

## **Chapter 2**      Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

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As part of the scoping and environmental analysis conducted for this project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding the following issues in this document:

- Mineral Resources – The proposed project would occur within an existing interchange and developed area of the city. The City’s General Plan does not identify any mineral resources within the proposed project location.
- Wild and Scenic Rivers – There are no wild and scenic rivers in the vicinity of the proposed project based on site reconnaissance and background research.
- Timberland Resources – Site reconnaissance and background research has revealed that there are no timberland resources in the project area.
- Coastal Zone Resources – The proposed project is not located within a designated coastal zone based on review of relevant literature.
- Wetlands – Field surveys and jurisdictional delineations performed in accordance with applicable guidelines (such as from the U.S. Army Corps of Engineers) revealed that there are no wetlands in the project area.
- Parks and Recreational Facilities – There are no parks and recreational facilities in the project area based on site reconnaissance and background research
- Plant Species – The *Natural Environmental Study (Minimal Impacts)* (2009) shows that no special-status plants would be affected.
- Threatened and Endangered Species – The *Natural Environmental Study (Minimal Impacts)* (2009) revealed that no threatened or endangered species would be affected.
- Cultural Resources – A *Historic Property Survey Report*, including an *Archaeological Survey Report* and *Historic Resources Evaluation Report*, was prepared for the proposed project. No historic properties would be affected by this project. Five historic period (pre-1961) buildings were evaluated. The State Historic Preservation Officer concurred on December 5, 2007 that none

of these properties are eligible for listing in the National Register of Historic Places, for purposes of evaluation under the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. None of these properties are historical resources for purposes of the California Environmental Quality Act.

## **2.1 Human Environment**

### **2.1.1 Land Use**

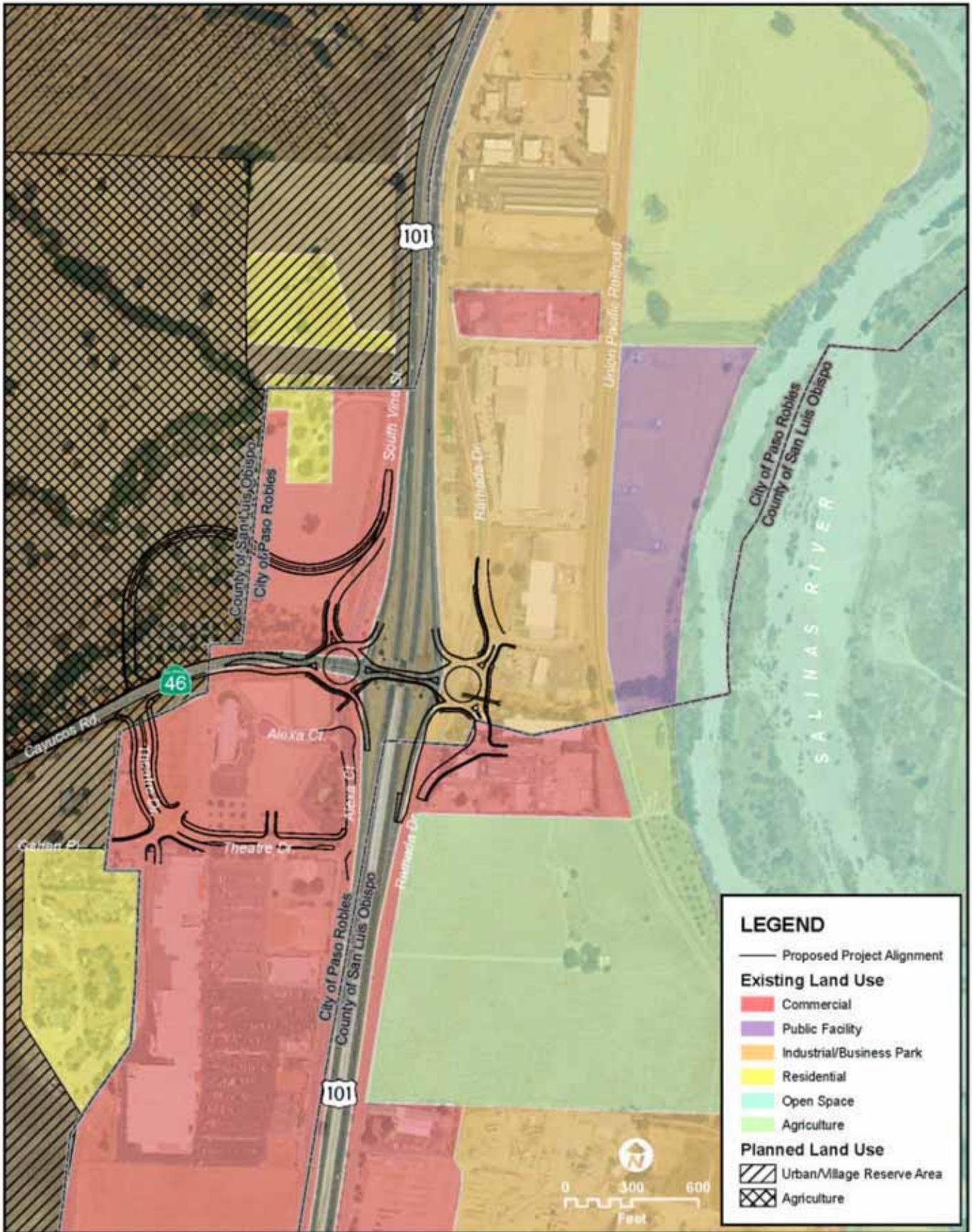
#### **2.1.1.1 Existing and Future Land Use**

##### ***Affected Environment***

The proposed project is located in an area that is primarily composed of commercial/retail and industrial land use within the limits of the city; a relatively small portion of the project area is located in an unincorporated area of the county. Existing and future land use and jurisdictional boundaries are illustrated in Figure 2.1-1.

##### ***Existing Land Use***

The vicinity of the project area is dominated by commercial and industrial land use, with interspersed areas of residential development (single-family residences). Existing land use on the east side of US 101 consists primarily of commercial/retail and industrial uses, including a gas service station and fast food property, auto repair establishments and associated vehicle storage, and several office and warehousing buildings.



Source: City of Paso Robles General Plan 2003, Salinas River Planning Area Rural Land Use Category and Corridor Designation Map, June 11, 2007 and AirPhotoUSA, August 2003

**City of Paso Robles**  
**US-101/SR-46W Interchange Improvement Project**

**FIGURE 2.1-1**  
**EXISTING AND PLANNED LAND USE**

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The northwest quadrant of the US 101/State Route 46 West interchange consists primarily of vacant/undeveloped land with the exception of two single-family residential properties near the area where the proposed South Vine Street realignment would diverge from US 101. Two hotels (Hampton Inn and the La Bellasera Suites and Spa) and a motel (River Lodge Motel) are located in the immediate area of the southwest quadrant of the US 101/State Route 46 West interchange, and a shopping center, which includes a Target retail store, is located immediately south of Gahan Place in the southwest quadrant of the interchange.

Interspersed single-family residential properties are currently located along Gahan Place. Note that the City has previously acquired the residential property that is located immediately north of Gahan Place and west of the existing hotel, and also the residential property located along the proposed Theatre Drive alignment (between Gahan Place and State Route 46 West). Refer to Section 2.1.4.2 regarding City acquisitions and relocations.

Since circulation of the draft environmental document, five developments previously listed as pending in Table 2.1-1 have been built: True Tube, Simons Industrial, U-Haul, Theatre Drive Retail/Storage, and the Thunderbird commercial development. Table 2.1-1 and Figure 2.1-2 have been updated with planned projects that have not yet been built.

### *Planned Land Use*

Planned land use in the project area is based on the City's and the County's respective General Plans and, for the purposes of this analysis, includes those areas in the project area that are currently vacant (undeveloped). Within the city's limits, undeveloped land located west of US 101 is planned for Regional Commercial use (this area includes both Build Alternatives 1 and 2), whereas land located east of US 101 is designated as planned Business Park use; however, no vacant land designated as Business Park would be affected by either Build Alternative 1 or 2.

The City's Planning Department was contacted to identify proposed projects in the vicinity of the interchange. The following table lists the four projects provided by the City's Planning Department, and Figure 2.1-2 shows the location of each planned project (Map ID letters correspond to the location of each respective planned project on Figure 2.1-2).

**Table 2.1-1 – Future Development in the Project Area**

<b>Name</b>	<b>Jurisdiction</b>	<b>Proposed Uses</b>	<b>Total Acreage</b>	<b>Status</b>	<b>Map ID</b>
Gheza Mini-Storage	City	Storage facility	5.5	Entitled	A
Durand Project	City	Retail center and hotel	16.0	Entitled	B
1500 Ramada Drive	City	Industrial use	4.0	Entitled	C
Inns at Vintner's Village	City	Hotel	13.2	Pending	D

Figure 2.1-2 Planned Projects



Source: DigitalGlobe, July 2007

City of Paso Robles  
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FIGURE 2.1-2  
PLANNED PROJECTS

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The Salinas River Inland Area Plan of the County's General Plan designates the area north of State Route 46 West where Build Alternative 2 would realign South Vine Street as Agriculture.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

Implementation of the build alternatives would improve existing and future traffic congestion and improve deteriorating levels of service. No significant impacts to existing and future land use are anticipated for Build Alternative 1 or Build Alternative 2. For future land uses, both build alternatives would have some right-of-way impact on an undeveloped private parcel within the city limits, as shown in Figure 2.1-2 map symbol "D." A proposed development on that parcel underwent a legal challenge. The environmental clearance and therefore planned development of that parcel has been ordered to be re-evaluated by the court. Any proposed future development on that parcel would require a new review and evaluation by the City and would need to be presented to the City Planning Commission for approval. The McDonalds/Chevron facility has taken this project into consideration and was built to specifically avoid placing structures along the proposed alignment of the US 101 northbound on-ramp.

#### ***No-Build Alternative***

In 1996, the City, SLOCOG, County of San Luis Obispo and Caltrans entered into a cooperative agreement that requires the monitoring of traffic operations at the US 101/State Route 46 West interchange and analysis of potential impacts to interchange operations caused by proposed development in the area of the interchange. Operational improvements at the interchange have been required of and built by development projects near the interchange, as necessary, since the cooperative agreement was executed. The No-Build Alternative would affect the development of future land uses with increased traffic impacts and congestion from proposed future developments.

### ***Avoidance, Minimization, and/or Mitigation Measures***

**LU-1** The City will consider, to the extent appropriate and pursuant to the City's Traffic Calming Program, additional traffic-calming features during final design and/or incorporation of other design features that would serve as traffic-calming criteria. Such features may reduce right-of-way impacts and may include but not be limited to: expanded streetscape improvements, reduced design criteria for horizontal

curvature radii and/or consider use of City Standard “Typical Knuckle” for collector road realignment and/or pavement width reduction where appropriate.

### **2.1.1.2 Consistency with State, Regional, and Local Plans**

#### ***Affected Environment***

##### *City General Plan – Circulation Element*

The proposed project is included in the Circulation Element of the City’s General Plan (refer to Table CE-1, Potential Circulation Improvements).

##### *City General Plan – Land Use Element*

The City’s Land Use Element identifies the portion of the project area east of US 101 as Business Park. The purpose of the Business Park land use category is to provide areas for clean and attractive businesses and industries in which all activities are conducted indoors. The City General Plan indicates that, where appropriate, compatible convenience and highway commercial land uses may be located in the Business Park category.

The City’s General Plan designates the portion of the project area west of US 101 as Regional Commercial. The Regional Commercial land use category is intended to provide for the retail and shopping needs of the city and region. The land uses generally permitted in this category are retail and service uses and with limited number of dwelling units.

##### *County General Plan – Land Use Element*

As described above, the Salinas River Inland Area Plan of the County’s General Plan designates the portion of the proposed project located in unincorporated County land north of State Route 46 West as Agriculture. Further, the County’s Salinas River Inland Area Plan designates the relatively small amount of undeveloped land located immediately south and along State Route 46 West as Industrial.

As further detailed in Chapter 22.06.030, Title 22 of the County’s Land Use Ordinance, uses (types/categories of land development proposals) not identified as “allowable” uses within a General Plan land use designation may be granted approval subject to the review of the County’s Director of Planning and Building.

Highway/Roadway improvement projects, such as the one addressed here, are not a type of project that is explicitly listed as an allowed use within the Agriculture land use designation (applicable to Build Alternative 2). However, and as further detailed in Section 22.06.040, Title 22 of the County’s Land Use Ordinance, public works projects proposed by the County are exempt from land use permit requirements and “allowance” restrictions. The County is contributing to the funding of the proposed project, and also has closely coordinated with the City, Caltrans, and the San Luis Obispo Council of Governments, regarding the planning, siting, and design of the proposed project.

#### ***County General Plan – Circulation Element***

Matters regarding circulation for the project area are addressed in the Circulation Element of the County’s Salinas River Inland Area Plan of the County’s General Plan. The Circulation Element identifies the importance of maintaining the mobility of the traveling public, particularly as it relates to US 101 and State Route 46 West. Moreover, the County’s Circulation Element identifies the need for improvements to the US 101 corridor in accordance with the findings and recommendations in San Luis Obispo Council of Governments’ major investment study. The proposed project is identified in Segment 4 of San Luis Obispo Council of Governments’ US Route 101 North County Corridor Study (dated September 8, 1999), and San Luis Obispo Council of Governments’ 2005 Regional Transportation Plan.

#### ***California Land Conservation Act of 1965, or the Williamson Act***

The Williamson Act is a procedure authorized under state law to preserve agricultural lands as well as open space. Property owners entering into a Williamson Act contract receive a reduction in property taxes in return for agreeing to protect the land’s open space or agricultural values. The proposed project would not affect lands subject to a Williamson Act contract. More detail regarding impacts to farmlands is provided in Section 2.1.3, Farmlands, of this document.

### ***Environmental Consequences***

#### ***Build Alternative 1***

Build Alternative 1 is consistent with applicable adopted plans and policies (such as the City General Plan, San Luis Obispo Council of Governments’ 2005 Regional

Transportation Plan, etc.). As such, Build Alternative 1 would not result in incompatible land uses or the physical division of an established community.

### ***Build Alternative 2***

Build Alternative 2 is consistent with applicable adopted plans and policies. As noted above, the proposed South Vine Street realignment associated with Build Alternative 2 is located in an area that is designated Agriculture pursuant to the County's General Plan. However, and as further detailed in Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works project such as the proposed project are exempt from land use permit requirements and "allowance" restrictions under the County's Land Use Ordinance.

As stated above, and as further detailed in Section 22.06.040, Title 22 of the County's Land Use Ordinance, public works projects proposed by the County are exempt from land use permit requirements and "allowance" restrictions. The County is contributing to the funding of the proposed project, and also has closely coordinated with the City, Caltrans, and the San Luis Obispo Council of Governments, regarding the planning, siting, and design of the proposed project. A letter dated October 27, 2009 documents the recent funding commitments by the San Luis Obispo Council of Governments, which includes the County of San Luis Obispo. The County's participation in the Value Analysis study dated July 2006 is evidence of its continued involvement and support for the project. Refer to Appendix I for a copy of the above-referenced San Luis Obispo Council of Governments letter dated October 27, 2009.

### ***No-Build Alternative***

The No-Build Alternative is not consistent with the goals of the City's and County's General Plans to accommodate proposed improvements to the US 101/State Route 46 West interchange.

### ***Avoidance, Minimization, and/or Mitigation Measures***

None anticipated.

## **2.1.2 Growth**

### ***Regulatory Setting***

The Council on Environmental Quality regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The

Council on Environmental Quality regulations, 40 Code of Federal Regulations 1508.8, refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act also requires the analysis of a project's potential to induce growth. California Environmental Quality Act guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

### ***Affected Environment***

The interchange plays a vital role for tourists and commercial traffic to and from the coastal areas within the region and is on the main coastal regional route between Southern and Northern California. It also serves regional traffic accessing the retail and industrial facilities surrounding the interchange. Growth in the area is anticipated and further development of the retail and industrial uses will create a greater demand for improvement of the interchange.

Traffic volume projections indicate that traffic demand at the US 101/State Route 46 West interchange is expected to increase substantially over the next 25 years. Traffic within the study area would experience a significant increase in congestion and delay by the year 2038 without implementation of interchange and intersection improvements. These reductions in levels of service would reduce mobility around this US Route to State Route connection.

The proposed project would improve traffic conditions and reduce congestion in and around the US 101/State Route 46 West interchange. The proposed project, in and of itself, is not expected to directly or indirectly induce population growth in the immediate vicinity or the region, as the surrounding vicinity is anticipated to experience growth with or without the proposed project. Under Build Alternative 2, South Vine Street would be realigned across land that is currently undeveloped. However, no existing resources of concern, as detailed in this chapter, would be affected by that realignment; therefore, no further growth analysis is required.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

No significant growth-related impacts are anticipated as a result of implementing the proposed project. The project entails reconfiguration of an existing highway-to-

highway interchange to improve existing and future traffic operations (such as level of service) in the area. The project area and vicinity include a combination of developed (commercial, industrial, and interspersed residential properties) and vacant land. The majority of vacant land in the project area and vicinity is planned for commercial/retail and business park and industrial development. The proposed project is also addressed in the Circulation Elements of the City's and County's respective general plans.

Reconfiguration of the existing US 101/State Route 46 West interchange is not expected to result in an acceleration of the schedule of development in the project area and vicinity, as accounted for in each jurisdiction's respective General Plan; therefore, growth-related impacts are not anticipated.

Further, the proposed project-related improvements are not expected to measurably or significantly decrease home-to-work commuter travel times to, from, or within the project area.

#### *No-Build Alternative*

The No-Build Alternative would not result in significant impacts to growth, but would not accommodate planned growth, and associated additional traffic generation, in the vicinity of the interchange.

#### ***Avoidance, Minimization, and/or Mitigation Measures***

None anticipated.

### **2.1.3 Farmlands**

#### ***Regulatory Setting***

The National Environmental Policy Act and the Farmland Protection Policy Act (United States Code 4201-4209; and its regulations, 7 Code of Federal Regulations Ch. VI Part 658) require federal agencies, such as the Federal Highway Administration, and Caltrans, as assigned, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

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.

### ***Affected Environment***

Digitally mapped data received from the California Department of Conservation's Farmland Mapping and Monitoring Program (2004) and information obtained from the Natural Resources Conservation Service as part of this analysis indicate that some of the new right-of-way for the proposed project encompasses Prime and Unique Farmland and Farmland of Statewide Importance west of the US 101/State Route 46 West interchange. However, these particular areas are not being actively used for agricultural purposes. None of the lands in the project area are under a Williamson Act contract.

Prime Farmland is land that 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. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use (California Department of Conservation's Office of Land Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that is currently used for the production of specific high economic value crops (as listed in the last three years of California Agriculture produced by the California Department of Food and Agriculture). 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. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agriculture use (California Department of Conservation's Office of Land

Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use (California Department of Conservation's Office of Land Conservation, A Guide to the Farmland Mapping and Monitoring Program, 1992. Publication Number FM-92-01).

### ***Environmental Consequences***

A Farmland Conversion Impact Rating Form (see Appendix E) was submitted to the Natural Resources Conservation Service to evaluate impacts to farmlands associated with the proposed project. As noted above, the project area does not encompass lands that are actively being used for agricultural purposes. According to the Farmland Protection Policy Act, additional project alternatives or sites must be taken into consideration if the Farmland Conversion Impact Rating Form, which is evaluated jointly by Natural Resources Conservation Service and the lead agency, exceeds 160 points out of 260 points. The Farmland Conversion Impact Rating totaled 101 points for Build Alternative 1 and 120 points for Build Alternative 2.

#### ***Build Alternative 1***

Acquisition of additional right-of-way for Build Alternative 1 would affect a total of approximately 3.80 acres of Prime and Unique Farmland and 0.15 acre of Farmland of Statewide and Local Importance; however, these areas are not being used for agricultural purposes. Combined, this represents a total of 0.0013% of the total existing farmlands within the county planning area.

#### ***Build Alternatives 2***

Acquisition of additional right-of-way for Build Alternative 2 would affect a total of approximately 3.50 acres of Prime and Unique Farmland and 1.35 acres of Farmland of Local Importance; however, this particular area is not being used for agricultural purposes. The parcels zoned for agricultural uses have been out of production for between 10 to and 30 years. Combined, this represents approximately 0.0016% of total existing farmlands within the county planning area.

### ***Avoidance, Minimization and/or Minimization Measures***

No measures would be required.

## **2.1.4 Community Impacts**

### **2.1.4.1 Community Character and Cohesion**

#### ***Regulatory Setting***

The National Environmental Policy Act of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 United States Code 4331(b)(2)]. The Federal Highway Administration in its implementation of the National Environmental Policy Act [23 United States Code 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

#### ***Affected Environment***

##### ***Regional and Local Setting***

The proposed project is located primarily within the limits of the city in the northern portion of the county. However, relatively smaller portions of the project area at the northwest, southwest, and southeast quadrants of the interchange are in unincorporated portions of the county. The project area is dominated by commercial/retail and industrial development, with interspersed single-family residences concentrated in the southwest corner of the project area. The northwest corner of the project area is primarily undeveloped. Please refer to Section 2.1.1.1 for a more detailed discussion of existing land use in the project area and vicinity.

##### ***Primary Affected Area***

The primary affected area is defined as the area immediately in the project site that could be directly affected by the proposed project. The existing US 101/State Route 46 West interchange is located within United States Census Tracts 100, 103, and 127.04. Figure 2.1-3 illustrates Census Tracts in relation to the project area.

### *Population Totals*

According to the California State Association of Counties, the county has a current population of 253,600. By 2010, this population is expected to increase by 29.1%. Table 2.1-2 shows the population estimates by census tract based on year 2000 census data.

**Table 2.1-2 – 2010 Census Tract Population Estimates**

<b>Census Tract</b>	<b>2010 Total Population</b>
100	6,803
103	7,967
127.04	7,817

Source: United States Census Bureau, July 2006.

### *Housing*

Table 2.1-3 shows the existing housing characteristics based on census tracts for the proposed project area.

**Table 2.1-3 – Housing Characteristics**

<b>Census Tract</b>	<b>Total Housing Units</b>	<b>Owner Occupied</b>	<b>Renter Occupied</b>	<b>Vacancies / Percentage</b>
100	3,922	1,951	686	1,285 / 32.8%
103	2,875	2,122	564	189 / 6.6%
127.04	2,878	2,503	292	83 / 2.9%

Source: United States Census Bureau, July 2006.



**FIGURE 2.1-3  
CENSUS TRACTS MAP**

**City of Paso Robles  
US-101/SR-46W Interchange Improvement Project**

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## **Environmental Consequences**

### ***Build Alternatives 1 and 2***

The proposed project would not physically divide an established community, disrupt community cohesion, isolate any residents from community facilities, or force the relocation of any residences. The proposed project would improve the existing interchange by promoting more efficient traffic circulation in the project area. Overall, neighborhood and community stability would not be significantly altered. Please see Section 2.1.4.2 for a discussion regarding project-related relocations.

Some traffic delays could be expected during project construction; however, these impacts would be temporary and are not considered significant. Vehicular traffic would not be re-routed through residential areas. The project includes the preparation of a Traffic Management Plan to alleviate this temporary construction traffic impact. The construction area would be properly flagged and cordoned off to allow for safe passage of bicyclists.

### ***No-Build Alternative***

The No-Build Alternative would not affect community character or cohesion.

## **Avoidance, Minimization, and/or Mitigation Measures**

None anticipated.

### **2.1.4.2 Relocations and Real Property Acquisition**

#### ***Regulatory Setting***

Caltrans' Relocation Assistance Program is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title 49 Code of Federal Regulations, Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the Relocation Assistance Program.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code 2000d, et seq.). Please see Appendix B for a copy of Caltrans' Title VI Policy Statement.

### **Affected Environment**

The following analysis regarding potential project-related relocations is based on the *Relocation Impact Memorandum* (2009) prepared in coordination with Caltrans' Right-of-Way Division.

The project area and its vicinity are dominated by commercial and industrial land use, with interspersed areas of residential development (single-family residences) and vacant land. There are two gas service station/fast food facilities, several industrial buildings, and numerous equipment and storage yards. The west side of US 101 is less developed and consists of two hotels, a motel, a shopping center, residential uses, and open space (refer to Section 2.1.3 Farmlands). One full acquisition of the Wayne's Tire's parcel (040-091-049) and four partial acquisitions of the River Lodge Motel parcel (009-831-007), McDonalds/Chevron parcel (009-631-012), Jack in the Box/Arco parcel (009-831-015), and Delta Energy Propane Tank, RV Sales, Rentals and Service parcel (040-091-052) are anticipated with implementation of the proposed project, as further discussed below. It should be noted that the Delta Energy Propane Tank, RV Sales, Rentals and Service parcel (040-091-052) consists of a single parcel and a single business; no sub-parcels are located on this parcel or any other parcel affected by the proposed project.

### **Environmental Consequences**

#### ***Build Alternatives 1 and 2***

Both build alternatives would require full or partial right-of-way acquisitions of five non-residential parcels. These parcels contain light industrial and commercial buildings, including an auto repair facility (Assessor Parcel Number 040-091-049), a recreational vehicle parts and services facility (Assessor Parcel Number 040-091-052), two gas station/convenience store/fast food restaurant combinations (Assessor Parcel Numbers 009-831-015 and 009-631-012), and a motel (Assessor Parcel Number 009-831-007). Figure 2.1-4 identifies the parcels that would be affected by right-of-way acquisition as a result of the proposed project.

Table 2.1-4 provides a list of buildings that may need to be relocated by either Build Alternative 1 or 2. The column labeled "Potential Acquisition" indicates whether a full or partial acquisition of the parcel is expected.

**Table 2.1-4 – Right-of-Way Impacts Including Potential Displacements**

Assessor's Parcel Number	Address/Location	Type of Property	Potential Acquisition (Full or Partial)
040-091-049	101 Calle Propano/ southeast quadrant of interchange	Light industrial business building (auto repair facility)	Full
040-091-052	1960 Ramada Drive/ southeast quadrant of interchange	Light industrial business building (RV parts and service facility)	Partial
009-831-015	1900 Ramada Drive*/ northeast quadrant of interchange	Gas Station/Convenience Store/ Fast Food Restaurant	Partial
009-831-007	1955 Theatre Drive*/ southwest quadrant of interchange	Motel	Partial
009-631-012	1859 Ramada Drive*/ northeast quadrant of interchange	Gas Station/Fast Food Restaurant	Partial
009-831-023	N/A/ southwest quadrant of interchange	Spa and Hotel	Partial (no structures)
009-631-011	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-031-001*	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-091-039*	N/A/ northwest quadrant of interchange	Open land	Partial (no structures)
040-091-041*	N/A/ northwest quadrant of interchange	Open land	Full (no structures)
009-831-003	N/A/ northwest quadrant of interchange	Creek/Ravine	Full (no structures)
009-831-021	N/A/ southwest quadrant of interchange	South side of SR-46W	Partial (no structures)
009-831-001	N/A/ northeast quadrant of interchange	Vacant land	Partial (no structures)
009-831-014	N/A/ east of interchange	Vacant land	Partial (no structures)

Note: Based on preliminary engineering, it is anticipated that these properties would require a partial/sliver acquisition. Therefore, relocation of these particular properties is not expected to be necessary. A determination regarding the specific extent of impacts to the properties identified above would be determined during the project's final design phase.

\* = Affected by only Build Alternative 2.

N/A = Information not available.

- Parcel 040-091-049, occupied by Wayne's Tires, would be acquired in full due to the proposed Ramada Drive realignment and the realignment of the off-

- ramp and proposed alignment of the roundabout. The size of the parcel to be acquired in full is 0.938 acre.
- Parcel 040-091-052, occupied by the Delta Energy Propane Tank, RV Sales, Rentals and Service business, would require partial acquisition consisting of 0.20 acre of the total 3.83-acre parcel. The commercial frontage of the office building would be demolished due to the proposed Ramada Drive off-ramp alignment. The parcel is large enough to accommodate the reconstruction of the office on the same parcel.
  - Parcel 009-831-015, occupied by a Jack in the Box/Arco on the northeast corner of the Ramada Drive and State Route 46 West intersection (1900 Ramada Drive), would be partially acquired due to the proposed alignment of the roundabout and Ramada Drive. Approximately 0.44 acre would be acquired from the 1.24-acre parcel. Based on preliminary engineering data, the gas pump island is located in the acquisition area, but not the convenience store/fast food restaurant.
  - Parcel 009-831-007, occupied by the River Lodge Motel, would be partially acquired due to the proposed Theatre Drive alignment. Approximately 0.265 acre would be acquired from the 2.0-acre parcel. The affected area is the southern portion of the motel used as an office.
  - A small portion of parcel 009-631-012, occupied by a McDonalds/Chevron facility, would be acquired due to the proposed alignment of the US 101 northbound on-ramp. Approximately 0.055 acre would be acquired from the 1.12-acre parcel. No structures would be affected because the construction of the McDonalds/Chevron facility took the proposed project into consideration and no structures were placed in the alignment of the partial acquisition. The City and owner of the parcel coordinated the layout to ensure that a full acquisition would not be required and a partial acquisition would not render the McDonalds/Chevron facility inoperable.
  - Parcel 009-831-023, occupied by an entrance/exit driveway, would be partially acquired due to the alignment of Theatre Drive. Approximately 0.071 acre would be acquired from the 1.57-acre parcel.
  - Parcel 009-631-011, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed Vine Street

alignment. This partial acquisition would require 0.45 acre for Build Alternative 1, and 0.867 acre for Build Alternative 2 from the 17.47-acre parcel. Under Build Alternative 2, 16.60 acres of the total 17.47-acre parcel would remain after project construction. Although portions of the parcel are relatively steep and sloping, the rest of the parcel includes gradual sloping areas deemed viable for commercial development by the city engineer.

- Parcel 040-031-001, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. Approximately 4.558 acres of the 82.160-acre parcel would be partially acquired.
- Parcel 040-091-039, occupied by open land in the northwest quadrant of the project, would be partially acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. Approximately 0.211 acre of the 16.77-acre parcel would be partially acquired for easement purposes.
- Parcel 040-091-041, occupied by open land in the northwest quadrant of the project, would be fully acquired due to the proposed alignment of Vine Street for Build Alternative 2 only. The 2.091-acre parcel would be fully acquired.
- Parcel 009-831-003, occupied by a creek/ravine, would be fully acquired due to the proposed alignment of State Route 46 West and the roundabout. The 1.533-acre parcel would be fully acquired.
- Parcel 009-831-021 on the south side of State Route 46 West, occupied by open land on the shoulder of the State Route 46 West, would be partially acquired due to the proposed alignment of State Route 46 West. About 0.244 acre would be partially acquired from the 1.01-acre parcel.
- Parcel 009-831-001, occupied by vacant land, would be partially acquired due to the proposed alignment of Ramada Drive. Approximately 0.260 acre would be partially acquired from the 5-acre parcel.
- Parcel 009-831-014, occupied by vacant land, would be partially acquired due to the proposed alignment of the roundabout. Approximately 0.301 acre would be partially acquired from the 2.30-acre parcel.

The project would completely remove two business enterprise structures, both of which are light industrial developments: Wayne's Tire (Parcel 040-091-049) and Delta Energy (Parcel 040-091-052). Based on a 5.0% Industrial/Warehouse business vacancy rate for the city and a 4.3% vacancy rate for the county, there would be sufficient industrial business buildings that are equal to or better than the displacement properties available for rent or purchase.

***Avoidance, Minimization and/or Mitigation Measures***

**COM-1** Once the preferred project alternative is adopted and it is determined whether partial or full acquisitions are required for the above listed properties, a specific non-residential Relocation Plan would be prepared and implemented. Refer to Appendix C (Summary of Relocation Benefits) for additional information.

Any person, including individuals, families, corporations, partnerships, or associations, who moves from real property or moves personal property from real property as a result of the acquisition of the real property, or is required to relocate as a result of a written notice from Caltrans from the real property required for a transportation project, is eligible for "Relocation Assistance." All activities and compensation would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Relocation resources would be available to all displacees free of discrimination. Also refer to measure LU-1 above in Section 2.1.1.1 Existing and Future Land Use, Avoidance, Minimization, and/or Mitigation Measures section.

The proposed project would comply with the Caltrans Relocation Assistance Program, which is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title 49 Code of Federal Regulations, Part 24. The Caltrans Relocation Assistance Program ensures that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that persons will not suffer disproportionate injuries as a result of such projects.

As noted previously, all considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the director, which can be found in Appendix B of this document. Also refer to Appendix C for a summary of relocation benefits.



**LEGEND**

-  Proposed Road Alignments
-  City Owned Parcel
-  Potential Project Displacement/Partial Building Take
-  Other ROW Impacts

\* = Build Alternative 2 Only

City of Paso Robles  
 US-101/SR-46W Interchange Improvement Project  
 Source: DigitalGlobe, July 2007

**FIGURE 2.1-4  
 POTENTIAL PROJECT DISPLACEMENTS, CITY-OWNED PARCELS, AND RIGHT OF WAY ACQUISITIONS**

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### 2.1.4.3 Environmental Justice

#### Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Bill Clinton on February 11, 1994. This executive order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2006, this was \$20,000 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the director, in Appendix B of this document.

#### Affected Environment

The existing US 101/State Route 46 West interchange sits within United States census tracts 100, 103 and 127.04 (see Figure 2.1-3). The Council on Environmental Quality defines "minority" as individuals who are members of the following population groups: American Indian or Alaska Native; Asian or Pacific Islander; African American, not of Hispanic origin; or Hispanic. As shown in Table 2.1-5, the ethnic makeup of the census tracts encompassing the project area is predominantly white, with 7.7% to 13.5% composed of minority populations.

**Table 2.1-5 – Race/Ethnic Composition of Census Tract Population and Impacted Parcel Ownership**

Census Tract	White	Other*	Number of Parcels Affected		Project Area Minority-Owned Parcels	
			Build Alt 1	Build Alt 2	Build Alt 1	Build Alt 2
100	86.5%	13.5%	2	5	0	0
103	87.3%	12.7%	5	5	0	0
127.04	92.3%	7.7%	2	2	0	0

Source: United States Census Bureau, July 2006.

\* = African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, and other.

According to City correspondence and as confirmed by City staff, there are no minority-owned businesses within census tracts 100, 103, or 127.04 in the project area, so no minority-owned businesses would be affected by the proposed project. A majority of the population within census tracts 100, 103, and 127.04 are employed in management, professional, and related occupations, at approximately 28.1%, 28.2% and 44.4%, respectively, followed by service, sales, and office occupations at 18.9%, 23.3%, and 21.8%, respectively. Table 2.1-6 shows employment and economic information compiled for the study area using 2000 Census data.

**Table 2.1-6 – Employment and Income**

Census Tract	Labor Force	Unemployment Rate	Median Household Income	Percentage of Families Living Below Poverty Level
100	3,144	4.0	\$43,144	7.1
103	4,039	2.7	\$51,207	8.6
127.04	3,655	2.2	\$56,764	3.5

Source: United States Census Bureau, July 2006.

As shown in the table above, census tract 100 includes 7% of families living below poverty, census tract 103 includes 8.6%, and census tract 127.04 includes 3.5% of families living below the poverty level.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

Potential environmental justice issues for transportation improvement projects could include air quality, noise, water pollution, hazardous wastes, aesthetic values, community cohesion, economic vitality and employment, displacements/relocations, accessibility, safety, and construction impacts. The key to the analysis addressed in this section is to determine if the proposed project would adversely and disproportionately affect the health of minority and/or low-income populations in accordance with Executive Order 12898.

As further described in each respective section of this report, the proposed project would not result in adverse impacts to any of the areas of interest (such as air quality, noise, etc.) listed above. Furthermore, as described in Table 2.1-5, the project area is predominantly white and, as confirmed by City staff, no minority-owned businesses are located within census tracts 100, 103, or 127.04 in the project area.

No minority-owned businesses would be affected by the proposed project. Due to proposed mitigation measures for each respective area of interest, the proposed project would not exact a disproportionately high and adverse effect on minority and/or low-income populations.

*No-Build Alternative*

The No-Build Alternative would not affect neighborhood and community stability, result in the displacement of residents/businesses, or result in disproportionately high and adverse health or environmental effects on minority and/or low-income populations.

**Avoidance, Minimization, and/or Mitigation Measures**

Based on the above discussion and analysis, the build alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 regarding environmental justice.

**2.1.5 Utilities/Emergency Services**

***Affected Environment***

The utilities within the project limits of the build alternatives have been identified using as-built plans. The utilities along US 101 and State Route 46 West include underground water lines, underground natural gas lines, electricity lines, telephone lines, and cable television lines.

The Paso Robles Department of Emergency Services provides a variety of services to the community, including fire suppression, emergency medical services, rescue, and hazardous materials and other emergency responses. The Department of Emergency Services has automatic and mutual aid contractual agreements with the California Department of Forestry and other surrounding municipal departments for emergency response to the area. In addition, the City’s Police Department provides code enforcement and police services in the area. The City’s Police Department consists of over 100 full-time, part-time, and volunteer personnel.

The Diablo Canyon Power Plant is located more than 25 miles south of the proposed project. The Diablo Canyon Power Plant has adopted an emergency response plan. Residents in the Protective Action Zone, nearest the Diablo Canyon Power Plant, may be asked to take protective actions, including sheltering in homes or evacuating, in the event of a major emergency at the Diablo Canyon Power Plant. Residents in the Public Education Zone, further removed from the Diablo Canyon Power Plant, are not likely to be affected by an accident at the Diablo Canyon Power Plant. The proposed

project is more than 25 miles from the Diablo Canyon Power Plant, and is not in the Protective Action Zone or the Public Education Zone as designated by the County of San Luis Obispo County, Office of Emergency Services. Furthermore, the proposed project would not conflict with the Diablo Canyon Power Plant emergency response plan, but rather would improve traffic operations in the project area to assist in the event of an evacuation.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

Implementation of the proposed project would require relocation of underground utilities of those types described above. However, such relocations are not expected to result in extended interruptions of service, if any. No other major utility conflicts are anticipated to occur to existing utilities. For example, the overhead power line would not conflict with the proposed project and, therefore, would not require relocation or disruption of service.

The realignment of Theatre Drive would provide two points of access to Alexa Court. Alexa Court would be accessible via Theatre Drive, entering through the entrance/exit driveway of the hotel that is currently connected to Gahan Place and through the parking lot of the hotel directly connecting to the Alexa Court cul-de-sac.

The nearest fire station sits at 900 Park Street, about 2.25 miles north of the project site. Police, fire, and emergency services could experience temporary, short-term traffic delays during construction of the proposed project. After construction, the response times for police, fire, and emergency services are not anticipated to be affected and are anticipated to be similar to those of the nearby shopping center. The proposed project would provide greater accessibility to police, fire, and emergency services through the area due to congestion relief.

All road closures and detours would be advertised in advance and adequately posted to minimize adverse impacts to emergency service vehicles using the roadway. A Traffic Management Plan would be required to minimize impacts to emergency services; refer to Section 2.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities) for additional information. Impacts are anticipated to be temporary and short term.

The proposed project would reduce existing congestion, improve traffic operations, and accommodate anticipated future travel demand. This is seen as a beneficial impact for police, fire, and emergency vehicles accessing the area.

**No-Build Alternative**

The No-Build Alternative would not affect utilities. Access for emergency services would not be improved.

**Avoidance, Minimization and/or Mitigation Measures**

Refer to Avoidance, Minimization, and Mitigation Measure TRF-1 in Section 2.1.6.

**2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities**

**Regulatory Setting**

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 Americans with Disabilities Act by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

**Affected Environment**

The following analysis regarding potential impacts to traffic and transportation and pedestrian and bicycle facilities is drawn from the pertinent analyses included in the *Traffic Report* (2006).

Within the project limits, US 101 is the major north-south corridor in the county. State Route 46 is the major east/west expressway serving the county regional traffic. US 101 is a four-lane access-controlled freeway with standard lanes and shoulders. State Route 46 West is a two-lane access-controlled conventional highway with 12-foot-wide lanes and 8-foot-wide shoulders. US 101 crosses over State Route 46 West on separate structures, and the US 101/State Route 46 West interchange is composed of single-lane off- and on-ramps in a compact diamond configuration. The ramp intersections have traffic signals and are spaced approximately 260 feet apart and less than 30 feet from the adjacent frontage road intersections. Theatre Drive and South Vine Street parallel US 101 to the west, and Ramada Drive parallels US 101 to the east.

The 2006 annual average daily trips for a.m. and p.m. peak hour volumes for the US 101/State Route 46 West interchange, US 101, and State Route 46 West were obtained from the California Department of Transportation District 05, in addition to traffic counts conducted in April 2006. Table 2.1-7 lists the existing level of service experienced in the area.

**Table 2.1-7 – Year 2006 Levels of Service**

Facility	Control	Level of Service (LOS)	
		A.M. Peak	P.M. Peak
US 101/State Route 46 West Interchange US 101 Southbound/State Route 46 West/Theater Drive-Vine Street	Signal	31.5 SEC/LOS C	35.2 SEC/LOS D
US 101 Northbound/State Route 46 West State Route 46/Ramada Drive	Signal Stop Sign	13.0 SEC/LOS B 13.7 SEC/LOS B	15.0 SEC/LOS B 16.3 SEC/LOS C
US 101 south of State Route 46 West Northbound	NA	LOS D	LOS D
Southbound	NA	LOS D	LOS C
US 101 north of State Route 46 West Northbound	NA	LOS D	LOS E
Southbound	NA	LOS E	LOS D

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Level of Service for intersections (Interrupted Flow Facilities) based on average delay per vehicle in seconds.

Level of Service for US 101 (Uninterrupted Flow Facilities) based on per car per lane p.m.

Level of Service for US 101 SB/State Route 46 West/Theater Dr-Vine St based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.

The queuing on State Route 46 West between the northbound and southbound ramp intersections blocks access to through lanes, which prevents traffic flow during peak periods. The following minor, interim improvements were constructed at the US 101/State Route 46 West interchange in the summer of 2006:

- Lengthened the US 101 southbound off-ramp storage lanes to provide 500 to 550 feet for existing vehicles
- Added a traffic signal to State Route 46 West at Ramada Drive
- Interconnected traffic signals at the interchange and provided a timing plan for signal coordination

These locally funded interim improvements were constructed to offset traffic increases that will be generated by local area projects that have been approved but not yet constructed. State Route 46 also acts as a major east-west roadway between the San Joaquin Valley and the Pacific Coast region. Thus, regional traffic greatly influences traffic operations at the US 101/State Route 46 West interchange.

The US 101/State Route 46 West interchange is heavily used for weekend travel between the valley and the coastal regions, particularly during the summer months. Traffic on US 101 southbound to State Route 46 West is approximately 20% higher on Fridays and Saturdays during the summer months, operating at LOS D during these periods, with higher-than-normal delays and longer queues.

**Environmental Consequences**

**No-Build Alternative**

The No-Build Alternative would not address the projected operational deficiencies at the US 101/State Route 46 West interchange as development takes place and traffic demands increase as anticipated. The inadequate operational deficiencies of the existing interchange, when paired with increased traffic, would contribute to higher delays and longer queues with adverse impacts on through traffic for the region. Furthermore, the No-Build Alternative is not consistent with the current and future mobility goals for the region.

For the year 2038, the intersections at the US 101/State Route 46 West interchange are also forecast to operate at level of service F under the No-Build Alternative, resulting in a greater than 80-second-delay time for the a.m. and p.m. peak hours. Table 2.1-8a summarizes the level of service under the No-Build Alternative.

**Table 2.1-8a – Year 2038 Levels of Service, No-Build Alternative**

Facility	Control	Average vehicle delay/LOS	
		A.M. Peak	P.M. Peak
US 101/State Route 46 West Interchange			
US 101 Southbound/SR46 West/Theater Drive-Vine Street	Signal	>80 sec/LOS F	>80 sec/LOS F
US 101 Northbound/SR 46 West/Ramada Drive	Signal	>80 sec/LOS F	>80 sec/LOS F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).  
 Level of Service for US 101 southbound/State Route 46 West/Theater Drive-Vine Street based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.  
 Level of Service for US 101 northbound/State Route 46 West/Ramada Drive based on average delay per vehicle for all movements using the two intersections since they operate as a single unit.

The increase in regional traffic, coupled with the traffic from approved projects in the area, is forecast to degrade operations to LOS F sometime between 2010 and 2014, depending on the regional traffic growth rate. Operational analysis of the roundabouts was completed using the Sidra, Rodel, and Federal Highway Administration analysis tools. For more information regarding the analysis tools, please refer to the Traffic Report prepared for the project. The performance measures for roundabouts include

volume-to-capacity ratios, queues, and average delays, because a level of service rating system has not been developed for roundabout operations.

Tables 2.1-8b through 2.1-8f summarize the year 2038 traffic operations analysis results for the a.m. and p.m. peak hours for each of the alternatives.

**Table 2.1-8b – Alternative 1, 2038 Levels of Service**

Facility	Control	A.M. Peak		P.M. Peak	
		Delay (seconds)	LOS	Delay (seconds)	LOS
Theatre Dr./SR-46W	Signal	14.8	B	21.1	C
US 101 Mainline	N/A	N/A	F	N/A	F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

**Table 2.1-8c – Alternative 2, 2038 Levels of Service**

Facility	Control	A.M. Peak		P.M. Peak	
		Delay (seconds)	LOS	Delay (seconds)	LOS
Theatre Dr./S. Vine St./SR-46W	Signal	25.2	C	32.3	C
US 101 Mainline	N/A	N/A	F	N/A	F

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

**Table 2.1-8d – Alternative 1, US 101 SB/SR 46W/South Vine Street, 2038 Roundabout Performance (A.M./P.M.)**

Approach	Sidra			FHWA			Rodel		
	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 SB off-ramp	0.43/0.74	9.9/17.6	79/201	0.38/0.60	3.7/6.5	1.8/4.4	0.44/0.68	5.4/10.8	1/3
SR-46W EB	0.65/0.85	12.4/22.6	201/406	0.54/0.67	4.2/5.9	3.5/6.0	0.59/0.73	5.4/8.4	2/3
SR-46W WB	0.48/0.61	5.8/5.6	119/177	0.51/0.63	3.6/4.8	3.1/5.1	0.46/0.56	3.0/4.2	1/1
S Vine SB	0.42/0.98	16.8/61.1	65/351	0.27/0.60	7.4/17.2	1.1/4.3	0.25/0.60	7.8/19.2	0/2

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.

Queue = 95% queues during the peak period. Sidra reported in feet; FHWA and Rodel reported in vehicles.

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

**Table 2.1-8e – Alternative 1 and 2, US 101 NB/SR 46W/Ramada Drive, 2038 Roundabout Performance (A.M./P.M.)**

Approach	Sidra			FHWA			Rodel		
	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 NB off-ramp	0.66/1.00	11.2/33.5	154/520	0.37/0.52	3.7/5.2	1.7/3.2	0.45/0.62	5.4/9.0	1/2
SR-46W EB	0.70/0.76	6.9/7.6	111/130	0.57/0.63	4.0/4.7	3.9/5.0	0.66/0.73	6.6/8.4	2/3
Ramada NB	0.22/0.52	9.7/15.7	33/106	0.16/0.43	3.0/5.2	0.6/2.3	0.24/0.56	4.8/9.6	0/2
Ramada SB	0.58/0.73	10.3/18.2	150/239	0.50/0.56	3.8/5.0	3.0/3.8	0.66/0.73	8.4/12.0	2/4

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.

Queue = 95% queues during the peak period. Sidra reported in feet, FHWA and Rodel reported in vehicles.

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

**Table 2.1-8f, Alternative 2, US 101 SB/SR 46W, 2038 Roundabout Performance (A.M./P.M.)**

Approach Leg	Sidra			FHWA			Rodel		
	V/C	Delay	Queue	V/C	Delay	Queue	V/C	Delay	Queue
US 101 SB off-ramp	0.34/0.51	7.3/8.8	47/90	0.36/0.55	3.4/5.4	1.7/3.6	0.42/0.63	4.8/8.4	1/2
SR-46W EB	0.57/0.70	8.6/11.1	150/234	0.51/0.63	3.8/5.0	3.1/5.0	0.43/0.53	3.0/4.2	1/1
SR-46W WB	0.33/0.38	4.9/4.3	0/0	0.50/0.60	3.4/4.3	2.9/4.5	0.57/0.69	4.8/6.6	1/3

V/C = Volume-to-Capacity ratio. Delay = average delay per vehicle during the peak hour period, reported in seconds.

Queue = 95% queues during the peak period. Sidra reported in feet, FHWA and Rodel reported in vehicles.

Source: U.S. Highway 101/State Route 46 West Traffic Report (2006).

Improvements associated with the proposed build alternatives would improve the operation of the on- and off-ramp intersections, as well as the intersection of Theatre Drive and State Route 46 West as compared with the No-Build Alternative. The improvement project would reduce delays to the motoring public, resulting in an estimated savings of \$43,823,094 (2008 dollars) during the 2018 to 2038 time period. The savings is based on delay reductions during the weekday a.m. and p.m. peak periods. Additional savings would be gained during other hours.

Funding constraints will require that improvements under the recommended alternative be constructed in phases. Some variation of minor design features may then be made. The major components of potential build phases are discussed in Section 1.3.1.2 “Unique Features of Build Alternatives.” In addition, the American Recovery and Reinvestment Act (ARRA) of 2009 is now an identified funding source for key components and interim improvements of the Phase 1 concept.

The May 6, 2008 Traffic Technical Memorandum included an analysis of the traffic operations for interim improvements at the US 101 southbound ramps intersection with State Route 46 West. Specifically, the analysis focused on comparing the no-build concept to the concept of the Theatre Drive/State Route 46 West intersection relocation to approximately 900 feet west of the current location, as discussed in the Phase 1 concept. That traffic analysis documented the operational benefit and utility of intersection relocation in the year 2018 p.m. peak hour. The modeling reflected a vehicle delay change from 95.3 seconds of delay for the no-build scenario to 82.2 seconds of delay for the build scenario at the US 101 southbound ramps intersection. Though both scenarios reflect a greater than 80-second delay per vehicle (LOS F), the interim improvements show an approximately 14% reduction in delay.

Furthermore, the Technical Memorandum included a sensitivity analysis of interchange operations. Interchange operations are forecast to degrade to LOS F

during the p.m. peak hour period in the 2010-2014 horizon period depending on the rate of growth in traffic. Implementation of Theatre Drive/State Route 46 West intersection relocation would reduce vehicle delays during other hours of the day when the interchange is not fully saturated. Hours of the day that would be congested under the No-Build Alternative would operate without congestion with the Phase 1 interim improvements. In some instances, the interchange would operate at LOS F during the p.m. peak hour period under the no-build scenario, whereas the interchange would operate at LOS E with the implementation of Phase 1. The Phase 1 improvements would also increase the capacity of the US 101 southbound off-ramp that contains two right-turn lanes. Currently, the southbound US 101 ramp right-turn lane dedicated for vehicles destined for southbound Theatre Drive requires vehicles to make the right turn from the ramp and then reduce vehicle speed to immediately turn left onto Theatre Drive. With implementation of Phase 1 improvements, vehicles would turn right from the ramp and then accelerate away from the intersection since the left turn onto Theatre Drive would be some 900 feet to the west at the new intersection. As such, the implementation of Phase 1 would result in independent and beneficial operational impacts.

#### *Build Alternative 1*

Under this alternative, the State Route 46 West/Theatre Drive intersection is forecast to operate at LOS B (with an average delay per vehicle of 15 seconds) during the a.m. and p.m. peak periods in year 2018. For year 2038, the Theatre Drive/State Route 46 West intersection would operate at LOS B (with an average delay per vehicle of 15 seconds) in the a.m. peak hour and at LOS C (with an average delay per vehicle of 21 seconds) in the p.m. peak hour.

Build Alternative 1 would improve the operation of the ramp intersections as well as the intersection of Theatre Drive and State Route 46 West. Roundabout operations are measured in volume-to-capacity ratios as there are no accepted LOS standards. For most of the entry legs of the roundabouts in year 2038, the volume-to-capacity ratios are less than 0.85, with delays between 3 and 23 seconds, and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the a.m. and p.m. peak-hour periods.

As previously mentioned, State Route 46 West is a major east-west route between the San Joaquin Valley and the Pacific Coast. The route, including the US 101/State Route 46 West interchange, is heavily used during the summer months, particularly on Friday evenings with traffic headed for the coast and on Sunday afternoons with

traffic returning to the San Joaquin Valley. The roundabout at State Route 46 West, Theater Drive/South Vine Street, and US 101 southbound was assessed under the summer Friday evening peak-hour traffic scenario. For most of the entry legs of the roundabout, the volume-to-capacity ratios are 0.85 or less, delays are within the 3 to 23 seconds-per-vehicle range, and the maximum queues would be accommodated by the storage available on the entry legs during the peak 15 minutes of the summer Friday evening period.

The proposed project would not adversely affect US 101. A widening to six lanes has been identified in Caltrans' Transportation Concept Report and in the Regional Transportation Improvement Program. Even with the widening to six lanes, US 101 is expected to operate at level of service F. However, adequate storage would be provided for off-ramp queues in Build Alternative 1 and exiting vehicles should not impact the US 101 through lanes.

Furthermore, as mentioned above, even with the minor, interim improvements completed in the summer of 2006, the interchange is expected to degrade to level of service F during the 2010 to 2014 time period. Opening day for the interchange is projected to be in the year 2018, several years after the interchange would degrade to level of service F.

### *Build Alternative 2*

Under Build Alternative 2, the intersection of State Route 46 West and Theatre Drive/South Vine Street is forecast to operate at level of service C during the a.m. and p.m. peak periods in both 2018 and 2038. This alternative would improve the operation of the ramp intersections as well as the Theatre Drive/South Vine Street intersection.

Similar to Build Alternative 1, for most of the entry legs of the roundabouts, the volume-to-capacity ratios are less than 0.85, with delays between 3 and 23 seconds, and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the a.m. and p.m. peak-hour periods.

A summer Friday evening period for the US 101 southbound/State Route 46 West roundabout assessment was conducted for Build Alternative 2. Because South Vine Street is not connected to the roundabout as in Build Alternative 1, the traffic operations for this alternative are better than that of Build Alternative 1. The volume-to-capacity ratios are 0.74 or less, delays are in the 4 to 12 seconds per vehicle range,

and the maximum queues would be accommodated by the storage on the entry legs during the peak 15 minutes of the summer Friday evening period.

The proposed project would not adversely affect US 101. A widening to six lanes has been identified in Caltrans' Transportation Concept Report and in the Regional Transportation Improvement Program. Even with the widening to 6 lanes, US 101 is expected to operate at level of service F. However, adequate storage would be provided for off-ramp queues in Build Alternative 2 and exiting traffic should not impact the US 101 through lanes.

### ***Construction Impacts***

Temporary traffic impacts would occur as a result of construction vehicles and heavy equipment in the immediate project area, as well as temporary lane closures, detours, and merging traffic. The anticipated impacts to traffic congestion would be minor and would cease upon project completion.

Modification of the US 101/State Route 46 West interchange would maintain a continuous sidewalk on the south side of State Route 46 West under US 101. Pedestrian traffic through the roundabouts would be facilitated by crosswalks with median refuges. In addition, all standard intersection curbs being constructed in conjunction with this project would provide enhanced access to the handicapped in accordance with Americans with Disabilities Act requirements. State Route 46 West is classified as a bike route, and bicycle traffic would use the paved shoulders and bike lanes provided on State Route 46 West and the frontage roads as part of the proposed project. Bicyclists are also permitted inside the roundabouts. For those bicyclists who do not wish to use the roundabouts, bike ramps would provide continuous access from paved surfaces to the wide sidewalks around the roundabouts. In addition, a shared-use path is proposed along the south side of State Route 46 West between the relocated Theatre Drive and Ramada Drive.

### ***Avoidance, Minimization and/or Mitigation Measures***

TRF-1 A construction Traffic Management Plan would be approved prior to construction and implemented by Caltrans and the City. The plan would ensure that traffic flow and roadway safety are maintained in the project area during construction. This Traffic Management Plan would include provisions for adequate notices, sign-postings, detours, phased construction, provisions for pedestrians and bicycles, and the permitted hours of construction activities. The Traffic Management Plan would be

devised so that construction would not interfere with any emergency response or evacuation plans.

TRF-2 Signage to guide vehicles from the freeway off-ramps and through the roundabouts is a very important part of the operations through roundabouts and through the interchange. Signing would be included to direct travelers to the State Route 46 West direction and to Theatre Drive at the appropriate points determined during final design and as approved by Caltrans.

### **2.1.7 Visual/Aesthetics**

#### ***Regulatory Setting***

The National Environmental Policy Act of 1969, as amended, 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 United States Code 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration in its implementation of the National Environmental Policy Act [23 United States Code 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.

Likewise, the California Environmental Quality Act 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” [California Public Resources Code Section 21001(b)].

#### ***Affected Environment***

The following analysis regarding potential project-related visual/aesthetic impacts is based on the analyses included in the Visual Impact Assessment, U.S. Highway 101/State Route 46 West Interchange Improvement Project (2009).

The proposed project is located on the southern edge of the city. Before reaching US 101, State Route 46 West travels through mostly agricultural vineyards and gently rolling hills. A hotel is located south of State Route 46 West near the intersection of Theatre Drive/South Vine Street. A natural drainage occurs on the north side of State Route 46 West paralleling the road. A culvert from the drainage leads east under US 101 to its outlet southeast of the project area where it becomes an open channel again. Oak trees line the drainage, which is a tributary to the Salinas River. Vegetation communities present within the project area include mostly ruderal (disturbed)

vegetation, grassland, hayfields, and remnant oak associated with the drainage, as well as fruit trees. The majority of the project area consists of commercial/retail and industrial development, primarily concentrated at all quadrants of the interchange, with the exception of the northwest quadrant of the interchange. This particular quadrant consists primarily of vacant (undeveloped) land.

### *Project Viewshed*

A project viewshed is defined as the visual limits of the views from the proposed project. The viewshed includes locations of viewers likely to be affected by visual changes created by the proposed project. Viewsheds are influenced by the existing topography, vegetation, and the built environment and include all areas where physical changes associated with the proposed project can be seen from a sensitive viewpoint.

For the proposed project, the principal travel corridors and intersections assessed included State Route 46 West, US 101, the US 101 on- and off-ramps, Ramada Drive, Theatre Drive, South Vine Street, and Gahan Street. Other views taken into account include nearby residential views, notably the three homes in the area southwest of the State Route 46 West/US 101 interchange.

A total of five key views were selected for the analysis of the proposed project. The key views were chosen through review of existing land use data, the viewshed model, planning documents, agency consultation, and field reviews. Per Federal Highway Administration guidelines, views both “from” and “of” the roadway/interchange have been identified. The five key views for the project are shown in Figure 2.1-5 and summarized below.

- Key View #1 – View of proposed Theatre Drive re-alignment from nearby residence;
- Key View #2 – View from eastbound State Route 46 West of the proposed interchange/roundabout;
- Key View #3 – View from westbound State Route 46 West of the proposed Theatre Drive/South Vine Street re-alignment;
- Key View #4 – View from northbound US 101 of the proposed interchange/roundabout towards vicinity of Ramada Drive; and
- Key View #5 – View from southbound US 101 traveler looking west toward the proposed South Vine Street re-alignment.

### *Existing Visual Character*

The Federal Highway Administration measures visual quality using three factors: vividness (memorability), intactness (integrity), and unity (harmony). The character of the area immediately surrounding the project area has become increasingly commercial and industrial with large shopping complexes, industrial buildings, gas stations, and hotels. However, the character of the general region remains agricultural and rural, dotted with vineyards and open space. Furthermore, the City has defined the intersection of State Route 46 West and US 101 as a “Gateway to the City” in its City General Plan, placing an importance on the visual character of the area as a defining entry point into the City.

### *Existing Visual Quality*

While the project area has been affected by development, the local area is generally defined as one of the more visually attractive regions in California with various memorable, natural features such as rolling hills, open space, and native vegetation. The project area is characterized as having moderate vividness, and low to moderate intactness. Unity for the project area is considered moderate. Some disharmony has been created by commercial, industrial, and roadway developments. However, the broader context of the area provides a relatively unified backdrop of rolling hills and rural, open spaces. The visual quality of the natural surroundings has changed and shifted to be more consistent with roadside, urban, and commercial centers. As such, the overall visual quality rating for the project area is considered to be moderate.

### *Viewer Response*

To predict how the public may react to visual changes brought about by a project, a method of viewer response composed of the viewer sensitivity element and viewer exposure element is measured. The level of viewer sensitivity to a proposed project is determined by assessing viewer activity, awareness, local values, and cultural significance of the visual resource. Viewer exposure is determined by assessing the number of viewers exposed to the resource change and the type of viewer activity, the physical location of the viewer, and the duration of their views.

The sensitivity of different types of viewers within the project area varies depending upon viewer activity, along with awareness of and familiarity with the surrounding environment. Recreational viewers such as those at parks and playgrounds are the most sensitive to change due to their focus on the visual surroundings. Residents are the next most sensitive due to the permanency of their views. Workers and visitors are less sensitive viewers due to their infrequent opportunities to experience

surrounding views. Pedestrians would be considered sensitive viewers, as they can be directly within the viewshed and would have lengthy exposure to views. Regular motorists would be those who frequent the project area or who commute on a regular basis, but their views would be for short periods as they move through the area. Occasional motorists are the least sensitive to views and typically include non-resident, non-commuter tourists.

Taking into account the main viewer groups, their activity, and awareness, the overall viewer exposure rating has been classified as moderate. Table 2.1-9 summarizes the existing visual environment.



**KEY VIEWPOINTS**  
**US-101/SR-46W INTERCHANGE PROJECT**  
 SOURCE: USGS (Aerial 1997)  
 EA: 05-111-45130K  
 05-810-101 PM 53.644.5 KP 86.56-87.88  
 05-810-48 PM 21.619.22.0 KP 34.9375.44  
 CREATED BY: CL DATE: 11-13-07 FIG. NO.: 2-1-6  
 PM: CM PROJ. NO.: 27560583.20003

SCALE: 1" = 300 Feet (1:3000)

150 0 100 300 Feet

LEGEND

— Project Alternatives

- - - Key Viewpoints

North Arrow

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**Table 2.1-9 – Existing Visual Resources and Viewer Response**

Key View	Visual Resources		Viewer Response	
	Visual Character	Visual Quality	Viewer Sensitivity	Viewer Exposure
#1	Dominant Urban: commercial with undeveloped properties	Low/Moderate	High	Moderate
#2	Co-dominant Urban/Rural	Low/Moderate	Moderate	Low/Moderate
#3	Dominant Rural with urban influences	Moderate	Moderate	Low/Moderate
#4	Dominant Urban; Industrial/Commercial	Low	Low/Moderate	Moderate
#5	Dominant Rural	Moderate/High	Low/Moderate	Moderate

Source: U.S. Highway 101/State Route 46 West Interchange Improvement Project Visual Impact Assessment (2009).

**Environmental Consequences**

**Build Alternatives 1 and 2**

Five key views were analyzed to assess expected project-related impacts. The key views were selected to display the visual effects of the project and represent the primary viewer groups that would potentially be affected by the project. In comparing the potential severity of the change with the degree to which viewers are likely to oppose the change for each key view, it was determined that the overall visual impact resulting from the proposed project would result in moderate visual impacts. Table 2.1-10 summarizes the existing and proposed conditions of each key view and its overall visual impact associated with each respective build alternative.

**Table 2.1-10 – Visual Environment, Before and After Proposed Project**

Key View	Alt.	Visual Character		Resulting Visual Impact
		Before Project	After Project	
1	1, 2	Dominant urban; commercial with undeveloped properties	Dominant Urban; Commercial	Moderate
2	1	Co-dominant, urban/rural	Dominant Urban	Moderate
	2	Co-dominant, urban/rural	Dominant Urban	Low/Moderate
3	1	Dominant rural with urban influences	Co-dominant, urban/rural	Low/Moderate
	2	Dominant rural with urban influences	Co-dominant, urban/rural	Moderate
4	1, 2	Dominant urban; industrial/commercial	Dominant urban; industrial/commercial	Low/Moderate
5	1	Dominant rural	Dominant rural with urban influences	Moderate
	2	Dominant rural	Dominant rural with urban influences	Low/Moderate

US 101/ State Route 46 West Interchange Improvement Project-Visual Impact Assessment (2009)

According to the Federal Highway Administration, low visual impacts involve minor adverse changes to the existing visual resource, with low viewer response to change in the visual environment; a low visual impact may or may not require minimization measures. Moderate visual impacts involve moderate adverse change to the visual resource with moderate viewer response.

Detailed discussion regarding the existing characteristics (visual character and quality and viewer response) of each respective key view and project impacts is presented in the *Visual Impact Assessment* (2009) prepared for the proposed project. The summary of findings provided above for all key views is included herein for brevity.

Key View #2 is discussed in more detail below because it is from this particular key view that the traveling public would be exposed to the greatest changes in the visual environment as a result of the proposed improvements and for the longest duration of time. Please refer to the project's *Visual Impact Assessment* (2009) for more detailed discussion regarding selection of key views for analysis and the results of the analysis for each respective key view selected; included are photo simulations for each build alternative at Key View #4.

#### Visual Simulations – Key View #2

Visual simulations have been prepared for Key View #2 to illustrate potential changes in the visual character of the project area subsequent to project implementation. This particular view represents the most direct impacts of the project and a relatively high number of viewers. The expected change in visual environment is illustrated using simulations that depict the post-project condition for each respective build alternative.

#### Key View #2 – Existing Conditions

Key View #2 is a view of the location for the proposed roundabout, west of US 101 from an eastbound traveler on State Route 46 West. The existing view includes the US 101 overcrossing, the Theatre Drive/South Vine Street intersection with State Route 46 West, and the southbound ramps for US 101. The view also includes mature oak trees, roadside vegetation, and associated street lights and signage. Refer to Figure 2.1-6 Key View #2 Existing Conditions.

**Figure 2.1-6 Key View #2 Existing Conditions**



*Key View #2 Visual Simulation – Build Alternative 1*

Applying the Federal Highway Administration’s visual impact levels, Build Alternative 1 is considered to have a moderate impact on existing visual resources from Key View #2. Build Alternative 1 would have a greater visual impact than Build Alternative 2 from this particular key view because of the inclusion of South Vine Street in the roundabout on the west side of the interchange. This would result in a greater roundabout footprint and, hence, require more trees to be removed resulting in a greater viewer sensitivity and response.

**Figure 2.1-7 Key View #2 Simulation for Build Alternative 1**



*Key View #2 Visual Simulation – Build Alternative 2*

Comparing the severity of resource change with the degree to which viewers are likely to oppose the change, Build Alternative 2 is considered to have a low/moderate impact on existing visual resources from Key View #2. Build Alternative 2 would also have less impact because it would result in a smaller roundabout footprint, and therefore impact fewer trees (oaks), than Build Alternative 1 from this particular key view.

**Figure 2.1-8 Key View #2 Simulation for Build Alternative 2**



For Build Alternative 1, realigning South Vine Street would result in a greater visual impact at the location of the roundabout because it would appear more built up than Build Alternative 2. However, with Build Alternative 2, realigning South Vine Street to the west would result in a larger project footprint and require removing more trees overall. Therefore, Build Alternative 2 would have a greater visual impact overall than Build Alternative 1.

***Avoidance, Minimization, and/or Mitigation Measures***

**AES-1** A Landscape and Revegetation Plan shall be developed as part of preliminary and final project design. The plan shall include the following components:

- Landscaping of new areas and restoration of disturbed habitat shall follow construction and demolition activities as soon as practicable.
- Avoidance of tree removal, to the maximum extent possible, shall be implemented. Where possible, vegetation shall be pruned rather than completely removed.
- Vegetation pruning where required shall be conducted using appropriate International Society of Arboriculture standards under the direction of a Certified Arborist.

- Oak trees shall be replanted at a minimum 10:1 ratio, and each replanted tree shall be a minimum of one gallon in size. Oak trees shall be replanted on the same property as or as close to the area of removal as practicable.
- Ornamental and functional landscaping shall be included as appropriate along highway on- and off-ramps, city streets, roundabouts and other areas to minimize the urban character of the project, support aesthetic goals identified in City of Paso Robles Gateway Plan, and minimize light and glare to the surrounding area.
- Where feasible, the Landscape Plan shall use native species appropriate to the region. For ornamental planting, appropriate non-native plants shall be allowed for design flexibility.
- If required for long-term plant health, a permanent irrigation system shall be installed for ornamental and functional landscaping.
- A minimum 3-year plant establishment period shall be implemented.
- Prior to final design, Caltrans shall review and approve the Landscape and Revegetation Plan.

**AES-2** Project lighting shall be developed to the following specifications:

- Type, style, and placement of lighting features shall be designed, to the greatest extent allowable by jurisdictional policy, so as not to create off-site glare and to minimize the effect on surrounding properties.

**AES-3** Final graded slopes, in order to blend with natural forms, shall be rounded and contoured, to the extent practicable, to avoid abrupt grade breaks and sharp edges.

**AES-4** The wall along the south side of State Route 46 West and the retaining wall associated with the existing drainage shall include aesthetic treatment such as texture and/or color to minimize the urban character of the project and support aesthetic goals identified in the City of Paso Robles Gateway Plan.

**AES -5** In addition to the planting required in mitigation measure AES-1, aesthetic treatments shall be incorporated into the center paving of the roundabouts.

## **2.2 Physical Environment**

### **2.2.1 Hydrology and Floodplains**

#### ***Regulatory Setting***

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. Requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

#### ***Affected Environment***

A *Summary Floodplain Encroachment Report* (2007) was prepared to assess existing floodplain conditions within the project area and potential impacts associated with the proposed project.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, portions of the project area lie within the 100-year floodplain (refer to Figure 2.2-1). However, the base flood elevations have not been determined at this location. The 100-year floodplain bisects the US 101/State Route 46 West interchange in an east-to-west orientation, originating at the Salinas River east of the project area. Much of the 100-year flood flows are contained in the existing 10.2-foot by 10.2-foot diameter reinforced concrete box culvert that crosses under US 101. The 100-year floodplain designated by the Federal Emergency Management Agency terminates at a point approximately 600 feet west of US 101 and approximately 500 feet north of State Route 46 West. The existing concrete box culvert under the interchange would be extended approximately 140 feet on both sides to allow for construction of the roundabouts.

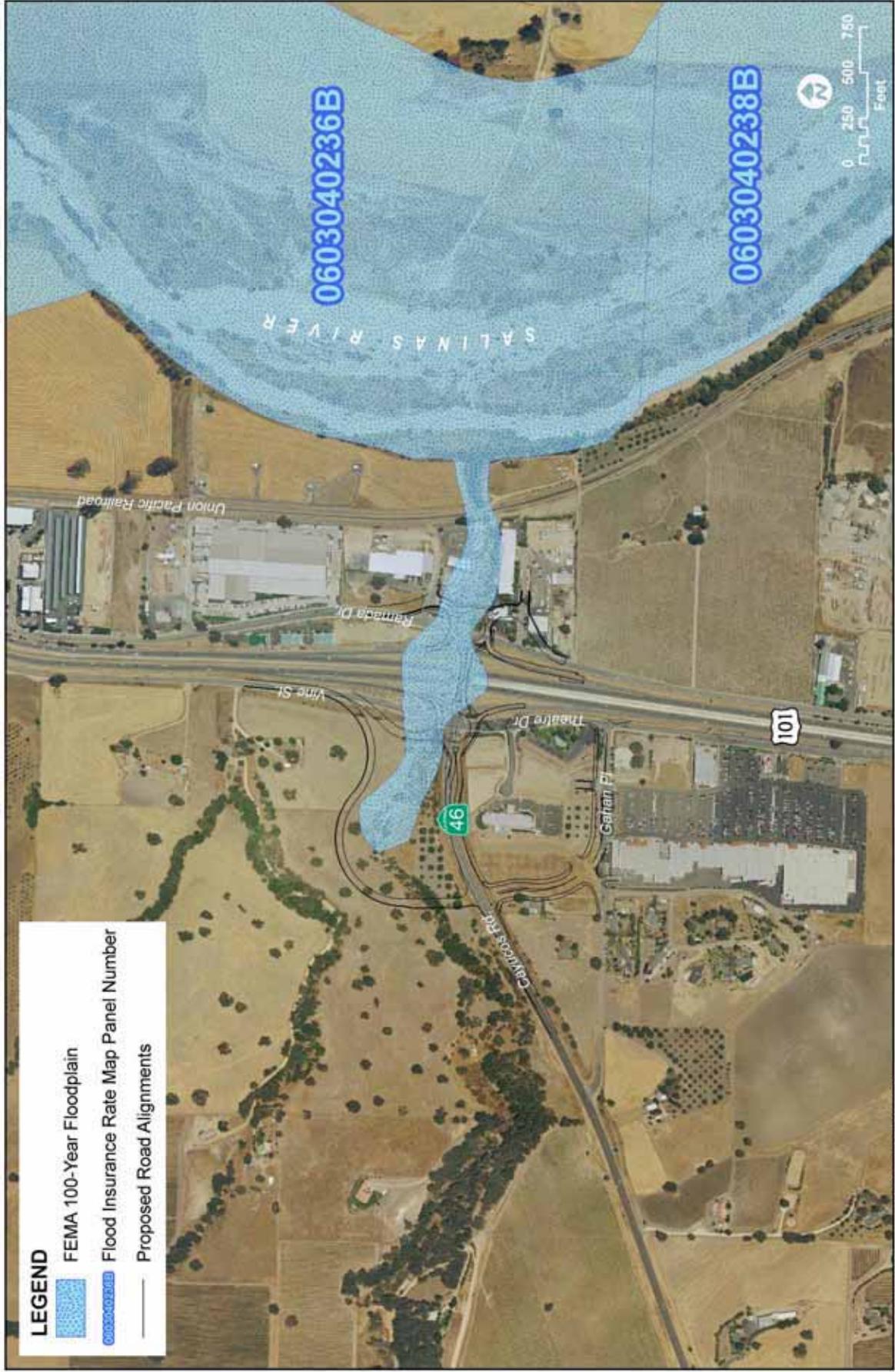
Potential natural and beneficial values of the existing floodplain in the project area include support for plant and animal species and water quality maintenance.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

As further described in the Summary Floodplain Encroachment Report (2007), the proposed project would not result in a longitudinal encroachment on the Federal Emergency Management Agency's designated 100-year floodplain and there are no significant risks associated with the implementation of the project. The South Vine Street Bridge associated with Build Alternative 2 would span the 100-year floodplain and provide adequate freeboard at the low point of the bridge.

The proposed action also would not support probable incompatible floodplain development; the project entails modification of an interchange that exists within the floodplain. Roadway modifications to the interchange would maintain, at a minimum, the existing below-ground drainage capacity and not adversely impact the surface flows—drainage would follow existing flow patterns.



**FIGURE 2.2-1**  
**FEMA 100-YEAR FLOODPLAIN**

City of Paso Robles  
 US-101/SR-46W Interchange Improvement Project



The proposed project would not significantly impact natural and beneficial values of the floodplain would not result in a significant floodplain encroachment as defined in 23 Code of Federal Regulations 650.105(q).

### *Construction Impacts*

Construction activities associated with the proposed interchange improvement project would affect portions of the 100-year floodplain. However, construction-related impacts to the existing floodplain would be temporary and would be minimized through the implementation of standard Best Management Plans.

### **Avoidance, Minimization, and/or Mitigation Measures**

As further discussed in Section 2.3.1, Natural Communities, affected oak trees would be replanted on-site to minimize impacts to oak trees, including those located along oak woodland habitat of the affected drainage within the floodplain. As described in further detail in Section 2.2.2, Water Quality and Storm Water Runoff, best management practices would be implemented during construction to minimize impacts to water quality throughout the project area, including within the floodplain.

## **2.2.2 Water Quality and Storm Water Runoff**

### **Regulatory Setting**

Section 401 of the Clean Water Act requires water quality certification from the State Water Resources Control Board or from a Regional Water Quality Control Board when the project requires a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers to dredge or fill within a water of the United States.

Along with Section 401 of the Clean Water Act, Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the National Pollutant Discharge Elimination System program to the State Water Resources Control Board and nine Regional Water Quality Control Boards. The State Water Resources Control Board and Regional Water Quality Control Boards also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The State Water Resources Control Board has developed and issued a statewide National Pollutant Discharge Elimination System permit to regulate storm water discharges from all Caltrans activities on its highways and facilities. Caltrans construction projects are regulated under the statewide permit, and projects performed

by other entities on Caltrans right-of-way (encroachments) are regulated by the State Water Resources Control Board's Statewide General Construction Permit. All construction projects over 1 acre require a Storm Water Pollution Prevention Plan to be prepared and implemented during construction. Caltrans activities of less than 1 acre require a Water Pollution Control Program.

### ***Affected Environment***

The proposed project is not expected to have a substantial impact on water quality; therefore, a formal technical study was not performed. However, a water quality assessment was performed. The results of this water quality assessment were incorporated directly into the Initial Study. A Storm Water Data Report has been prepared for this project to comply with Caltrans' National Pollutant Discharge Elimination System Storm Water Permit. The Storm Water Data Report is an evolving document that is updated at each stage of project development.

The proposed project is located near the Salinas River and within two unnamed sub-watersheds of the Salinas River. Both watersheds are seasonal (dry in the summer). The Salinas River near the proposed project is listed on the Central Coast Regional Water Quality Control Board's 303(d), List of Impaired Watersheds for salinity, total dissolved solids, and chlorides. However, the proposed project is not considered a substantial source of these contaminants. Build Alternatives 1 and 2 would include an area of ground disturbance of approximately 20.2 acres and 24.0 acres, respectively.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

Build Alternative 1 is anticipated to result in a net increase of 2.3 acres of impervious surface area, whereas Build Alternative 2 is expected to result in a net increase of 3.5 acres of impervious surface area above what currently exists.

With the exception of the difference in net increase in impervious surface area, and with implementation of the pertinent minimization measures described later in this section, the water quality and storm water runoff impacts would be similar for each build alternative. The following analysis examines groundwater and surface water impacts associated with Build Alternatives 1 and 2. Under the Surface Water heading, impacts are further separated into temporary and long-term impacts.

#### ***No-Build Alternative***

The No-Build Alternative would not alter the existing impervious surface and drainage patterns. No impacts to water quality would occur with this alternative.

### *Groundwater*

The proposed project is located within the water protection zone for the Thunderbird wells. The depth to groundwater along the project alignment is not known, however, the depth to groundwater at the Thunderbird well field averages approximately 30 feet. The Thunderbird well field consists of four wells northeast of the proposed project used for municipal water supplies for the City of Paso Robles. No areas of groundwater contamination are known to exist in the project area. The primary concern for groundwater would be an accidental release of a contaminant that would impact groundwater quality, including at the Thunderbird well field.

### *Surface Water*

#### *Temporary Impacts*

For Build Alternatives 1 or 2, soils disturbance would temporarily occur due to earth-moving activities, such as excavation, soil compaction and moving, cut and fill activities, and grading. Runoff from construction would be typical of urban areas, and may include sediments and contaminants such as oils, fuels, paints, and solvents. Additionally, other pollutants such as nutrients, trace metals, and hydrocarbons can attach to sediments and be transported to downstream drainages and ultimately into collecting waterways, contributing to degradation of water quality.

#### *Long-Term Impacts*

Long-term operation of the improved roadway has the potential to degrade water quality as a result of vehicular travel, including increases in such pollutants as the following:

- Petroleum products leaked or spilled from cars and trucks
- Heavy metals contained in brake pads and tires
- Sediment
- Litter

The discharge from the proposed project to storm water facilities would consist of non-point sources throughout the wet weather season. The greatest potential for impacts to surface water is during the first storm of the wet weather season that generates substantial storm water runoff.

The two build alternatives would include installation of gutters and storm drain improvements. These project features have the potential to increase storm water flow rates and patterns. Increases in storm water flow rates and patterns can have the following consequences:

- Increase pollutant transport to surface water bodies
- Increase channel scour of unlined drainage ways (i.e., increased sedimentation downstream)
- Increase creek bed and bank scour

All Caltrans projects over 1 acre are required under Caltrans' National Pollutant Discharge Elimination System permit to prepare a Storm Water Pollution Prevention Plan to accommodate temporary construction impacts and permanent impacts. The proposed build alternatives would prepare a Storm Water Pollution Prevention Plan and would incorporate Best Management Practices that would address the temporary construction impacts. As part of the project design, permanent Best Management Practices have been incorporated to address long-term impacts. Both Build Alternatives 1 and 2 would have a less than significant impact to water quality based on the incorporation of these design features into the project's design.

***Avoidance, Minimization, and/or Mitigation Measures***

**WQ-1** The project would incorporate standard Best Management Practices during construction to minimize any potential environmental consequences to water quality. Typical Best Management Practices that could be incorporated into the Storm Water Pollution Prevention Plan include, but are not limited to, the following:

- Diversion of offsite runoff away from the construction site
- Revegetation of exposed soil surfaces as a soon as feasible following grading activities
- Perimeter straw wattles (tubes of straw used to control erosion or sediment and storm water runoff) to prevent off-site transport of sediment
- Drop inlet protection (such as filters and sand bags or straw wattles), with sand bag check dams within paved roadways
- Regular watering of exposed soils to control dust during construction
- Specifications for handling and disposal of construction waste
- Contained equipment wash-out and vehicle maintenance areas
- Erosion and sedimentation control measures maintained throughout the construction period

- Stabilized construction entrances to avoid trucks from tracking debris on city roadways
- Training of subcontractors on general site housekeeping

After the certification of the Final Initial Study/Environmental Assessment, the applicable permits from the respective regulatory agencies would be obtained for the project. This may include National Pollutant Discharge Elimination System permits, a Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Section 404 Permit from the U.S. Army Corps of Engineers. The requirements of the permits and the implementation of Best Management Practices during construction would ensure that no major water quality, water discharge, erosion, or siltation impacts would occur as a result of the project.

**WQ-2** To reduce potential impacts to the four shallow municipal production wells (Thunderbird well field) located near the proposed project site, the following measures are recommended:

- The use of solvents, fertilizers, and other chemical substances that can migrate through soil should be minimized or not used at all.
- All soil and ground water contamination within the public right-of-way should be remediated.
- Contingency plans for both construction and long-term use of the highway should be developed to ensure that spills resulting from vehicular accidents are promptly and thoroughly cleaned.

**WQ-3** The following design and construction Best Management Practices would be implemented to reduce impacts to water and storm water quality:

- Sheet flow of storm water runoff into vegetated areas would be implemented where feasible. For slopes too steep to receive sheet flow, storm water would be diverted away. Concentrated flows would be collected in stabilized drains and channels. The majority of surface runoff from this project would be conveyed through a system of concrete gutters, roadside swales, inlets, and pipes to the unnamed creek. Roadside swales would be vegetated rather than concrete lined where feasible. Flared end sections and rock slope protection would be used at drainage outfalls to dissipate energy and reduce erosion.
- Proposed cut slopes would be made as flat as feasible. Proposed embankment slopes would be 4:1 or flatter wherever feasible, and no steeper than 2:1 in areas in which a flatter slope would not be feasible or cause unacceptable

impacts. All slopes would be revegetated with landscaping or erosion control materials. Where slope stabilization or erosion is a concern, rock slope protection would be used.

- The proposed project has been aligned to minimize impacts to existing vegetation. The contractor staging area is potentially feasible in an open field adjacent to the project site. All vegetation and trees to remain would be protected with high visibility fencing and denoted on the contract plans.
- Construction site Best Management Practices would include, but not be limited to, slope tracking, erosion control, fiber rolls, stabilized construction entrances, and concrete washout facilities.
- Drain inlet stenciling would be applied on applicable inlets within the project limits.

### **2.2.3 Geology/Soils/Seismic/Topography**

#### ***Regulatory Setting***

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans’ Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

#### ***Affected Environment***

The proposed US 101/State Route 46 West interchange project is located at the base of the eastern slopes within the San Luis Range within the southern margin of the Coast Ranges geomorphic province of California. The Coast Ranges province is a seismically active region that is characterized by northwest-southeast trending mountain ranges and valleys.

The US 101/State Route 46 West interchange project is underlain by Quaternary alluvium, older alluvium, and Paso Robles formation. Alluvium refers to sediments such as gravel, sand, or clay deposited by flowing water. Locally, artificial fill

(human-placed material) overlies the alluvium and the bedrock. The artificial fill material was placed primarily during the original roadway development and surrounding area improvements.

The alluvial deposits underlie most of the project area with the exception of the northwestern and very western project areas. The alluvial deposits are comprised of unconsolidated alluvial gravel, sand, and clay. Older alluvium is located in the northwestern portion of the project area and is comprised of older, dissected alluvial gravel, sand, and clay. Paso Robles formation bedrock is mapped along the western to southwestern project area limits. The Paso Robles formation is comprised of light medium gray pebble, gravel, sand, and clay. Pebbles within the Paso Robles formation are mostly of white siliceous shale derived from the Monterey formation.

The San Luis Range is crossed by several northwest-trending active and potentially active faults. A trace of the Espinosa fault is located north of the project site. However, the California Geological Survey (formerly known as the California Division of Mines and Geology) identifies a strand of the Rinconada fault to the northeast of the project site. An unnamed fault, referred to as a southern strand of the Rinconada fault, is mapped to southwest of the project site.

The Rinconada fault, which is mapped approximately 3,000 feet northeast of the project site, is considered by the California Geological Survey as a potentially active, late Quaternary fault, indicating displacement during the last 700,000 years, nearby the site. The southern strand of the Rinconada fault, mapped approximately 3,000 feet southeast of the project site, is considered by the California Geological Survey as a Quaternary age fault with evidence of fault displacement sometime during the last 1.6 million years. Alluvial deposits conceal the Rinconada fault strands where it is mapped crossing to the northeast and southwest of the project site.

Other faults that are considered potential seismic sources with respect to seismic shaking at the project area include the Los Osos, Hosgri, San Andreas, and San Simeon faults. The geo-seismic characteristics of the potential seismic sources to the site are listed in Table 2.2-1, including an estimate of the maximum earthquake magnitude that may potentially be generated by each fault.

**Table 2.2-1 – Summary of Potential Seismic Sources**

<b>Fault Name</b>	<b>Style</b>	<b>Dip (deg.)</b>	<b>Dip Direction</b>	<b>Approximate Closest Distance to Site (kilometer)<sup>(1)</sup></b>	<b>Approximate Maximum Magnitude, Mw<sup>(2)</sup></b>
Rinconada	Strike Slip	90	--	0.9	7.3
Los Osos Fault Zone	Reverse	45	SW	33	7.0
Hosgri	Reverse-Oblique	N/A	NE	39	7.3
San Andreas	Strike Slip	90	--	39	8
San Simeon	Strike Slip	90	--	47	7.5

Source: City of Paso Robles Hazard Mitigation Plan, Paso Robles, California (2005).

Notes: (1) The distances noted are to the nearest fault surface trace. (2) Maximum credible earthquake values reported as maximum moment magnitude by the California Geological Survey (2003), California Geological Survey (1996), the International Conference of Building Officials (1998), or Mualchin (1996a). For the San Simeon fault, the maximum credible earthquake is derived from fault length/magnitude regression in Wells and Coppersmith (1994).

## ***Environmental Consequences***

### ***Build Alternatives 1 and 2***

A risk-free seismic environment does not exist anywhere in California. Generally, shaking is less severe on rock than on alluvium or fill, but ridge effects and other local phenomena may override this generalization. Based on the U.S. Geological Survey/California Geological Survey Probabilistic Seismic Hazards Assessment Model (revised April 2003), the site area is likely to experience at least 0.329g ground accelerations in alluvial deposits (where “g” is expressed as a percentage of the acceleration of gravity). The general geology of the project area, the specific geologic characteristics of the project site, and the structural design of the project site are not considered especially high risk with respect to seismic hazards as compared to the rest of California. Pre-1933 structures may be considered at a higher level of risk due to the age and construction techniques used.

Overall, the project is not susceptible to extraordinary risk with respect to seismic or soils hazards. Furthermore, the project components would be designed and constructed to the seismic design requirements for ground shaking specified in the project design documents. Proper design and construction of the project components would reduce impacts from ground shaking and seismicity.

Liquefaction is defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Potential for seismically induced liquefaction exists whenever relatively loose, sandy soils exist with high groundwater level and/or potential for long duration, high seismic shaking. When liquefaction occurs, the site can

experience damage induced by permanent ground movements resulting in differential settlement and flotation of structures, tanks, and pipelines.

Sections of the US 101/State Route 46 West interchange project are located near the Salinas River and, therefore, it is anticipated that some areas of the project may encounter relatively shallow groundwater. The project site is also located in an area overlain with alluvial soils, indicating the potential for liquefaction of the underlying soils during a seismic event. Therefore, liquefaction is considered a potential seismic hazard to the sections of roadway that cross the alluvial deposits.

As new project elements would be designed with updated seismic design requirements, it is expected that the new US 101/State Route 46 West interchange project would generally be safer with respect to stability during an earthquake event.

**Avoidance, Minimization, and/or Mitigation Measures**

Refer to WQ-1 and WQ-3, Best Management Practices related to erosion control, identified in Section 2.2.2, Water Quality and Storm Water Runoff, above.

**GEO-1** Site-specific geotechnical and geological investigations that focus on the potential liquefaction hazard would be performed as part of the project design studies. As necessary, design and construction of the project components would include foundation treatments, such as removal and re-compaction or deep foundations, to reduce impacts from liquefaction.

**2.2.4 Paleontology**

**Regulatory Setting**

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects (such as the Antiquities Act of 1906 [16 U.S. Code 431-433], Federal-Aid Highway Act of 1935 [20 U.S. Code 78]). Under California law, paleontological resources are protected by the California Environmental Quality Act, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code Section 5097.5.

### **Affected Environment**

A *Paleontological Identification Report, U.S. Highway/State Route 46 West Interchange Improvement Project* (2007) was prepared for the proposed project to determine the relative sensitivity of paleontological resources of the geologic units underlying the project area. Records searches reported three known paleontological sites within the vicinity, however, not within the project area.

### **Environmental Consequences**

#### ***Build Alternatives 1 and 2***

The purpose of the field survey was to observe the existing conditions of the project area, gather preliminary geologic information, visit previously recorded paleontological localities, and look for unrecorded paleontological localities. No paleontological resources were observed during the field survey along either of the corridors associated with Build Alternatives 1 and 2.

Since the distribution, density, and significance of paleontological resources within a unit cannot be determined until they are unearthed, the proposed project has the potential to unearth paleontological resources during the project construction phase. As construction of the proposed project would involve grading and earth-moving activities, paleontological resources may be discovered. However, to protect any paleontological resources that may be discovered during construction, the measures listed below would be incorporated into the project for Build Alternatives 1 and 2.

#### ***No-Build Alternative***

The No-Build Alternative would not result in impacts to paleontological resources in the project area.

### **Avoidance, Minimization, and/or Mitigation Measures**

**PAL-1** In earth-moving areas where geologic units have been assigned a high level of paleontological sensitivity, full-time monitoring would be recommended. Monitoring must be performed by a qualified paleontological resources monitor. The monitor would have authority to temporarily divert equipment while evaluating and removing fossils. If fossils are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified paleontologist can evaluate the nature and significance of the find to determine if recovery would be necessary. The monitor should be properly equipped to facilitate rapid removal of specimen. Once discovered, fossils would be salvaged by the monitor in an appropriate manner.

**PAL-2** Recovered specimens should be prepared to stabilize the fragile nature of the fossil and allow for identification. Each specimen should be evaluated by taxa, size, taphonomic condition, and geographic and stratigraphic occurrence. The resulting specimens should be stored in a permanent, recognized repository institution, such as a museum or university. A map indicating the location of each locality, appropriate stratigraphic sections, and field notes should accompany the recovered specimens to the designated repository.

**PAL-3** A Paleontological Mitigation Report would be prepared by the project paleontologist. The report should include a summary of field and laboratory methods, a description of the geology and stratigraphy, a complete faunal list, an evaluation of scientifically significant fossils, analyses of the significance and relationship of the site to other fossil localities that are geographically or stratigraphically similar, and a complete set of geologic maps, stratigraphic sections, and field notes. The Paleontological Mitigation Report would be submitted to Caltrans and a copy provided to the designated repository. Acceptance of the final report by Caltrans constitutes completion for the monitoring and mitigation plan

## **2.2.5 Hazardous Waste Materials**

### ***Regulatory Setting***

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The main federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The purpose of the Comprehensive Environmental Response, Compensation and Liability Act, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include the following:

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety & Health Act
- Atomic Energy Act

- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

### ***Affected Environment***

The following analysis is based on the *Limited Hazardous Materials/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Improvement Project* (2007) and the *Updated Limited Hazardous Materials Study/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Modification Project* (2009).

Historic aerial photographs indicate that in 1937 the project area was mostly undeveloped open space with several farmhouses. US 101 appeared as a small two-lane road with several service roads in the vicinity. By 1956, US 101 was redeveloped as a four-lane divided highway with on-and off-ramps to a small rural road. Retail development was also located near the area. Commercial development and retail development continued to increase throughout the 1970s and 1980s. By 2002, a retail center was added to the east, and several structures, including a gasoline station and a new retail development, were built to the southwest of the project area.

Currently, the project area is surrounded by several land uses including commercial, retail, and undeveloped land. Table 2.2-2 describes properties that could potentially contain hazardous materials.

**Table 2.2-2 – Hazardous Materials Observed or Expected to be Present at Neighboring Properties**

<b>Business or Occupant</b>	<b>Address/Location Description</b>	<b>Substance</b>
Orchard Supply Hardware No. 361	2005 Theatre Drive / Southwest quadrant of interchange	Small quantities of hazardous materials for retail sale.
Delta Energy (Propane Tank, RV Sales, Rentals and Service)	1960 Ramada Drive / Southeast quadrant of interchange	Aboveground storage tank (propane) seen during site check.
Wayne’s Tires	101 Calle Propano / Southeast quadrant of interchange	Seven drums were seen during site check; four drums labeled as containing fresh product and three drums labeled as containing used oil and gasoline filters. Two approximately 100-gallon polyethylene containers labeled as containing used anti-freeze.
Jack-in-the-Box/ARCO Service Station	1900 Ramada Drive / Northeast quadrant of interchange	Underground storage tanks (fuel) noted at location during site check, though this location was not listed in EDR database.

Note: ARCO Service Station street address incorrectly stated as 1850 Ramada Drive in EDR Database, correct address shown in table.

Source: U.S. 101/State Route 46 West Interchange Modification Project Updated Limited Hazardous Materials Study/Initial Site Assessment (2009).

***Environmental Consequences***

***Build Alternatives 1 and 2***

The project hazardous material study analyzed two alternatives that varied in terms of frontage road realignment on the west side of the interchange and included identical improvements on the east side of the interchange. Neither of the alternatives studied would have direct construction impacts such as excavation or demolition activities on the Orchard Supply Hardware property on the west side of the interchange. Both alternatives resulted in direct impacts, including excavation and structure demolition activities at the Delta Energy, Wayne’s Tires and Jack-in-the-Box/Arco Service station properties listed in Table 2.2-2. All three of these properties are located on the east side of the interchange. A summary description of potential hazardous materials and/or wastes evaluated for Build Alternatives 1 and 2 is provided below.

***Aboveground Storage Tanks***

An aboveground storage tank was seen within the project area during the site check (Delta Energy, see Table 2.2-2).

***Aerially Deposited Lead (ADL)***

The potential exists to encounter aerially deposited lead during project construction.

### ***Asbestos***

The potential exists to encounter asbestos-containing materials as a result of potential structure demolition during project construction.

### ***Discolored/Stained Pavement or Soil/Stressed Vegetation***

Minor staining was seen on the asphalt in the drum area at 101 Calle Propano (Wayne's Tires) property.

### ***Drums and Containers***

Seven drums were seen on the 101 Calle Propano property (Wayne's Tires). Four of the drums (3 containing fresh product and 1 empty drum) were approximately 35-gallon capacity drums; the remaining three drums (2 labeled used oil/gasoline filter, and 1 empty drum) were approximately 55-gallon capacity drums. In addition, two polyethylene containers of approximately 100-gallon capacity labeled as antifreeze were seen.

### ***Heavy Metals***

No thermoplastic pavement markings were identified in the project area.

### ***Underground Storage Tanks***

Underground storage tanks were seen in operation within the project area during the site check (ARCO, see Table 2.2-2).

Research and field observations of properties for potential contaminants are conducted to establish a baseline and to determine if conditions warrant additional site investigations. Further, site investigations are generally re-evaluated and/or updated if more than one year elapses since completion. Given the following specific data and conditions, as well as determination that more than one year will elapse from the date of preparation of the site investigation proposed to be conducted in the May 22, 2008 draft environmental document, all hazardous waste materials data has been incorporated, instead, into the referenced "Updated Limited Hazardous Study/Initial Site Assessment, U.S. Highway 101/State Route 46 West Interchange Modification Project (2009)."

The aboveground tank seen at the Delta Energy property is used to distribute propane. Propane tanks and dispensing equipment are not significant sources of potential contamination of soil or groundwater because of the gaseous nature of propane. This facility is regulated by San Luis Obispo County Environmental Health because propane poses a potential fire and explosion risk. There are no violations reported for this facility. This property is proposed for acquisition, so further review to confirm

the current assessment of no soil or groundwater contamination would occur during the acquisition process.

An Aerially Deposited Lead Testing and Analysis Report was prepared for proposed improvements along the US 101 and State Route 46 East interchange area. Based on analysis done for the US 101/State Route 46 East interchange area, it was determined that none of the samples along State Route 46 East contained total lead concentrations exceeding 50 mg/kg, and therefore no special handling or disposal of soils along State Route 46 East within the limits of the US 101/State Route 46 East project would be required.

For the proposed project, the annual average daily traffic count at State Route 46 East in the vicinity of the US 101/State Route 46 East interchange area is 26,600 (estimated for year 2010), whereas the annual average daily traffic count at State Route 46 West at the US 101/ State Route 46 West interchange area is much lower at 6,800. Therefore, it is reasonable to infer that aerially deposited lead concentrations would be even lower at State Route 46 West at the US 101/State Route 46 West interchange area given the historically lower traffic volumes along the highway. Therefore, lead levels in soil within the project area are anticipated to be well below hazardous levels. No special handling provisions regarding aerially deposited lead are anticipated for the proposed project.

Surveys for asbestos-containing materials and lead-based paint are generally done during the property acquisition process. If asbestos-containing material or lead-based paint is found at that time, it would be handled in compliance with all air quality and waste disposal regulations.

The only property found to be storing drums of hazardous materials is Wayne's Tires. Minor staining of pavement has also been seen at this property. The business is regulated and inspected by San Luis Obispo County Environmental Health. No violations have been reported for this property. Because this property is proposed for acquisition, a due diligence investigation of the existing drum storage area would be done before acquisition.

No thermoplastic pavement markings were identified in the project area. If pavement markings must be removed, then this material may require testing to determine the presence and/or levels of heavy metals.

Additional records research was done on the ARCO Service Station at 1900 Ramada Drive. The records research established that a site investigation has been performed at the underground storage tank vicinity and a clearance had been granted by the County of San Luis Obispo Environmental Health Services. Inspection records of the local Certified Unified Program Agency (CUPA) show no violations noted as of the latest inspection recorded on April 23, 2009. Based on this information, an additional site investigation at the ARCO Service Station, 1900 Ramada Drive location, is not warranted at this time. Because this property is proposed for acquisition, an investigation of the existing underground tanks and equipment would be performed before acquisition. At the time underground tanks and equipment would be removed, soil samples would be collected to confirm whether contamination is present.

All properties within the project area have been found to pose low or no risk to the proposed project due to current or past hazardous materials storage and/or usage. Due diligence investigations of all properties that must be acquired for this project shall be performed during the design phase of this project including the ARCO/Jack-in-the-Box, Delta energy and Wayne's Tires properties. However, based on the above detailed data, any due diligence investigation is anticipated to confirm the appropriateness of the determinations and conclusions reflected in the "Updated Limited Hazardous Materials Study/Initial Site Assessment, U.S. Highway 101/State route 46 West Interchange Modification Project (2009)."

***Avoidance, Minimization, and/or Mitigation Measures***

**HAZ-1** All structures that would be demolished as part of construction would undergo an evaluation for the presence of asbestos-containing materials during the property acquisition process, at which time the exact number and location of acquisitions would be confirmed. Sample collection procedures would be based on the Asbestos Hazard Emergency Response Act protocols and Environmental Protection Agency guidelines.

**HAZ-2** During the property acquisition process, surveys shall be conducted to identify lead-based paint in buildings identified for demolition. Lead-based paint, if affected, shall be handled and disposed of in accordance with applicable state and federal regulations.

**HAZ-3** During final design, surveys shall be conducted to ensure that thermoplastic pavement markings, or other types or colors of street or municipal markings containing lead based paint, if affected, are handled and disposed of in accordance with applicable state and federal regulations.

**HAZ-4** As necessary, areas prone to radon gas would be tested prior to demolition or construction operations for the project. The Environmental Protection Agency recommends both long-term (i.e., 90-day) and short-term (i.e., two-day) testing of structures to determine levels of radon gas. The need for long-term testing would be based on the findings of the short-term testing. If hazardous levels of radon are found, measures would be taken to reduce risk.

**HAZ-5** A soils and groundwater contaminant management plan would be implemented during construction. The plan would include procedures for contaminant monitoring and identification, temporary storage, handling, treatment, and disposal of materials in accordance with applicable federal, state and local regulations and requirements.

**HAZ-6** An Updated Initial Site Investigation would be performed during final design for further assessment of potential soil contamination at tanks in the project area, including those identified in the Initial Site Assessment/Limited Hazardous Materials Study. If contamination is suspected, a Preliminary Site Investigation is to be conducted and, if contamination is confirmed, a detailed Site Investigation will be conducted to identify the characterization of the type, extent, and general magnitude of contamination.

The Site Investigation process includes sampling and analysis of impacted soil or groundwater of the sites with the potential for encountering contamination during project activities. The Site Investigation may detect the presence of contamination and provide preliminary estimates of the nature and extent of the contamination through sampling and analysis of soils and water.

**HAZ-7** All procedures for removal of aboveground and underground storage tanks must be in accordance with all applicable federal, state, and local regulations.

**HAZ-8** During final design, an assessment would be performed to determine the need for removal of any transformers resulting from project implementation. If it is determined that transformers will require removal, then they would be assessed for presence of polychlorinated biphenyls. If polychlorinated biphenyls are detected, the

material would be collected and disposed of in accordance with applicable regulations.

**HAZ-9** Before construction begins, a hazardous materials contingency plan would be in place to address such events as discovery of unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan would address underground storage tank decommissioning, field screening and material testing methods, mitigation, contaminant monitoring and management requirements, and health and safety requirements for construction workers. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified and clean up coordinated with environmental agencies.

## **2.2.6 Air Quality**

### ***Regulatory Setting***

The Clean Air Act, as amended in 1990, is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the concentration of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards. Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), lead (Pb), and sulfur dioxide (SO<sub>2</sub>).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed to include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of

the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization for San Luis Obispo and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, then the proposed project is deemed to meet regional conformity requirements for purposes of the project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is in “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as carbon monoxide or particulate matter analysis performed for National Environmental Policy Act and California Environmental Quality Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in “nonattainment” areas, the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

**Affected Environment**

An *Air Quality Study, U.S. Highway/State Route 46 West Interchange Improvement Project* was prepared (2007) to assess potential project-related air quality impacts. The project site is located in San Luis Obispo County. The San Luis Obispo County Air Pollution Control District is responsible for maintaining air quality in this county, which has a population of approximately 250,000.

**Climate**

Meteorological and climatological conditions influence ambient air quality. The proposed project is located in the northern portion of San Luis Obispo County. The county is bordered by the Pacific Ocean to the west and generally bounded by the Santa Lucia Mountain Range from the northwest to the southeast. For the most part,

the county transports to and receives air pollutants from the coast on the western border and Kern County on the eastern border.

The climate in the county is characterized as Mediterranean, with warm, dry summers and cooler, relatively damp winters. Mild temperatures along the coast are caused by the moderating effect of the Pacific Ocean, which decreases further inland due to distance from the coast or the coastal mountain ranges. The effect can be illustrated by the fact that the maximum summer temperature along the coast averages about 70 degrees Fahrenheit, while inland average temperatures are in the high 90s. Minimum winter temperature averages in the low 30s along the coast to the low 20s inland.

Approximately 90% of the total annual rainfall occurs from November through April. The winters are generally mild, with precipitation periods followed by mostly clear days. In the Coastal Plain region of the county, annual rainfall averages between 16 and 28 inches, while the Upper Salinas River Valley, where the project is located, has about 12 to 20 inches of rain. The inland Carrizo Plain in the southeast portion of the county receives significantly less precipitation, with less than 12 inches of rain in an average year.

The airflow in the county is controlled largely by the location and strength of the Pacific High pressure system, topographical factors, and circulation patterns caused by temperature gradients between the land and sea. The Pacific High is strongest in the spring and summer and causes northwest onshore winds to prevail generally during the day. At nighttime, with the high being less prevalent, the sea breeze dies and some drainage winds flow back from the east at light speeds. The fall period brings a decline in onshore surface winds and the marine layer becomes shallower. Occasionally, a weak offshore flow occurs and, when combined with the diurnal alteration of wind direction, can cause pollutants to accumulate over the ocean for up to a few days and then subsequently move back onshore. The strong inversion, caused by a lack of heated turbulence in the lower atmosphere that traps pollutants near the surface where the population resides, occurs mostly in the fall.

Should the high-pressure system of the Pacific weaken or move inland to the east, a Santa Ana (easterly) wind bringing pollution may occur over several days. When the Santa Ana winds end, a relatively stagnant condition may occur with a buildup of pollutants offshore. When the typical daytime onshore breeze occurs, the pollutants are then brought onshore, combining with local emissions to cause a period of high pollutant concentrations. The Santa Ana winds do not always result in high concentrations, yet they are a significant part of air pollution meteorology in the county.

**Environmental Consequences**

The project is in an attainment/unclassified area for all current national ambient air quality standards (NAAQS). Therefore, conformity requirements do not apply. Table 2.2-3 shows the national and state attainment status for local pollutants of concern.

The project is listed in the 2007 Federal Transportation Improvement Program for San Luis Obispo County (SLO-0341-01). Only projects consistent with the Regional Transportation Plan were included in the 2007 Federal Transportation Improvement Program as required by federal law. Projects are reviewed for consistency with the Regional Transportation Plan as the Federal Transportation Improvement Program is developed, as they are submitted for funding in the various programs, and as they are amended into the Federal Transportation Improvement Program for the first time. The 2005 Regional Transportation Plan was adopted in April 2005 by the San Luis Obispo Council of Governments Board on April 6, 2005. The board adopted the plan by resolution, which states among other things, that the plan was prepared in accordance with federal and state requirements. Because it is in an attainment region, the San Luis Obispo Council of Governments is allowed to update the Regional Transportation Plan every five years. The next update of the plan is expected in June 2010.

The applicable State Implementation Plan for San Luis Obispo County is the 2001 Clean Air Plan. Both the Regional Transportation Plan and the Federal Transportation Improvement Program are deemed consistent with the Clean Air Plan.

**Table 2.2-3 – Attainment Status**

<b>Criteria Pollutant</b>	<b>Federal Standard (National Ambient Air Quality Standards)</b>	<b>Federal Attainment Status</b>	<b>State Standard</b>	<b>State Attainment Status</b>
Carbon Monoxide (CO)	9.0 ppm (10 mg/m <sup>3</sup> (8-hour))	Attainment/ Unclassified	9.0 ppm (10 mg/m <sup>3</sup> (8-hour))	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	0.053 ppm (100 µg/m <sup>3</sup> ) (Annual Arithmetic Mean)	Attainment/ Unclassified	0.030 ppm (56 µg/m <sup>3</sup> ) (Annual Arithmetic Mean)	Attainment
Ozone (O <sub>3</sub> )	0.08 ppm (100 µg/m <sup>3</sup> ) (8-hour)	Attainment/ Unclassified	0.070 ppm (137 µg/m <sup>3</sup> ) (8-hour)	Non-attainment
Respirable particulate (PM <sub>10</sub> )	150 µg/m <sup>3</sup> (24-hour) --	Unclassified	50 µg/m <sup>3</sup> (24-hour) 20 µg/m <sup>3</sup> (Annual Arithmetic Mean)	Non-attainment
Fine particulate (PM <sub>2.5</sub> )	15 µg/m <sup>3</sup> (Annual Arithmetic Mean)	Attainment/ Unclassified	12 µg/m <sup>3</sup> (Annual Arithmetic Mean)	Attainment

*Project Operation (Long-term) Emissions – Build Alternatives 1 and 2*

Emissions associated with the operation of the proposed project are primarily from the operation of motor vehicles in the project vicinity. The project would not add capacity to the highway, and would improve local circulation, therefore reducing low-speed emissions. Traffic volumes, after completion of the project, would be nearly the same as under existing conditions. Therefore, there should be no detrimental change in local or regional air quality caused by the project.

*Construction (Short-term) Emissions*

Short-term impacts to air quality could occur during the project construction and grading activities phase. Anticipated temporary impacts are discussed below and include particulate emissions from demolition, clearing and grading activities, exhaust emissions from construction equipment used on the project site, and vehicles used for transport of equipment and workers to and from the project site. The construction of the proposed project would result in short-term emissions of particulate matter, carbon monoxide, reactive organic gases, oxides of nitrogen, and oxides of sulfur. Construction activities would result in criteria pollutant emissions from both stationary and mobile-powered equipment, including those from equipment and material delivery vehicles, and worker vehicles going to and from the project site.

One of the major pollutants that would be emitted from construction activity is particulate matter (PM). PM<sub>10</sub> (particulate matter smaller than 10 microns in diameter) comprises about 65% of total suspended particulate matter and is considered a health hazard.

A maximum of 24 acres of soil disturbance is expected with the proposed project. If this area were graded four times (to account for grading and excavation) over half the life of the project (2 quarters or 132 working days), average daily grading would be 0.73 acre per day. According to the San Luis Obispo County Air Pollution Control District's California Environmental Quality Act Guidelines, if less than 2 acres are graded per day, project construction emissions should not exceed the county thresholds for fine particulate matter. This includes at least one daily watering of all disturbed areas.

#### *Naturally Occurring Asbestos*

This discussion is limited to naturally occurring asbestos and the Memorandum Addressing Naturally Occurring Asbestos in California Environmental Quality Act Documents (Governor's Office of Planning and Research, 2000). Attachment 1 of the memorandum lists the counties in California where naturally occurring asbestos may be present, and San Luis Obispo County is one of the 44 out of 58 counties listed as containing a type of naturally occurring asbestos.

The Geologic Map of California, San Luis Obispo Sheet, shows there are no ultramafic rocks (type of rock that may contain naturally occurring asbestos) within 12 miles of the project area, and these are generally separated from the project by the crest of the Santa Lucia Range. Therefore, the possibility of naturally occurring asbestos becoming airborne during construction is minimal. The need for minimization of naturally occurring asbestos is limited to that for fugitive dust.

#### *Mobile Source Air Toxics*

The project is in a rural, agricultural, commercial, and residential area south of Paso Robles. There are no sensitive land uses (schools, medical centers and similar health care facilities, child care facilities, parks and playgrounds) in the vicinity (500-foot radius) of the proposed construction site.

The Federal Highway Administration has developed an interim guideline on how mobile source air toxics should be addressed in National Environmental Policy Act documents for highway projects. The Federal Highway Administration has developed a tier approach for analyzing mobile source air toxics in National Environmental

Policy Act documents. Depending on the specific project circumstances, the Federal Highway Administration has identified three levels of analysis:

1. No analysis for exempt projects with no potential for meaningful mobile source air toxic effects
2. Qualitative analysis for projects with low potential for mobile source air toxic effects
3. Quantitative analysis to differentiate alternatives for projects with higher potential for mobile source air toxics.

The proposed project has a low potential for meaningful mobile source air toxic effects, as it is exempt from regional emissions analysis according to Title 40, Section 93.127 of the Code of Federal Regulations, and will not affect the capacity of the adjacent highway.

This document includes a basic analysis of the likely mobile source air toxic emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this document. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations 1502.22(b)) regarding incomplete or unavailable information:

*Information that is Unavailable or Incomplete*

Evaluating the environmental and health impacts from mobile source air toxics on a proposed highway project would involve several key elements, including emissions and dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the mobile source air toxic health impacts of this project.

*Emissions*

Environmental Protection Agency tools to estimate mobile source air toxic emissions from motor vehicles are not sensitive to key variables determining emissions of mobile source air toxics in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that

MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other mobile source air toxic emission rates do change with changes in trip speed.

Also, the emissions rates used in MOBILE 6.2 for both particulate matter and mobile source air toxics are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of particulate matter under the conformity rule, the Environmental Protection Agency has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate mobile source air toxic emissions. MOBILE6.2 is an adequate tool for projecting emission trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

### Dispersion

The tools to predict how mobile source air toxics disperse are also limited. The Environmental Protection Agency's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the National Ambient Air Quality Standards. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program is conducting research on best practices in applying models and other technical methods in the analysis of mobile source air toxics. This work also will focus on identifying appropriate methods of documenting and communicating mobile source air toxic impacts in the National Environmental Policy Act process and to the general public. Along with these general limitations of dispersion models, the Federal Highway Administration is also faced with a lack of monitoring data in most areas for use in establishing project-specific mobile source air toxic background concentrations.

### Exposure Levels and Health Effects

Finally, even if emission levels and concentrations of mobile source air toxics could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of mobile source air toxics near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various mobile source air toxics, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population.

Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

### Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of Mobile Source Air Toxics

Research into the health impacts of mobile source air toxics is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of Environmental Protection Agency efforts. Most notably, the agency conducted the National Air Toxics Assessment in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the National Air Toxics Assessment's database best illustrate the levels of various toxics when aggregated to a national or state level.

The Environmental Protection Agency is in the process of assessing the risks of various kinds of exposures to these pollutants. The Environmental Protection Agency Integrated Risk Information System (IRIS) is a database of human health effects that

may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized mobile source air toxics was taken from the IRIS database *Weight of Evidence Characterization* summaries.

This information is taken verbatim from the Environmental Protection Agency's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- Diesel exhaust is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- Diesel exhaust also represents chronic respiratory effects, possibly the primary non-cancerous hazard from mobile source air toxics. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address mobile source air toxic health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by the Environmental Protection Agency, Federal Highway Administration, and industry, has undertaken a major series of studies to research near-roadway mobile source air toxics hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems<sup>2</sup>. Much of this research is not specific to mobile source air toxics, instead surveying the full spectrum of both criteria and other pollutants. The Federal Highway Administration cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

*Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based Upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community*

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emission impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of mobile source air toxic emissions from each of the project alternatives and mobile source air toxic concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have “significant adverse impacts on the human environment.”

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of mobile source air toxic emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of mobile source air toxics at the project level, it is possible to qualitatively assess the levels of future mobile source air toxic emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from mobile source air toxics, it can give a basis for identifying and comparing the potential differences among mobile source air toxic emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by

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<sup>2</sup> See <http://www.fhwa.dot.gov/environment/airtoxic/#note1>

the Federal Highway Administration entitled “*A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*,” found at: [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm)<sup>3</sup>

For each alternative in this Initial Study/Environmental Assessment, the amount of mobile source air toxics emitted would be proportional to the vehicle miles traveled, assuming that other variables such as fleet mix are the same for each alternative. The vehicle miles traveled estimated for each of the build alternatives is slightly higher than that for the No-Build Alternative. This increase in vehicle miles traveled means mobile source air toxics under the build alternatives would probably be higher, although not substantially, than the No-Build Alternative in the study area. There could also be localized differences in mobile source air toxics from indirect effects of the project, such as associated access traffic, emissions of evaporative mobile source air toxics (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks, depending on the type and extent of development. On a regional scale, this increase in emissions would be offset somewhat by reduced travel to other destinations.

Because the estimated vehicle miles traveled under each of the build alternatives are nearly the same, varying by less than 1%, it is expected there would be no appreciable difference in overall mobile source air toxic emissions among the various build alternatives. For all alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of the Environmental Protection Agency’s national control programs that are projected to reduce mobile source air toxic emissions by 57% to 87% from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, growth rates of vehicle miles traveled, and local control measures. However, the magnitude of the reductions projected by the Environmental Protection Agency is so great (even after accounting for growth in vehicle miles traveled) that mobile source air toxic emissions in the study area are likely to be lower in the future than they are today.

In summary, under both build alternatives in the design year, it is expected there would be higher mobile source air toxic emissions in the study area, relative to the No-Build Alternative, due to increased vehicle miles traveled. There could be slightly elevated but unquantifiable changes in mobile source air toxics to residents and others in a few localized areas where vehicle miles traveled increases, which may be important, particularly to any members of sensitive populations. However, on a

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<sup>3</sup> <http://www.fhwa.dot.gov/environment/airtoxic/020306guidapc.htm>

regional basis, Environmental Protection Agency's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide mobile source air toxic levels to be significantly lower than today.<sup>4</sup>

### ***Avoidance, Minimization, and/or Mitigation Measures***

Daily watering of all disturbed soil areas is required by Caltrans' Standard Specifications. The purpose of this is to reduce dust emissions from the site. In addition, the contractor would use California Air Resources Board approved low-sulfur diesel fuel in all his construction vehicles. When daily watering is not sufficient to keep dust from blowing off-site, the following measures from the San Luis Obispo County Air Pollution Control District's California Environmental Quality Act Air Quality Handbook can be used as determined applicable by the Resident Engineer.

#### **AQ-1 Standard Minimization Measures for Construction Equipment**

Maintain all construction equipment in proper tune according to manufacturer's specifications:

- Fuel all off-road and portable diesel powered equipment including, but not limited to, bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with motor diesel fuel certified by the California Air Resources Board (non-taxed version suitable for off-road);
- Maximize, to the extent feasible, the use of diesel construction equipment meeting California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.

#### **AQ-2 Discretionary Minimization Measures for Construction Equipment**

- Electrify equipment where feasible;
- Substitute gasoline-powered for diesel-powered equipment, where feasible;
- Use alternatively fueled construction equipment onsite, where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel; and
- Use equipment that has Caterpillar pre-chamber diesel engines.

#### **AQ-3 Discretionary Activity Management Techniques**

- Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period.

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<sup>4</sup> <http://www.fhwa.dot.gov/environment/airtoxic/020306guidapb.htm>

- Schedule construction truck trips during non-peak hours to reduce peak-hour emissions.
- Limit the length of the construction work day, if necessary.
- Phase construction activities, if appropriate.

**AQ-4 Fugitive PM<sub>10</sub> Management Measures Techniques (employ as applicable)**

- Reduce the amount of the disturbed area where possible.
- Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour. Reclaimed (non-potable) water should be used whenever possible.
- All dirt stockpile areas should be sprayed daily as needed.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible.
- Vehicle speed for all construction vehicles would not exceed 15 miles per hour on any unpaved surface at the construction site.
- All trucks hauling dirt, sand, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114.
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.

If these mitigation measures are not effective at controlling construction phase fugitive dust emissions from leaving the project site, then the project shall implement the following additional Air Pollution Control District fugitive dust control measures:

- Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil-disturbing activities.
- Exposed ground areas that would be reworked at dates greater than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established.

- All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the San Luis Obispo County Air Pollution Control District.

The contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties would include working holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons would be provided to the San Luis Obispo County Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.

## **2.2.7 Noise**

### ***Regulatory Setting***

The National Environmental Policy Act of 1969 and the California Environmental Quality Act provide the broad basis for analyzing and abating the effects of highway traffic noise. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between the National Environmental Policy Act and the California Environmental Quality Act.

### ***California Environmental Quality Act***

The California Environmental Quality Act requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under the California Environmental Quality Act, then the act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 Code of Federal Regulations 772 for highway transportation projects with Federal Highway Administration involvement, (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project.

The regulations contain noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type

of land use under analysis. For example, the criterion for residences (67 decibels) is lower than the criterion for commercial areas (72 decibels).

The following table lists the noise abatement criteria for use in the National Environmental Policy Act and 23 Code of Federal Regulations 772 analysis, and Table 2.2-5 shows the noise levels of typical activities. These abatement criteria apply to Type-1 projects as discussed in Caltrans Traffic Noise Analysis Protocol Section 3.

**Table 2.2-4 – Noise Abatement Criteria**

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, dBA Leq(h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	--	Undeveloped lands
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Caltrans Traffic Noise Analysis Protocol, August 2006.  
 A-weighted decibels are adjusted to approximate the way humans perceive sound. Leq(h) is the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over 1 hour.

**Table 2.2-5 – Common Noise Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area	70	Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	40	Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

In accordance with Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level from a Type 1 project results in a substantial increase in noise level (defined as a 12-decibel or more increase) or when the future noise level with the project approaches or exceeds the noise abatement criteria. Approaching the noise abatement criteria is defined as coming within 1 decibel of the criteria.

If it is determined that the project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5-decibel reduction in the future noise

level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

*Note: Noise levels used throughout this report use the Leq noise descriptor unless otherwise noted. Leq represents the time-weighted average of all sounds recorded during the period of measurement.*

### **Affected Environment**

A *Noise Study Report* (2007) was prepared for the proposed project to evaluate the potential for adverse noise effects from the proposed project at noise-sensitive receivers. The report was prepared pursuant to Caltrans' Traffic Noise Analysis Protocol (August 2006) and Technical Noise Supplement standards.

Land uses adjacent to the project consist of planned and existing commercial and industrial uses with a few interspersed single-family residences and a hotel. The existing single-family residences are one- and two-story residences of varying sizes with rear and side yards. The residences are generally elevated above US 101 and State Route 46.

Residential uses are classified in Activity Category B (exterior—picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals) or Category E (interior—residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums) by the Federal Highway Administration and Caltrans' policies. The Affected Environment and Environmental Consequences sections discuss the existing and future noise levels associated with the proposed build alternatives and the No-Build Alternative.

### **Traffic**

Most of the noise in the vicinity of the project is due to traffic on US 101. To get an idea of how noise near the highway will increase over time, it is important to know how traffic is predicted to grow by the project design year (2038). Table 2.2-6 shows estimated traffic growth of traffic on local highways based on a straight-line increase

between 2006 traffic and 2038 traffic as shown in annual average daily trips on the California State Highway System.

**Table 2.2-6 – Current and Predicted Future Traffic Volumes on Local Highways**

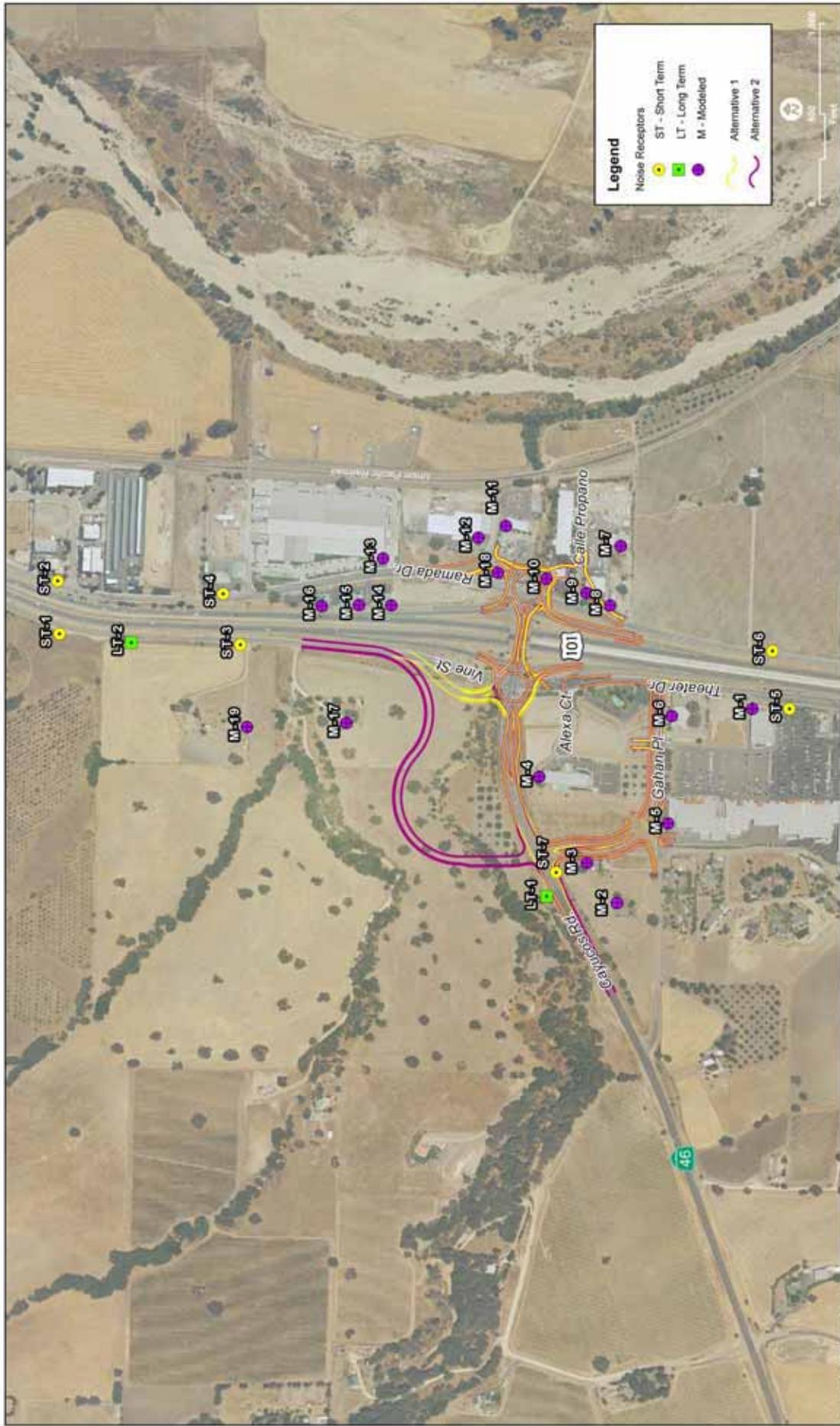
Location	Route 101		Route 46	
	2006 Peak Hour/ AADT	2038 Peak Hour/ AADT	2006 Peak Hour/ AADT	2038 Peak Hour/ AADT
South of State Route 46	4450/38000	6,180/53,240		
North of State Route 46	7400/63000	12,920/110,240		
			320/3,200	1,250/12,540

AADT = Annual Average Daily Trips

#### *Ambient Noise Level Measurements*

Representative noise measurement sites were selected with a potential exposure to noise from the proposed project. Adjacent to the project, the noise-sensitive land uses are one- or two-story single-family residential homes. Short-term noise measurements were conducted at seven locations (ST 1-7), and two long-term measurements (LT 1-2) were conducted for the proposed project. The measurement locations were next to the single-family residences that are located adjacent to the project in the vicinity of planned residential areas, and near other sensitive receptors.

Figure 2.2-2 shows the noise measurement locations. Table 2.2-7 presents a summary of existing and predicted noise levels for noise sensitive uses.



Source: AIPPhotoUSA, August 2003

City of Paso Robles  
 US101/46W Interchange Project

**FIGURE 2.2-2**  
**NOISE MEASUREMENT AND MODELING LOCATIONS**

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Table 2.2-7 indicates receptors according to their measurement type (short-term, long-term, modeled). The 19 locations, M-1 through M-19, are modeled-only locations. Short- and long-term measurements were conducted at nine locations. The modeled and measured locations are considered acoustically representative of the study area. The existing exterior peak traffic noise hour levels range from 57 to 79 decibels (dBA) Leq. Long-term noise measurement data indicate that traffic noise generally reaches its lowest hourly levels during the nighttime and early morning hours between 11:00 p.m. and 3:00 a.m. Noise levels during these hours are approximately 5 to 6 dBA lower than the measured daytime noise levels. The peak traffic noise hours occur between 8 a.m. and 4 p.m.

### ***Environmental Consequences under the National Environmental Policy Act***

Since a doubling of traffic would lead to a 3-dBA increase in the ambient noise level, one can see from Table 2.2-7 that noise from highway traffic will increase by about 2 dBA by 2038. This increase in noise level is barely perceptible in an outdoor situation. The project does not meet the Caltrans or Federal Highway Administration definition of a Type-1 project, therefore, no long-term noise abatement will be recommended with the project.

#### ***Build Alternatives 1 and 2***

Year 2038 conditions with both Build Alternatives 1 and 2 approach (within 1 dB), equal, or exceed the noise abatement criteria at Receptors ST-2, ST-4, ST-5, M-1, M-8, M-10, M-14, M-15, M-16, and M-18. Table 2.2-7 shows that both build alternatives would result in a maximum 7-dBA noise increase over existing conditions.

The 10 receptors noted above are in Activity Category C (defined by developed lands, properties, or activities not included in Categories A or B) according to federal noise abatement criteria. The inclusion of soundwalls as a noise abatement measure would not be reasonable because this is not a Type-1 project where highway traffic is moved closer to sensitive receptors.

Furthermore, the build alternatives would not increase traffic noise by 12 dBA or more. Therefore, neither Build Alternative 1 nor Build Alternative 2 would cause a substantial noise increase.

**Table 2.2-7 – Summary of Existing and Predicted Noise Levels for Noise Sensitive Uses (dBA Leq )**

<b>Receptor # and Location</b>	<b>Existing Noise Level 2006 (dBA)</b>	<b>Predicted Noise Level without Project 2038* (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 1 (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 2 (dBA)</b>
<b>ST-1</b> S. Vine St. north of State Route 46 West, west of US 101 (undeveloped)	72	74	74	74
<b>ST-2</b> Along Ramada Drive frontage road in front of Bronze Foundry Fine Arts Gallery	75	77	78	78
<b>ST-3</b> South Vine St. north of State Route 46 West. Across Highway from Quinn Cat Rental Store (undeveloped)	74	76	77	77
<b>ST-4</b> In front of Quinn Cat Rental Store, 1560 Ramada Drive	73	75	76	76
<b>ST-5</b> Carl's Jr., south of 46 and west of Route 101.	70	72	73	75
<b>ST-6</b> Ramada Drive South of State Route 46 West. At the edge of vineyard, directly across highway from Carl's Jr. (undeveloped)	75	77	77	77
<b>ST-7</b> South side of State Route 46 West near Hampton Inn & Suites. (undeveloped)	67	69	71	71
<b>LT-1</b> Tree along westbound side of State Route 46 West (undeveloped)	65	67	66	71
<b>LT-2</b> Telephone pole along southbound side of US 101 (undeveloped)	74	76	76	76

<b>Receptor # and Location</b>	<b>Existing Noise Level 2006 (dBA)</b>	<b>Predicted Noise Level without Project 2038* (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 1 (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 2 (dBA)</b>
<b>M-1</b> Commercial building south of State Route 46 and west of US 101	69	71	71	71
<b>M-2</b> Residence South of State Route 46, west of US 101	57	59	60	60
<b>M-3</b> Residence south of State Route 46, west of US 101 that will be acquired for project	58	60	65	65
<b>M-4</b> Motel south of State Route 46 and west of US 101	62	64	64	64
<b>M-5</b> Commercial building south of State Route 46 and west of US 101	57	59	63	63
<b>M-6</b> Commercial building south of State Route 46 and west of US 101	66	68	70	70
<b>M-7</b> Commercial building east of Ramada Drive	64	66	66	66
<b>M-8</b> Commercial building east of Ramada Drive	71	73	72	72
<b>M-9</b> Commercial building east of Ramada Drive	69	71	n/a	n/a
<b>M-10</b> Commercial building east of Ramada Drive	67	69	73	73
<b>M-11</b> Commercial building east of Ramada Drive	63	65	64	64
<b>M-12</b> Commercial building east of Ramada Drive	65	67	65	65
<b>M-13</b> Commercial building east of Ramada Drive	68	70	67	67
<b>M-14</b> Between Ramada Drive US 101	76	78	77	77
<b>M-15</b> Between Ramada Drive US 101	77	79	78	78

<b>Receptor # and Location</b>	<b>Existing Noise Level 2006 (dBA)</b>	<b>Predicted Noise Level without Project 2038* (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 1 (dBA)</b>	<b>Predicted Noise Level with Project 2038 Alt 2 (dBA)</b>
<b>M-16</b> Between Ramada Drive and US 101	79	81	80	80
<b>M-17</b> Residence north of State Route 46, west of US 101	63	65	64	64
<b>M-18</b> Commercial property E of Route 101 near roundabout	71	73	71	71
<b>M-19</b> Residence north of State Route 46, west of US 101	62	64	64	64

\* Noise level estimated based on increase in highway traffic between 2006 and 2038.

### ***Environmental Consequences under the California Environmental Quality Act***

The California Environmental Quality Act noise analysis is completely independent of the National Environmental Policy Act 23 Code of Federal Regulations 772 analysis discussed above, which is centered on noise abatement criteria. Under the California Environmental Quality Act, the assessment analyzes the setting of the noise impact and how large or perceptible any noise increase would be in a given area. Key areas of considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level.

The proposed project is located within an area that is dominated by commercial/retail and industrial development, with some interspersed residential development. The City’s General Plan states that its exterior and interior standards are comparable to those of Caltrans and the Federal Highway Administration as it relates to allowable project-related increases in noise levels. Because the proposed project, under either build alternative, would not increase future traffic noise by 12 dBA or more, the project would not have a significant effect on local long-term noise levels. It is also important to note that under either build alternative, noise levels at sensitive receptors (such as residential use) would not increase more than 3 dBA by the year 2038. This increase is barely perceptible to the human ear in an outdoor situation. (Note that the houses located at 240 and 390 Gahan Place (M-3, M-6) have been purchased by the City. They are uninhabited and will be converted to non-residential use.)

**Construction (Short-term) Noise Impacts – Build Alternatives 1 and 2**

Noise produced by construction equipment during the construction phase would occur with varying intensity and duration. Construction of the proposed project is anticipated to occur over an estimated 48-month period. Table 2.2-8 lists typical construction equipment and noise level ranges for similar roadway construction projects.

**Table 2.2-8 – Typical Construction Equipment Noise Levels**

<b>Equipment</b>	<b>Instantaneous Noise Level (dBA) at 50 feet</b>
Front Loader	73-86
Trucks	82-95
Cranes (moveable)	75-88
Cranes (derrick)	86-89
Vibrator	68-82
Saws	72-82
Pneumatic Impact Equipment	83-88
Jackhammer	81-98
Pumps	68-72
Generators	71-83
Compressors	75-87
Concrete Mixers	75-88
Concrete Pumps	81-85
Backhoe	73-95
Pile Driving (peaks)	95-107
Tractor	77-98
Scraper/Grader	80-93
Paver	85-88

Noise from construction activity is generated by a broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools and concrete pumps and jackhammers to bulldozers, dump trucks, and front loaders. The exact complement of noise-producing equipment that would be in use during any particular period has not yet been determined. However, construction activity on the project site would be required to comply with Caltrans’ Standard Specification 7-1.011 (July 1999) “Sound Control Requirements.”

Noise levels generated by construction equipment decrease at a rate of approximately 6 dBA per doubling of distance away from the source. Therefore, at a distance of 100 feet, the noise levels would be approximately 6 dBA lower than at a 50-foot distance.

Similarly, at a distance of 200 feet, the noise levels would be approximately 12 dBA lower than at a 50-foot distance.

During certain types of construction activities (such as demolition of existing paved surfaces and structures), construction of the project may result in temporary, intermittent increases in existing noise levels in areas immediately adjacent to the project area. The “conventional construction” activities for this project would require the use of vehicles and heavy equipment whose noise characteristics are known. To avoid the potential effects of construction noise, the project’s contracting agency would apply Caltrans’ Standard Specifications (Sections 7 and 42) and Standard Special Provisions, which provide limits on construction noise levels. Normally, conventional construction noise levels should not exceed 86 dBA ( $L_{max}$ ) at a distance of 50 feet.

Although construction activities would be short term and temporary in nature, to further avoid unnecessary annoyance from construction noise, best practices for construction noise control should also be considered.

### ***Avoidance, Minimization, and Noise Abatement under the National Environmental Policy Act***

The project is not a Type-1 project as defined in Caltrans Traffic Noise Analysis Protocol (August 2006); therefore, no long-term noise abatement measures are recommended with this project. Short-term noise abatement measures for use during construction are recommended below.

### ***Avoidance, Minimization, and Noise Abatement under the California Environmental Quality Act***

The following avoidance measures should be incorporated into the project contract specifications to minimize construction noise:

- N-1 All noise-producing project equipment and vehicles using internal combustion engines would be equipped with mufflers and air-inlet silencers where appropriate, and in good operating condition that meet or exceed original factory specification. Mobile or fixed “package” equipment (for example arc-welders and air compressors) would be equipped with shrouds and noise control features that are readily available for that type of equipment.
- N-2 All mobile or fixed noise-producing equipment used on the project, which is regulated for noise output by a local, state, or federal agency, would comply with such regulation while in the course of project activity.

- N-3 Material stockpiles and mobile equipment staging, parking, and maintenance areas would be located as far as practicable from noise-sensitive receptors.
- N-4 Construction site and haul-road speed limits would be established and enforced during the construction period.
- N-5 The hours of construction including noisy maintenance activities would be restricted to the periods and days permitted by local regulations.
- N-6 The use of noise-producing signals, including horns, whistles, alarms, and bells, would be for safety warning purposes only.
- N-7 No project-related public address or music system would be audible at any adjacent receptor.
- N-8 The contractor would develop a project Noise Control Plan, which would have been approved and implemented prior to commencement of any construction activity.
- N-9 The placement of berms or erection of temporary soundwall barriers would be considered where project activity is unavoidably close to noise-sensitive receptors.

## **2.3 Biological Environment**

### **2.3.1 Natural Communities**

#### ***Regulatory Setting***

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

#### ***Affected Environment***

A Natural Environment Study (Minimal Impacts) (2007, updated in 2009) was prepared for the proposed project. This study included field surveys of the project's Biological Study Area (see Figure 2.3-1), literature reviews, and database searches.

Regionally, the Biological Study Area is located within an established transportation corridor and developed commercial and residential area within the city. The most prominent biological resource in the region is the Salinas River, located to the east of the Biological Study Area. The Biological Study Area includes regionally important habitat of oak woodland and a small amount of riparian (streamside) habitat. Riparian habitat is generally dominated by western sycamore (*Platanus racemosa*), with lesser

amounts of cottonwood (*Populus* sp.), oak (*Quercus* sp.), and willow (*Salix* sp.). Understories vary from open to dense thickets of shrubby willows, mule fat (*Baccharis salicifolia*), or nettle (*Urtica* sp.). The proposed project is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Provided below is a description of the natural communities identified in the Biological Study Area.

#### *Ruderal (Disturbed)/Non-native Grassland*

Ruderal vegetation is typical of areas where the native vegetation has been significantly altered by agriculture, grazing, construction, or other land-clearing activities. This habitat type is present on private lots, cultivated fields, along road sides, and in abandoned fields. The type of disturbed lands encountered varies from bare ground to areas dominated with non-native annual species, perennial broadleaf species, and non-native grasses.

Typical plant species include Russian thistle (*Salsola tragus*), star thistle (*Centaurea solstitialis*), hoary mustard (*Hirschfeldia incana*), and lamb's quarters (*Chenopodium album*). Non-native grasses such as brome (*Bromus diandrus*, *B. madritensis* ssp. *madritensis*, and *B. madritensis* ssp. *rubens*) and zorro fescue (*Vulpia myuros*) are typical of this habitat type. Ruderal/non-native grasslands are distributed throughout the Biological Study Area.

#### *Oak Woodland/Disturbed Oak Savannah*

The oak woodland habitat type is primarily located within the northwest project quadrant. This oak woodland follows a substantial seasonal wash. Oak woodland canopy cover within the Biological Study Area varies from open to nearly closed with a roughly equivalent mixture of blue oak (*Quercus douglasii*), coastal live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*), which were mainly observed within the blue-line drainage feature within the northwest project quadrant. Oak trees also occur sporadically within the grassland portions of the Biological Study Area north of State Route 46 West and are characterized as Disturbed/Oak Savannah.

The understory species composition in oak woodland habitat can vary depending upon local conditions such as moisture, soil type, and historic land uses such as grazing and agriculture. The majority of the oak woodland understory in the Biological Study Area is composed of non-native annual grasses and forbs characteristic of grazing activities, such as star thistle. Understory vegetation

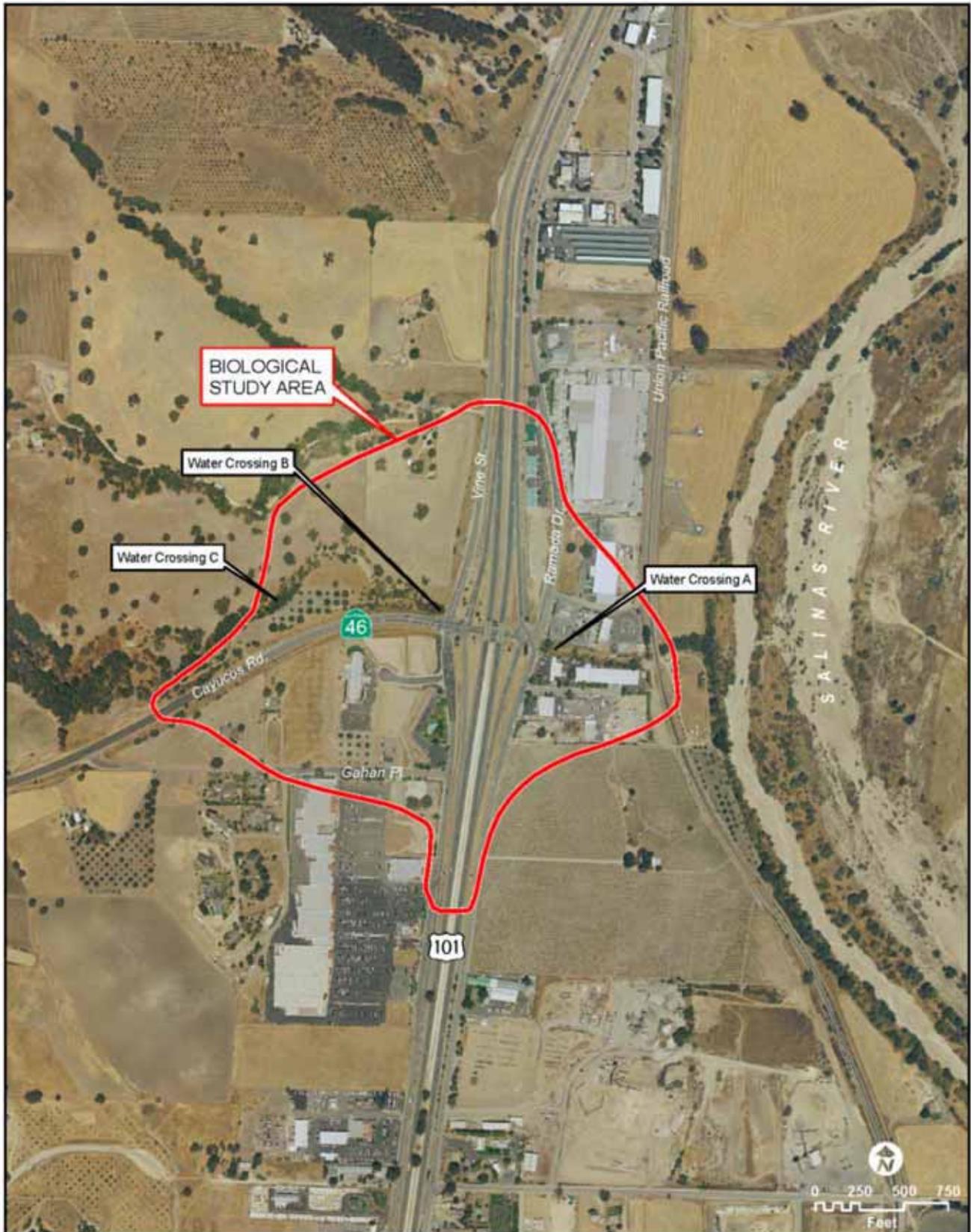
associated with oak woodlands contains additional species, such as native poison oak (*Toxicodendron diversilobum*), non-native poison hemlock (*Conium maculatum*), and Italian thistle (*Carduus pycnocephalus*).

Oak woodlands, in general, provide good habitat for a variety of wildlife species, including nesting sites and cover for birds and many mammals. Dead and decaying oak trees with few branches or no leaves provide perches for birds to search for prey and resting spots for other bird species. They also contribute woody debris to the duff in the woodland understory, which provides foraging areas for small mammals and microclimates suitable for amphibians, reptiles, and fungi. Acorns are a valuable food source for many animal species, including the acorn woodpecker (*Melanerpes formicivorus*), scrub jay (*Aphelocoma corulescens*), western gray squirrel (*Sciurus griseus*), and mule deer (*Odocoileus hemionus*).

### *Riparian*

Riparian vegetation exists in the eastern portion of the Biological Study Area along Ramada Drive. This vegetation community is characterized as moderately closed canopy, broad-leafed riparian habitat dominated by western sycamore (*Platanus racemosa*), with lesser amounts of cottonwood (*Populus fremontii*), oak (*Quercus* sp.), and willow (*Salix* sp.). Understories vary from open to dense thickets of shrubby willows, mule fat (*Baccharis salicifolia*), and nettle (*Urtica* sp.). In general, this community bounds floodplains of sub-perennial streams, usually with a coarse cobble bed and seasonally variable depths to the water table. This riparian habitat appears to be the result of disturbance to a mature, climax oak woodland habitat that was disturbed and removed by public infrastructure along Ramada Drive and naturally replaced by immature understory species (shrubby willows, mule fat, etc.).

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Source: AirPhotoUSA, August 2003

City of Paso Robles  
 US-101/SR-46W Interchange Improvement Project

**FIGURE 2.3-1**  
**BIOLOGICAL STUDY AREA**

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Other vegetative communities that have been introduced into the Biological Study Area are also identified on Figures 2.3-2 and 2.3-3, and include Coyote Bush Scrub (not impacted by project).

Since the public circulation of the draft Initial Study/Environmental Assessment, on-site, on-foot field surveys were performed for the project area to further substantiate and characterize (e.g., species and size [diameter at breast height]) the magnitude of oak tree impacts anticipated as a result of the project. The results of the updated oak tree impact study are discussed in the following section.

**Environmental Consequences**

No special-status plant or animal species was observed within the Biological Study Area during the biological reconnaissance surveys or literature reviews. The *Natural Environment Study (Minimal Impacts)* concluded that the land within the Biological Study Area is not likely to support a diversity of special-status species, or special aquatic resources. Therefore, the Biological Study Area has not been identified as an area of substantial biological importance, and adverse impacts within the Biological Study Area are expected to only impact commonly occurring native and non-native wildlife or plant species. These commonly occurring species within the Biological Study Area are present in abundance throughout the region and are not anticipated to result in state or federal listing, additional protection, or the loss of viability for any common species.

**Build Alternatives 1 and 2**

Although the project site is not likely to support special-status plants or animals, there is a potential for direct and indirect impacts to common vegetative species as a result of the proposed project. The permanent impacts from Build Alternatives 1 and 2 are presented in Table 2.3-1. Figures 2.3-2 and 2.3-3 show the location and distribution of the various vegetative communities described in Table 2.3-1.

**Table 2.3-1 – Permanent Impacts to Natural Communities**

Vegetation	Build Alternative 1 Permanent Impacts (acres)	Build Alternative 2 Permanent Impacts (acres)
Riparian	0.23	0.23
Disturbed Oak Savannah	0.57	1.48
Oak Woodland	0.13	0.25
Ruderal	0.03	0.20
Total	0.96	2.16

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

As previously mentioned, the Biological Study Area contains oak woodlands regionally considered to be significant. The on-site, on-foot field surveys performed since the public comment process for the project indicate that Build Alternative 1 would affect approximately 24 oak trees and Build Alternative 2 is anticipated to affect approximately 49 oak trees. Oak trees removed by the project would be replaced with one-gallon plants at a ratio of 10:1 (10 oak trees planted per one oak tree removed by the project). This replacement ratio was chosen over the City's oak tree ordinance replacement ratio, which typically results in a replacement ratio of 3:1 to 5:1 using 24-inch box trees. Research and communication with nurseries, landscape architects, arborists throughout the state, and Caltrans project experience confirmed that small-container oak trees, such as 1-gallon plants, establish well with proper maintenance; as a result, they initially grow at a faster rate so that an equivalent size expectation to a 24-inch box-sized tree can be met in about a 5- to 7-year time frame. The 1-gallon plants are also expected to adapt better to natural settings, thereby developing stronger root systems and being less dependent on irrigation.

The intent of this 10:1 oak tree replacement ratio is to achieve a successful oak woodland restoration measure, which in turn will create as strong a habitat restoration measure for the project as reasonably possible. The 10:1 replacement ratio would result in 240 small-container oak trees planted for Build Alternative 1. Build Alternative 2 would result in a total of 490 small-container oak trees planted.

The specific number of oak trees ultimately affected per alternative would depend on final grading plans. Implementation of the proposed avoidance, minimization, and conservation measures would protect oak tree species affected by the proposed project.

#### *Construction (Temporary) Impacts*

Although the project site is not likely to support special-status plants or animals, there is a potential for direct and indirect impacts to common vegetative species as a result of the proposed project. Temporary impacts to vegetation communities associated with construction impacts including temporary access roads, haul routes, and staging areas were calculated for each alternative. The temporary impacts to vegetation communities are presented in Table 2.3-2.

**Table 2.3-2 – Temporary Impacts to Natural Communities**

Vegetation	Build Alternative 1 Temporary Impacts (acres)	Build Alternative 2 Temporary Impacts (acres)
Riparian	0.26	0.26
Disturbed Oak Savannah	0.99	3.00
Oak Woodland	0.16	0.44
Ruderal	0.59	0.83
Total	2.0	4.53

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

Temporary impacts to the project area were calculated by placing an additional 20-foot offset from the edge of the physical ground disturbance area of Build Alternatives 1 and 2 to approximate a worst-case impact scenario. With the implementation of avoidance and minimization measures, the project is not anticipated to have a substantial adverse effect on any common species, oak trees, or natural communities.

**Avoidance, Minimization, and/or Mitigation Measures**

**NC-1** Oak trees would be replanted at a 10:1 ratio using 1-gallon-size plants and would be replanted on the same property the trees are removed from or in the project area, to the extent practicable and in coordination with Caltrans. Replacement oaks shall be planted and grouped in a natural random, pattern, to the extent possible.

When oaks are planted, preference shall be given to planting at the dripline edge of existing mature oak trees within appropriate portions of the project area, to the extent practicable. Preferred placement of mitigation oaks also includes north-facing slopes, drainage swales lacking riparian vegetation, and in areas away from continuous irrigation as much as practicable. To enhance establishment and subsequent growth rates, these oak trees would be installed with anti-herbivory cages, mulch, and supplemental irrigation, plus be maintained for three years. Planting is not to occur during the driest months of the year regionally (June through September).

A 3-year maintenance and monitoring program that includes plant establishment and replacement, invasive species control and supplemental watering period when needed shall be implemented. A qualified botanist or arborist shall monitor the installation and maintenance of the oak tree for a 3-year minimum or longer until deemed as successfully established by the City. Annual monitoring reports shall be prepared by the botanist or arborist and submitted to the City and Caltrans.

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FIGURE 2.3-2  
VEGETATION COMMUNITIES AND WATER CROSSINGS - ALTERNATIVE 1

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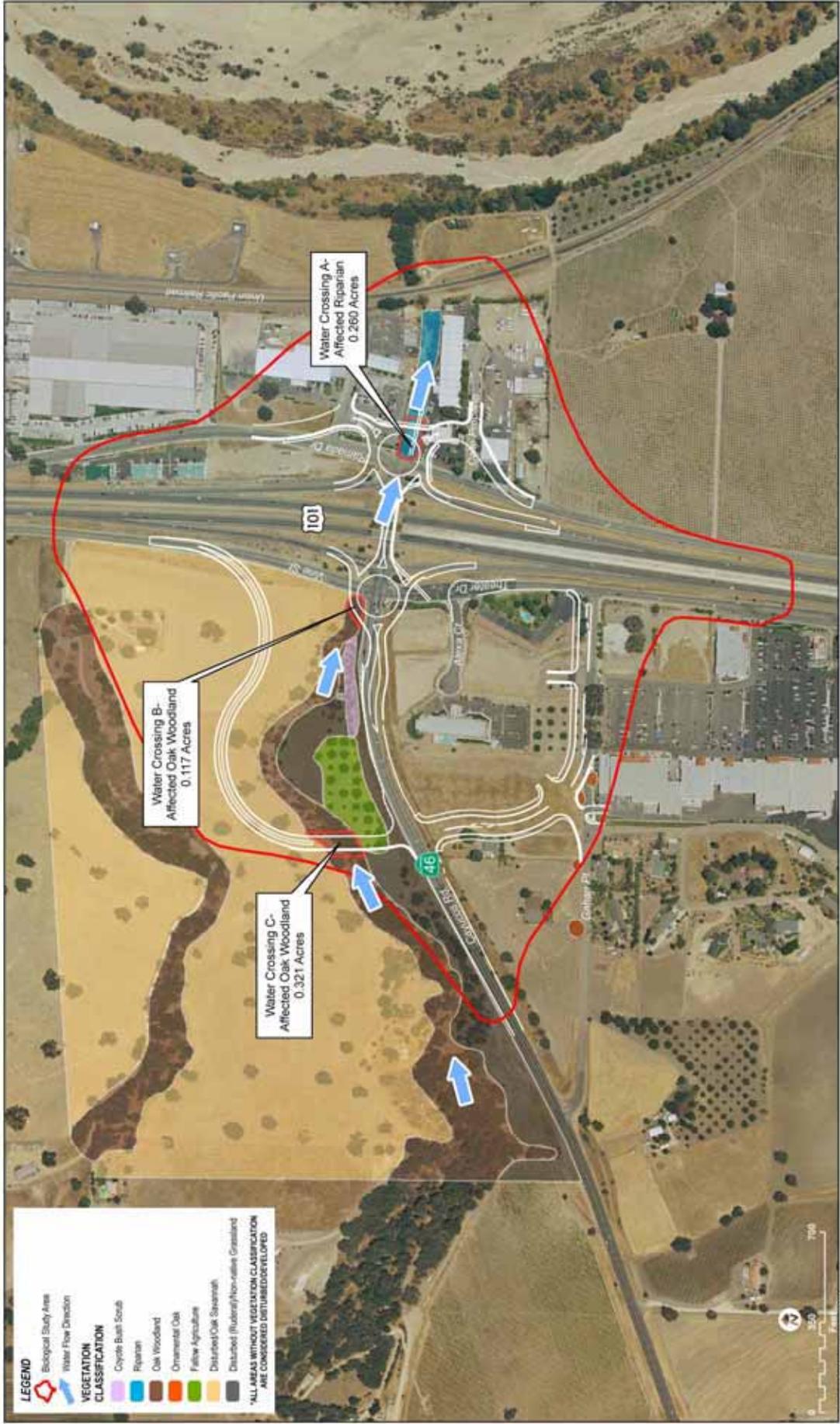


FIGURE 2.3-3  
VEGETATION COMMUNITIES AND WATER CROSSINGS - ALTERNATIVE 2

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**NC-2** Environmentally sensitive areas protecting oak woodlands within the Biological Study Area would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with the Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas. Mulch shall be placed at a depth of 4 to 6 inches to root zones of oak woodlands adjacent to the delineated environmentally sensitive areas to reduce damage to root zones of adjacent oak woodlands.

### **2.3.2 Wetlands and Other Waters**

#### ***Regulatory Setting***

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 United States Code 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the Environmental Protection Agency.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, and Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game and the Regional Water Quality Control Boards. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the California Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. The California Department of Fish and Game's jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the Department of Fish and Game.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The Regional Water Quality Control Boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

### ***Affected Environment***

A Natural Environment Study (Minimal Impacts) (2007, and updated in 2009) was prepared for the proposed project. The Biological Study Area was examined to determine the locations of potential special aquatic resources. Areas suspected of being Clean Water Act or California Department of Fish and Game Code 1600 jurisdictional features were evaluated using the methodology set forth in the U.S. Army Corps of Engineers Wetland Delineation Manual. The potential for special aquatic resources was assessed within the Biological Study Area to determine the presence of definable channels and/or hydrophytic vegetation, riparian habitat, soils, and hydrologic regime.

As further described in the Natural Environment Study (Minimal Impacts), no potential jurisdictional wetlands were observed within the Biological Study Area. However, the Biological Study Area includes three water crossings (see Figures 2.3-2 and 2.3-3):

- Crossing A – a small portion of riparian vegetation associated with a water crossing along Ramada Street
- Crossing B – a negligible amount of standing water in association with a culvert at the intersection of State Route 46 West and South Vine Street
- Crossing C – a water crossing located north of the proposed State Route 46 West and South Vine Street intersection of Build Alternative 2

**Environmental Consequences**

The proposed project would affect Waters of the U.S. and California Department of Fish and Game Code Section 1600 jurisdictional waters, including the large drainage and standing water observed at the intersection of South Vine Street and State Route 46 West. The table below describes the permanent area of impact to jurisdictional features for each build alternative. Impacts would require coordination with the U.S. Army Corps of Engineers, California Department of Fish and Game, and the Regional Water Quality Control Board to secure the necessary permits required by the Clean Water Act and California Department of Fish and Game Code.

**Table 2.3-3 – Estimated Impacts to Jurisdictional Areas**

Crossing Designation	Approximate Linear Feet Crossed	Approximate CDFG Jurisdictional Impacts Permanent Acres	Approximate Waters of the U.S. Impacts Permanent Acres	Vegetation Characteristics
<b>Build Alternative 1</b>				
Crossing A	158	0.26	0.26	Riparian
Crossing B	107	0.12	0.12	Oak Woodland
<b>Build Alternative 2</b>				
Crossing A	158	0.26	0.26	Riparian
Crossing B	63	0.03	0.03	Oak Woodland
Crossing C	Span	None – feature to be spanned	None – feature to be spanned	Oak Woodland

Source: U.S. Highway 101/State Route 46 West Interchange Modification Project, Natural Environment Study (Minimal Impacts) (2009).

**Build Alternative 1**

Implementation of Build Alternative 1 involves the conversion of the ramp and frontage road intersections into roundabouts and the relocation of Theatre Drive to a new intersection with State Route 46 West approximately 900 feet west of the existing intersection. South Vine Street would be reconstructed to be included in the southbound ramps roundabout. Build Alternative 1 would affect approximately 0.26 acre each of California Department of Fish and Game jurisdictional waters and

Waters of the U.S. at Crossing A, and 0.12 acre each of California Department of Fish and Game waters and Waters of the U.S. at Crossing B for a total of 0.38 acre of impact (see Figure 2.3-2). No impacts would occur at Crossing C under Build Alternative 1.

### *Build Alternative 2*

Implementation of Build Alternative 2 involves the conversion of the ramp termini and frontage road intersections into roundabouts and the relocation of Theatre Drive to a new intersection with State Route 46 West approximately 900 feet west of the existing intersection. Build Alternative 2 would also relocate South Vine Street so that it becomes the northern leg of the new Theatre Drive/State Route 46 West intersection. Build Alternative 2 would affect approximately 0.26 acre each of California Department of Fish and Game jurisdictional waters and Waters of the U.S. at Crossing A, and approximately 0.03 acre each of California Department of Fish and Game jurisdictional waters and Waters of the U.S. at Crossing B for a total of 0.29 acre of impact (see Figure 2.3-3). Crossing C would not result in any impacts.

### *Construction Impacts*

Temporary impacts to riparian and oak woodland would not have substantial adverse effects with the implementation of the proposed avoidance and minimization measures.

### **Avoidance, Minimization, and/or Mitigation Measures**

**WET-1** Prior to undertaking ground-disturbing activities or development within or adjacent to any potential Clean Water Act and California Department of Fish and Game Code 1600 (*et seq.*) jurisdictional features (such as wetlands, Waters of the U.S., Waters of the state, sensitive riparian areas, etc.) within the Biological Study Area, Caltrans would consult with the appropriate responsible local, state, and federal agencies to secure all obligatory discretionary permits and authorization.

**WET-2** Environmentally sensitive areas within the Biological Study Area (such as streambeds, oak trees, active and avian nest sites) would be delineated on plans and in the field with brightly colored fencing or similar materials in consultation with the Caltrans' Environmental Division. No staging areas, haul routes, stockpile areas, or construction equipment storage areas would be placed within environmentally sensitive areas.

**WET-3** Prior to undertaking ground-disturbing activities, the following permits would be obtained, as ultimately deemed necessary, from the respective agency:

- U.S. Army Corps of Engineers, Section 404 Permit would be obtained prior to construction.
- California Department of Fish and Game, 1602 Streambed Alteration Agreement would be obtained prior to construction.
- Regional Water Quality Control Board, Section 401 Water Quality Certification would be obtained prior to construction.

**WET-4** Temporary impacts to Waters of the U.S. shall be compensated for at a ratio of 2:1, and permanent impacts to Waters of the U.S. shall be compensated for at a ratio of 3:1.

### **2.3.3 Animal Species**

#### ***Regulatory Setting***

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanographic and Atmospheric Administration Fisheries Service, and the California Department of Fish and Game are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Special-status animal species discussed here include California Department of Fish and Game fully protected species and species of special concern, and the U.S. Fish and Wildlife Service or National Oceanographic and Atmospheric Administration Fisheries Service candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Marine Mammal Protection Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1601–1603 of the Fish and Game Code
- Sections 4150 and 4152 of the Fish and Game Code

### **Affected Environment**

As previously mentioned, a Natural Environment Study (Minimal Impacts) (2007, and updated in 2009) was prepared for the proposed project, which included field surveys of the project's Biological Study Area, literature reviews, and database searches.

#### **Common Wildlife**

The Biological Study Area is in close proximity to urban activities and urban development. Common wildlife observed within the Biological Study Area included avifauna species such as the turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), northern mockingbird (*Mimus polyglottos*), and common raven (*corvus corax*). Common mammal species observed included mule deer (*Odocoileus hemionus*) and woodrat (*Neotoma* sp.). Aquatic species found within standing water within the drainage feature in the northwest project quadrant included tree frogs (*Hyla* sp.). A complete list of all common wildlife species observed within the Biological Study Area during field surveys is found in Appendix B of the Natural Environment Study (Minimal Impacts).

#### **Special-Status Wildlife**

Twenty-two special-status animal species have the potential to occur within the general vicinity of the project area based on a review of pertinent records (California Natural Diversity Database). Seven of these species are listed as federal or state Endangered Species Act protected species; the remaining 15 species are not state or federal Endangered Species Act protected.

The following five species are designated as state species of concern, and surveys were conducted to determine potential project-related impacts:

- Monarch butterfly (*Danaus plexippus*)
- Lompoc grasshopper (*Trimerotropis occulens*)
- White-tailed kite (*Elanus leucurus*)
- Monterey dusky-footed woodrat (*Neotoma macrotis luciana*)
- American badger (*Taxidea taxus*)

Refer to the Natural Environment Study (Minimal Impacts) for detailed descriptions regarding the above-listed species.

### ***Migratory Birds***

The Biological Study Area has the potential to support foraging areas for migratory birds and their nests due to the large number of trees and shrubs within the area; potential impacts to such bird species must be considered pursuant to the Migratory Bird Treat Act.

### ***Environmental Consequences***

#### ***Build Alternatives 1 and 2***

Of the 22 special-status species evaluated for this project, 16 species (including the pallid bat and Townsend's western big-eared bat) are considered absent due to lack of suitable habitat within the Biological Study Area. The remaining six species (monarch butterfly, Lompoc grasshopper, white-tailed kite, Monterey dusky-footed woodrat, American badger, and San Joaquin kit fox) have a low probability of occurrence within the Biological Study Area. A low potential for occurrence designation was applied to these six species because their distribution is restricted by the lack of necessary habitat requirements in the Biological Study Area; no further survey or study is required to determine likely presence or absence of these species. The proposed project is not expected to adversely affect special-status species due to the presence of disturbed habitat, distance of species to the project site, or a low probability of occurrence.

The Monterey dusky-footed woodrat has a low potential for occurrence. A low potential designation was applied to this species because its distribution is restricted by the lack of necessary habitat requirements in the Biological Study Area. No further surveys or studies are required to determine the likely presence or absence of this species.

The pallid bat and Townsend's western big-eared bat are considered absent due to a lack of suitable habitat within the Biological Study Area. Therefore, no additional avoidance, minimization and/or mitigation measures are included for these species.

Although the project is not likely to affect special-status animals, there is a potential for direct and indirect impacts to migratory birds, raptors, and bats as a result of the proposed project. No special-status animal was observed within the Biological Study Area, and the proposed project would not directly destroy individuals or nests, cause mortality of nestlings or adults, disrupt breeding activities, affect annual production, or substantially change migration or foraging patterns of wildlife. However, raptors and bats, although not listed or afforded protection, may nest or roost on existing

structures or trees within the Biological Study Area, and impacts on these species may include habitat loss from construction activities. These impacts are not considered substantial due to the small amount of native functional habitat affected by the project and the existing disturbed conditions of the Biological Study Area. Therefore, the project is not anticipated to have a substantial adverse effect on common or special-status wildlife species.

### ***Construction Impacts***

Noise, dust, and vibratory effects resulting from demolition and construction-related activities may have an indirect effect on migratory birds, bats, and raptors nesting or roosting in the project area and vicinity. However, these impacts are not considered substantial due to the relatively small amount of native functional habitat being affected by the project and the assumed tolerance of species to disturbance from existing development in the Biological Study Area.

Project activities may temporarily deter individuals from using the project construction area for foraging and nesting; however, this impact would be limited to the period of active construction and is not expected to result in any long-term or substantial changes in migration or foraging patterns.

Raptors and bats may nest or roost on existing structures or trees within the Biological Study Area, and impacts on these species may include habitat loss and potential temporary displacement due to construction activities.

Project activities may also temporarily deter wildlife from foraging in the area during active construction within the relatively small project construction area. These impacts are not considered substantial due to the small amount of native functional habitat affected by the project and the existing disturbed conditions of the Biological Study Area.

Therefore, the project is not anticipated to have a substantial adverse effect on common or special-status species.

### ***Avoidance, Minimization, and/or Mitigation Measures***

**AS-1** In order to comply with the Migratory Bird Treaty Act and relevant sections of the California Department of Fish and Game Code, any vegetation clearing would take place outside of the typical avian nesting season (February 15-September 1), to the maximum extent practical. If this is not possible, prior to ground-disturbing activities, construction, and other development within the Biological Study Area, a

qualified biologist would conduct and submit a migratory nesting bird and raptor survey report. A qualified biologist is an individual with sufficient education and field experience in local California ecology and biology to adequately identify local plant and wildlife species. The survey would occur not more than 72 hours prior to initiation of project activities and any occupied passerines and/or raptor nests occurring within or adjacent to the study area would be delineated. To the maximum extent practicable, a minimum buffer zone, using environmentally sensitive area fencing, from occupied nests would be maintained during physical ground-disturbing activities. If there were migratory birds in trees that are to be removed, construction would be halted until the birds have fledged. Once nesting has ceased, the buffer may be removed.

### **2.3.4 Invasive Species**

#### ***Regulatory Setting***

On February 3, 1999, President Bill Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem, whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the National Environmental Policy Act analysis for a proposed project.

#### ***Affected Environment***

The proposed project area consists mostly of disturbed non-native grassland, oak woodland/disturbed oak savannah, coyote bush scrub, riparian habitat, ornamental, agricultural, and developed areas. Most of the native vegetation is sporadic and the majority of the Biological Study Area is disturbed and developed with non-native and ornamental species and provides minimal nesting, foraging, and resting habitat. Nonetheless, the Biological Study Area does provide some suitable habitat for plant and wildlife species, although the plant and wildlife species observed during surveys are typical of disturbed/developed habitats in the county.

#### ***Plants***

Invasive, noxious, exotic, ornamental, and non-native plants were identified by using various plant lists from the California Department of Food and Agriculture, the California Invasive Plant Council, the Nature Conservancy, and the California Weed

Science Society. Typical plant species observed included Russian thistle (*Salsola tragus*), star thistle (*Centaurea solstitialis*), hoary mustard (*Hirschfeldia incana*), and lamb's quarters (*Chenopodium album*). Additional non-native grasses such as brome (*Bromus diandrus*, *B. madritensis* ssp. *madritensis*, and *B. madritensis* ssp. *rubens*) and zorro fescue (*Vulpia myuros*) were also observed. Disturbed (ruderal)/non-native grasslands are distributed throughout the Biological Study Area and contain species such as non-native poison hemlock (*Conium maculatum*) and Italian thistle (*Carduus pycnocephalus*) among others. The aforementioned non-native and invasive plant species were most likely transferred to the area by, for example, vehicle tires, wind dispersion from landscaped yards, and wildlife. Invasive species have not been able to completely out-compete native species throughout the Biological Study Area.

### **Environmental Consequences**

#### ***Build Alternatives 1 and 2***

The build alternatives would not be expected to introduce or materially increase or decrease the abundance or diversity of invasive or non-native plant or wildlife species. Therefore, there would not be any anticipated permanent impacts resulting from the introduction of invasive or non-native plant or wildlife species from implementing either build alternative.

#### ***Construction Impacts***

Impacts associated with removal of vegetation during constructing can have short- and long-term consequences, depending on the ability of vegetative communities to repopulate cleared areas. Cleared and graded areas have the most noticeable short-term impact on vegetation. Yet after restoration, as necessary, the areas typically revegetate due to the availability of water, seeds, and plant parts from which new plants can grow. Nonetheless, the removal of vegetation and the disturbance of soils during construction could create optimal conditions for the invasion and establishment of exotic and nuisance species. However, where the project encompasses areas consisting of existing invasive or non-native species, the removal of the noxious populations can provide an opportunity for the re-establishment of native vegetation.

During construction, the avoidance and minimization measures described below would be implemented to control and inhibit the spread of invasive species.

### **Avoidance, Minimization, and/or Mitigation Measures**

**VEG-1** All native vegetation that is removed or temporarily disturbed during construction would be replaced with native and drought-tolerant plants species as specified by the Landscape Architecture Division of Caltrans' Environmental Planning division. Native vegetation would be monitored to ensure planting success and the City would develop and implement a "Native Vegetation Restoration and Monitoring Plan" with input and oversight from Caltrans for any disturbed areas within the Biological Study Area (such as staging areas, access roads, etc.). The final plan would be prepared before construction.

**VEG-2** Topsoils containing non-native, exotic, and/or invasive plant material or seeds would be removed from the Biological Study Area and not reused unless, as specified by Caltrans' Environmental Planning, the topsoils can be used in areas where non-native, exotic, and/or invasive plant material or seeds would not adversely affect native vegetation.

**VEG-3** Limits of grading and construction activities should be clearly delineated so that no vegetation outside the delineated grading limits would be disturbed by construction personnel or equipment.

**VEG-4** In compliance with the Executive Order on Invasive Species and subsequent guidance from the Federal Highway Administration, landscaping and erosion control included in the project would not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions would be taken if invasive species were found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

## **2.4 Cumulative Impacts**

### **Regulatory Setting**

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation.

These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

Section 15130 of the California Environmental Quality Act Guidelines describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under the California Environmental Quality Act, can be found in Section 15355 of the California Environmental Quality Act Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act, can be found in 40 Code of Federal Regulations, Section 1508.7 of the Council on Environmental Quality regulations.

### ***Affected Environment***

As discussed in Section 2.1.1, Land Use, the City's Planning Department was contacted to identify proposed projects in the vicinity of the US 101/State Route 46 West interchange. No proposed projects were identified in the unincorporated areas of the project vicinity at the time of this analysis. Table 2.1-1, in Section 2.1.1 Land Use, lists 11 projects that were provided by the City's Planning Department in the vicinity of the proposed project. Table 2.1-1 lists these future projects by Map I.D. letter, which corresponds to the Map I.D. letters on Figure 2.1-2, Planned Projects, showing the location of each respective planned development.

Construction of the proposed project may result in some temporary, short-term disruptions in the project vicinity. Short-term cumulative impacts may occur if other projects in the area are constructed during periods of time that overlap with construction of the proposed project.

### ***Environmental Consequences***

This section focuses on potential cumulative impacts to visual/aesthetic and biological resources (oak woodlands). No cumulatively considerable impacts would occur to the other disciplines addressed in Chapter 2 of this report, and, therefore, they are not further assessed in this section.

### *Visual/Aesthetics*

The project is in an area that historically had a viewshed that was rural and agricultural. The landscape of the project area and its surroundings was composed of rolling hills and oak woodlands. As the city and the surrounding county grew and developed, these views have been changing to include a more built-up urban environment surrounded by rural agricultural uses. Today, the majority of the project area and surroundings is located in a commercial and industrial area with some surrounding rural/open space influences. Previous development has resulted in the loss of some oak woodland viewsheds throughout time. In the project vicinity, the combined planned commercial uses (as approved or pending by the City – refer to Figure 2.1-2) and the proposed project would contribute to an overall increase in urban views. However, impacts can be mitigated with appropriate landscaping, proper lighting techniques, and replanting of affected oak trees. Please refer to Section 2.1.7, Visual/Aesthetics, for a detailed discussion of project-related impacts and avoidance, minimization, and mitigation measures proposed for this project.

### *Biological Environment – Oak Woodlands*

Growth and development in the project area and vicinity over the years, particularly in the northern San Luis Obispo County area, has resulted in the conversion of areas of oak woodlands to other uses. Of the known planned projects listed in Table 2.1-1 and shown in Figure 2.1-2, no specific quantification of oak tree impacts was identified. However, the planned and potential future projects identified in the project vicinity are relatively devoid of substantial areas of oak woodlands. Nonetheless, any impacts to oak trees resulting from these planned and future projects would require replacement per the City's standards to help ensure the survival of replanted trees. It is anticipated that the US 101/State Route 46 West interchange project would result in the loss of 49 oak trees (refer to Section 2.3.1, Natural Communities, for additional discussion regarding impacts to oak trees resulting from the project).

The discussion regarding impacts to oak woodlands should focus on the loss of contiguous oak woodland habitat, rather than impacts to individual oak trees. Growth in the region has resulted in the conversion of contiguous oak woodland habitat to other uses. Due to development pressure and the lack of profit that oak woodlands provide, they are being converted with little to no mitigation being employed to compensate for this loss. Individual oak trees are sometimes avoided by projects and other oak trees planted as landscape trees to compensate for the individual tree loss associated with development, but the impact to oak woodlands and the ecosystem values they support are often not mitigated.

The proposed project is expected to remove 49 oak trees. Implementation of proposed mitigation measures for this project would compensate for the loss of oak trees and afford the opportunity to replant oak trees in areas of degraded, contiguous oak trees.

## **2.5 Climate Change under the California Environmental Quality Act**

### ***Regulatory Setting***

While climate change has been a concern since at least 1988 as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are mainly concerned with the emissions of greenhouse gas related to human activity that include carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane) and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level. Assembly Bill 1493 requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year; however, to enact the standards, California needed a waiver from the U.S. Environmental Protection Agency. The waiver was denied by the U.S. Environmental Protection Agency in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that U.S. Environmental Protection Agency will reconsider its decision regarding the denial of California's waiver.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this order is to reduce California's greenhouse gas emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. Assembly Bill 32 sets the same overall greenhouse gas emissions reduction goals while further mandating that the California Air Resources Board create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06, further directs state

agencies to begin implementing Assembly Bill 32, including the recommendations made by the state's Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10% by 2020.

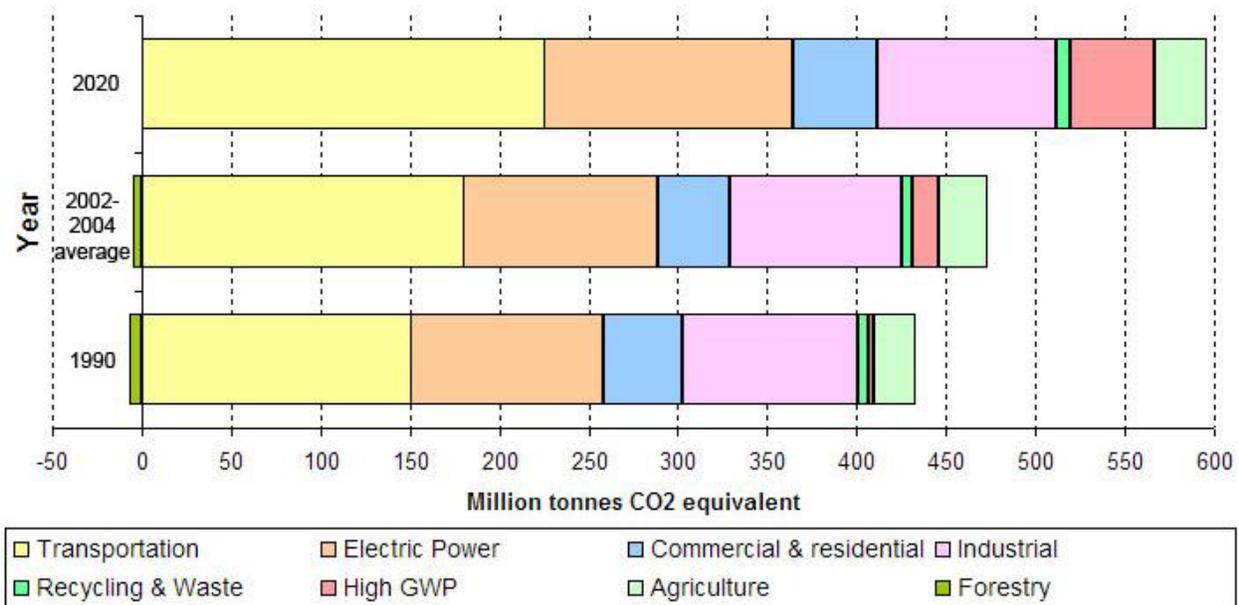
Climate change and greenhouse gas reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing greenhouse gas emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency to regulate greenhouse gas as a pollutant under the Clean Air Act (*Massachusetts v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007)). The court ruled that greenhouse gas does fit within the Clean Air Act's definition of a pollutant, and that the U.S. Environmental Protection Agency does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

### **Affected Environment**

According to *Recommendations by the Association of Environmental Professionals on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See California Environmental Quality Act Guidelines sections 15064(i)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. As discussed in the "Limitations and Uncertainties with Impact Assessment" sections below, to gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult if not impossible task.

As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board recently released an updated version of the greenhouse gas inventory for California (June 26, 2008). Shown below is a graph from that update that shows the total greenhouse gas emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

**Figure 2.5-1 – California Greenhouse Gas Inventory Forecast**



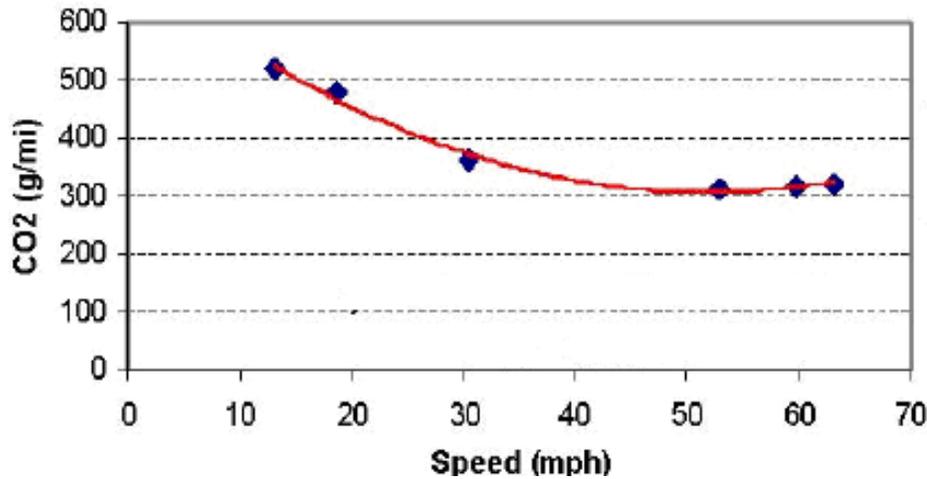
### California Greenhouse Gas Inventory

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98% of California’s greenhouse gas emissions are from the burning of fossil fuels and 40% of all human-made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

One of the main strategies in Caltrans’ Climate Action Program to reduce greenhouse gas emissions is to make California’s transportation system more efficient. Transportation’s contribution to greenhouse gas emissions depends on three factors: the types of vehicles on the road, the type of fuel the vehicles use, and the

time/distance the vehicles travel. The highest levels of carbon dioxide (CO<sub>2</sub>) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour). Optimum speeds are between 45 and 50 miles per hour. See Figure 2.5-2. To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly CO<sub>2</sub>, may be reduced.

Figure 2.5-2 – Fleet CO<sub>2</sub> Emissions vs. Speed (Highway)



Source: Center for Clean Air Policy— [http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20\(1-13-04\).pdf](http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf)

There are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and that could thus dramatically change the projected CO<sub>2</sub> emissions.

First, vehicle fuel economy is increasing. The Environmental Protection Agency's annual report, Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2008 (<http://www.epa.gov/oms/fetrends.htm>), which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy, has improved each year beginning in 2005, and is now the highest since 1993. Most of the increase since 2004 is due to higher fuel economy for light trucks, following a long-term trend of slightly declining overall fuel economy that peaked in 1987. These vehicles also have a slightly lower market share, peaking at 52% in 2004 with projections at 48% in 2008.

Second, near-zero carbon vehicles will come into the market during the design life of this project. According to *Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy*, released by University of California at Davis (UC Davis), Institute of Transportation Studies (March 2008):

“Large advancements have occurred in fuel cell vehicle and hydrogen infrastructure technology over the past 15 years. Fuel cell technology has progressed substantially resulting in power density, efficiency, range, cost, and durability all improving each year. In another sign of progress, automotive developers are now demonstrating over 100 fuel cell vehicles (FCVs) in California – several in the hands of the general public – with configurations designed to be attractive to buyers. Cold-weather operation and vehicle range challenges are close to being solved, although vehicle cost and durability improvements are required before a commercial vehicle can be successful without incentives. The pace of development is on track to approach pre-commercialization within the next decade.”

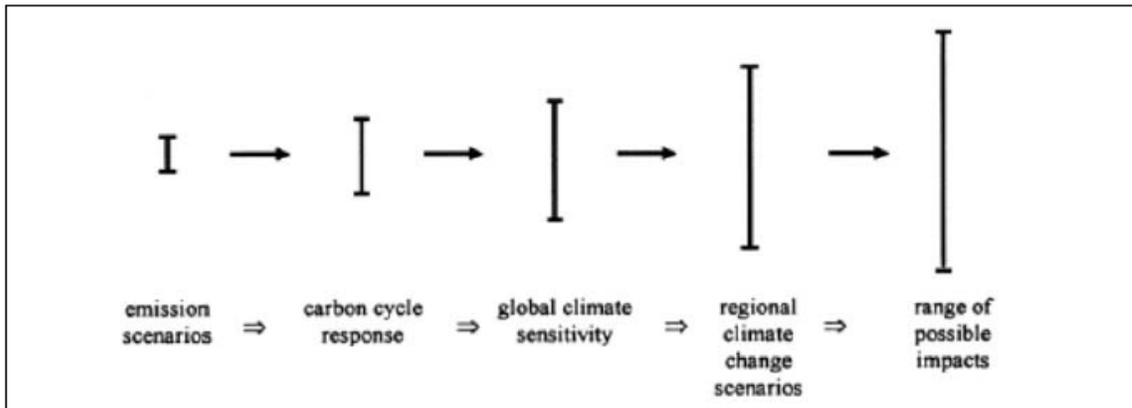
“A number of the U.S. Department of Energy (DOE) 2010 milestones for fuel cell vehicles development and commercialization are expected to be met by 2010. Accounting for a five to six year production development cycle, the scenarios developed by the U.S. DOE suggest that 10,000s of vehicles per year from 2015 to 2017 would be possible in a federal demonstration program, assuming large cost share grants by the government and industry are available to reduce the cost of production vehicles.”

Third and as previously stated, California has recently adopted a low-carbon transportation fuel standard. The California Air Resources Board is scheduled to come out with draft regulations for low carbon fuels in late 2008 with implementation of the standard to begin in 2010.

Fourth, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, *Effects of Gasoline Prices on Driving Behavior and Vehicle Market*, <http://www.cbo.gov/ftpdocs/88xx/doc8893/01-14-GasolinePrices.pdf>, the Congressional Budget Office found the following results based on data collected from California: 1) freeway motorists have adjusted to higher gas prices by making fewer trips and driving more slowly; 2) the market share of sports utility vehicles is declining; and 3) the average prices for larger, less-fuel-efficient models have declined over the past five years as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel-efficient vehicles.

### Cascade of Uncertainties

Taken from pp. 3-48 and 3-49 of the National Highway Traffic Safety Administration Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards (June 2008), the figure below illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:



“Cascade of uncertainties typical in impact assessments showing the ‘uncertainty explosion’ as these ranges are multiplied to encompass a comprehensive range of future consequences, including physical, economic, social, and political impacts and policy responses.”

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory framework in place that would allow for a ready assessment of what the modeled 11.4 to 20.9 ton increase in CO<sub>2</sub> emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO<sub>2</sub> equivalent.

This uncertainty only increases when viewed globally. The Intergovernmental Panel on Climate Change (IPCC) has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons of CO<sub>2</sub> from 2000 to 2030, which represents an increase of between 25% and 90% (Climate Change 2007: The Physical Science

Basis: Summary for Policy Makers. February 2007.  
<http://www.ipcc.ch/SPM2feb07.pdf>.

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing “new” greenhouse gas emissions. Although some of the emission increases might be new, a net global increase, reduction, or no change, is uncertain and there are no models approved by regulatory agencies that operate at the global or even statewide scale.

The complexities and uncertainties associated with project-level impact analysis are further borne out in the recently released Draft Environmental Impact Statement completed by the National Highway Traffic Safety Administration Corporate Average Fuel Economy Standards, June 2008. As the text quoted below shows, even when dealing with greenhouse gas emission scenarios on a national scale for the entire passenger car and light truck fleet, the numerical differences among alternatives is very small and well within the error sensitivity of the model.

“In analyzing across the Corporate Average Fuel Economy 30 alternatives, the mean change in the global mean surface temperature, as a ratio of the increase in warming between the B1 (low) to A1B (medium) scenarios, ranges from 0.5 percent to 1.1 percent. The resulting change in sea level rise (compared to the No Action Alternative) ranges, across the alternatives, from 0.04 centimeter to 0.07 centimeter. In summary, the impacts of the MY 2011-2015 Corporate Average Fuel Economy alternatives on global mean surface temperature, sea level rise, and precipitation are relatively small in the context of the expected changes associated with the emission trajectories. This is due primarily to the global and multi-sectoral nature of the climate problem. Emissions of CO<sub>2</sub>, the primary gas driving the climate effects, from the United States automobile and light truck fleet represented about 2.5 percent of total global emissions of all greenhouse gas in the year 2000 (EPA, 2008; CAIT, 2008). While a significant source, this is a still small percentage of global emissions, and the relative contribution of CO<sub>2</sub> emissions from the United States light vehicle fleet is expected to decline in the future, due primarily to rapid growth of emissions from developing economies (which are due in part to growth in global transportation sector emissions). (NHTSA Draft Environmental Impact Statement for New Corporate Average Fuel Economy Standards, June 2008, pp.3-77 to 3-78)”.

### ***Project Analysis***

The proposed project is designed to reduce congestion and vehicle time delays. It is included in San Luis Obispo Council of Governments' 2005 Regional Transportation Plan and 2007 Regional Transportation Improvement Program to improve traffic flow within the region. The proposed project is an interchange reconfiguration project, and therefore would result in an insignificant increase in vehicle miles traveled.

Furthermore, as discussed in Section 2.1.6, Traffic & Transportation/Pedestrian and Bicycle Facilities, the proposed project would result in an estimated net reduction of 15,996,069 vehicle hours of delay during the course of the project (year 2018 through year 2038). An increase in vehicle hours of delay is associated with a longer travel time resulting from an increase in traffic volumes and a decrease in travel speeds. Conversely, a decrease in vehicle hours of delay is associated with a shorter travel time due to a decrease in traffic volumes and an increase in travel speeds. The quantities of pollutants emitted from vehicles are directly correlated to travel speed (EMFAC2002 model manual). At stop-and-go speeds (0-25 miles per hour) vehicles emit larger quantities of pollutants than vehicles traveling at higher speeds. Therefore, a decrease in vehicle hours of delay (or vehicles traveling at a higher speed) correlates to a reduction in CO<sub>2</sub> emissions.

### ***Air Quality Characteristics and Air District Area***

The project is located in the San Luis Obispo County Air Pollution Control District, California, in conjunction with several environmental organizations and several other states, sued to force the U.S. Environmental Protection Agency to regulate greenhouse gas as a pollutant under the Clean Air Act (Massachusetts v. Environmental Protection Agency et al., 549 U.S. 497 (2007)). The court ruled that greenhouse gas does fit within the Clean Air Act's definition of a pollutant, and that the U.S. Environmental Protection Agency does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

### ***Design Speeds and Correlating Emissions***

The highest levels of CO<sub>2</sub> from vehicles occur at stop-and-go speeds. The project proposes two roundabout designs that would provide a constant traffic pattern and therefore minimize stop-and-go traffic. Consequently, roundabout Build Alternatives 1 and 2 would result in lower CO<sub>2</sub> levels than a No-Build Alternative (the three project alternatives are explained further under "Operational Emissions").

### ***Project Growth: Current and Future Characteristics***

Community growth and characteristics can provide a perspective on how growth could potentially affect future traffic operations and greenhouse gas emissions. If we characterize and compare current and future population growth, we can anticipate increased traffic congestion, which would contribute to CO<sub>2</sub> emissions. Thus, a look at the community's current and future growth and traffic data can assist Caltrans and the local stakeholders in making determinations about project impacts and potential contributions to greenhouse gas emissions.

The project area is located in the City of Paso Robles in San Luis Obispo County. A review of the 2000 Census data indicates a total population of about 24,300 within the city. The City has adopted a population projection model for growth that assumes that the city will grow at a constant rate of 289 dwelling units (780 persons) per year; therefore, Paso Robles is expected to reach a population of 44,000 by 2025 (City of Paso Robles, 2008). This population increase would inherently increase traffic in the project area. Given the growth rate and projected increase in traffic volumes, CO<sub>2</sub> emissions would increase. However, the roundabout in Build Alternatives 1 and 2 would accommodate these projected increased traffic volumes.

Furthermore, according to the project Traffic Report, the No-Build Alternative would result in failure at all the intersections at the U.S. Highway 101/Route 46 West interchange in 2038 (Associated Transportation Engineers, 2006). Because the interchange cannot manage the increased number of vehicles, the line of vehicles will essentially stop all interchange traffic. This traffic condition would result in extended idle time and thus increase CO<sub>2</sub> emissions.

### ***Operational Emissions***

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Operational greenhouse gas emissions are primarily a result of CO<sub>2</sub> emissions generated by vehicles traveling through the project site. The proposed project is designed to reduce congestion by allowing constant traffic flow through the intersection and reduce vehicle time delays, and therefore would reduce greenhouse gas emissions, particularly CO<sub>2</sub>. Vehicle delays for future years 2018 and 2038 are compared to a no-build scenario, a Build Alternative 1 scenario, and a Build Alternative 2 scenario, as shown in Table 2.5-1.

### *No-Build Alternative*

The no-build scenario represents the existing conditions of the project, in which no additional improvements would be made to the interchange. According to the Traffic Report prepared for the project (Associated Transportation Engineers, 2006), traffic operations would worsen, resulting in increased delays due to increased traffic volume in future years. The interchange is forecast to operate at level of service F in the year 2038 under the No-Build Alternative.

### *Build Alternative 1*

The Build Alternative 1 scenario includes 1) realigning Theatre Drive to the west, forming a “T” intersection with signals at State Route 46 West; 2) constructing a roundabout at the U.S. Highway 101 Southbound/State Route 46 West/Vine Street intersection; and 3) constructing a roundabout at the US 101 Southbound/State Route 46 West/Ramada Drive intersection. The State Route 46 West/Theatre Drive intersection is forecast to operate at level of service B in 2038.

### *Build Alternative 2*

The Build Alternative 2 scenario is similar to Build Alternative 1, but also includes the realignment of Vine Street to connect with State Route 46 West opposite Theatre Drive at the new intersection west of the interchange. The US 101 Southbound/State Route 46 West intersection would be configured as a roundabout. The roundabout on the east side of the interchange would be the same as in Build Alternative 1. The State Route 46 West/Theatre Drive-Vine Street intersection is forecast to operate at level of service C in 2038.

Table 2.5-1 provides a quantitative summary of projected future delay at the ramp termini for the No-Build Alternative and Build Alternatives 1 and 2.

**Table 2.5-1 - Traffic Delays at US 101 Ramp Termini**

Year	Movement		Delay (seconds per vehicle)		
			No-Build Alternative	Build Alternative 1	Build Alternative 2
2018	Eastside	EB	64.6	7.4	7.4
		NB	85.3	8	8
		NB2	96.6	8.7	8.7
		SB	82.6	8.7	8.7
	Westside	EB	90.7	8.4	4.7
		NB	125.3	0	0
		SB	39.2	16.5	0
		SB2	110.7	8.5	5.8
	WB	99	5.5	4.2	
2038	Eastside	EB	119.6	7.6	7.6
		NB	277.7	33.5	33.5
		NB2	350.9	15.7	15.7
		SB	230.8	18.2	18.2
	Westside	EB	261.1	22.6	11.1
		NB	251.9	0	0
		SB	124.8	61.1	0
		SB2	232.7	17.6	8.8
		WB	180.1	5.6	4.3

EB: Eastbound; WB: Westbound; NB: Northbound; SB: Southbound;  
NB2: US 101 Northbound Off-ramp; SB2: US 101 Southbound Off-ramp

The results indicate that the project would reduce the delays for all turn possibilities at the interchange and that Alternative 2 results in the greatest reduction in delay.

**Greenhouse Gas Emissions**

While traffic delays can be assessed quantitatively, vehicle emissions potentially contributing to climate change can only be qualitatively defined. However, as previously discussed, the estimated delay can be used to define greenhouse gas emissions in relative comparative terms.

**Table 2.5-2 – Cumulative Assessment of Traffic Delay at Interchange**

PM Peak Hour	Movement	Eastside <sup>1</sup>			Westside <sup>1</sup>				Total Delay			
		Delay per Vehicle (seconds)	Number of Vehicles	Delay (seconds)	Delay per Vehicle (seconds)	Number of Vehicles	Delay (seconds)	Eastside & Westside Total (seconds)	2 Peak Periods <sup>2</sup> 1 day (seconds)	2 Peak Periods <sup>2</sup> 1 day (hours)		
2018	NO BUILD	EB	64.6	890	57,494.0	EB	90.7	555	50,338.5			
		NB	85.3	215	18,339.5	NB	125.3	465	58,264.5			
		NB2	96.6	310	29,946.0	SB	39.2	240	9,408.0			
		SB	82.6	350	28,910.0	SB2	110.7	685	75,829.5			
	<b>Total</b>			<b>134,689.5</b>	WB	99	475	<b>47,025.0</b>	<b>240,865.5</b>	<b>375,555.0</b>	<b>1,126,665.0</b>	<b>313.0</b>
	BUILD ALTERNATIVE 1	EB	7.4	890	6,586.0	EB	8.4	555	4,662.0			
		NB	8	215	1,720.0	NB	0	0	0.0			
		NB2	8.7	310	2,697.0	SB	16.5	240	3,960.0			
		SB	8.7	350	3,045.0	SB2	8.5	685	5,822.5			
<b>Total</b>			<b>14,048.0</b>	WB	5.5	475	<b>2,612.5</b>	<b>17,057.0</b>	<b>31,105.0</b>	<b>93,315.0</b>	<b>25.9</b>	
BUILD ALTERNATIVE 2	EB	7.4	890	6,586.0	EB	4.7	835	3,924.5				
	NB	8	215	1,720.0	NB	0	0	0.0				
	NB2	8.7	310	2,697.0	SB	0	0	0.0				
	SB	8.7	350	3,045.0	SB2	5.8	610	3,538.0				
<b>Total</b>			<b>14,048.0</b>	WB	4.2	670	<b>2,814.0</b>	<b>10,276.5</b>	<b>24,324.5</b>	<b>72,973.5</b>	<b>20.3</b>	
2038	NO BUILD	EB	119.6	1150	137,540.0	EB	261.1	505	131,855.5			
		NB	277.7	665	184,670.5	NB	251.9	490	123,431.0			
		NB2	350.9	470	164,923.0	SB	124.8	230	28,704.0			
		SB	230.8	820	189,256.0	SB2	232.7	710	165,217.0			
	<b>Total</b>			<b>676,389.5</b>	WB	180.1	1140	<b>205,314.0</b>	<b>654,521.5</b>	<b>1,330,911.0</b>	<b>3,992,733.0</b>	<b>1,109.1</b>
	BUILD ALTERNATIVE 1	EB	7.6	1150	8,740.0	EB	22.6	505	11,413.0			
		NB	33.5	665	22,277.5	NB	0	0	0.0			
		NB2	15.7	470	7,379.0	SB	61.1	230	14,053.0			
		SB	18.2	820	14,924.0	SB2	17.6	710	12,496.0			
<b>Total</b>			<b>53,320.5</b>	WB	5.6	1140	<b>44,346.0</b>	<b>44,346.0</b>	<b>97,666.5</b>	<b>292,909.5</b>	<b>81.4</b>	
BUILD ALTERNATIVE 2	EB	7.6	1150	8,740.0	EB	11.1	1090	12,099.0				
	NB	33.5	665	22,277.5	NB	0	0	0.0				
	NB2	15.7	470	7,379.0	SB	0	0	0.0				
	SB	18.2	820	14,924.0	SB2	8.8	710	6,248.0				
<b>Total</b>			<b>53,320.5</b>	WB	4.3	1135	<b>4,880.5</b>	<b>23,227.5</b>	<b>76,548.0</b>	<b>229,644.0</b>	<b>63.8</b>	

<sup>1</sup> Data presented is derived from the SIDRA model information within the project Traffic Report, "U.S. Highway 101/Route 46 West PA-ED," Associated Transportation Engineers, November 2, 2006.

<sup>2</sup> 2 Peak Periods - 1 day accounts for peak spreading, since the AM and PM peak periods are estimated to last for more than 1 hour.

EB: Eastbound  
 WB: Westbound  
 NB: Northbound  
 SB: Southbound  
 NB2: U.S. 101 Northbound Offramp  
 SB2: U.S. 101 Southbound Offramp

The results indicate that Build Alternative 1 would reduce daily delay and therefore presumably CO<sub>2</sub> emissions at the interchange when compared to the no-build scenario, and Build Alternative 2 would further reduce daily delay and therefore presumably CO<sub>2</sub> emissions at the interchange compared to Build Alternative 1.

In summary, Build Alternatives 1 and 2 would have the following greenhouse gas emissions-reducing benefits:

- **Reduced congestion:** High traffic volumes and inadequate access control would contribute to congestion, delays, and undesirable operating conditions at the interchange. Reduced delay would improve local accessibility. Congestion relief would reduce long lines of traffic.
- **Traffic flow control:** Consistent movement would reduce the CO<sub>2</sub> emissions due to the relatively non-varying traffic speeds and flow through the Build Alternatives 1 and 2 as compared to the no-build scenario. Consistent flow through the roundabouts would reduce idling time, which in turn would reduce CO<sub>2</sub> emissions.

- **Reduced greenhouse gas emissions:** Both roundabout Build Alternatives 1 and 2 would result in fewer CO<sub>2</sub> emissions due to reduced stop-and-go movement as compared to the No-Build Alternative.
- **Growth management:** Taking into account current growth variables projected by the U.S. Bureau of the Census, the build alternatives would better facilitate the projected increased number of vehicles in the project area.
- **Caltrans Standard Specification Provisions:** According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; in addition, the contractor must comply with the San Luis Obispo County Air Pollution Control District's rules, ordinances, and regulations for air quality restrictions.
- **County's Regional Transportation Plan:** The project is consistent with the Transportation Plan, which discusses improved traffic flow and reduction of congestion and accidents for the region.
- **Compliance with AB 32:** The roundabout in Build Alternatives 1 and 2 supports the climate change strategies of Assembly Bill 32. In addition, roundabouts increase pedestrian and bicycle accessibility, thereby encouraging the use of these alternative transportation modes that reduce greenhouse gases.

The excerpt below further support the benefits of roundabout design in reducing CO<sub>2</sub> emissions.

Because roundabouts improve the efficiency of traffic flow, they also reduce vehicle emissions and fuel consumption. In one study, replacing a signalized intersection with a roundabout reduced carbon monoxide emissions by 29 percent and nitrous oxide emissions by 21 percent.<sup>9</sup> In another study, replacing traffic signals and stop signs with roundabouts reduced carbon monoxide emissions by 32 percent, nitrous oxide emissions by 34 percent, carbon dioxide emissions by 37 percent, and hydrocarbon emissions by 42 percent.<sup>10</sup> Constructing roundabouts in place of traffic signals can reduce fuel consumption by about 30 percent.<sup>9,11</sup> At 10 intersections studied in Virginia, this amounted to more than 200,000 gallons of fuel per year.<sup>8</sup> And roundabouts can enhance aesthetics by providing landscaping opportunities.

<sup>9</sup>Várhelyi, A. 2002. The effects of small roundabouts on emissions and fuel consumption: a case study. *Transportation Research Part D: Transport and Environment* 7:65-71.

<sup>10</sup>Mandavilli, S.; Russell, E.R.; and Rys, M. 2004. Modern roundabouts in United States: an efficient intersection alternative for reducing vehicular emissions. Poster presentation at the 83rd Annual Meeting of the Transportation Research Board, Washington DC.

<sup>11</sup>Niittymäki, J. and Höglund P.G. 1999. Estimating vehicle emissions and air pollution related to driving patterns and traffic calming. Presented at the Urban Transport Systems Conference, Lund, Sweden.

In summary, both Build Alternatives 1 and 2 would result in less delay time for each turn option, and would therefore reduce future greenhouse gas emissions in comparison to the No-Build Alternative. Because of the congestion relief anticipated with the implementation of the project, project operations would not contribute to the climate change effect, but rather would produce long-term greenhouse gas benefits through improved operation.

### **Construction Emissions**

Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Construction emissions would be mitigated through the use of construction equipment that is equipped with standard vehicular air emission technology (catalytic converters). All equipment used for construction activities would be legally permitted (if required) before used on the construction site. By ensuring that construction equipment is legally permitted for use specifically air emissions, greenhouse gas from the site would be minimized.

Additionally, according to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to 10 minutes in each direction; furthermore, the contractor must comply with Air Pollution Control District rules, ordinances, and regulations in regard to air quality restrictions. Short-term construction impacts are thus minimized but otherwise unavoidable; however, to offset the short-term greenhouse gas emissions from project construction, the project would produce long-term greenhouse gas benefits through improved operation.

### **AB 32 Compliance**

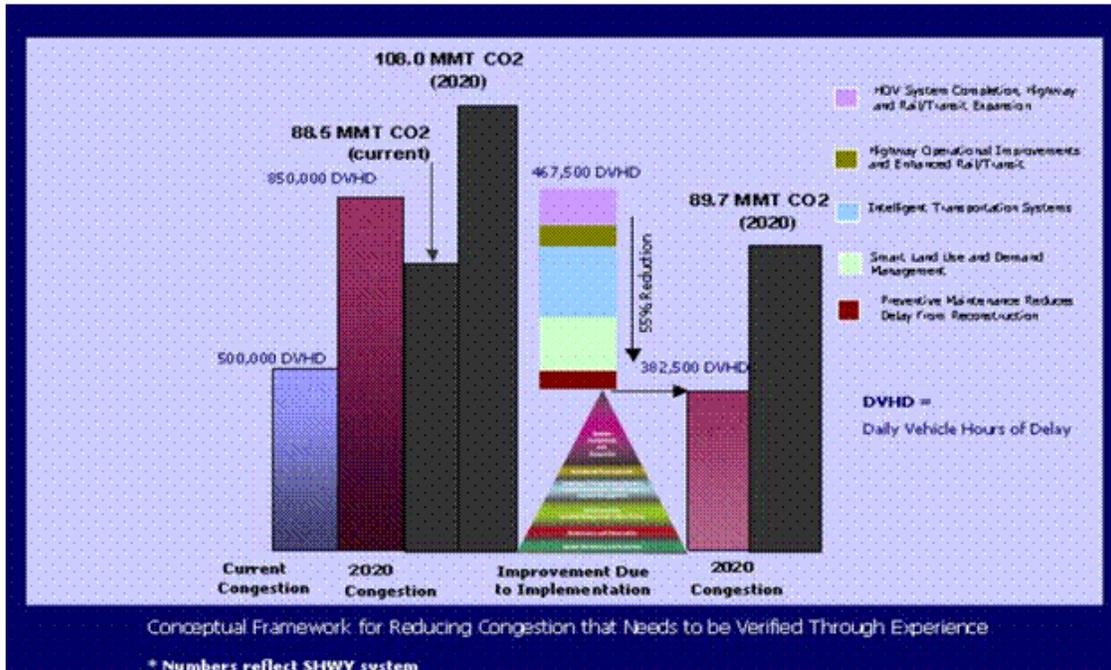
Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement the Governor's Executive Orders and to help achieve the targets set forth in Assembly Bill 32. Many of the

strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the California Strategic Growth Plan, which is updated each year.

The governor's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016. As shown in the next figure, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion.

The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

Figure 2.5-3 – Outcome of Strategic Growth Plan



As part of the Climate Action Program at Caltrans (December 2006), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority.

Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light and heavy-duty trucks. However, it is important to note that control of fuel economy standards is held by the U.S. Environmental Protection Agency and the Air Resources Board.

Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California at Davis.

Table 2.5-3 summarizes the department and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. For more detailed information about each strategy, please refer to the Climate Action Program at Caltrans (December 2006), available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

**Table 2.5-3 – Climate Change Strategies**

Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements and Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.007	2.17
Mainstream Energy and Greenhouse Gas into Plans and Projects	Office of Policy Analysis and Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational and Information Program	Office of Policy Analysis and Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening and Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67