

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

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Chapter 2 describes resources in the Human and Physical Environment within the project limits and identifies potential environmental impacts from the proposed project. Chapter 3 does the same for the Biological Environment. Cumulative impacts are discussed in Chapter 4. These discussions provide the basis for the responses to the CEQA Checklist Form (Appendix A of this document).

Differences do exist between NEPA and CEQA in terms of how lead agencies are required to address impacts in environmental documents. Under NEPA, the degree of impact to resources determines the level of the environmental document. Because FHWA, the lead agency under NEPA, has determined that impacts due to the proposed project would be minor or offset, the appropriate level of documentation is an Environmental Assessment. Therefore, discussion of an impact's level of significance in this document is made solely within the context of CEQA. While no significant impacts under CEQA have been identified for the Wilfred Avenue Interchange Project, avoidance, minimization, and/or mitigation measures may be recommended.

## **HUMAN ENVIRONMENT**

### **2.1 LAND USE**

#### **Affected Environment**

The city and county general plans contain objectives, goals and policies, for the management of growth, land use, and traffic within the study area. For instance, the Sonoma County general plan discourages urban sprawl.<sup>6</sup> The Rohnert Park General Plan promotes vehicular circulation on both surface streets and on Route 101. The General Plan proposes Levels of Service, or an upper limit for traffic delay, for three intersections to be affected by

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<sup>6</sup> Sonoma County Goals and Policies referenced through Sonoma County General Plan, 1989.

the project. (See Table 2-1 on page 26 for Level of Service Categories). The General Plan also proposes considering future park-and-ride lots within the Wilfred Avenue/Route 101 vicinity.

The city of Rohnert Park is approximately 6.9 square miles. Existing designated land uses in Rohnert Park are allocated among residential uses (approximately 45%), professional/office uses (1%), commercial uses (8%), industrial uses (12%), and other uses such as parks and recreation, public and local streets (totaling 30%). Rohnert Park is 96% built out, with approximately 4% of vacant area. Residential uses are spread throughout the city, predominantly to the east of US 101. General industrial uses are concentrated in the northwestern and southeastern corners of the planning area, with the northwestern use straddling US 101 between the Rohnert Park Expressway and Wilfred Avenue. The two largest concentrated commercial zones surround the Rohnert Park Expressway and Wilfred Avenue interchanges with US 101. Commercial and industrial development adjoins the project area to the west. The Rohnert Park City Center is east of the southern end of the project area. The municipal golf course is also east of the project area, along with commercial and industrial businesses, and a small mixed-use area.

### **Environmental Consequences**

No known development would be directly impaired or limited by the proposed project. No conflicts have been identified between the proposed project and local planning goals or policies. The Wilfred Avenue Interchange Project (the Build Alternative) would not require any changes in land use or zoning. The construction of the Build Alternative would not obstruct access to any lanes of local roads, and the same traffic circulation would be provided. No homes or businesses would lose their current access to roadways. During construction the onramp from Commerce Blvd. to northbound Route 101 may require temporary closure. No substantial permanent indirect effects are anticipated in any local neighborhoods near the Route 101 widening.

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

None proposed.

## **2.2 GROWTH**

### ***Definition of Growth***

Growth inducement in terms of transportation projects can be defined as the relationship between a proposed transportation project and growth within the project area. The impacts are difficult to quantify accurately since the growth that happens after the Build Alternative is constructed is usually indirect and occurs over a period of time. The relationship is frequently characterized as either one of facilitating planned growth or inducing unplanned growth.

### **Affected Environment**

Several projects have been approved or are being proposed in the city of Rohnert Park and Cotati (see Table B-1 for a list of these projects). Most of these projects are consistent with the General Plan. However, in March 2004, the Federated Indians of Graton Rancheria issued a Notice of Intent to prepare an Environmental Impact Statement (EIS) for a proposed casino about a mile west of Route 101, outside the urban growth boundary of the city of Rohnert Park.

### **Environmental Consequences**

The Build Alternative would not eliminate travel time delay on the mainline and, thus, would not eliminate barriers to growth. Moreover, the Build Alternative conforms to local general plans and does not conflict with Sonoma County and the city of Rohnert Park's managed growth policies. Finally, the Build Alternative is unlikely to alter the historic and projected growth patterns in Rohnert Park and Sonoma County. Each of these factors supports the conclusion that the Build Alternative would not change existing growth patterns.

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

None proposed.

## **2.3 COMMUNITY IMPACTS**

### **2.3.1 COMMUNITY CHARACTER AND COHESION**

#### **Affected Environment**

Within the project limits, Route 101 is mainly surrounded by industrial development. Commercial and mixed development primarily exists at the Rohnert Park Expressway Overcrossing and the Wilfred Avenue Interchange. Mixed uses exist at the city center just to the east of the Route 101 interchange with the Rohnert Park Expressway. Although residential and commercial developments have been established on both sides of the freeway, at one time Route 101 was a barrier to western development. As the freeway predates most of the residential and commercial development that has filled in, it does not divide any communities.

#### **Environmental Consequences**

The Build Alternative includes connecting Wilfred Avenue and Golf Course Drive, thereby enhancing community cohesion between the eastern and western sides of the freeway.

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

None proposed.

### **2.3.2 ENVIRONMENTAL JUSTICE**

Caltrans and FHWA performed a study to identify potential areas having disproportionate minority and low-income population characteristics near the project. The study results did not identify any disproportionate population of low-income or minority people.

Noise and air quality impacts are distributed evenly through the project area and are not concentrated in any area of minority or low-income residents. The two relocations that were previously discussed in the IS/EA were not found to be connected to areas identified as low-income or minority neighborhoods. Moreover, the current alternative has eliminated the need for any relocations.

The Build Alternative would not cause disproportionately high and adverse effects on any minority or low-income populations in compliance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994.

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

None proposed.

**2.3.3 RELOCATIONS**

**Affected Environment**

The reduced footprint of the project will affect less property than previously proposed. For instance, the additional right-of-way for the 4-way intersection at the SMART crossing has been eliminated. However, other right of way acquisitions will be executed as follows: 1) along the west side of Roberts Lake Road up to the existing park and ride lot for widening; 2) Along the north side of Golf Course Drive between Roberts Lake Road and Commerce Boulevard for widening, and 3) the area west of Route 101 where Redwood Drive becomes Millbrae Avenue to add a collector distributor road along the southbound side of Route 101.

**Environmental Consequences**

Two commercial businesses, a vacant tire store at 5050 Commerce Boulevard and a restaurant at 5000 Commerce Boulevard, will no longer be displaced by the Build Alternative. Only partial property acquisitions would be required for the improvements described above. Therefore no relocations will take place as part of the Build Alternative, and there will be no significant impacts under CEQA due to the Build Alternative.

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

None proposed.

## **2.3.4 PARKING**

### **Affected Environment**

The affected environment includes an existing city-owned park and ride lot located northeast corner of the intersection between Route 101 and Golf Course Drive, adjacent to SMART right of way.

### **Environmental Consequences**

The widening on Roberts Lake Road may remove some street parking capacity, however the expansion of the park and ride lot will replace any potential loss (Figure 2-1).

The lot will have its entrance and exit at Roberts Lake Road. SMART is also proposing a future rail station at this site, and it is unknown whether multi-use parking would be compatible with these plans.

A second parking lot that was proposed at Commerce and Wilfred Avenue/Golf Course Drive is no longer being proposed as part of the Build Alternative.

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

None proposed.



Wilfred Avenue Interchange Project

## TRANSPORTATION

This section describes existing auto transportation on Route 101 and on surface streets, along with public transit, and bicycle/pedestrian transportation.

### 2.4.1 TRANSIT

#### Affected Environment

The Golden Gate Transit Authority (GGTA) is one of the primary providers of local and commuter transit service in the project area, with local and express buses that link Rohnert Park with other points in Sonoma County, with Marin County, and with San Francisco. Sonoma County Transit (SCT) and Sonoma County Paratransit provide other local transit. Greyhound buses and AMTRAK buses provide interregional service both within and outside of the Route 101 corridor. AMTRAK operates a feeder bus that stops along the Route 101 corridor, including Rohnert Park, and connects to the Martinez train station in Contra Costa County.

The Sonoma County Transit currently has northbound and southbound bus stops on Roberts Lake Road at Golf Course Drive within the Wilfred Avenue Interchange Project area.

Within the project area, the SMART Rail line crosses Route 101 just north of Wilfred Avenue/Golf Course Drive. Although there is currently no passenger-train service, the Sonoma/Marin Multi-Modal Transportation and Land Use Study is one of several reports that has evaluated the concept of providing train service through the North Bay. Furthermore, the Sonoma Marin Area Rail Transit (SMART) is proposing passenger commuter rail service through Sonoma and Marin Counties. Siting a rail station at Golf Course Drive and Roberts Lake Road in Rohnert Park is also being considered in this proposal. Locating a rail station there would benefit multi-modal commuters utilizing the Park-and-Ride facilities at Roberts Lake Road and Commerce. At that location, multi-modal commuters can access Route 101.

As part of its commuter rail service, SMART is proposing two northbound and two southbound trains during each AM/PM peak period at 15-minute alternating intervals (e.g. northbound train followed by southbound train 15 minutes later, etc.)

## **Environmental Consequences**

Since the release of the IS/EA, Caltrans has determined that the Proposed bus pad locations are not feasible because of geometric constraints. However, Caltrans will continue working with Golden Gate Transit to explore opportunities for the bus pad locations during the design phase of the Wilfred Avenue Interchange Project.

In regards to the Sonoma County Transit bus stops on Roberts Lake Road, Caltrans will either provide or maintain the existing bus stop locations.

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

None proposed.

## **2.4.2 BICYCLE AND PEDESTRIAN FACILITIES**

### **Regulatory Setting**

The Federal Highway Administration (FHWA) 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 CFR 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.

### **Affected Environment**

The General Plan promotes pedestrian and bicycle circulation.<sup>7</sup> Bicycle/pedestrian facilities in the project vicinity include a multi-use path alongside Commerce Boulevard between Golf Course Drive and Redwood Drive, and a bicycle path running along Golf Course Drive beginning at the intersection with Roberts Lake Road and continuing east. Route 101 with no pedestrian or bicycle facilities directly connecting them separate Golf Course Drive and Wilfred Avenue. There is a city-owned Class I bicycle path that parallel to Commerce Boulevard on the southbound side.

<sup>7</sup> City of Rohnert Park Goals and Policies referenced through Rohnert Park General Plan, Dyett and Bahtia, Adopted 2000.

## **Environmental Consequences**

Figure 2-2 shows the proposed bicycle facility of the Build Alternative and other proposed and existing bicycle routes in the area.

Within the project scope, several pedestrian/bicycle facilities are proposed. These include a bicycle path that would run alongside the roadway at the punch through connecting Wilfred Avenue with Golf Course Drive. This bicycle facility would begin at Redwood Drive, extend under Route 101, and end at Roberts Lake Road, thereby connecting the existing Class I bicycle facility at the intersection of Golf Course Drive and Roberts Lake Road with the proposed facilities at the intersection of Wilfred Avenue and Redwood Drive.

The multi-use path that runs alongside Commerce Boulevard between Golf Course Drive and Redwood Drive will be removed as part of the former Commerce Boulevard link to Redwood Drive, as the punch through will provide pedestrian sidewalks and bicycle access (see Figure 1-7).

During construction the Class I bicycle path exists between and runs parallel to Route 101 and Commerce Boulevard would be temporarily detoured. Detour signage will be provided to direct bicyclists to the northbound side of Commerce Boulevard. The path will be restored after construction.

## **Avoidance, Minimization, and Mitigation**

None proposed.

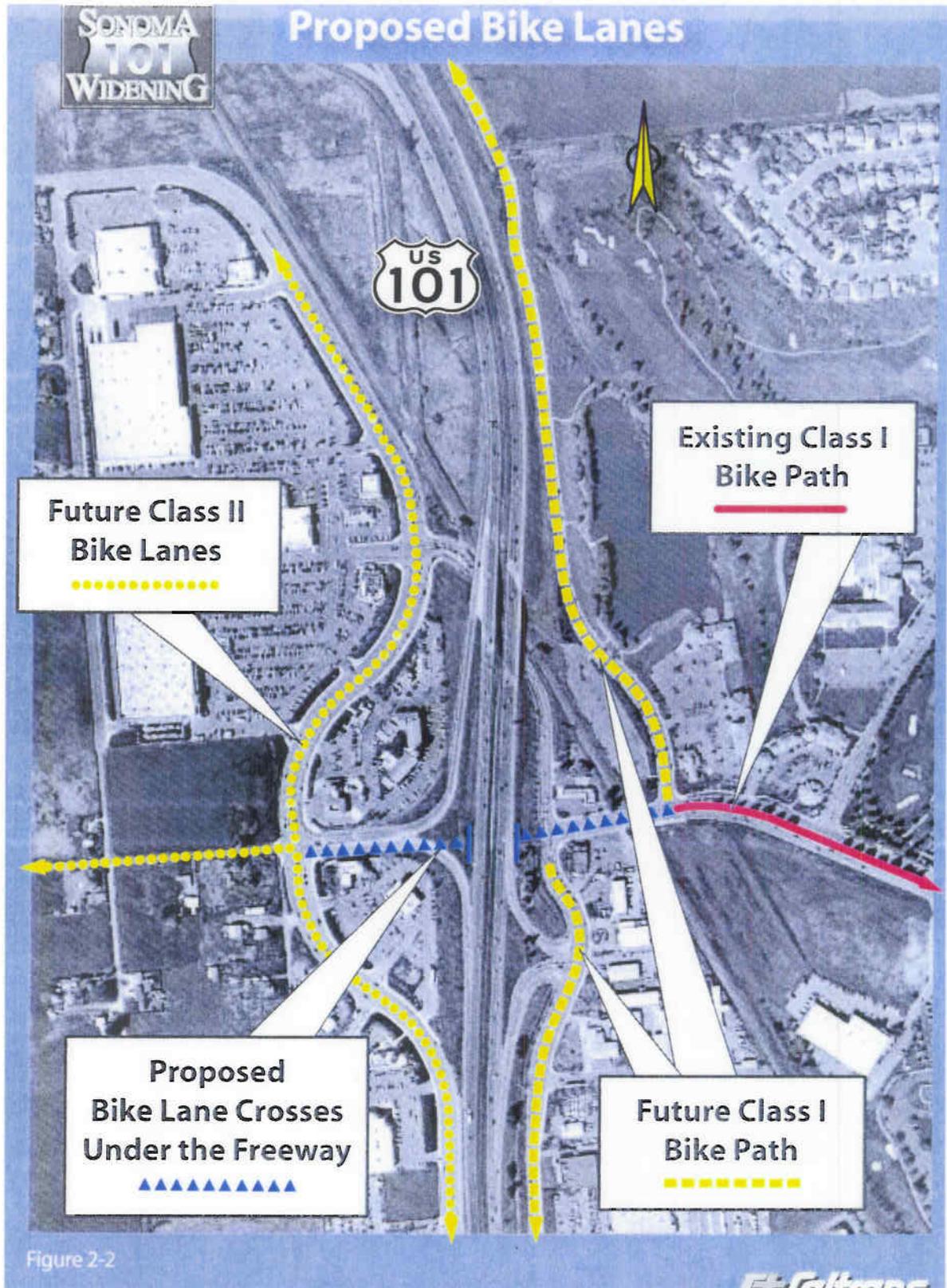


Figure 2-2

### 2.4.3 Traffic<sup>8</sup>

#### Existing Traffic Conditions

##### Affected Environment

Traffic studies for this environmental document are described in terms of operating conditions during current peak period conditions on the freeway and local intersections within the project vicinity.

##### *Route 101 Operations*

Traffic studies measured delay between River Road and Route 116 for purposes of looking at existing delay. Traffic studies also used these study limits to compare delay between the build and no-Build Alternatives. Existing travel delay resulting from bottlenecks on southbound Route 101 between River Road in Fulton and Route 116 in Cotati is approximately seven minutes during the AM peak period and approximately nine minutes during the PM peak period, according to 1999 studies. One particular PM peak period bottleneck develops within the project limits, between the Wilfred Avenue onramp and the Rohnert Park Expressway off-ramp, resulting in relatively minor congestion.

Northbound, existing travel delay on Route 101 resulting from bottlenecks in the same limits (between River Road in Fulton and Route 116 in Cotati) is approximately nine minutes during the AM peak period and approximately 12 minutes during the PM peak period. In particular, one AM peak period bottleneck exists within the project limits between the Rohnert Park Expressway on-ramp and the Golf Course Drive off-ramp, with minor congestion extending from this bottleneck to the vicinity of the northbound Route 116 off-ramp.

**Intersection Operations.** Signalized intersection operations are expressed in terms of Level of Service (LOS), which is evaluated based on seconds of delay per vehicle (i.e. seconds of delay the average vehicle has to wait at the signal). On the next page, Table 2-1 shows the

<sup>8</sup> The Traffic Section of the environmental document is based upon information from the following studies. "Traffic Operations Analysis Report-Sonoma 101 Widening Project", California Department of Transportation, June, 2001. "Technical Memorandum #1-Revised Year 2010 Traffic Analysis-Sonoma 101 Widening Project", California Department of Transportation-Office of Traffic Operations, January 2003.

2000 Highway Capacity Manual LOS criteria for signalized and unsignalized intersections. The City of Rohnert Park policy establishes Level of Service (LOS) C as the minimum standard for all major corridors and intersections, and in cases where it is not feasible to improve LOS, to maintain LOS D as the minimum for corridors and intersections already exhibiting that level of congestion. As of year 2000, all study area intersections within Rohnert Park were at LOS C or better, except for the Rohnert Park Expressway/Southbound Route 101 Ramps for both AM and PM peak hours, and the Rohnert Park Expressway/Northbound Route 101 Ramps for PM peak hour. These intersections were measured at LOS D.

**Table 2-1. Level of Service Definitions**

LOS	Unsignalized Intersection Control Delay (seconds/vehicle)	Signalized Intersection Control Delay (seconds/vehicle)
A	Less than or equal to 10	Less than or equal to 10
B	10 to 15	10 to 20
C	16 to 25	21 to 35
D	26 to 35	36 to 55
E	36 to 50	56 to 80
F	Greater than 50	Greater than 80

**Roadway Network Assumption**

Forecasting for Year 2010 is based upon several assumptions: 1) that projects currently under construction would be completed, 2) that local projects listed in the 2001 Regional Transportation Plan (RTP) under the status of “committed funding” would be completed, and 3) that projects listed in the 2001 Transportation Improvement Program (TIP) would be completed.

- Rohnert Park Expressway interchange modification
- Stony Point Road widening
- Marlow Road-Guerneville to Piner Road widening
- Farmers Lane Interchange modification-reconstruction
- Route 101 widening from Wilfred Avenue north to State Route 12, opened to traffic November, 2002

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“Technical Memorandum #2-Revised Year 2030 Traffic Analyses”, California Department of Transportation-Office of Traffic Operations, June, 2003.

- Route 101 High Occupancy Vehicle (HOV) lane gap closure project from Corte Madera to San Rafael in Marin County
- Route 101 HOV widening from State Route 12 to just north of Steele Lane

To evaluate highway operations expected in Year 2030, Caltrans assumed that all the same facilities from the Year 2010 network assumption (listed above) are complete. The projects below are also within the traffic study area and assumed to be complete by 2030. Thus, these projects may also affect traffic flow within the project area by Year 2030:

- Widen Route 101 to provide HOV lanes between Route 37 in Marin County to Old Redwood Highway in Petaluma
- Widen Route 101 to provide HOV lanes between Old Redwood Highway north of Petaluma and Rohnert Park Expressway interchange
- Widen Route 101 (including HOV lanes) from just north of Steele Lane interchange to Windsor River Road

## **Environmental Consequences**

### **No Build Alternative**

#### ***Future Traffic Conditions Year 2010: Without HOV Lanes or Reconfigured Local Streets in Project Area***

**Route 101 Traffic Congestion-2010.** Traffic using the southbound mixed-flow lanes would experience maximum delays of approximately 21 minutes during the AM peak hour, and about 11 minutes during the PM peak hour by Year 2010. The maximum delay anticipated for southbound HOV vehicles would be approximately 7 minutes during the AM peak hour and 2 minutes during the PM peak hour by Year 2010. No northbound AM peak hour bottlenecks are expected to develop within the study limits. Consequently, neither mixed-flow nor HOV lane vehicles would experience AM peak hour delays while travelling between River Road and SR 116. Both mixed-flow and HOV vehicles would, however, experience about 11 minutes of delay during the PM peak hour prior to reaching an expected bottleneck between the Rohnert Park Expressway on-ramp and the Wilfred Avenue off-ramp.

**Intersection Operations Without the Proposed Project-2010.** Without the project, the Wilfred Avenue/Redwood Drive intersection for both AM and PM peak hours, and the Commerce Boulevard/Redwood Drive intersection for AM peak hour would operate at LOS E, thereby having control delays of between 55 and 80 seconds per vehicle. This delay at intersections is longer than that called for in the Rohnert Park General Plan.

***Future Traffic Conditions Year 2030: Without HOV Lanes or Reconfigured Local Streets in Project Area***

**Route 101 Traffic Congestion-2030.** With several minor exceptions, traffic is expected to increase noticeably in the study area between the Years 2010 and 2030. This traffic increase is anticipated to result in heavier congestion and higher Year 2030 delays for mixed-flow lane traffic. Travel time delay experienced by both southbound and northbound HOV vehicle users would be less in the Year 2030 than in the Year 2010. One main reason for the decrease in HOV time travel time delays by Year 2030 is that HOV lanes throughout the traffic study limits would be built, thereby providing continuous HOV lanes. Changes in assumptions as to which projects would be built can also affect the conclusions of the operational analysis.

According to the assumptions that went into predicting traffic conditions if the HOV lanes are not added, the project area, which extends between the Rohnert Park Expressway interchange and the Santa Rosa Avenue overcrossing, would be the only segment of Route 101 within the study limits that would not have an HOV lane constructed by the Year 2030. The following delays would be anticipated for both mixed-flow and HOV vehicles.

Southbound travelers in mixed-flow lanes during the AM peak hour would experience maximum delays of approximately 36 minutes; while southbound HOV lane vehicles would experience minimal delays of less than 1 minute between the end of the HOV lane near the Santa Rosa Avenue interchange and the Wilfred Avenue on-ramp. Southbound travelers in mixed-flow lanes during the PM peak hour would experience maximum delays of about 26 minutes. Between the end of the HOV lane near the Santa Rosa Avenue interchange and the Rohnert Park Expressway on-ramp, HOV lane vehicles would experience less than 1 minute of travel time delay.

Northbound travelers in mixed-flow lanes during the AM peak hour would experience maximum delays of almost 14 minutes, while HOV lane vehicles would experience little or no delay during the AM peak hour. Northbound travelers in mixed-flow lanes during the PM peak hour would experience maximum delays of approximately 36 minutes, while HOV lane vehicles would experience little or no delay during the PM peak hour.

**Future Intersection Operations Without the Proposed Project-2030.** Without the project, operations at the Wilfred Avenue/Redwood Drive intersection for both AM and PM peak hours, the Commerce Boulevard/Redwood Drive intersection for PM peak hour, and the Golf Course Drive/Commerce Boulevard intersection for PM peak hour would deteriorate to LOS of E. LOS E is associated with control delays of between 55 and 80 seconds per vehicle. Also without the project, operations at the Commerce Boulevard/Redwood Drive intersection during the AM peak hour would deteriorate to LOS F, indicating delays of more than 80 seconds per vehicle. Both LOS E and F are below that called for in the Rohnert Park General Plan.

### **Build Alternative**

#### ***Future Traffic Conditions on Route 101 if the Proposed Project is Constructed: Year 2010***

In 2010, overall travel delay on Route 101 would be expected to be lower under the Build Alternative. On the next page, Table 2-2 compares 2010 travel time delays between scenarios in which the proposed project is built and scenarios in which the proposed project is not built. These comparisons show a timesavings for the mixed flow-lane traffic, and in most cases, HOV traffic under the build scenario. The most substantial travel timesavings would be expected for northbound HOV traffic during the evening peak, with approximately 6.2 minutes of savings (from 11.2 to 5 minutes). Also, PM mixed-flow lane traffic would enjoy about a 6.0 minute timesavings (from 11.3 down to 5.3 minutes).

Only in the southbound AM peak hour would HOV lane traffic delays be expected to increase with the proposed project. In this case, approximately 2 minutes (an increase from 6.5 to 8.6) of delay would be experienced if the HOV lanes were added. The reason for this minor increase is the increased traffic demand due to the presence of the additional HOV lane. The traffic forecast model assumes that increased capacity would attract additional

traffic from alternative routes, which would lead to increased congestion north of the beginning of the HOV lane at Bicentennial Way.

**Table 2-2. Year 2010 Theoretical Travel Delays on Route 101 Between Route 116 and River Road With and Without HOV Lanes Added in Project Area**

	Scenario	Maximum AM Delay (in min.)		Maximum PM Delay (in min.)	
		Mixed Flow Traffic	HOV Traffic	Mixed Flow Traffic	HOV Traffic
	<b>Year 2010</b>				
<b>Southbound Traffic</b>	<b>Southbound No-Build Scenario</b>	20.5	6.5	10.7	1.6
	<b>Southbound with HOV lane added</b>	16.8	8.6	5.2	0.9
<b>Northbound Traffic</b>	<b>Northbound No-Build Scenario</b>	0.8	0.5	11.3	11.2
	<b>Northbound with HOV lane added</b>	0.6	0.3	5.3	5

Note: HOV lanes already exist between the Wilfred Avenue interchange and the interchange with Highway 12. Also, the traffic studies assume that HOV lanes between Route 12 and Steele Lane exist by 2010. HOV users would benefit from timesavings compared to mixed flow traffic in this segment, whether or not the proposed project is built.

***Future Traffic Conditions on Route 101 if the Proposed Project is Constructed: Year 2030***

In 2030, overall travel delay on Route 101 would be expected to be lower if HOV lanes were added than if they were not. On the next page, Table 2-3 compares 2030 travel time delays between the build and the no build. These comparisons show timesavings for the mixed- flow lane traffic, and in most cases, HOV traffic under the build scenario.

The proposed project would be expected to yield the greatest timesavings for northbound mixed flow traffic during the PM peak hour, 16.2 minutes (going from 36.3 minutes under the no-build to 20.1 minutes under the build scenario).

The Build Alternative would facilitate substantial timesavings for mixed flow vehicles. Mixed flow vehicles would save 10 minutes during AM peak (3.8 minutes of delay down from 13.8 minutes), and approximately 16 minutes during PM peak (20.1 minutes instead of 36.3 minutes).

**Table 2-3. Year 2030 Theoretical Travel Delays on Route 101 Between Route 116 and River Road With and Without HOV Lanes Added in Project Area**

	cenario	Maximum AM Delay (in min.)		Maximum PM Delay (in min.)	
		Mixed Flow Traffic	HOV Traffic	Mixed Flow Traffic	HOV Traffic
	<b>Year 2030</b>				
<b>Southbound Traffic</b>	<b>Southbound No-Build Scenario</b>	36.1	0.1	25.9	0.5
	<b>Southbound with HOV lane added</b>	24.2	0	24.5	0
<b>Northbound Traffic</b>	<b>Northbound No-Build Scenario</b>	13.8	0	36.3	0
	<b>Northbound with HOV lane added</b>	3.8	0	20.1	0

Note: Predictions for Year 2030 assume that HOV lanes will exist between the interchange with Route 116 in Cotati and the interchange with Rohnert Park Expressway, and between the Wilfred Avenue interchange and the Windsor River Road off ramp in Windsor. HOV users would benefit from timesavings compared to mixed flow traffic in the sections with HOV lanes, whether or not the proposed project is built.

**Future Intersection Operations if the Proposed Project is Constructed**

As part of the Build Alternative, several local streets and intersections would be reconfigured. Because of these reconfigurations, it is impossible to compare future LOS at the studied intersections under the Build Alternative with future LOS at these same locations under the No Build Alternative. However, the LOS at each of the newly configured intersections would meet the standards set by the City of Rohnert Park General Plan. For descriptions of the intersection reconfigurations, please see Appendix D.

**Future Local Roadway Operations if the Build Alternative is Constructed**

**Wilfred Avenue/Golf Course Drive Punch Through and Closure of Commerce Boulevard Undercrossing between Golf Course Drive and Redwood Drive.**

A punch through would create a new undercrossing beneath Route 101, which would directly connect Wilfred Avenue and Golf Course Drive. Because Route 101 is built on an embankment at the Golf Course Drive Interchange, it will be possible to convert the embankment to an overcrossing structure thus allowing Golf Course Drive to “punch-through” the embankment and connect to Wilfred Avenue. The Commerce Boulevard undercrossing would be closed. The punch through would be at the current grade of the

streets, and would include sidewalks and a bicycle lane. To see the locations of the punch through and undercrossing closure within the project, please refer to Figure 2-1, entitled “Local Traffic & Parking Improvements”.

Cars, buses, bicycles and pedestrians would all benefit from punch through to create the Wilfred Avenue/Golf Course Drive undercrossing. All of these modes would proceed through fewer intersections by using the new punch through instead of the current undercrossing. Traffic on Redwood Drive would no longer encounter an intersection at Commerce Boulevard.

### **Temporary Construction Related Environmental Consequences to Traffic**

A Transportation Management Plan (TMP) is a special program that would be implemented during construction of the project to minimize and prevent delay and inconvenience to the traveling public. The TMP would also maintain efficient and safe movement of vehicles through the construction zone. The TMP for this project would be developed and refined during the final design phases of the project, which would occur after this environmental document is finalized. The TMP would include information such as which lanes would need to be temporarily closed and short-term detours. On the freeway, lane closures and detours would occur only during off-peak hours or nighttime. Local roads would not be closed during construction. However, some lanes on local roads may need to be closed during off-peak hours. Some lanes may also need to be narrowed.

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

None proposed.

## PHYSICAL ENVIRONMENT

### 2.5 AESTHETICS/VISUAL

#### Regulatory Setting

To assess the visual impacts of the project, Caltrans used methods in accordance with Federal Highway Administration guidelines. Views from the roadway, as well as views of the roadway from adjacent locations were examined from various viewpoints, which represent the visual resource conditions within the corridor. Visual impacts were assessed in terms of anticipated changes in visual resources as a result of the project's Build Alternative and the expected responses of affected viewers to the changes.

#### Affected Environment

The existing highway is a four-lane facility with two travel lanes in each direction separated by a grassy median approximately 11 meters (36 feet) wide. A metal beam guardrail is located in the center of the median. Although Route 101 is not designated as a State Scenic Highway, it is identified as a Scenic Corridor in the Sonoma County General Plan. The project area has an overall suburban character as a result of the existing four-lane highway facility and medium to high-density business/commercial development along the highway corridor. (Figures 2-3 and 2-4). While distant hills serve as a backdrop, scenic vistas do not occur in this area.

Within the project limits, highway landscaping consists mostly of informal groups of redwood trees, approximately 220, interspersed with ornamental shrubs. This includes a nearly continuous row of 120 trees along the highway's east side spanning from Rohnert Park Expressway northward for approximately 0.8 km, or 0.5 miles (Figure 2-5). Clusters of redwood trees are also located at the Rohnert Park Expressway and Wilfred Avenue Interchanges. The Wilfred Avenue Interchange contains approximately 20 redwood trees. Approximately 25% of all redwood trees within the project limits, including most of those at the Wilfred Interchange, appear stressed, stunted and in poor condition (Figure 2-6). All others appear in good condition. None of the trees in the study area constitute a scenic resource as defined in Section 15301(c) of the State CEQA Guidelines.



Figure 2-3 Route 101 and surrounding suburban landscape.



Figure 2-4 Commercial development at Wilfred Avenue Interchange.



## **Environmental Consequences**

Based upon the visual assessment, Caltrans believes that the project would not have adverse effects on scenic vistas. Nor would the project have a substantial adverse effect on scenic resources or substantially degrade the existing visual character and quality of the project area.

Loss of the grassy median and removal of about 150 redwood trees would reduce the amount of plant material within the highway right of way. Removal of redwood trees on the eastside of Route 101 from Rohnert Park Expressway extending northward would be noticeable changes to motorists near the Wilfred Avenue Interchange (Figure 2-7). The new undercrossing at the Wilfred Avenue Interchange would be readily apparent (Figure 2-8).

Addition of new travel lanes and construction of a concrete median barrier would increase the amount of paved surface within view of the motorist. Consequently, the project would cause the visual character of the highway to become more urban than present (Figures 2-9 and 2-10). However, the project would not substantially degrade the existing visual character or quality of the project area.

The profile of the highway would be raised approximately 5.1 meters (17 feet) at the new Wilfred Avenue Undercrossing, which would reduce views from areas near the new undercrossing to the opposite side of the highway. The project would not create a new source of substantial light or glare. Potential light or glare from the highway facility or vehicles on the highway would be confined to the right of way where it presently occurs.



Figure 2-7 Area that would be exposed by removal of redwood trees.



Figure 2-8 Area where Commerce Boulevard would be realigned.

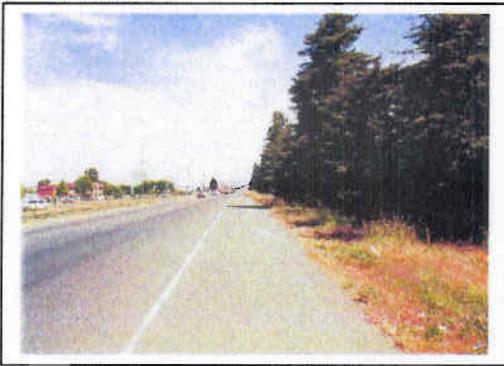


Figure 2-9 Existing conditions northbound Route 101 between Rohnert Park Expressway and Wilfred Avenue.



Figure 2-10 Same scene as left showing simulated future conditions including concrete barrier, new HOV lanes, new auxiliary lane, and removal of redwood trees.

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

To reduce the project's visual impact, redwood trees would be replanted within the project limits along the highway and around the interchange wherever they can be accommodated without obstructing the sight distance of motorists or violating safety setback and other Caltrans plant spacing guidelines. In locations where trees cannot be accommodated, other highway landscaping such as ornamental shrubs, ground covers, and vines that would be compatible with the surrounding community setting would be planted. In areas not currently landscaped, disturbed areas would be revegetated according to Caltrans standards.

## **2.6 AIR QUALITY**

### **Regulatory Setting**

Caltrans addressed the impact of highway projects on air quality in accordance with the following legislation: The Clean Air Act and its Amendments, the Environmental Protection Agency (EPA) Final Regulations (August 1997), NEPA and CEQA. The San Francisco Bay Area Air Basin has been designated as a maintenance area for Carbon Monoxide and a non-attainment area for ozone and PM<sub>10</sub>.

### **Affected Environment**

The San Francisco Bay Area Air Basin has not exceeded the national or state standard for atmospheric concentrations of Carbon Monoxide for several years and is now recognized as an attainment area for carbon monoxide. The Bay Area is currently designated as an unclassified area under the 8-hour national standard for concentrations of ozone in the atmosphere, a non-attainment area under the one-hour national ozone standard, and a non-attainment area under the state standards. For Particulate Matter (PM) of very small size (PM<sub>10</sub>) the Bay area is designated as an unclassified area under federal standards and non-attainment under state standards.

The air quality analysis utilizes a new protocol developed jointly by Caltrans and the University of California at Davis Institute of Transportation and approved by the

Environmental Protection Agency (EPA) for use in the Bay Area<sup>9</sup>. The protocol is based on the fact that the Bay Area is in attainment for carbon monoxide and permits a qualitative approach to determine if a given project would have a detrimental impact on air quality.

## **Environmental Consequences**

### ***Conformity with State Implementation Plan (SIP)***

To be in compliance with the Clean Air Act, the State Implementation Plan (SIP) is prepared using information regarding region-wide development. This project is in a non-attainment area for ozone and PM<sub>10</sub>. FHWA has determined that both the 1992-1997 Transportation Improvement Program (TIP) and the corresponding 1995 Regional Transportation Plan (RTP) conform to the Transportation Conformity Rule as amended by the EPA on August 15, 1997. This project is contained in the conforming RTP and Regional Transportation Improvement Program (RTIP). The design concept and scope proposed are substantially the same as the design scope and concept in the RTP and RTIP listings. All applicable TCMs<sup>10</sup> are included in the project (such as: ramp metering). The project therefore meets the regional tests for conformity with the State Implementation Plan.

### ***Carbon Monoxide (CO)***

Since the Bay Area was designated a maintenance area for carbon monoxide on June 1, 1998, the protocol indicates that an analysis by comparison is appropriate for this project. This involves a comparison of the proposed facility with existing facilities within the Air District. A list of the features to be compared is provided in the protocol.

For mainlines, comparisons were made between the year 2005 Build conditions of Route 101 and the existing conditions on I-880 in Alameda County from Route 92 to Route

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<sup>9</sup> The air quality analysis utilizes the "Transportation Project-Level Carbon Monoxide Protocol," dated December 1997, prepared by the Institute of Transportation Studies, University of California at Davis. This protocol was approved by MTC in Resolution No. 3075 on June 24, 1998. Use of this protocol was recommended by the Bay Area Interagency Conformity Task Force, which is an interagency consultation group established pursuant to EPA's conformity regulation and the Bay Area's conformity State Implementation Plan.

<sup>10</sup> A TCM is any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. Examples include HOV lanes, Park and Ride lots, transit, bikes, and ridesharing, among others.

84. For intersection comparisons, we used the Foothill/Mission Blvd. Intersection in that same area.

**Table 2-4. Comparison of Mainline Conditions**

	<b>Parameters</b>	<b>Route 101 (Build)</b>	<b>Route I-880 (Exist)</b>
<b>A</b>	Receptor Distance	15.3 m (50')	7.62 m (25')
<b>B</b>	Roadway Geometry	6 lanes	8 lanes
<b>C</b>	Worse case Meteorology	Coastal Valley	Coastal Valley
<b>D</b>	Peak Hourly Volumes	12,800	15,000 vph
<b>E</b>	Hot/Cold Starts	50/10 NB 50/10/ SB	50/10 NB 50/10 SB
<b>F</b>	Percent HDG Trucks	0.9-2.9%	7.6-8.3%
<b>G</b>	Background CO	3.2 ppm	3.2 ppm

Forecast projections for future years of 2010 and 2030 indicate that traffic impacts at nearby intersections would be minimal. Most intersections would experience a less than 10% difference in future predicted traffic volumes between the project’s Build and No Build conditions. This difference is not statistically significant given the accuracy of the prediction methodology. Traffic volumes would increase more than 10% at the following intersections: Commerce Boulevard, Roberts Lake Road, Golf Course Drive, Wilfred Avenue/Southbound 101 ramps intersection, Redwood Drive/ Wilfred Avenue, and Redwood Drive/Willis Avenue.

The largest among these intersections, Commerce Blvd./Roberts Lake Road/Golf Course Drive, is considerably smaller than the intersection at Foothill and Mission Boulevard, which was used as a point of comparison. Commerce Boulevard/Roberts Lake Road is a two-lane road and Golf Course Drive represents the joining of two major State Routes. This five-legged intersection consists of 3-lane/3-lane/3-lane/2-lane/3-lane approaches. Receptor distances are comparable at both intersections (50 to 25 feet). Traffic volumes, queues and delays are greater at Mission and Foothill.

***Results of Comparison***

This proposed project would result in a facility smaller and less congested than comparable facilities within the same Air District (I-880 and Foothill and Mission). Since the comparable facilities are in an area that meets air quality standards (maintenance area), this project would also meet microscale air requirements and would therefore have no

significant impact under CEQA on air quality or cause exceedances of state or federal carbon monoxide standards.

***Particulates (PM<sub>10</sub> and PM<sub>2.5</sub>)***

At this time there is no requirement to quantify PM<sub>10</sub> or PM<sub>2.5</sub> impacts; nor are there appropriate tools available for analyzing microscale impacts of PM<sub>10</sub> or PM<sub>2.5</sub>.

Although the EPA Transportation Conformity Regulations require a quantified microscale analysis for PM<sub>10</sub>, no approved methodologies are available yet to address the microscale impacts of PM<sub>10</sub>. The Regulations state that “the EPA will be releasing technical guidance on how to use existing modeling tools to perform PM<sub>10</sub> hotspot analysis. The requirements will not take effect until the Federal Register has announced availability of this guidance.” (40 CFR Parts 51 and 93, Prologue Section V.K.: Federal Register, August 15, 1997.) When this guidance becomes available a quantified PM<sub>10</sub> microscale analysis may need to be performed as an addendum to the air quality study for this project.

***Construction Impacts***

The proposed project would generate air pollutants during construction. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most pollution would consist of windblown dust generated by excavation, grading, hauling and various other activities. The impacts from the above activities would vary from day to day as construction progresses.

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

The Special Provisions and Standard Specifications would include requirements to minimize or eliminate dust through the application of water or dust palliatives.

## **2.7 CULTURAL RESOURCES**

### **Regulatory Setting**

The National Historic Preservation Act (NHPA), as amended, sets forth national policy and procedures regarding “Historic Properties” –that is, districts, sites, buildings, structures and objects included in or eligible for the National Register of Historic Places (NRHP). Section 106 of NHPA requires federal agencies to consider the effects of their undertakings on such properties, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

### **Affected Environment**

No historic architectural resources have been identified within the Area of Potential Effect (APE) for the Build Alternative. A survey of the APE has noted only modern development lacking significance requisite for listing in the NRHP.

No archaeological resources have been identified within the APE. A records search at the Northwest Information Center of the California Archaeological Inventory, Sonoma State University, did not reveal any previously recorded sites in or near the project area. A surface examination of the APE and some mechanical trenching furthermore did not expose any cultural materials that might have qualified for the NRHP. There are no known paleontology resources associated within the project APE.

### **Environmental Consequences**

The material to be excavated in conjunction with the project consists of engineering fill employed during construction. Although this material could contain identifiable fossils, it is not regarded as a significant paleontological resource under the Act For The Preservation Of American Antiquities (1906) and Archaeological and Paleontological Salvage (23 USC 305) because of its place of origin, geomorphology, geologic context, and its temporal relationship to established localities are unknown.

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

If buried materials are encountered during construction, it is Caltrans policy to suspend all work until a qualified archaeologist can evaluate the nature and significance of the findings per 36 CFR Part 800.13 (post review discoveries), the implementing regulations of Section 106 of the National Historic Preservation Act.

## **2.8 GEOLOGY / SOILS / SEISMIC / TOPOGRAPHY**

### **Affected Environment**

The project lies within the Cotati Valley in south central Sonoma County. Cotati Valley is on the west side of the Sonoma Mountains in the Coast Range geomorphic province. The Cotati Valley is a sedimentary basin within the Santa Rosa Ground Water Basin.

The northern portion of the project is very early to middle Pleistocene aged alluvium that is classified as having a very low liquefaction potential. The southern portion of the project is within Holocene basin deposits that are classified as having a moderate to high liquefaction potential. According to the U.S. Geological Survey map of liquefaction susceptibility by Soers, Noller and Lettis (1998) the liquefaction potential is very low from kilometer post 24.4 (post mile 15.2) northward and moderate to high from kilometer post 24.4 southward. Data from logs of bore holes in the project areas shows the soils to be stiff silts and dense silty sand layers that are not subject to seismic related ground failure that is significant under CEQA.

The Soil Survey of Sonoma County by Vernon Miller (1972) states the soil in the area has a high shrink-swell potential. This means that soils are subject to expansion and contraction going from wet to dry conditions. A review of Caltrans' logs of test borings for projects within the current project limits shows that depth to groundwater is 2.1 meters (6.8 feet) in the south and 2.6 meters (8.5 feet) to 3.5 meters (11.5 feet) in the north. The project is located outside of the 100-year flood zone. The Soil Survey also states that soil in the area has high corrosivity, which means materials in contact with the soil are subject to rusting and corrosion.

The project is located in the San Andreas fault system. The fault system is composed of a series of northwest trending strike slip faults. The Rogers Creek-Healdsburg fault is the source of the 1969 Santa Rose Earthquakes. The active trace of the Rogers Creek-Healdsburg

fault is 5.1 km (3.2 miles) northeast of the project. Several active faults of the San Andreas system are capable of producing strong shaking at the project, but no known faults cross the project limits.

### **Environmental Consequences**

Earthquakes are prime considerations in the design and retrofit of structures. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. The risk of fault rupture under the Build Alternative would not increase over existing conditions.

Any construction materials that come in contact with soil would be coated to resist corrosion. Construction would involve pile driving or drilling for structural elements (i.e. interchange/overcrossing). However, piles or drills would be driven into the dense material below the liquefaction layer for stability.

The Build Alternative would not involve substantial cuts or fills or subject soils to undergoing wet conditions; therefore, the existing conditions of the soil would be largely unchanged. Consequently, there would be no additional adverse effects from landslides, increases in soil erosion or loss of topsoil as a consequence of the project.

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

None proposed.

## **2.9 HAZARDOUS WASTE/MATERIALS**

### **Regulatory Setting**

Hazardous materials and hazardous wastes are regulated by state and federal laws. The Department of Toxic Substances Control (DTSC) regulates hazardous waste in California primarily under the authority of the federal Resource Conservation and Recovery Act (RCRA) of 1976, and the California Health and Safety Code. Caltrans has developed Standard Specifications for project plans, specifications and estimates (PS&E) to comply with RCRA, the Health and Safety Code, and other laws.

### **Affected Environment**

Caltrans prepared an Initial Site Assessment that indicates there are two Leaking Underground Storage Tank (LUST) sites within the project area. As these sites are at higher elevations than the project site, there is a possibility that contaminants could have migrated into the project site. The project limits also encompass the Wilfred Avenue Overhead structure that may contain asbestos. The potential exists for Aerially Deposited Lead (ADL) contamination in roadside soil due to the historic use of leaded gasoline.

### **Environmental Consequences**

The Build Alternative would involve demolition work, which could disturb asbestos within structures. Under the Build Alternative excavations would take place in the existing highway median not to exceed one meter (3.2 feet) deep. Construction of the new collector-distributor road would involve approximately the same depth. Contaminants may be encountered during construction as a result of deeper excavations (i.e. new interchange).

As is standard practice, Caltrans may conduct a full site investigation prior to construction to determine whether there is LUST contamination within the project site. If hydrocarbons are detected, Caltrans may remove any contaminated soil and any source of the contamination prior to construction. Likewise for ADL, Caltrans would conduct testing to determine the level of contamination and appropriate management procedures (e.g. off hauling or containment measures) prior to construction. Caltrans would also conduct testing on existing structures before demolition to determine the presence of asbestos containing material. If asbestos is detected, Caltrans may develop a removal and disposal plan to safeguard human health and the environment. In relation to the structural demolition work, an asbestos survey would be conducted prior to demolition. During construction, the area would be wetted down to reduce air borne exposure. Contaminated structural debris may also be off-hauled to a hazardous waste disposal site. Yellow thermoplastic striping contains lead. Therefore, special provisions will be provided for the removal of traffic stripes and pavement markings.

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

None proposed.

## HYDROLOGY AND FLOODPLAIN

### Regulatory Setting

Executive Order 11988, signed May 24, 1977, states that each agency shall determine whether a proposed action will occur in a floodplain according to a Federal Emergency Management Act (FEMA) floodplain map or a more detailed map of an area, if available. This evaluation is to be included in any statement prepared under Section 102(2)(C) of the National Environmental Policy Act.

### Affected Environment

Hinebaugh Creek, which drains the southern portion of the project, flows from the Sonoma Mountains westward toward State Route 101 and crosses under the freeway just north of the Rohnert Park Expressway. The northern portion of the project drains into Wilfred Channel, which runs directly underneath the freeway at the Santa Rosa Avenue Overcrossing. Wilfred Channel and Hinebaugh Creek are tributary to Laguna de Santa Rosa that leads to the Russian River. Groundwater exists within the project boundaries at depths varying between 2.1 and 3.5 meters (6.8-11.5 feet) below the ground surface. The regional groundwater flow direction is variable within the site vicinity, and is affected by proximity to streams and channels. In addition, the flow direction fluctuates as much as 180 degrees between the wet and dry seasons.

According to the Federal Flood Insurance Rate Map for Community Panel Number 060380-0001 B, the Build alternative would occur in an area of minimal flooding and outside of the 100-year flood zone. Consequently, the Build Alternative would not cause increased flood risk in the project vicinity.

### Environmental Consequences

This project would increase the amount of impervious area in the project area. However, existing drainage patterns would be maintained. Effects to groundwater recharge would be minimal because unlined ditches (see Water Quality) would contribute to groundwater percolation.

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

None proposed.

## **2.11 NOISE AND VIBRATION**

### **Regulatory Setting**

The noise report was prepared in conformance with the procedures outlined in Title 23, United States Code of Federal Regulations part 772 (23 CFR 772), “Procedures for Abatement of Highway Traffic Noise,” and Caltrans noise analysis policy described in the Caltrans Noise Analysis Protocol (California Department of Transportation 1998). Existing peak hour noise levels ranging from 63 to 69 dBA Leq(h)<sup>11</sup> were measured and estimated at various locations within the project limits along Route 101. These sites were chosen to represent the areas of land uses that are close to the freeway and were also used to model future worst-case noise. The federal Noise Abatement Criteria (NAC) applied in this study are expressed in terms of dBA Leq(h) values of the noisiest traffic hour of the day.

### **Affected Environment**

Most of the land uses along both sides of Route 101 within the proposed project area are commercial buildings except where Roberts Lake Road runs adjacent to the freeway on the northeast side of the Wilfred Avenue Interchange. A few motels and restaurants are also adjacent to the freeway. The roadway alignment is basically straight and the ground elevation varies from 0.6 to 4 meters (1.9-13.1 feet) above the surrounding terrain except at interchange areas. There are no libraries, hospitals, residences, or schools adjacent to this project. At the present time, most land uses are receiving noise levels below the FHWA/Caltrans Noise Abatement Criteria (NAC).

### **Environmental Consequences**

The predicted future peak noise levels along Route 101 would range from 65 to 70 dBA Leq(h) at the outside activity areas and 49 dBA Leq(h) at the inside of Motel 6 room. The Build Alternative is estimated to increase noise levels by approximately one to two dBA Leq(h).

Commercial buildings dominate both sides of Route 101 within the project areas. Most outside areas of the commercial buildings are parking lots or storage yards that do not qualify for any noise abatement. However, a few restaurants and Scandia Family Fun Center with outside activity areas have also been found. Based on traffic noise analyses, the future worst-case noise levels at these parking lots were predicted to be 65 dBA Leq(h), which is less than the NAC of 67 dBA Leq(h). The future worst-case noise levels at the mini golf area of Scandia Family Fun Center would be 70 dBA Leq(h), less than the federal standard of 72 dBA Leq(h). Finally, the future worst case noise level inside of the hotel rooms would be only 49 dBA Leq(h), also less than the NAC of 52 dBA Leq(h).

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

Noise increases that are less than three dBA Leq(h) are not perceivable; therefore, no noise mitigation measures are required or recommended for this project.

### **Construction Noise**

It has not yet been determined whether pile driving would be used to construct the Build Alternative; however, if required all pile driving operations would conform to the provisions in Section 7-1.01I, Sound Control Requirements, of the latest Caltrans Standard Specifications. Normally, construction noise levels should not exceed 86 dBA at a distance of 15 meters (50 feet). These requirements are meant to minimize the impact from construction noise yet in no way do they relieve the contractor from complying with local noise ordinances.

## **2.12 WATER QUALITY AND STORM WATER RUN OFF**

### **Regulatory Setting**

The primary federal law regulating water quality is the Clean Water Act. Section 401 of the Act requires a water quality certification from the Regional Water Quality Control Board (RWQCB) when a project: 1) requires a Clean Water Act, Section 404 permit, as is

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<sup>11</sup> dBA Leq(h) gives the average acoustical energy content in decibels during a one-hour period. The dBA scale is a logarithmic scale weighted to reflect the hearing abilities of the human ear.

the case with this project (See Wetlands and Other Waters of the U.S. in section 3.1), and 2) will result in a discharge to waters of the United States.

Under Section 402 of the Clean Water Act, Caltrans addresses storm water impacts through the Statewide NPDES permit, certified under Order No. 99-08-DWQ. Caltrans has also developed a Storm Water Management Plan that includes Best Management Practices (BMPs) to comply with NPDES requirements.

### **Affected Environment**

As stated earlier, Wilfred Channel crosses Highway 101 toward the northern end of the project limits and Hinebaugh Creek crosses underneath Highway 101 at the southern end. Between Wilfred Interchange and the Santa Rosa Overcrossing lies an unlined ditch and marshy detention basin that carries highway runoff to Wilfred Channel. These areas function as a filtration system between the highway and the channel.

### **Environmental Consequences**

The most common pollutants associated with highways are oil and grease, garbage, and agricultural pesticides. Because there is sufficient area within the project vicinity, Caltrans is currently studying the use of “biofiltration swales”<sup>12</sup> (bioswales) in the project as post-construction BMPs. Use of bioswales and other appropriate BMPs would ensure that the project would not increase pollutant loading to receiving waters significantly under CEQA.

Long term BMPs include erosion control landscaping for exposed areas within the right of way, or where trees would be removed. During the landscaping establishment period short-term treatments include protecting and buffering drainage inlets with fiber rolls.

Due to the aforementioned water quality treatments, there would be no impacts from the Wilfred Avenue Interchange Project on water quality.

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

<sup>12</sup> Biofiltration Swales – vegetated channels that receive directed flow and convey storm water. Mainly effective at removing debris and solid particles, although some dissolved constituents are removed by adsorption onto the soil. (Caltrans Storm Water Quality Handbook – 2002)

All Caltrans projects, including the Wilfred Avenue Interchange Project, shall adhere to the Department's Statewide NPDES permit with the State Water Resources Control Board and the Construction General Permit to ensure that the project will not increase pollutant loading to receiving waters significantly under CEQA. According to Caltrans NPDES permit and the Construction General Permit, Best Management Practices (BMPs) will be incorporated into this project to reduce the discharge of pollutants during construction as well as permanently to the Maximum Extent Practicable (MEP). These BMPs fall into three categories, Temporary Construction Site BMPs, Design Pollution Prevention BMPs, and Permanent Treatment BMPs. Construction Site BMPs are implemented during construction activities to reduce pollutants in storm water discharges throughout construction. Design Pollution Prevention BMPs are permanent measures to improve storm water quality by reducing erosion, stabilize disturbed soil areas, and maximize vegetated surfaces. Treatment BMPs are permanent devices and facilities treating storm water runoff. Caltrans approved Treatment BMPs are Biofiltration Swales, Infiltration Basins, Detention Basins, Traction Sand Traps, Dry Weather Flow Diversions, Media Filters, Gross Solids Removal Devices (GSRDs), Multi-chamber Treatment Trains, and Wet Basins. As mentioned in the Water Quality Section of the IS/EA, Biofiltration Strips and Swales appear to be the most feasible option at this stage, but all applicable types will be further investigated in the design phase.