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	52.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.794	
f_P	1.00	
GP to GP Flow (pcph)	977	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	875	
Non-Weave Flow	977	
Segment Flow	1,853	
Max Weave Length	7,507	
Length Check	OK	
Ideal Weave Capacity	1,947	
f_{HV}	0.856	
f_P	0.995	
Capacity Condition 1	4,978	
Capacity Condition 2	4,327	
v/c ratio	0.36	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	875	
Weave LC Rate	1,419	
Non-Weave LC Rate 1	485	
Non-Weave LC Rate 2	1,907	
Non-Weave LC Rate 3	-2,245	
Segment LC Rate	1,904	
Weave Intensity Factor	0.261	
Weave Speed	58.6	
Non-Weave Speed	60.7	
Segment Speed	59.7	
Density	10.3	
LOS	B	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.36	0.34
Segment Density	10.3	13.8
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

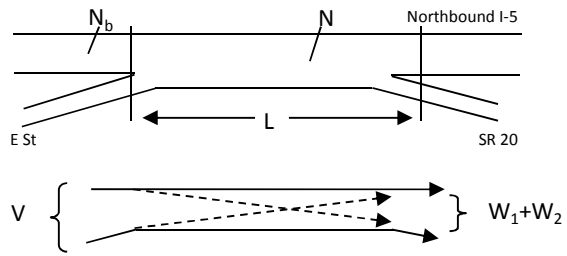
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project AM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	1,475	Volume (vph)*	338	Volume (vph)*	408
Truck Percentage	33.5%	Truck Percentage	5.0%	Truck Percentage	25.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,722	Volume (pcph)	346	Volume (pcph)	459



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   50 MPH and **55 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **52.0**
4. Weaving Intensity Factor (k) **1.00**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **574**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Freeway Segment		
Type	Weave	Merge
Length (ft)	2,590	1,500
Accel Length		600
Decel Length		
Mainline Volume	1,003	1,169
On Ramp Volume	540	298
Off Ramp Volume	374	
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,003	1,169
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	38.0%	31.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.840	0.866
f_P	1.00	1.00
Flow (pcph)	1,297	1,468
Flow (pcphpl)	649	734
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.27	0.31
Speed (mph)	70.0	70.0
Density (pcphpl)	9.3	10.5
LOS	A	A
Operations for Segment GP Lanes		
Flow (pcph)	1,902	1,824
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.40	0.38
Flow Rate (pcphpl)	951	912
Speed (mph)	70.0	70.0
Density (pcphpl)	13.6	13.0
LOS	B	B
Operations for Exiting GP Lanes		
Flow (pcph)	1,461	
Lanes	2	2
Capacity (pcph)	4,800	
v/c ratio	0.30	
Flow Rate (pcphpl)	730	
Speed (mph)	70.0	
Density (pcphpl)	10.4	
LOS	A	
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)	540	298

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	6.0%	20.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.971	0.909
f_P	1.00	1.00
Flow (pcph)	605	356
Flow Rate (pcphpl)	605	356
On Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed (mph)	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.29	0.17
Off Ramp Flow Rate		
Volume (vph)	374	
PHF	0.92	
Lanes	1	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	17.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.922	
f_P	1.00	
Flow (pcph)	441	
Flow Rate (pcphpl)	441	
Off Ramp Roadway Operations		
Ramp Type	Right	
Ramp Speed	35	
Ramp Capacity (pcph)	2,000	
Ramp v/c ratio	0.22	
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		1,468
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		0.594
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		1.000
v_{12} (pcph)		1,468
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		1,468
v_{R12a} (pcph)		1,824
Speed Index		0.29
Area Speed		61.8
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		61.8
v/c ratio		0.40

Location	1	2

Key

<> Express Lane (HOV)

Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Density		15.8
LOS		B
Diverge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)		
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		
Density		
LOS		
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)	0	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	0.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	1.000	
f_P	1.00	
On to Off Flow (pcph)	0	
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)	540	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	6.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.971	
f_P	1.00	
On to ML Flow (pcph)	605	
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)	374	
PHF	0.92	
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	17.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.922	
f_P	1.00	
ML to Off Flow (pcph)	441	
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)	629	
PHF	0.92	

Location	1	2

Key

<> Express Lane (HOV)

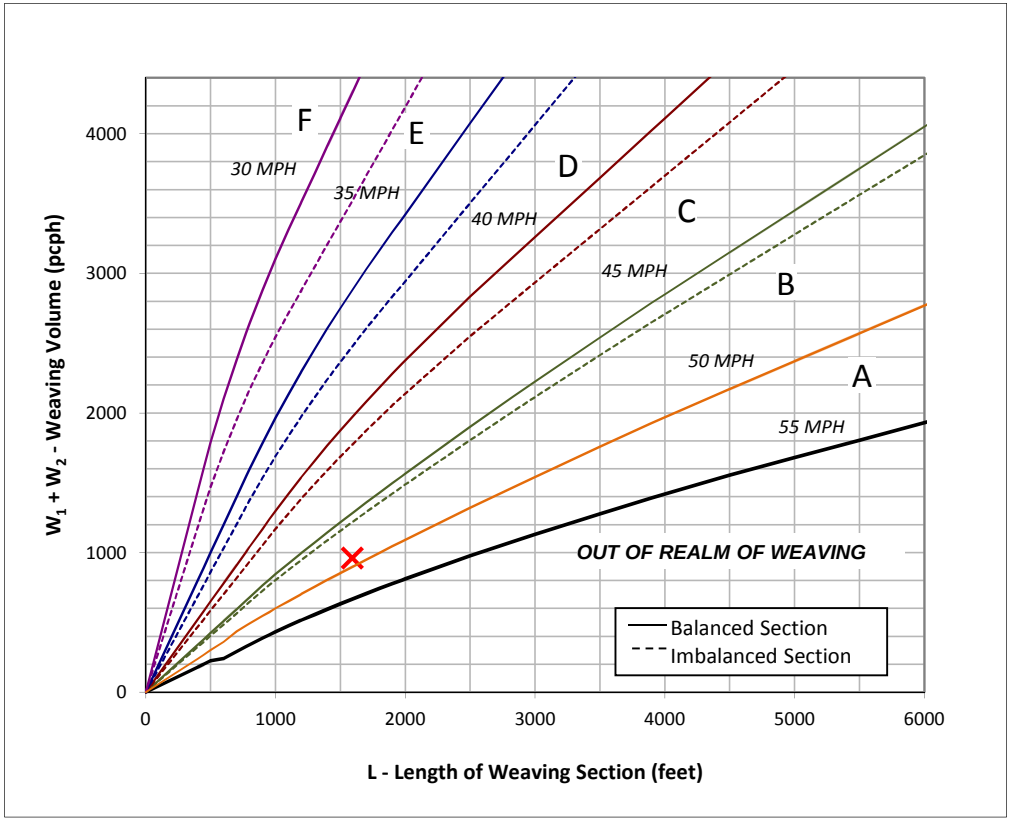
Name	E St to SR 20 Weave	I-5 On-Ramp at SR 20
Terrain	Level	
Grade %	0.0%	
Grade Length (mi)	0.00	
Truck & Bus %	51.0%	
RV %	0.0%	
E_T	1.5	
E_R	1.2	
f_{HV}	0.797	
f_P	1.00	
GP to GP Flow (pcph)	858	
Weave Segment Operations		
Type	One-sided	
Length	1,590	
Segment Lanes	3	
Weave Lanes	2	
Weave Flow (pcph)	1,046	
Non-Weave Flow	858	
Segment Flow	1,904	
Max Weave Length	8,408	
Length Check	OK	
Ideal Weave Capacity	1,878	
f_{HV}	0.881	
f_P	0.991	
Capacity Condition 1	4,919	
Capacity Condition 2	3,814	
v/c ratio	0.44	
Interchange Density	0.333	
Lane Changes On to ML	1	
Lane Changes ML to Off	1	
Lane Changes On to Off	1	
Min Lane Change Rate	1,046	
Weave LC Rate	1,589	
Non-Weave LC Rate 1	461	
Non-Weave LC Rate 2	1,880	
Non-Weave LC Rate 3	-2,279	
Segment LC Rate	2,050	
Weave Intensity Factor	0.276	
Weave Speed	58.1	
Non-Weave Speed	59.4	
Segment Speed	58.7	
Density	10.8	
LOS	B	
Leisch Method for Weaving		
Balanced?	No	
Weaving GP Lanes	3	
Weaving Length	1,590	
Summarize Segment Operations		
Segment v/c ratio	0.44	0.40
Segment Density	10.8	15.8
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

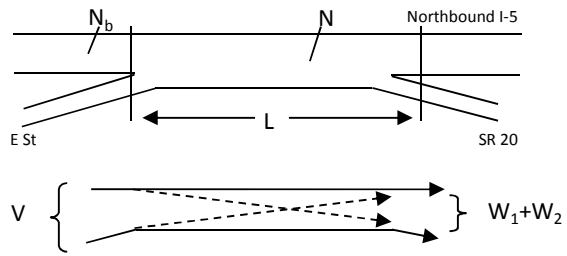
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,590

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project PM
Freeway	Northbound I-5
On-ramp	E St
Off-ramp	SR 20

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	1,543	Volume (vph)*	540	Volume (vph)*	374
Truck Percentage	26.8%	Truck Percentage	6.0%	Truck Percentage	17.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,750	Volume (pcph)	556	Volume (pcph)	406



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   45 MPH and **50 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **49.0**
4. Weaving Intensity Factor (k) **1.09**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **596**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	1,460	1,135
On Ramp Volume		256
Off Ramp Volume	325	549
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,460	1,135
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	36.0%	41.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.847	0.830
f_P	1.00	1.00
Flow (pcph)	1,873	1,487
Flow (pcphpl)	936	743
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.39	0.31
Speed (mph)	70.0	70.0
Density (pcphpl)	13.4	10.6
LOS	B	A
Operations for Segment GP Lanes		
Flow (pcph)		1,805
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.38
Flow Rate (pcphpl)		903
Speed (mph)		70.0
Density (pcphpl)		12.9
LOS		B
Operations for Exiting GP Lanes		
Flow (pcph)	1,488	1,188
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.31	0.25
Flow Rate (pcphpl)	744	594
Speed (mph)	70.0	70.0
Density (pcphpl)	10.6	8.5
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		256

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.92
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		29.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.873
f_P		1.00
Flow (pcph)		319
Flow Rate (pcphpl)		319
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.15
Off Ramp Flow Rate		
Volume (vph)	325	549
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	18.0%	7.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.917	0.966
f_P	1.00	1.00
Flow (pcph)	385	618
Flow Rate (pcphpl)	385	618
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.18	0.29
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	1,873	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.695	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	1,873	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	1,873	
Speed Index	0.33	
Area Speed	60.7	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	60.7	
v/c ratio	0.43	
Density	18.5	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		256
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		29.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.873
f_P		1.00
On to ML Flow (pcph)		319
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		549
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		7.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.966
f_P		1.00
ML to Off Flow (pcph)		618
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		586
PHF		0.92

Location	1	2

Key

<> Express Lane (HOV)

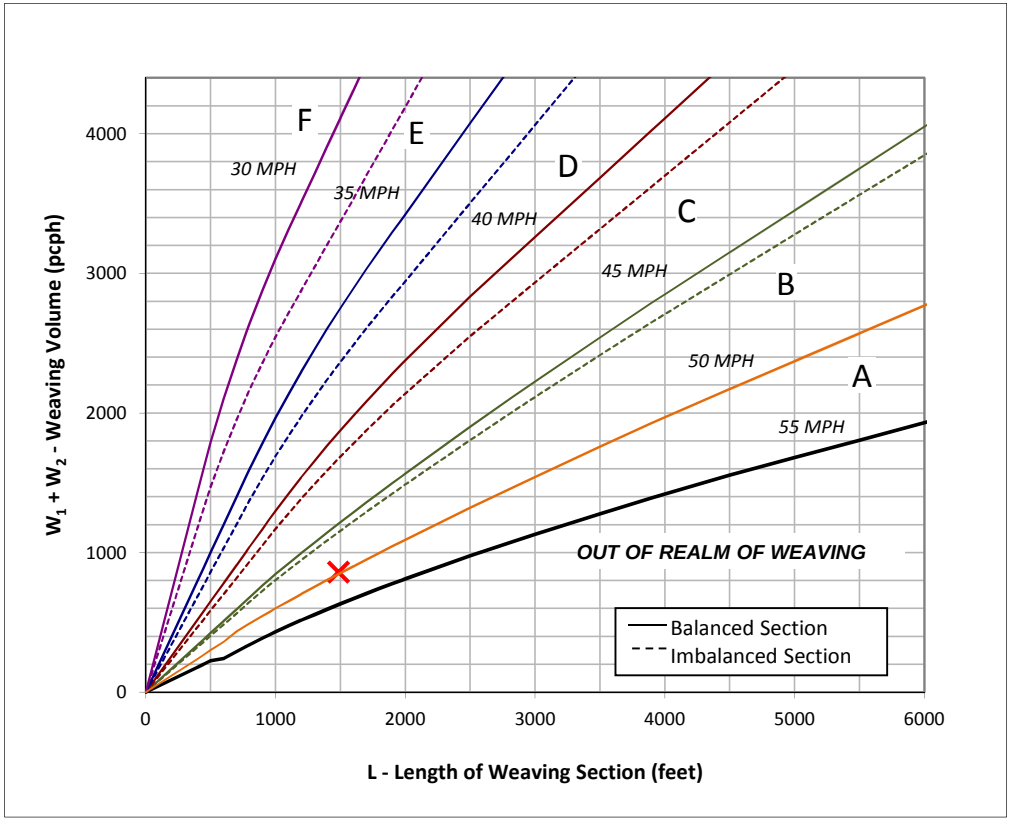
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		73.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.733
f_P		1.00
GP to GP Flow (pcph)		869
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		936
Non-Weave Flow		869
Segment Flow		1,806
Max Weave Length		8,043
Length Check		OK
Ideal Weave Capacity		1,898
f_{HV}		0.837
f_P		0.978
Capacity Condition 1		4,662
Capacity Condition 2		3,789
v/c ratio		0.39
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		936
Weave LC Rate		1,439
Non-Weave LC Rate 1		406
Non-Weave LC Rate 2		1,883
Non-Weave LC Rate 3		-2,450
Segment LC Rate		1,845
Weave Intensity Factor		0.268
Weave Speed		58.4
Non-Weave Speed		60.4
Segment Speed		59.3
Density		10.1
LOS		B
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.43	0.39
Segment Density	18.5	10.1
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

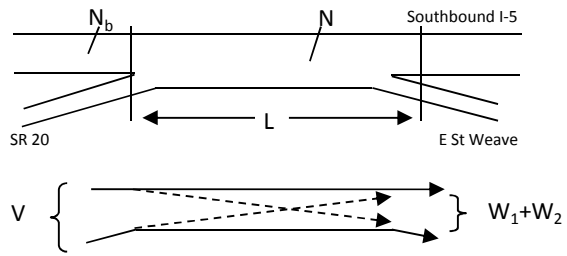
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project AM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St Weave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	1,391	Volume (vph)*	256	Volume (vph)*	549
Truck Percentage	38.8%	Truck Percentage	29.0%	Truck Percentage	7.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,661	Volume (pcph)	293	Volume (pcph)	568



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   45 MPH and **50 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **49.7**
4. Weaving Intensity Factor (k) **1.00**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **554**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Freeway Segment		
Type	Diverge	Weave
Length (ft)	1,500	2,485
Accel Length		
Decel Length	210	
Mainline Volume	1,284	1,059
On Ramp Volume		415
Off Ramp Volume	225	463
Express Lane Volume		
EL On Ramp Volume		
EL Off Ramp Volume		
Flow Rate in Entering General Purpose Lanes (GP)		
Volume (vph)	1,284	1,059
PHF	0.92	0.92
Lanes	2	2
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	30.0%	33.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.870	0.858
f_P	1.00	1.00
Flow (pcph)	1,605	1,341
Flow (pcphpl)	803	671
Free Flow Speed in Entering GP Lanes		
Lane Width (ft)		
Shoulder Width		
TRD		
f_{LW}		
f_{LC}		
Calculated FFS		
Measured FFS	70.0	70.0
FFS Curve	70	70
Operations in Entering GP Lanes		
Capacity (pcph)	4,800	4,800
v/c ratio	0.33	0.28
Speed (mph)	70.0	70.0
Density (pcphpl)	11.5	9.6
LOS	B	A
Operations for Segment GP Lanes		
Flow (pcph)		1,830
Lanes	2	2
Capacity (pcph)		4,800
v/c ratio		0.38
Flow Rate (pcphpl)		915
Speed (mph)		70.0
Density (pcphpl)		13.1
LOS		B
Operations for Exiting GP Lanes		
Flow (pcph)	1,343	1,312
Lanes	2	2
Capacity (pcph)	4,800	4,800
v/c ratio	0.28	0.27
Flow Rate (pcphpl)	672	656
Speed (mph)	70.0	70.0
Density (pcphpl)	9.6	9.4
LOS	A	A
Flow Rate in Express Lanes		
Operations in Express Lanes		
On Ramp Flow Rate		
Volume (vph)		415

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
PHF		0.92
Lanes		1
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		17.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.922
f_P		1.00
Flow (pcph)		489
Flow Rate (pcphpl)		489
On Ramp Roadway Operations		
Ramp Type		Right
Ramp Speed (mph)		45
Ramp Capacity (pcph)		2,100
Ramp v/c ratio		0.23
Off Ramp Flow Rate		
Volume (vph)	225	463
PHF	0.92	0.92
Lanes	1	1
Terrain	Level	Level
Grade %	0.0%	0.0%
Grade Length (mi)	0.00	0.00
Truck & Bus %	14.0%	6.0%
RV %	0.0%	0.0%
E_T	1.5	1.5
E_R	1.2	1.2
f_{HV}	0.935	0.971
f_P	1.00	1.00
Flow (pcph)	262	518
Flow Rate (pcphpl)	262	518
Off Ramp Roadway Operations		
Ramp Type	Right	Right
Ramp Speed	45	45
Ramp Capacity (pcph)	2,100	2,100
Ramp v/c ratio	0.12	0.25
Adjacent Ramp for Three-Lane Mainline Segments with One-Lane Ramps		
Up Type		
Up Distance		
Up Flow (pcph)		
Down Type		
Down Distance		
Down Flow (pcph)		
Merge Influence Area Operations		
Effective v_P (pcph)		
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FM} (Eqn 13-3)		
P_{FM} (Eqn 13-4)		
P_{FM} (Eqn 13-5)		
P_{FM}		
v_{12} (pcph)		
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)		
v_{R12a} (pcph)		
Speed Index		
Area Speed		
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed		
v/c ratio		

Location	1	2

Key

<> Express Lane (HOV)

Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Density		
LOS		
Diverge Influence Area Operations		
Effective v_P (pcph)	1,605	
Up Ramp L_{EQ}		
Down Ramp L_{EQ}		
P_{FD} (Eqn 13-9)	0.708	
P_{FD} (Eqn 13-10)		
P_{FD} (Eqn 13-11)		
P_{FD}	1.000	
v_{12} (pcph)	1,605	
v_3 (pcph)		
v_{34} (pcph)		
v_{12a} (pcph)	1,605	
Speed Index	0.32	
Area Speed	61.0	
Outer Lanes Volume		
Outer Lanes Speed		
Segment Speed	61.0	
v/c ratio	0.36	
Density	16.2	
LOS	B	
On Ramp to Off Ramp Flow Rate for Weave Segments		
On to Off Volume (vph)		0
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		0.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		1.000
f_P		1.00
On to Off Flow (pcph)		0
On Ramp to Mainline Flow Rate for Weave Segments		
On to ML Volume (vph)		415
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		17.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.922
f_P		1.00
On to ML Flow (pcph)		489
Mainline to Off Ramp Flow Rate for Weave Segments		
ML to Off Volume (vph)		463
PHF		0.92
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		6.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.971
f_P		1.00
ML to Off Flow (pcph)		518
General Purpose Lanes to General Purpose Lanes Flow Rate for Weave Segmer		
GP to GP Volume (vph)		596
PHF		0.92

Location	1	2

Key

<> Express Lane (HOV)

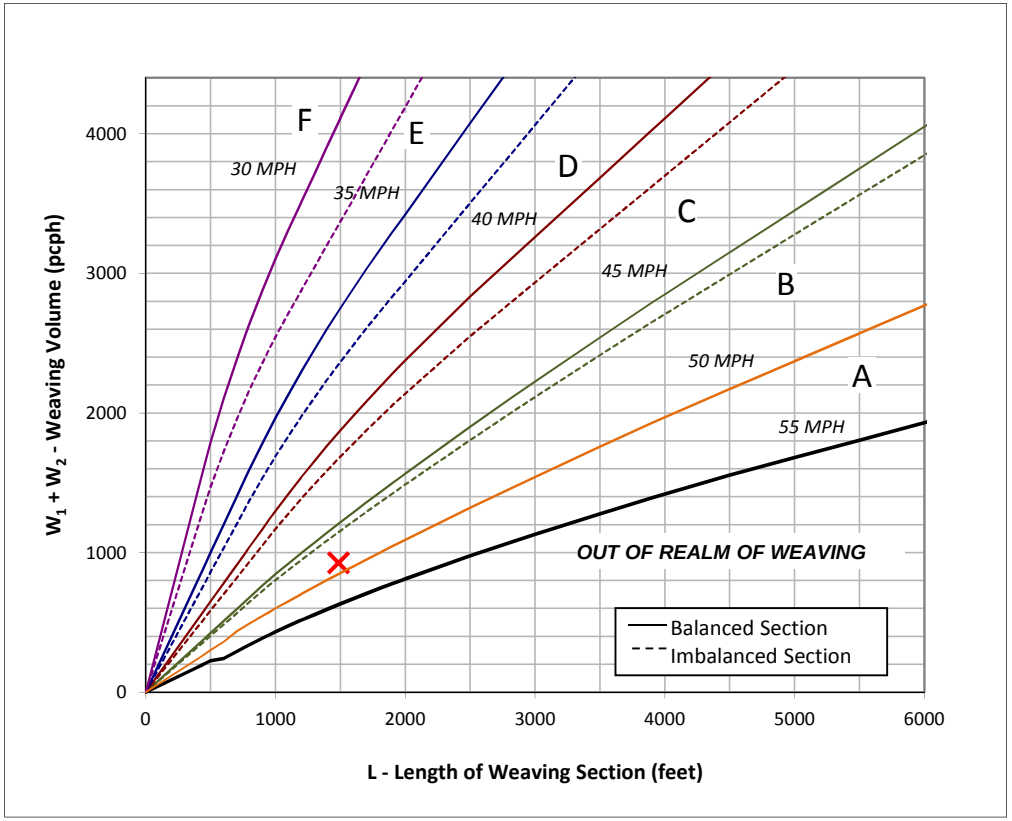
Name	I-5 Off-Ramp at SR 20	SR 20 to E St Weave
Terrain		Level
Grade %		0.0%
Grade Length (mi)		0.00
Truck & Bus %		54.0%
RV %		0.0%
E_T		1.5
E_R		1.2
f_{HV}		0.787
f_P		1.00
GP to GP Flow (pcph)		823
Weave Segment Operations		
Type		One-sided
Length		1,485
Segment Lanes		3
Weave Lanes		2
Weave Flow (pcph)		1,008
Non-Weave Flow		823
Segment Flow		1,831
Max Weave Length		8,423
Length Check		OK
Ideal Weave Capacity		1,869
f_{HV}		0.875
f_P		0.979
Capacity Condition 1		4,805
Capacity Condition 2		3,736
v/c ratio		0.42
Interchange Density		0.333
Lane Changes On to ML		1
Lane Changes ML to Off		1
Lane Changes On to Off		1
Min Lane Change Rate		1,008
Weave LC Rate		1,510
Non-Weave LC Rate 1		397
Non-Weave LC Rate 2		1,872
Non-Weave LC Rate 3		-2,463
Segment LC Rate		1,907
Weave Intensity Factor		0.275
Weave Speed		58.1
Non-Weave Speed		59.8
Segment Speed		58.9
Density		10.4
LOS		B
Leisch Method for Weaving		
Balanced?		
Weaving GP Lanes	0	
Weaving Length		
Summarize Segment Operations		
Segment v/c ratio	0.36	0.42
Segment Density	16.2	10.4
Segment LOS	B	B
Over Capacity		

Leisch Method for Weaving Analysis

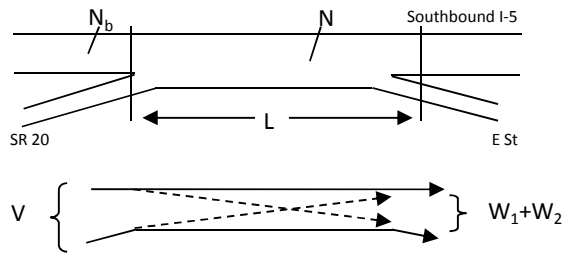
Data Input		
Number of Entering Mainline Lanes	N_b	2
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	1,485

Project Information	
Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project PM
Freeway	Southbound I-5
On-ramp	SR 20
Off-ramp	E St

	Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)
Volume (vph)*	1,474	Volume (vph)*	415	Volume (vph)*	463
Truck Percentage	28.5%	Truck Percentage	17.0%	Truck Percentage	6.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	1,684	Volume (pcph)	450	Volume (pcph)	477



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**

   If optional exit lane, then "Y". Otherwise "N".

2. In the chart to the left, which two speed curves is the red "x" between?

   45 MPH and **50 MPH**

   If left of the 30 MPH curve, LOS is F. Select "-".

   If below the 55 MPH curve, out of the realm of weaving.

3. Interpolated Weaving Speed (S_w, mph) **48.6**
4. Weaving Intensity Factor (k) **1.15**
5. Service Volume (SV, pcph)

   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **584**

6. Level of Service (LOS) **A**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections* , Jack E. Leisch & Associates, September 1983 and *Highway Design Manual* , California Department of Transportation, 2014

APPENDIX C:
SIGNAL WARRANT ANALYSES

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 SB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	6	0	68
Through	0	1	101	140
Right	0	62	56	0
Total	0	69	157	208

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	2.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	69

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**0.1**	**69**	**434**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Conditions
Minor Street	I-5 SB Ramps	Peak Hour	AM

Turn Movement Volumes

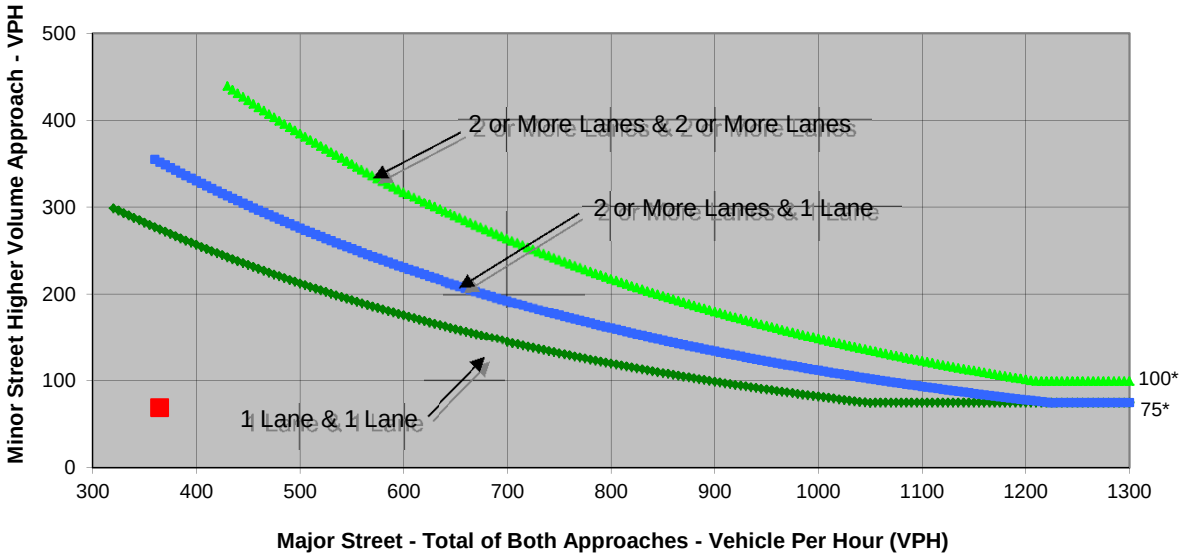
	NB	SB	EB	WB
Left	0	6	0	68
Through	0	1	101	140
Right	0	62	56	0
Total	0	69	157	208

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**365**	**69**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	61	0	31	0
Through	1	0	76	147
Right	59	0	0	7
Total	121	0	107	154

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	4.3
Approach with Worst Case Delay	NB
Total Vehicles on Approach	121

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Conditions	**0.1**	**121**	**382**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 NB Ramps	Scenario	Existing Conditions
		Peak Hour	AM

Turn Movement Volumes

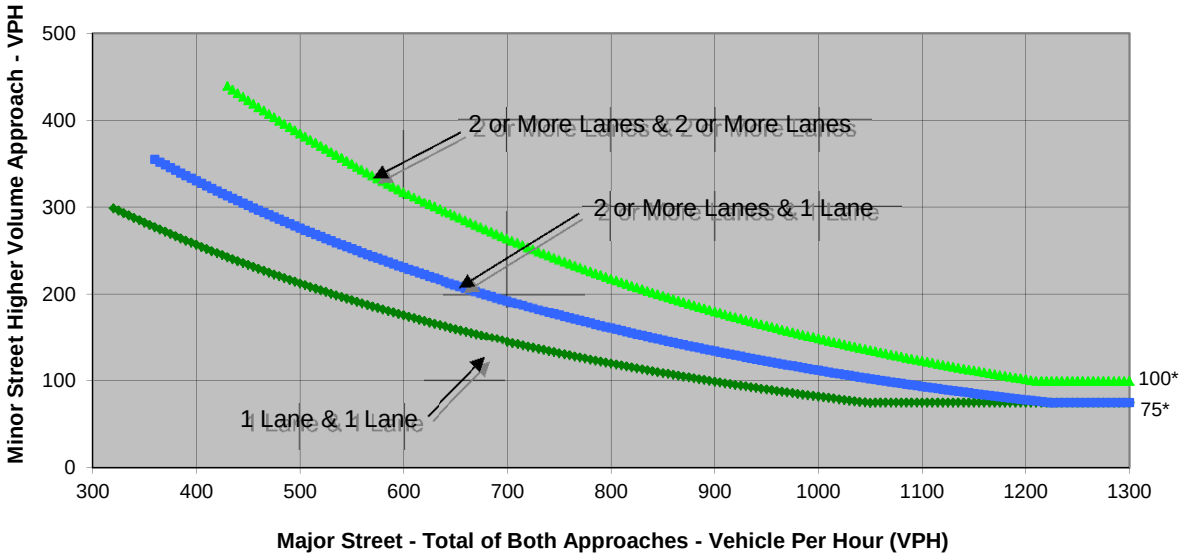
	NB	SB	EB	WB
Left	61	0	31	0
Through	1	0	76	147
Right	59	0	0	7
Total	121	0	107	154

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**261**	**121**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	1	14	2	71
Through	7	10	133	148
Right	99	5	0	11
Total	107	29	135	230

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	7.8
Approach with Worst Case Delay	SB
Total Vehicles on Approach	29

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**0.1**	**107**	**501**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Conditions
Minor Street	Husted Rd/Freshwater Rd	Peak Hour	AM

Turn Movement Volumes

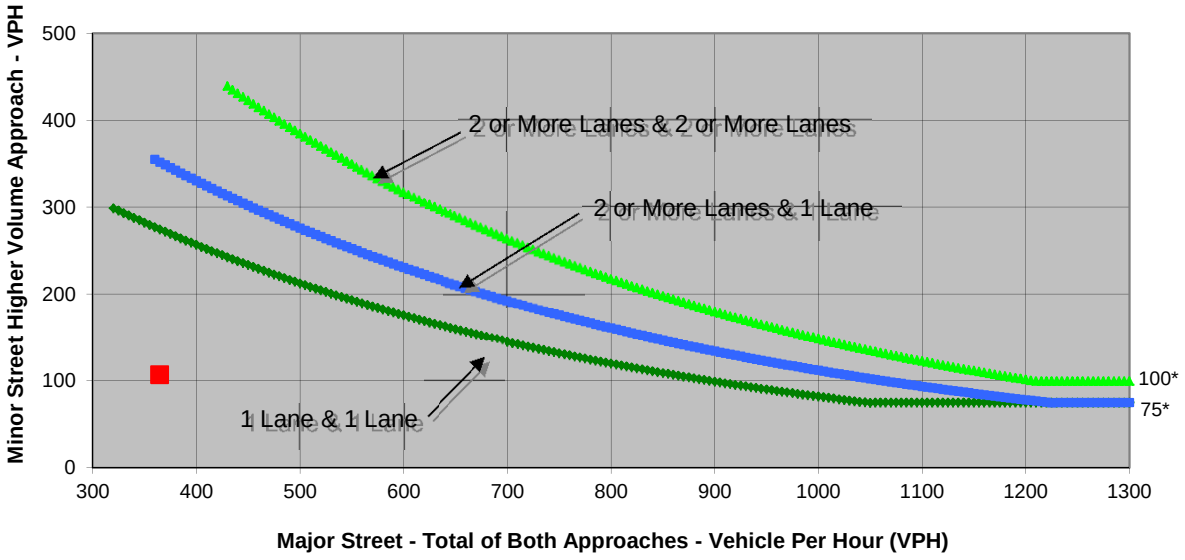
	NB	SB	EB	WB
Left	1	14	2	71
Through	7	10	133	148
Right	99	5	0	11
Total	107	29	135	230

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**365**	**107**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 SB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	7	0	62
Through	0	1	161	187
Right	0	43	113	0
Total	0	51	274	249

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	2.7
Approach with Worst Case Delay	SB
Total Vehicles on Approach	51

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Conditions	**0**	**51**	**574**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Existing Conditions
		Peak Hour	PM

Turn Movement Volumes

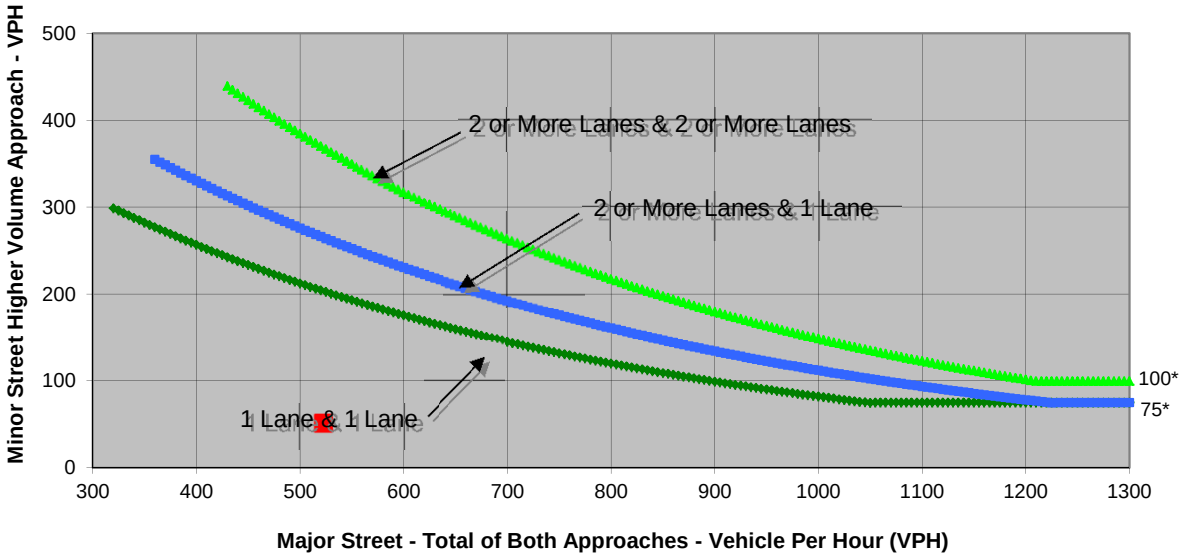
	NB	SB	EB	WB
Left	0	7	0	62
Through	0	1	161	187
Right	0	43	113	0
Total	0	51	274	249

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**523**	**51**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	83	0	48	0
Through	2	0	120	166
Right	54	0	0	9
Total	139	0	168	175

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	5.2
Approach with Worst Case Delay	NB
Total Vehicles on Approach	139

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Conditions	**0.2**	**139**	**482**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Conditions
Minor Street	I-5 NB Ramps	Peak Hour	PM

Turn Movement Volumes

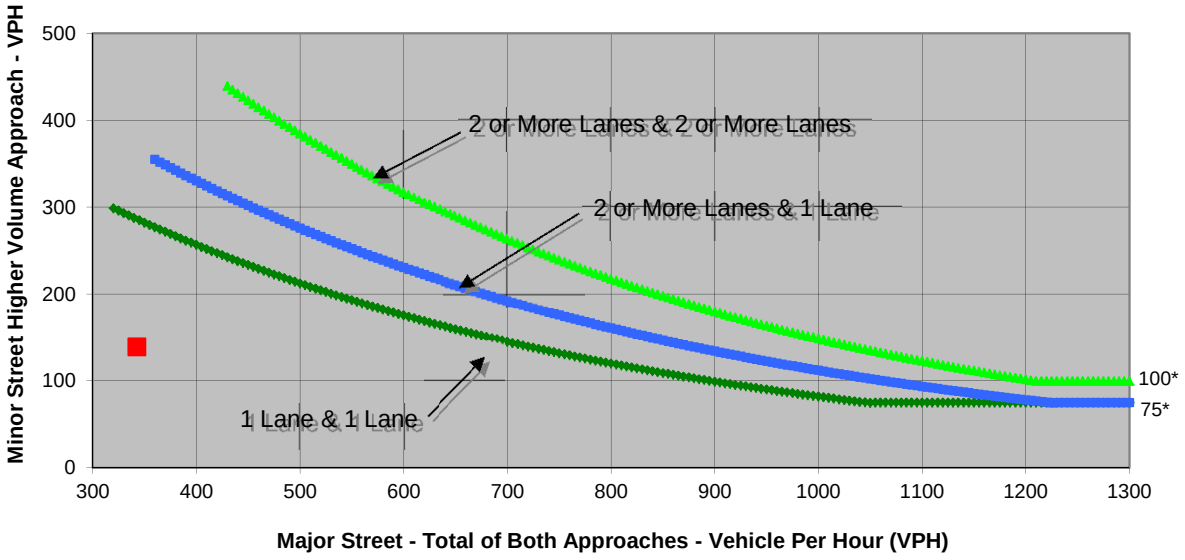
	NB	SB	EB	WB
Left	83	0	48	0
Through	2	0	120	166
Right	54	0	0	9
Total	139	0	168	175

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**343**	**139**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Conditions
Peak Hour	PM

Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Turn Movement Volumes

	NB	SB	EB	WB
Left	2	11	1	90
Through	4	5	172	171
Right	116	2	1	5
Total	122	18	174	266

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	5.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	18

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Conditions	**0**	**122**	**580**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	Husted Rd/Freshwater Rd	Scenario	Existing Conditions
		Peak Hour	PM

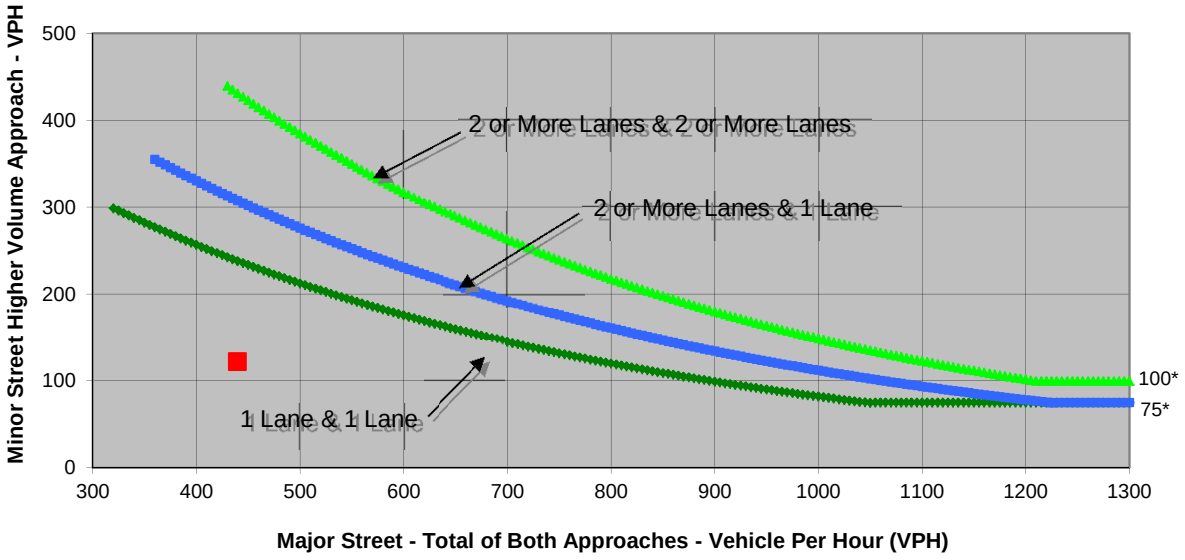
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	11	1	90
Through	4	5	172	171
Right	116	2	1	5
Total	122	18	174	266

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**440**	**122**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Major Street	SR 20
Minor Street	I-5 SB Ramps

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	41	0	100
Through	0	1	101	140
Right	0	62	56	0
Total	0	104	157	240

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	5
Approach with Worst Case Delay	SB
Total Vehicles on Approach	104

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0.1**	**104**	**501**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Existing Plus Project Conditions
		Peak Hour	AM

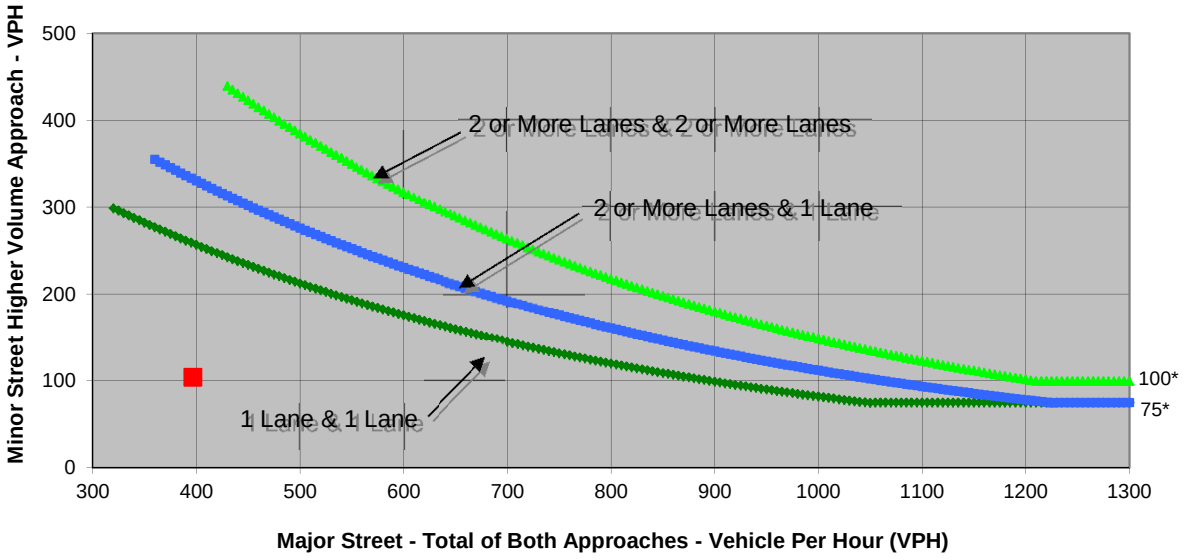
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	41	0	100
Through	0	1	101	140
Right	0	62	56	0
Total	0	104	157	240

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**397**	**104**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	61	0	31	0
Through	1	0	111	179
Right	124	0	0	65
Total	186	0	142	244

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	6.5
Approach with Worst Case Delay	NB
Total Vehicles on Approach	186

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0.3**	**186**	**572**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 NB Ramps	Scenario	Existing Plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

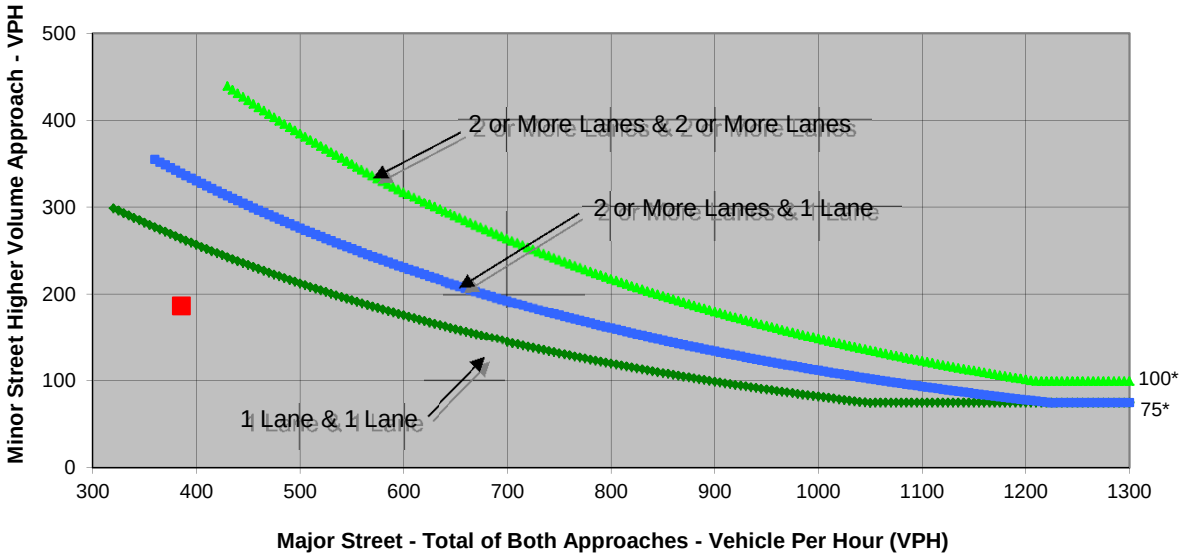
	NB	SB	EB	WB
Left	61	0	31	0
Through	1	0	111	179
Right	124	0	0	65
Total	186	0	142	244

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**386**	**186**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	AM
Major Street	SR 20
Minor Street	Margurite Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	105	0	0	20
Through	0	0	121	139
Right	19	0	114	0
Total	124	0	235	159

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	6.1
Approach with Worst Case Delay	NB
Total Vehicles on Approach	124

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0.2**	**124**	**518**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Plus Project Conditions
Minor Street	Margurite Street	Peak Hour	AM

Turn Movement Volumes

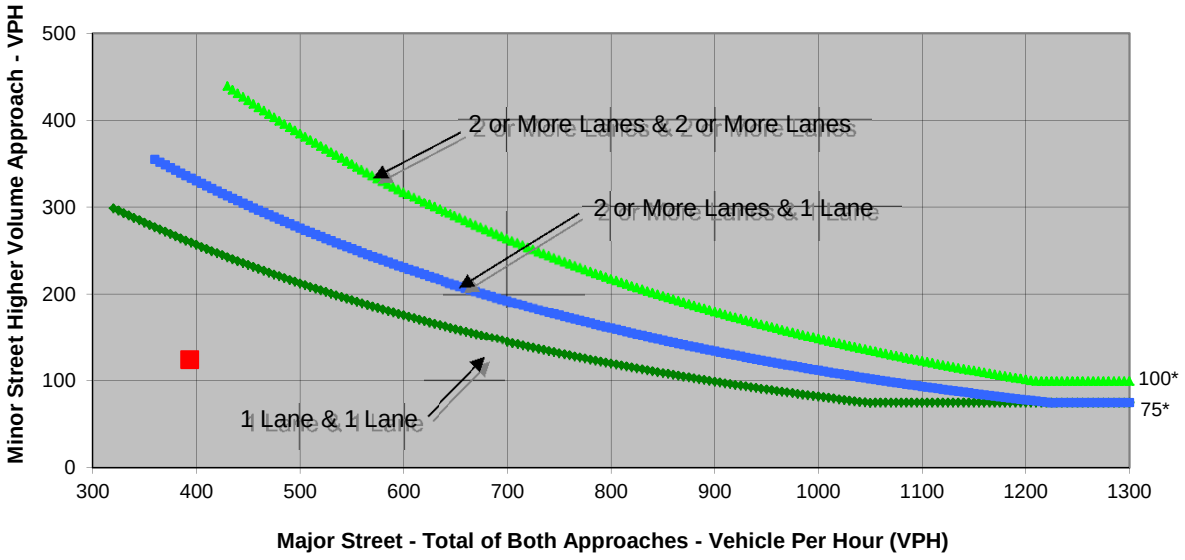
	NB	SB	EB	WB
Left	105	0	0	20
Through	0	0	121	139
Right	19	0	114	0
Total	124	0	235	159

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**NO**
Traffic Volume (VPH) *	**394**	**124**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	AM
Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Turn Movement Volumes

	NB	SB	EB	WB
Left	2	14	2	71
Through	7	10	137	152
Right	99	5	1	11
Total	108	29	140	234

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	6.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	29

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0.1**	**108**	**511**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Plus Project Conditions
Minor Street	Husted Rd/Freshwater Rd	Peak Hour	AM

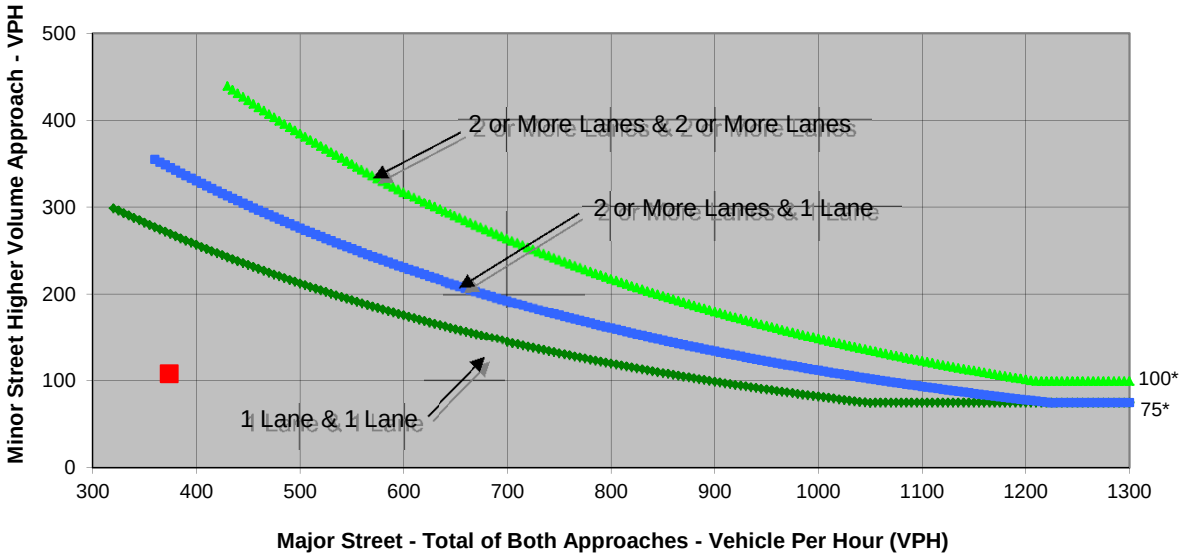
Turn Movement Volumes

	NB	SB	EB	WB
Left	2	14	2	71
Through	7	10	137	152
Right	99	5	1	11
Total	108	29	140	234

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**374**	**108**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 SB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	52	0	104
Through	0	1	161	187
Right	0	43	113	0
Total	0	96	274	291

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	5.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	96

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**0.2**	**96**	**661**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Existing Plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

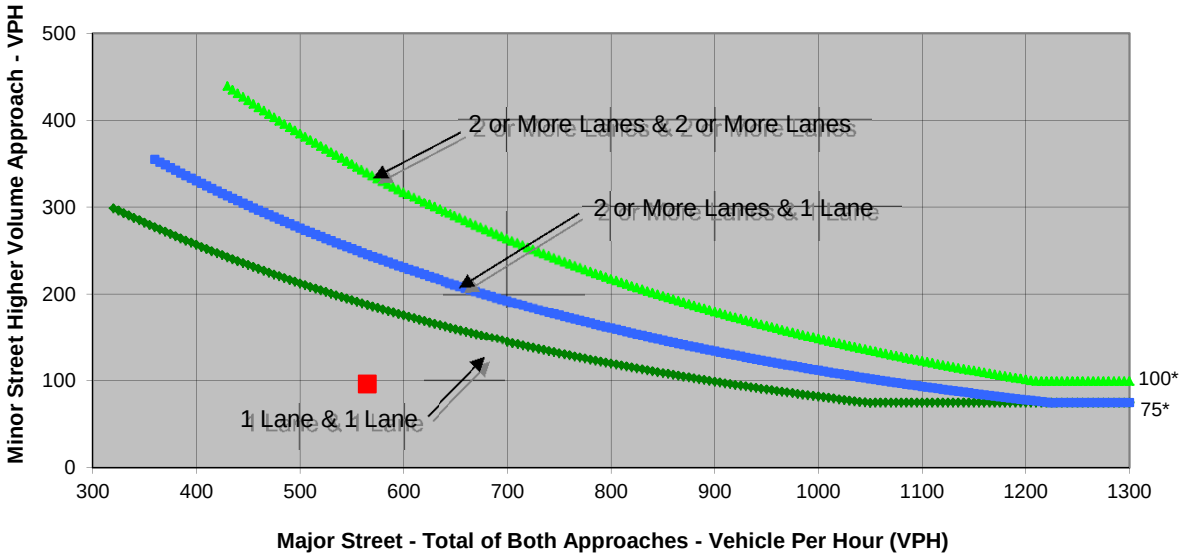
	NB	SB	EB	WB
Left	0	52	0	104
Through	0	1	161	187
Right	0	43	113	0
Total	0	96	274	291

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**565**	**96**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	83	0	48	0
Through	2	0	165	208
Right	137	0	0	88
Total	222	0	213	296

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	7
Approach with Worst Case Delay	NB
Total Vehicles on Approach	222

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**0.4**	**222**	**731**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Plus Project Conditions
Minor Street	I-5 NB Ramps	Peak Hour	PM

Turn Movement Volumes

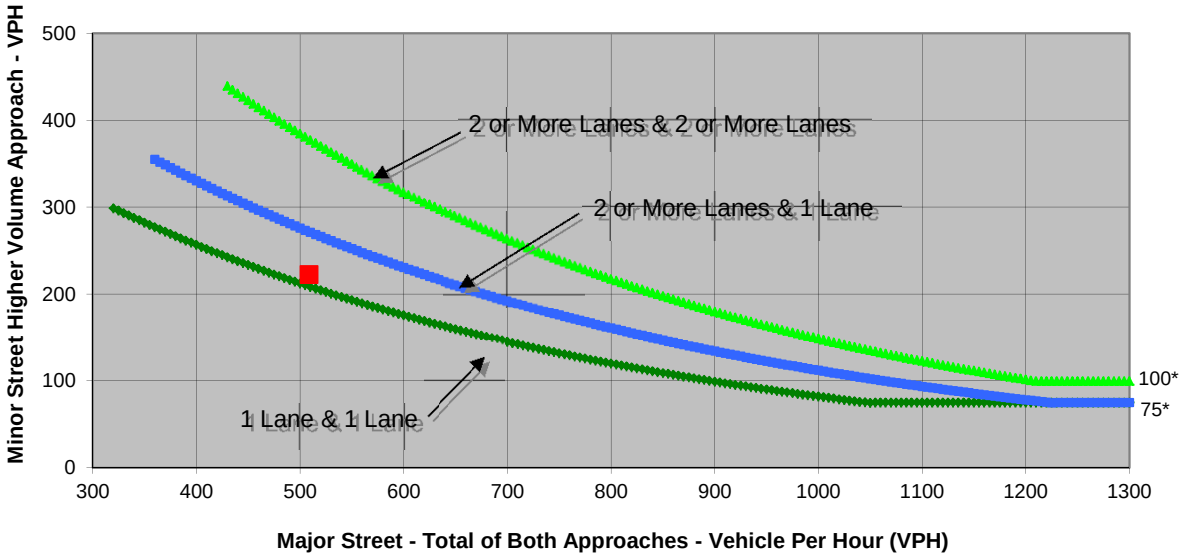
	NB	SB	EB	WB
Left	83	0	48	0
Through	2	0	165	208
Right	137	0	0	88
Total	222	0	213	296

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**509**	**222**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Margurite Street

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	141	0	0	26
Through	0	0	155	155
Right	25	0	147	0
Total	166	0	302	181

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	6.3
Approach with Worst Case Delay	NB
Total Vehicles on Approach	166

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0.3**	**166**	**649**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Existing Plus Project Conditions
Minor Street	Margurite Street	Peak Hour	PM

Turn Movement Volumes

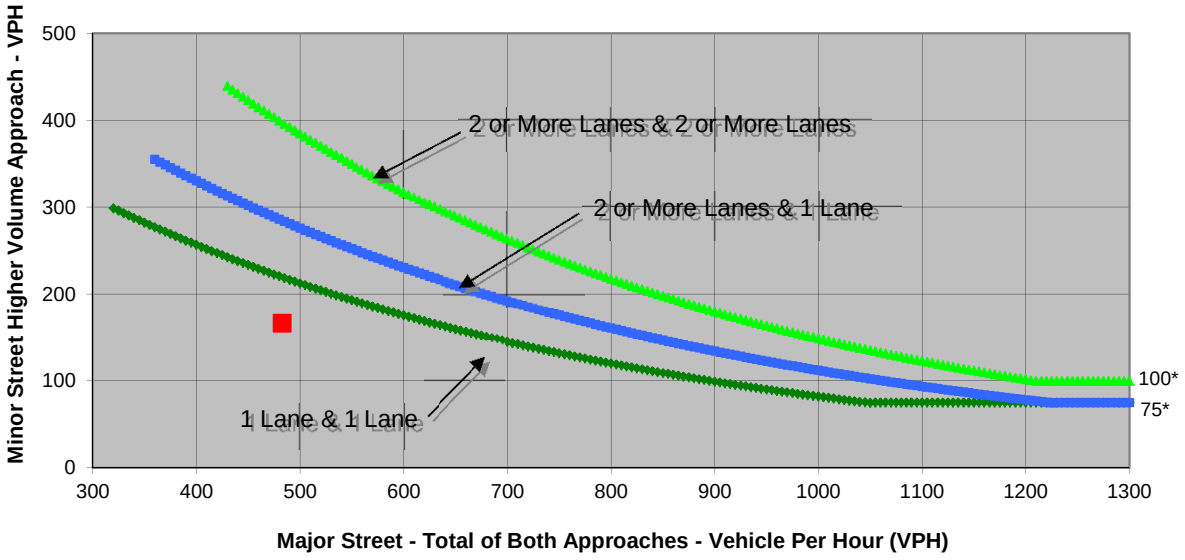
	NB	SB	EB	WB
Left	141	0	0	26
Through	0	0	155	155
Right	25	0	147	0
Total	166	0	302	181

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**NO**
Traffic Volume (VPH) *	**483**	**166**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Existing Plus Project Conditions
Peak Hour	PM
Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Turn Movement Volumes

	NB	SB	EB	WB
Left	3	11	1	90
Through	4	5	177	176
Right	116	2	2	5
Total	123	18	180	271

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	6.3
Approach with Worst Case Delay	SB
Total Vehicles on Approach	18

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing Plus Project Conditions	**0**	**123**	**592**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Not Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	Husted Rd/Freshwater Rd	Scenario	Existing Plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

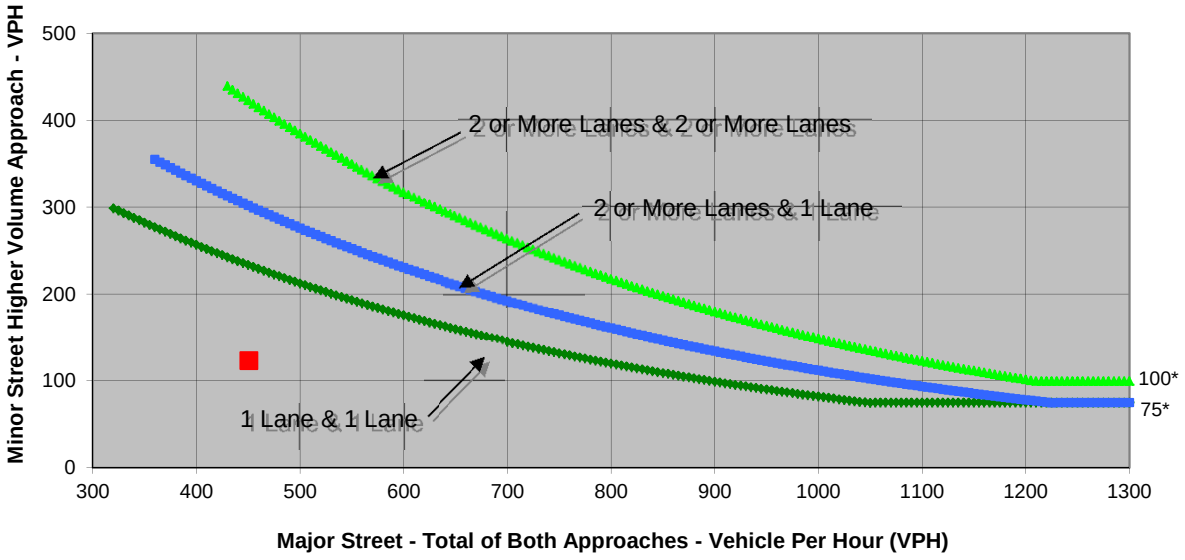
	NB	SB	EB	WB
Left	3	11	1	90
Through	4	5	177	176
Right	116	2	2	5
Total	123	18	180	271

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**1**	**1**	**NO**
Traffic Volume (VPH) *	**451**	**123**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project
Peak Hour	AM

Major Street	SR 20
Minor Street	I-5 SB Ramps

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	160	0	110
Through	0	20	180	240
Right	0	110	100	0
Total	0	290	280	350

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	13.2
Approach with Worst Case Delay	SB
Total Vehicles on Approach	290

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project	**1.1**	**290**	**920**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project
Minor Street	I-5 SB Ramps	Peak Hour	AM

Turn Movement Volumes

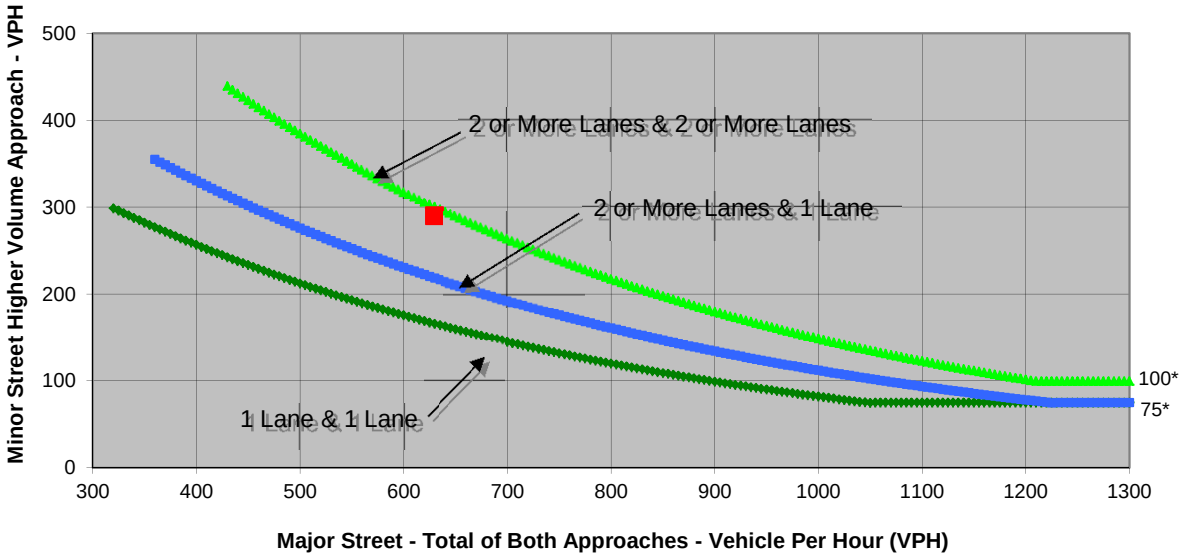
	NB	SB	EB	WB
Left	0	160	0	110
Through	0	20	180	240
Right	0	110	100	0
Total	0	290	280	350

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**630**	**290**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	110	0	40	0
Through	10	0	300	240
Right	230	0	0	60
Total	350	0	340	300

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	18.5
Approach with Worst Case Delay	NB
Total Vehicles on Approach	350

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project Conditions	**1.8**	**350**	**990**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 NB Ramps	Scenario	Cumulative No Project Conditions
		Peak Hour	AM

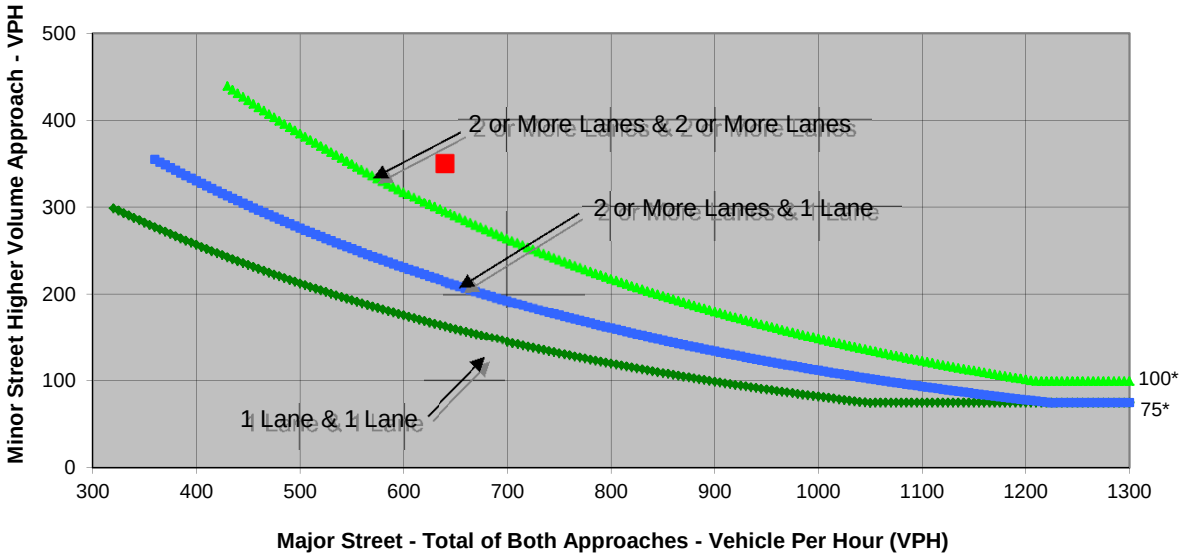
Turn Movement Volumes

	NB	SB	EB	WB
Left	110	0	40	0
Through	10	0	300	240
Right	230	0	0	60
Total	350	0	340	300

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**640**	**350**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	AM
Major Street	SR 20
Minor Street	Margurite Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	70	0	0	60
Through	0	0	320	230
Right	50	0	210	0
Total	120	0	530	290

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	5.5
Approach with Worst Case Delay	NB
Total Vehicles on Approach	120

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project Conditions	**0.2**	**120**	**940**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project Conditions
Minor Street	Margurite Street	Peak Hour	AM

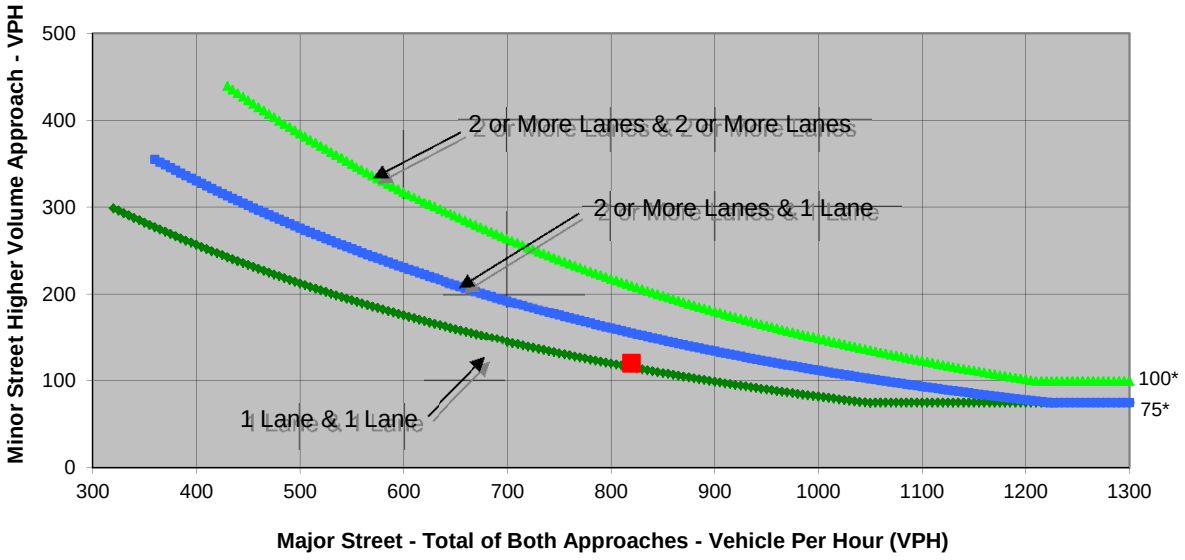
Turn Movement Volumes

	NB	SB	EB	WB
Left	70	0	0	60
Through	0	0	320	230
Right	50	0	210	0
Total	120	0	530	290

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**NO**
Traffic Volume (VPH) *	**820**	**120**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	AM

Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Turn Movement Volumes

	NB	SB	EB	WB
Left	10	40	80	120
Through	110	90	270	260
Right	220	20	20	60
Total	340	150	370	440

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	43.7
Approach with Worst Case Delay	NB
Total Vehicles on Approach	340

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project Conditions	**4.1**	**340**	**1,300**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project Conditions
Minor Street	Husted Rd/Freshwater Rd	Peak Hour	AM

Turn Movement Volumes

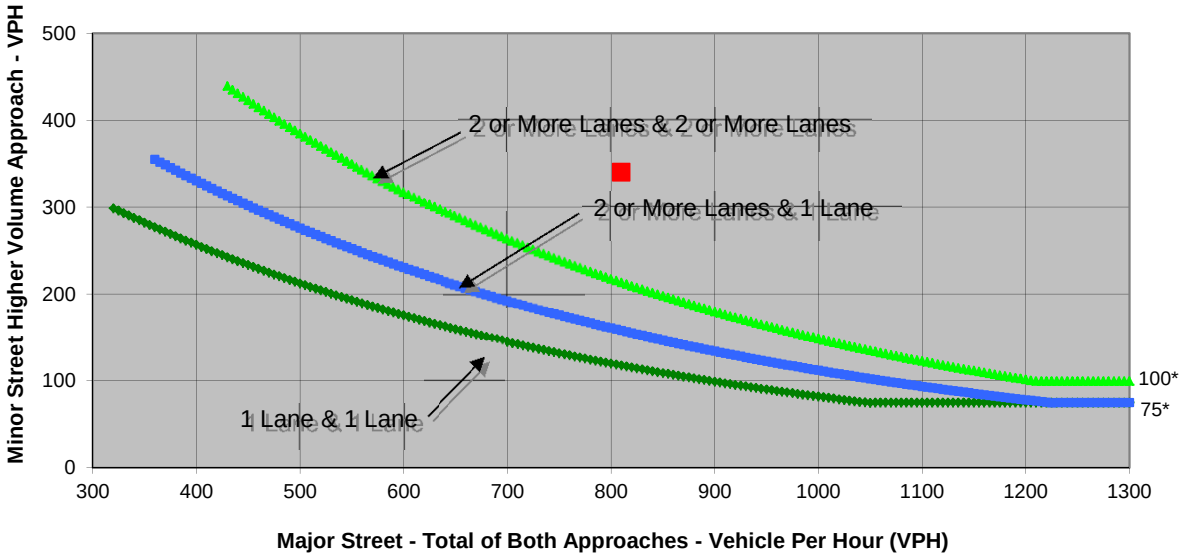
	NB	SB	EB	WB
Left	10	40	80	120
Through	110	90	270	260
Right	220	20	20	60
Total	340	150	370	440

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**810**	**340**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	PM

Major Street	SR 20
Minor Street	I-5 SB Ramps

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	100	0	200
Through	0	10	270	330
Right	0	70	170	0
Total	0	180	440	530

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	17.9
Approach with Worst Case Delay	SB
Total Vehicles on Approach	180

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project Conditions	**0.9**	**180**	**1,150**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Cumulative No Project Conditions
		Peak Hour	PM

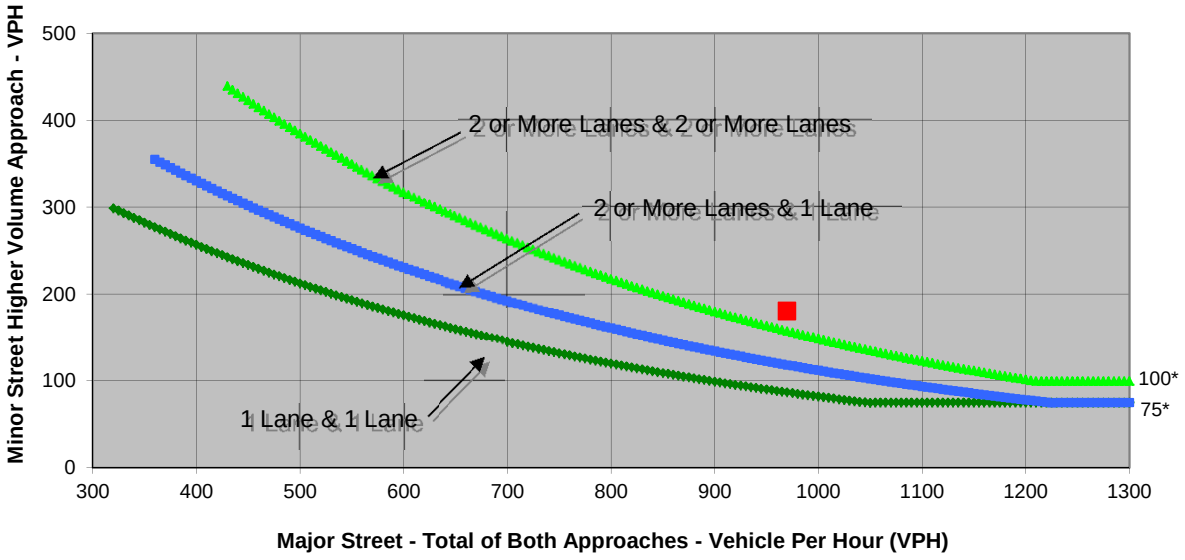
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	100	0	200
Through	0	10	270	330
Right	0	70	170	0
Total	0	180	440	530

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**970**	**180**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	150	0	90	0
Through	10	0	280	380
Right	140	0	0	120
Total	300	0	370	500

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	14.9
Approach with Worst Case Delay	NB
Total Vehicles on Approach	300

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project Conditions	**1.2**	**300**	**1,170**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project Conditions
Minor Street	I-5 NB Ramps	Peak Hour	PM

Turn Movement Volumes

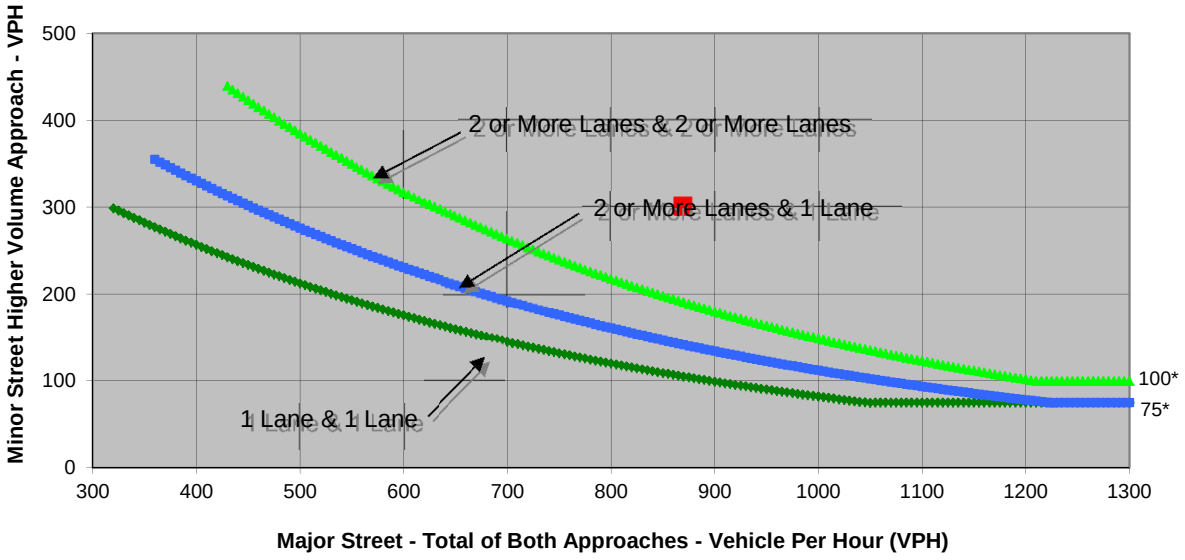
	NB	SB	EB	WB
Left	150	0	90	0
Through	10	0	280	380
Right	140	0	0	120
Total	300	0	370	500

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**870**	**300**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	PM

Major Street	SR 20
Minor Street	Margurite Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	200	0	0	50
Through	0	0	320	300
Right	60	0	100	0
Total	260	0	420	350

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	8.6
Approach with Worst Case Delay	NB
Total Vehicles on Approach	260

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative No Project Conditions	**0.6**	**260**	**1,030**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project Conditions
Minor Street	Margurite Street	Peak Hour	PM

Turn Movement Volumes

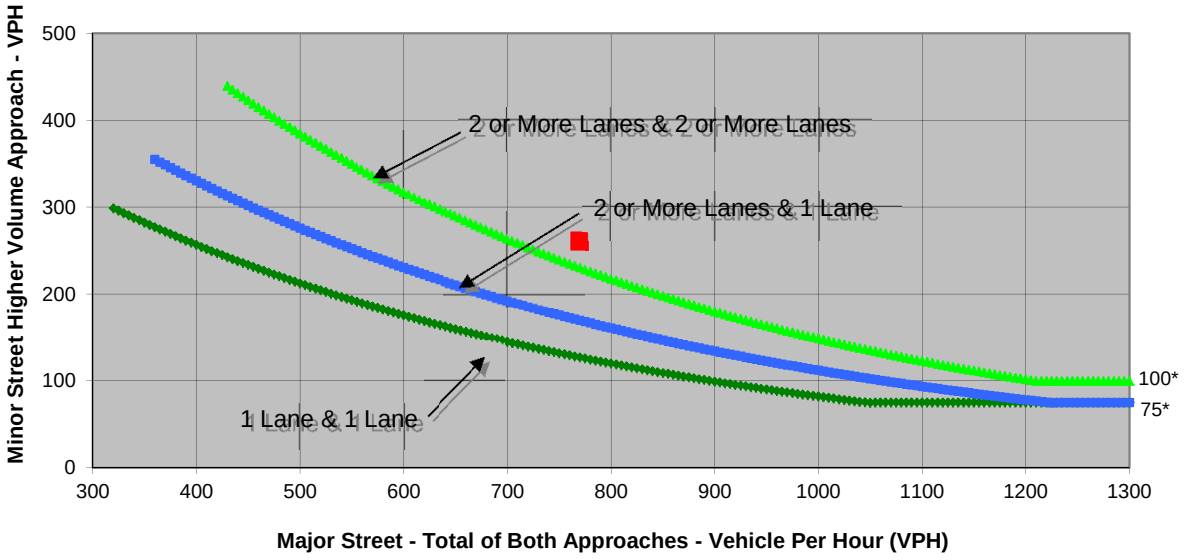
	NB	SB	EB	WB
Left	200	0	0	50
Through	0	0	320	300
Right	60	0	100	0
Total	260	0	420	350

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**770**	**260**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative No Project Conditions
Peak Hour	PM
Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Turn Movement Volumes

	NB	SB	EB	WB
Left	20	70	50	170
Through	110	130	320	310
Right	220	20	10	40
Total	350	220	380	520

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	123.6
Approach with Worst Case Delay	SB
Total Vehicles on Approach	220

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative No Project Conditions	**7.6**	**350**	**1,470**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative No Project Conditions
Minor Street	Husted Rd/Freshwater Rd	Peak Hour	PM

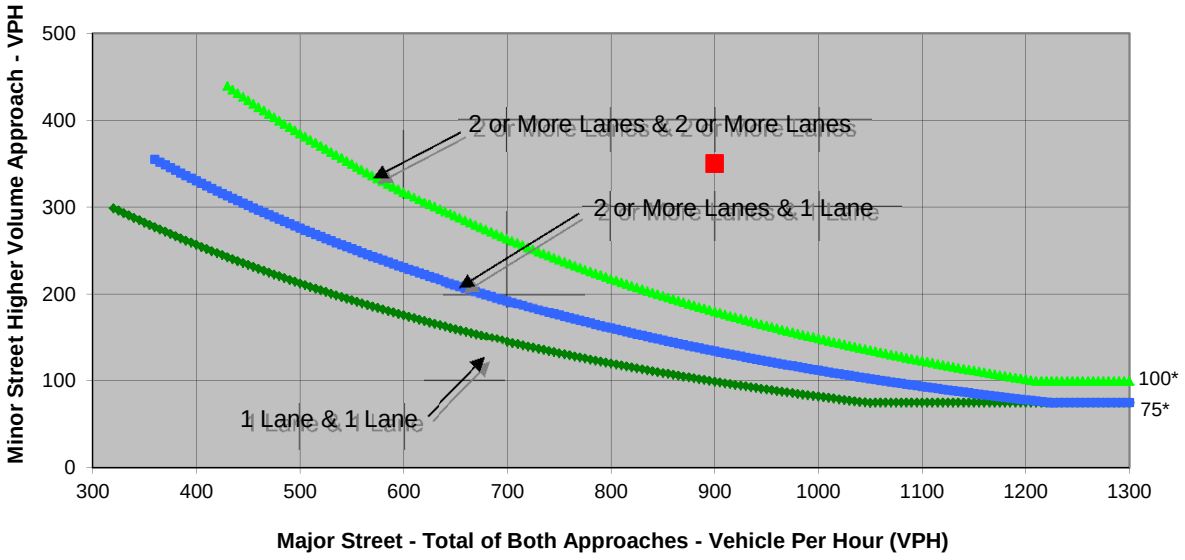
Turn Movement Volumes

	NB	SB	EB	WB
Left	20	70	50	170
Through	110	130	320	310
Right	220	20	10	40
Total	350	220	380	520

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**900**	**350**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project
Peak Hour	AM

Major Street	SR 20
Minor Street	I-5 SB Ramps

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	195	0	136
Through	0	20	180	240
Right	0	110	100	0
Total	0	325	280	376

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	15.1
Approach with Worst Case Delay	SB
Total Vehicles on Approach	325

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project	**1.4**	**325**	**981**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Cumulative Plus Project
		Peak Hour	AM

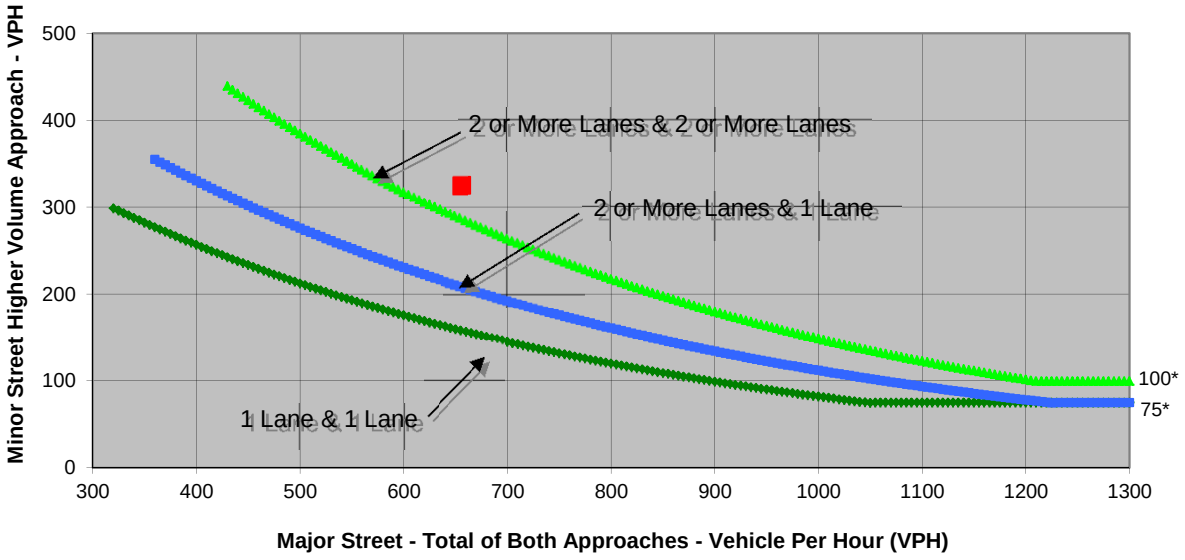
Turn Movement Volumes

	NB	SB	EB	WB
Left	0	195	0	136
Through	0	20	180	240
Right	0	110	100	0
Total	0	325	280	376

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**656**	**325**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	110	0	40	0
Through	10	0	335	266
Right	288	0	0	118
Total	408	0	375	384

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	24.6
Approach with Worst Case Delay	NB
Total Vehicles on Approach	408

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**2.8**	**408**	**1,167**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 NB Ramps	Scenario	Cumulative Plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

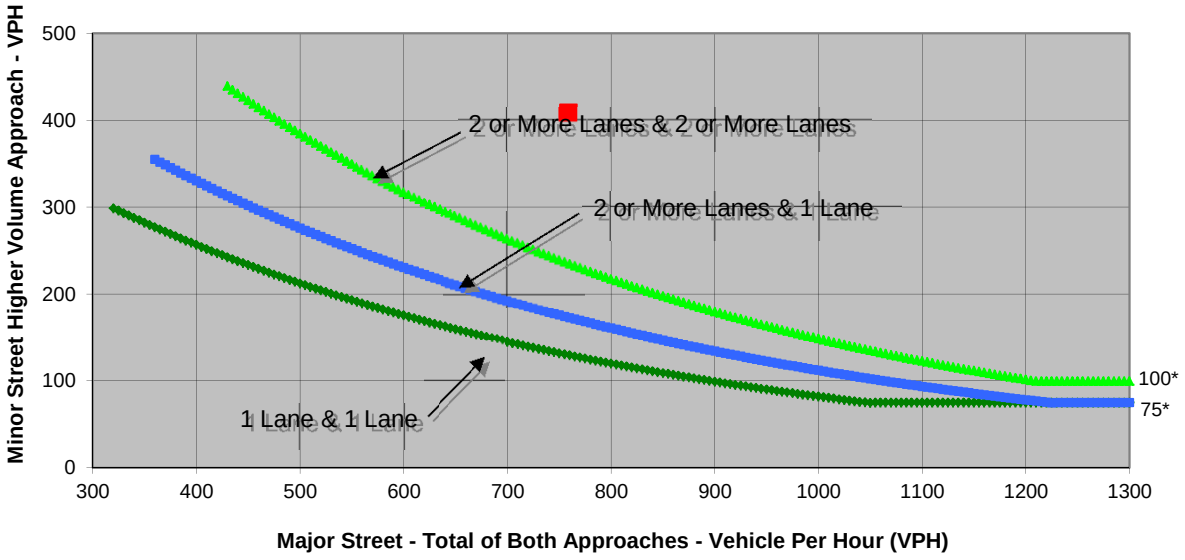
	NB	SB	EB	WB
Left	110	0	40	0
Through	10	0	335	266
Right	288	0	0	118
Total	408	0	375	384

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**759**	**408**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Margurite Street

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	169	0	0	80
Through	0	0	306	215
Right	69	0	317	0
Total	238	0	623	295

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	10.7
Approach with Worst Case Delay	NB
Total Vehicles on Approach	238

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**0.7**	**238**	**1,156**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative Plus Project Conditions
Minor Street	Margurite Street	Peak Hour	AM

Turn Movement Volumes

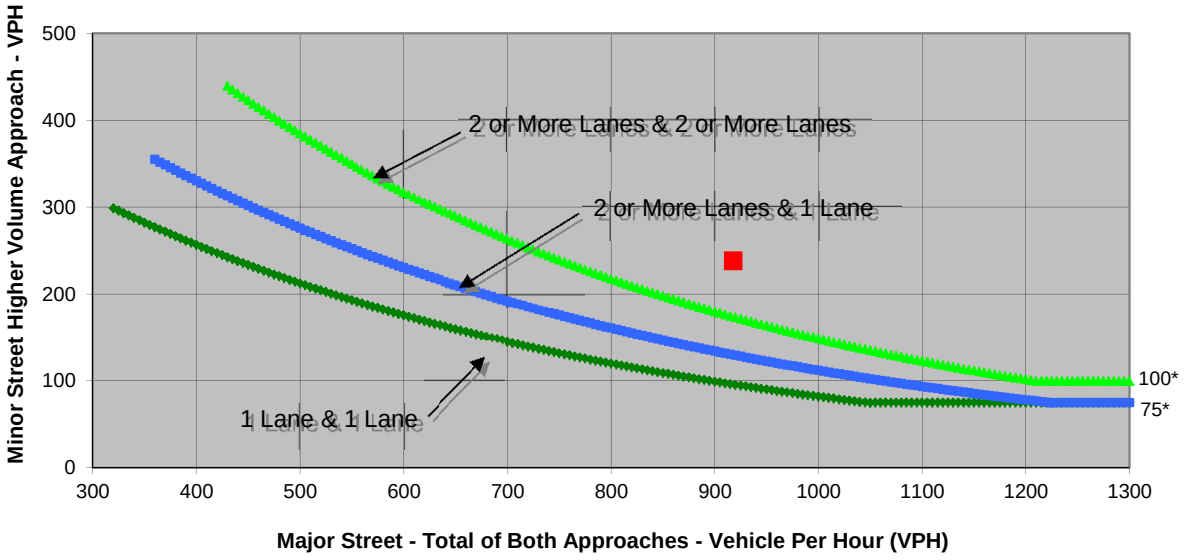
	NB	SB	EB	WB
Left	169	0	0	80
Through	0	0	306	215
Right	69	0	317	0
Total	238	0	623	295

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	**Minor Street**	**Warrant Met**
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**918**	**238**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	11	40	80	120
Through	110	90	274	264
Right	220	20	21	60
Total	341	150	375	444

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	47.8
Approach with Worst Case Delay	NB
Total Vehicles on Approach	341

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**4.5**	**341**	**1,310**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	Husted Rd/Freshwater Rd	Scenario	Cumulative Plus Project Conditions
		Peak Hour	AM

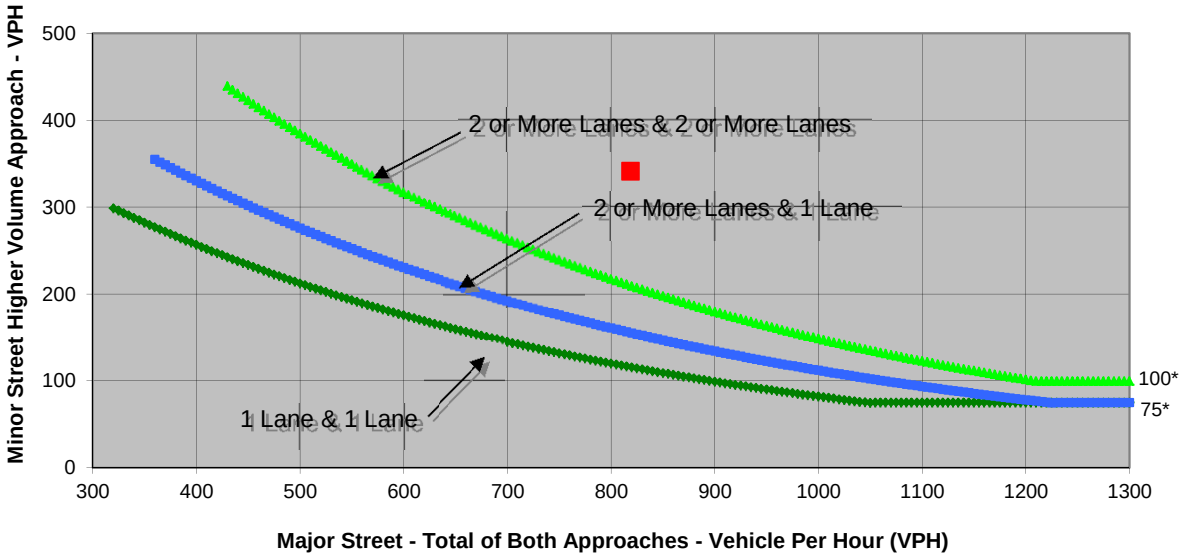
Turn Movement Volumes

	NB	SB	EB	WB
Left	11	40	80	120
Through	110	90	274	264
Right	220	20	21	60
Total	341	150	375	444

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**819**	**341**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 SB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	145	0	235
Through	0	10	270	330
Right	0	70	170	0
Total	0	225	440	565

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	46.8
Approach with Worst Case Delay	SB
Total Vehicles on Approach	225

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**2.9**	**225**	**1,230**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 SB Ramps	Scenario	Cumulative Plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

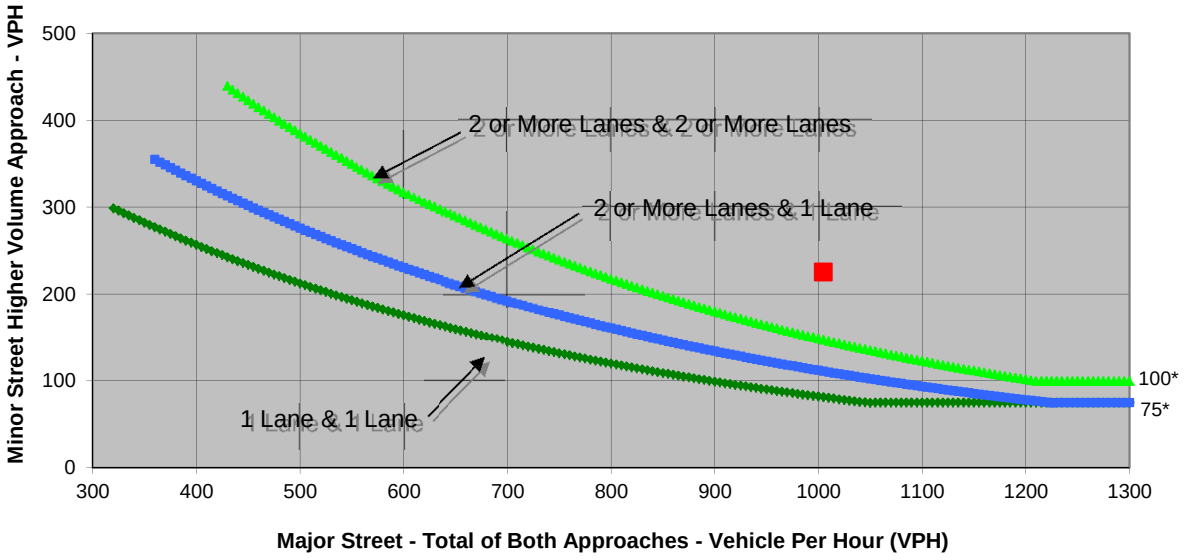
	NB	SB	EB	WB
Left	0	145	0	235
Through	0	10	270	330
Right	0	70	170	0
Total	0	225	440	565

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	I-5 SB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,005**	**225**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	I-5 NB Ramps

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	150	0	90	0
Through	10	0	325	415
Right	214	0	0	198
Total	374	0	415	613

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	44.8
Approach with Worst Case Delay	NB
Total Vehicles on Approach	374

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**4.7**	**374**	**1,402**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	SR 20	Project	Love's Country Stores (Williams, CA)
Minor Street	I-5 NB Ramps	Scenario	Cumulative Plus Project Conditions
		Peak Hour	PM

Turn Movement Volumes

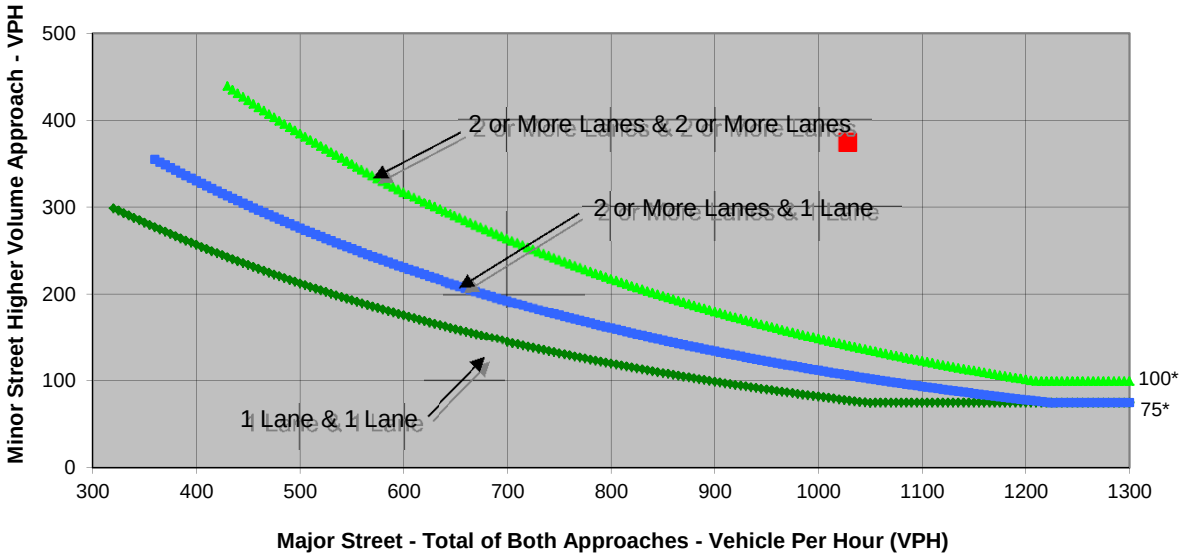
	NB	SB	EB	WB
Left	150	0	90	0
Through	10	0	325	415
Right	214	0	0	198
Total	374	0	415	613

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	**Minor Street**	**Warrant Met**
	SR 20	I-5 NB Ramps	
Number of Approach Lanes	**1**	**1**	**YES**
Traffic Volume (VPH) *	**1,028**	**374**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Margurite Street

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	333	0	0	76
Through	0	0	301	280
Right	85	0	238	0
Total	418	0	539	356

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	2
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	16.1
Approach with Worst Case Delay	NB
Total Vehicles on Approach	418

Warrant 3A, Peak Hour

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Cumulative Plus Project Conditions	**1.9**	**418**	**1,313**
Limiting Value	**5**	**150**	**800**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative Plus Project Conditions
Minor Street	Margurite Street	Peak Hour	PM

Turn Movement Volumes

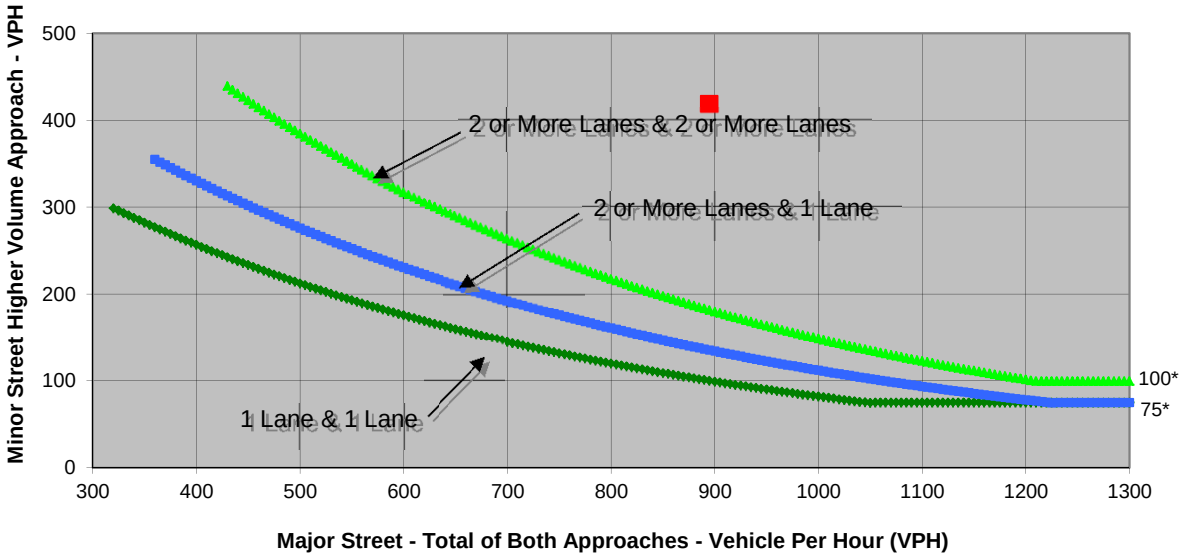
	NB	SB	EB	WB
Left	333	0	0	76
Through	0	0	301	280
Right	85	0	238	0
Total	418	0	539	356

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	**Minor Street**	**Warrant Met**
	SR 20	Margurite Street	
Number of Approach Lanes	**2**	**2**	**YES**
Traffic Volume (VPH) *	**895**	**418**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	SR 20
Minor Street	Husted Rd/Freshwater Rd

Project	Love's Country Stores (Williams, CA)
Scenario	Cumulative Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	21	70	50	170
Through	110	130	325	315
Right	220	20	11	40
Total	351	220	386	525

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	77.6
Approach with Worst Case Delay	SB
Total Vehicles on Approach	220

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project Conditions	**4.7**	**351**	**1,482**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

		Project	Love's Country Stores (Williams, CA)
Major Street	SR 20	Scenario	Cumulative Plus Project Conditions
Minor Street	Husted Rd/Freshwater Rd	Peak Hour	PM

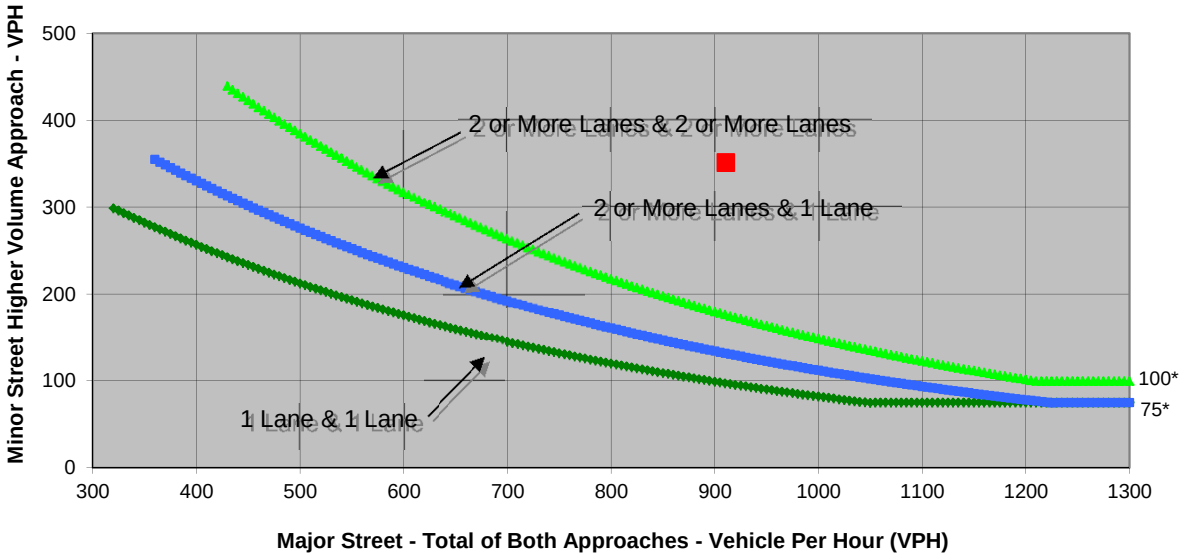
Turn Movement Volumes

	NB	SB	EB	WB
Left	21	70	50	170
Through	110	130	325	315
Right	220	20	11	40
Total	351	220	386	525

Major Street Direction

	North/South
x	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR
ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: ***California Manual on Uniform Traffic Control Devices***, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 20	Husted Rd/Freshwater Rd	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**911**	**351**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.