

## 5. IMPACT OVERVIEW

This chapter assesses the proposed project in several subject areas specifically required by CEQA, including significant unavoidable impacts, cumulative impacts, growth-inducing impacts, impacts found not to be significant, and areas of known controversy. These subject areas are evaluated based on the analysis in Chapter 3 of this DEIR.

### 5.1 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

The impact analysis in Chapter 3 identifies the impacts associated with the proposed project and outlines mitigation measures to reduce identified impacts. Significant unavoidable impacts are those effects that cannot be mitigated to a level that is less than significant, as measured against the established criteria in Chapter 3. For the proposed project, there are a few impacts that would be potentially significant and unavoidable, even after the application of identified mitigation measures. As required by CEQA Guidelines Section 15126, the impacts that are considered significant and cannot be mitigated to a less than significant level are summarized below.

**Geology, Soils and Seismicity** - The entire rail alignment and proposed structures are susceptible to significant groundshaking from earthquakes. All structures associated with the proposed project would be designed to meet seismic requirements. Severe groundshaking, however, could cause the derailment of moving or stopped trains resulting in injuries or deaths. Although the potential for this to occur is very low, the consequences could be significant. A site-specific geotechnical investigation report shall be prepared as part of final project design, and its recommendations for seismic design parameters per UBC code shall be incorporated into the proposed project design. Measures to reduce impacts would include ground improvement such as soil mixing, jet grouting, soil densification, pile supported structures, etc. The use of specific measures would depend on soil type and stratigraphy, which would be determined during final design.

**Transportation** - Increased traffic demand impacts on local roadways providing access to station sites may be significant and unavoidable, if identified mitigation is determined to be infeasible. Please see Impact T-5 and Mitigation Measure T-1 in Section 3.6, Transportation, for more detailed information.

**Noise and Vibration** - Train horns would cause a substantial increase in ambient noise levels in the project vicinity. The proposed project shall limit the use of train horns and other audible warning devices by installing crossing controls that meet Federal Rail Administration (FRA) requirements and Quiet Zone designations shall be obtained for crossings along the corridor. Local jurisdictions may apply to the FRA for designation as a Quiet Zone, where audible warning devices are not required. The application must be a joint application between the local jurisdiction and the rail operator and must include supplementary safety measures to ensure that safety is not compromised by eliminating the sounding of the train horns. Because FRA has final jurisdiction over Quiet Zone applications, SMART can not commit to Quiet Zone implementation. SMART will work with any local jurisdictions wishing to be designated Quiet Zones to cooperatively meet the requirements for designation. If Quiet Zones are designated in each of the communities where significant train horn impacts are predicted, no severe noise impacts would remain after mitigation.

## 5.2 CUMULATIVE IMPACTS

This section provides a summary of the detailed cumulative impacts assessment conducted for each resource area in Chapter 3 of this DEIR. The cumulative assessment considers the potential for the proposed project, in combination with the projects listed in Section 3.1, to have impacts on the physical environment of the project corridor. The contribution of the proposed project to cumulative impacts would be less than significant for the following areas:

- Geology, Soils and Seismicity
- Water Resources
- Air Quality
- Transportation
- Energy
- Biological Resources
- Parks and Recreation
- Land Use and Planning
- Public Facilities and Safety
- Visual/Aesthetics
- Historic Resources
- Archaeological Resources

The proposed project would contribute to potentially significant cumulative impacts in the following areas:

**Hazardous Materials** - Both the Marin Gap Closure HOV project and the re-introduction of freight service have the potential to contribute to a hazardous materials cumulative impact. The Marin Gap Closure HOV project would require Caltrans to obtain additional roadway right-of-way by relocating the mainline track farther to the west and would require the removal of a portion of the existing track for construction of southbound freeway lanes east of Lincoln Boulevard. Several properties with documented releases to soil and groundwater are located west of the proposed realignment area, which could cause hazardous materials to be released if excavation to groundwater is necessary. When combined with potential hazardous materials release associated with the construction activities of the proposed project, this could contribute to an overall cumulative impact with regards to hazardous materials. Adherence to existing regulations regarding sampling of soil and groundwater, preparation of a SMP, and utilization of specially trained workers would ensure that cumulative impacts are less than significant.

Another potential cumulative factor is the re-introduction of freight service on the rail corridor north of Highway 37. However, there are currently no hazardous materials disposal facilities along the train corridor, so transport of hazardous materials by future freight train operations is unlikely. Furthermore, operation of the proposed project would not involve the transport of hazardous materials and would not contribute to any cumulative increases in hazardous material transport. The unlikely event of a train accident would not result in a release of hazardous materials that pose a significant hazard to the public.

**Noise and Vibration** - The FTA noise impact criteria were developed to consider the cumulative effect of a proposed project on the acoustical environment. While the proposed project would add to the total environmental noise level along the project corridor, it would create severe impacts under the FTA criteria only in the vicinity of grade crossings where trains would be required to sound their horns. The cumulative noise level at grade crossings could increase by a significant amount. This impact would be eliminated at any locations that are designated Quiet Zones. Mitigation Measure N-5 (please see

Section 3.7, Noise and Vibration, or see description in Section 5.1 above), if it can be implemented, would eliminate the only significant noise impact predicted to occur with the proposed project.

### 5.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

As required by CEQA, an EIR must discuss how the proposed project, if implemented, could induce growth. According to CEQA Guidelines Section 15126.2(d), a project may be growth-inducing if it directly or indirectly fosters economic or population growth or the construction of additional housing; removes obstacles to population growth; taxes community service facilities to the extent that the construction of new facilities would be necessary; or encourages or facilitates other activities that may cause significant environmental effects. According to the CEQA Guidelines, growth should not be assumed to be either beneficial or detrimental.

This analysis addresses Sonoma and Marin counties and the incorporated local jurisdictions along the project corridor. These local jurisdictions include Cloverdale, Healdsburg, Windsor, Santa Rosa, Rohnert Park, Cotati, and Petaluma in Sonoma County and Novato, San Rafael and Larkspur in Marin County. In addition, surrounding areas that may be influenced by the proposed project are included in the analysis. Various characteristics were analyzed for the proposed project at the city, county and regional level including total population, population density and employment. The 1990 and 2000 demographic data is derived from the 1990 and 2000 U.S. Census at the block group level.

This section summarizes existing population and employment, growth trends and projections and possible project influences on these growth trends.

#### 5.3.1 Corridor Growth Trends

##### Employment Characteristics

Highway 101 is a critical commuting corridor in the Bay Area, and it serves as an access artery for several centers in Sonoma and Marin counties. Major employment centers are clustered close to Highway 101 in Sonoma County, but in a somewhat more dispersed pattern than in Marin County. The highest concentrations of major employers in Sonoma County are located in Santa Rosa, with lesser concentrations found in Petaluma and Rohnert Park. Marin County work locations are clustered close to Highway 101, with concentrations in Corte Madera, San Rafael and Novato.

Table 5.3-1 provides a summary of employment by occupation for Sonoma and Marin counties derived from the 2000 U.S. Census. Sonoma and Marin counties' economic base includes employment in management; services; sales and office; farming, fishing, and forestry; construction, extraction, and maintenance; and production, transportation and material moving. The largest industry category in both Sonoma and Marin counties, as well as in the Bay Area, is Management and Professional, accounting for 35 percent of employment in Sonoma County and over 52 percent of employment in Marin County. Sales and Office is another prominent sector, capturing almost 27 percent of employment in Sonoma and almost 25 percent of employment in Marin County.

The major work destinations for Sonoma and Marin residents have remained constant over time. In 2000, the majority of Sonoma County home-based work trips<sup>1</sup> (approximately 76 percent) were within the county. Approximately 11 percent of residents worked in Marin County and almost six percent worked in San Francisco. In 2000 in Marin County, approximately 51 percent of home-based work trips were internal to the county. About 30 percent of home-based work trips were to San Francisco and almost six percent were to destinations in Sonoma County (Parsons Brinckerhoff, 2005).

Both Sonoma and Marin counties contribute to the economic health of the Bay Area. In April 2005, the civilian unemployment rate in Marin County was 3.5 percent, tied with Orange County as the lowest in the state. Sonoma County had an unemployment rate of 4.2 percent in April 2005. Both counties had a

<sup>1</sup> Home-based work (HBW) trips - trips with one end at the home place and one end at the work place, without an intermediate stop.

lower unemployment rate than the Bay Area average unemployment rate of 4.6 percent and lower than the 5.4 percent statewide rate (California Employment Development Department, 2005).

**TABLE 5.3-1  
EMPLOYMENT BY OCCUPATION, 2000**

Occupation	Sonoma	% Sonoma Employed Residents	Marin	% Marin Employed Residents	Bay Area	% Bay Area Employed Residents
Employed residents (16 & over)	229,227		128,855		3,366,503	
Management, professional and related	80,333	35.0%	67,674	52.5%	1,470,597	43.7%
Service	34,646	15.1%	15,446	12.0%	430,965	12.8%
Sales and office	60,935	26.6%	31,867	24.7%	863,193	25.6%
Farming, fishing and forestry	3,744	1.6%	374	0.3%	14,107	0.4%
Construction, extraction and maintenance	23,442	10.2%	7,706	6.0%	248,501	7.4%
Production, transportation and material moving	26,127	11.4%	5,788	4.5%	339,140	10.1%
<b>Total</b>		100.0%		100.0%		100.0%

Source: 2000 U.S. Census.

### **Employment Projections**

As noted in Table 5.3-2, continuing job growth is projected for both Sonoma and Marin counties. Sonoma County is expected to add approximately 106,000 additional jobs between 2000 and 2025, for a total increase of 52 percent. Service sector jobs will account for nearly half of the new jobs with an increase of 45,485 jobs, a growth rate of 70 percent for service jobs (ABAG, 2001).

In Marin County, limitations on the amount of land suggest that job growth will occur more slowly than in Sonoma County. While job growth in the Bay Area is projected to increase by nearly 31 percent from 2000 to 2025, Marin County is only projected to add 40,310 new jobs over the same time period, a growth rate of almost 33 percent. Approximately 18,900 of those new jobs will be service jobs (ABAG, 2001).

**TABLE 5.3-2  
POPULATION AND EMPLOYMENT PROJECTIONS, 2000 – 2025**

Location	Population 2000	Population 2025 Projection*	% Change 2000 to 2025	Total Jobs 2000	Total Jobs 2025 Projection*	% Change 2000 to 2025
<b>Sonoma</b>	458,614	589,800	28.6%	205,220	311,000	51.5%
<b>Marin</b>	247,289	281,400	13.8%	122,960	163,270	32.8%
<b>Bay Area</b>	6,783,762	8,223,700	21.2%	3,753,670	4,932,590	31.4%

Source: 2000 U.S. Census; \*ABAG, *Projections 2002: Forecasts for the San Francisco Bay Area to the Year 2025*, December 2001.

### **Population Growth**

In 2000, the population of Sonoma and Marin counties totaled approximately 705,900, with approximately 65 percent of this total residing in Sonoma County. From 1990 to 2000, Sonoma County was the fastest growing county in the nine-county San Francisco Bay Area, with its population increasing by just over 18 percent, a growth of nearly 70,400 residents, bringing the total population to just over

458,600. The population of Marin County increased 7.5 percent from 1990-2000, a growth of approximately 17,200 residents (see Table 5.3-3).

**TABLE 5.3-3  
POPULATION GROWTH TRENDS, 1990 – 2000**

Location	1990	2000	% Change 1990 to 2000	% of SMART District* Total, 2000
<b>Sonoma County</b>	<b>388,222</b>	<b>458,614</b>	<b>18.1%</b>	<b>65.0%</b>
Cloverdale	4,924	6,831	38.7%	1.0%
Healdsburg	9,469	10,722	13.2%	1.5%
Windsor	13,371	22,744	70.1%	3.2%
Santa Rosa	113,313	147,595	30.3%	20.9%
Rohnert Park	36,326	42,236	16.3%	6.0%
Cotati	5,714	6,471	13.2%	0.9%
Petaluma	43,184	54,548	26.3%	7.7%
<b>Marin County</b>	<b>230,096</b>	<b>247,289</b>	<b>7.5%</b>	<b>35.0%</b>
Novato	47,585	47,630	0.1%	6.7%
San Rafael	48,404	56,063	15.8%	7.9%
Larkspur	11,070	12,014	8.5%	1.7%
<b>Sonoma-Marin Totals</b>	<b>618,318</b>	<b>705,903</b>	<b>14.2%</b>	<b>NA</b>
<b>Bay Area</b>	<b>6,023,577</b>	<b>6,783,760</b>	<b>12.6%</b>	<b>NA</b>
<b>California</b>	<b>29,760,021</b>	<b>33,871,648</b>	<b>13.8%</b>	<b>NA</b>

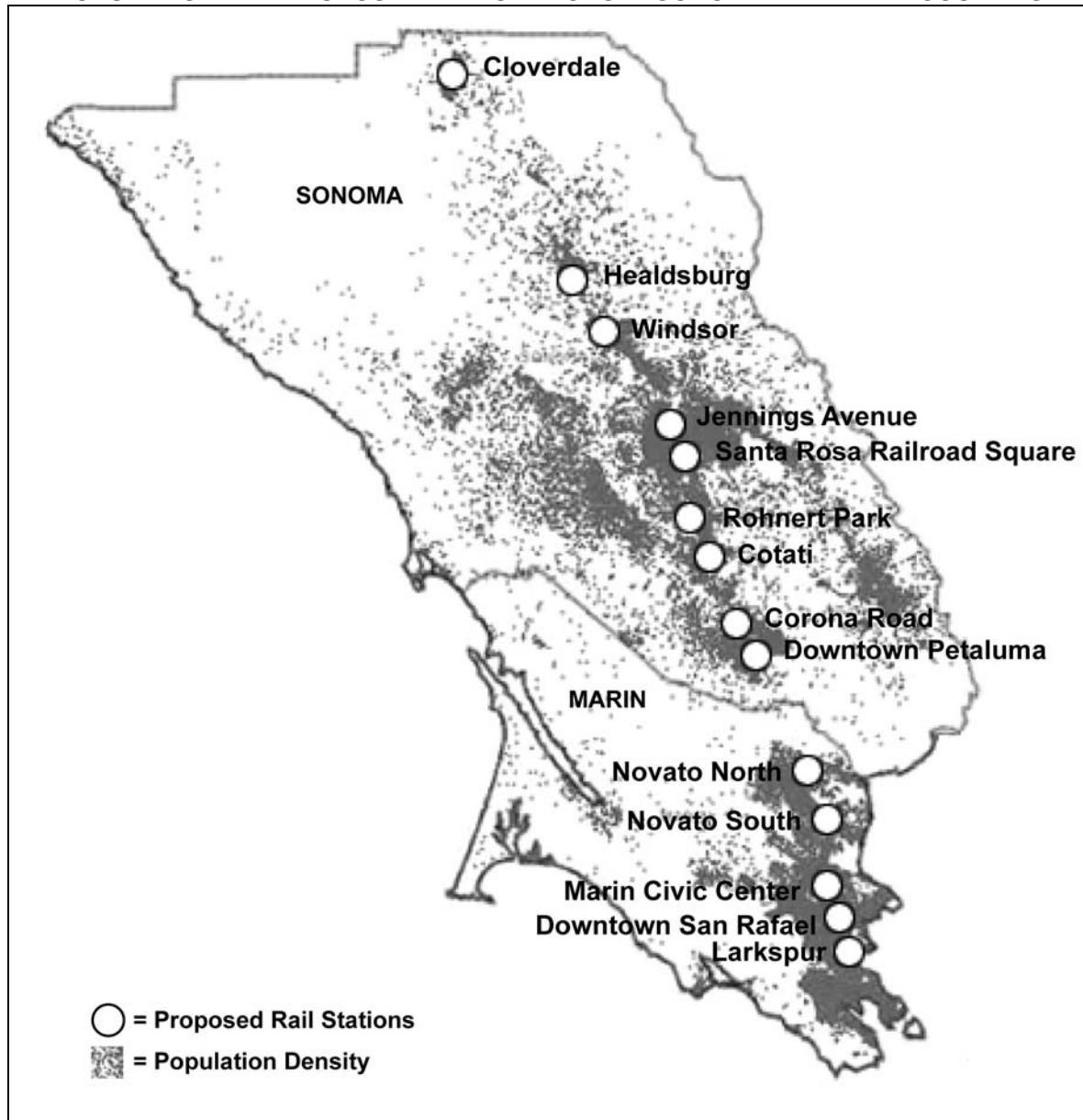
Source: U.S. Census, 1990 and 2000.

Note: \*SMART District includes all of Sonoma and Marin counties

In both counties, the majority of people already live along the project corridor where the largest cities and towns are located (see Figure 5.3-1). In Sonoma County, Highway 101 passes through seven major cities and towns, which account for approximately 63 percent of the County's total population. Similar to most Northern California counties, Sonoma County has a relatively low population density of approximately 290 persons per square mile. As most residents in Sonoma County live along the proposed project corridor, population density is much greater in the study area, totaling 5,044 persons per square mile.

The Highway 101 corridor passes through three of the eleven major towns and cities in Marin County: Novato, San Rafael and Larkspur. Approximately 46 percent of the total population of Marin County lives in these three cities. Population density along the project corridor is much greater than Marin County, totaling approximately 3,578 persons per square mile compared with approximately 475 persons per square mile for the county as a whole. The City of San Rafael recorded the highest percent growth in Marin County from 1990 to 2000, with 15.8 percent, a growth of nearly 7,700 residents.

**FIGURE 5.3-1  
POPULATION AND PROPOSED RAIL STATIONS IN SONOMA AND MARIN COUNTIES**



Source: Sonoma County Transportation and Land Use Coalition, available: <http://www.sonomatlc.org/LandUse/Patterns.htm>.

### **Population Projections**

Projected population growth (2025) within the project corridor is anticipated to increase at the same rate as Sonoma and Marin counties as a whole, as the majority of the populations reside along the Highway 101 corridor.

According to ABAG's *Projections 2002*, Sonoma County's population could reach 589,800 by 2025, an increase of almost 29 percent or about 131,000 residents over 2000 figures. Marin County's population is projected to increase by approximately 14 percent from 2000 to 2025, for a total population of 281,400 persons. The population of the nine-county Bay Area is projected to increase by nearly 1.4 million persons by 2025, a growth rate of 21 percent (see Table 5.3-2).

### 5.3.2 Potential Growth-Inducing Impacts

#### **Employment-Related Growth**

The proposed project would not substantially contribute to employment growth in the region directly. Approximately 465 employees would be needed annually during an estimated two year construction period. The types of employees needed may include technical staff such as engineers and surveyors, administrators, inspectors, regulators, railroad and roadway flagmen, security, superintendents, foremen, operators, electricians, specialty workers, laborers, mechanics, and suppliers and vendors (HDR, 2004). However, given the labor pool in the region, the duration of the project and the fact that not all workers will be required at the same time, it is unlikely that the project would require relocation of a substantial number of workers from outside the area.

SMART would require operations and maintenance (O&M) staffing for the proposed project. It is estimated that SMART would need approximately 58 employees for O&M staffing for the proposed project. The types of employees needed would include controllers, train operators, mechanics, vehicle maintenance employees, maintenance-of-way employees, ticket machine maintenance personnel, signal maintenance personnel, station maintenance personnel, and security personnel (HDR, 2004). This number of new employees would not contribute significantly to employment or population growth in the region.

Indirectly, the proposed project could contribute to job growth in the region by providing an alternate transit option and improving access to employment centers. The improved access provided by passenger rail could be a factor in new businesses locating operations in areas served by the rail.

In addition to projected employment growth in Sonoma and Marin counties (see Table 5.3-2), employment growth is expected in Mendocino County, which is located just north of the project area. Jobs in Mendocino County are projected to increase from 28,083 in 2000 to 41,031 in 2020<sup>2</sup>, for a total increase of 46 percent (Mendocino Council of Governments, 2004).

#### **Population Growth**

The proposed project would not directly lead to an increase in population in the region. Neither the temporary construction-related employment nor long-term operations employment required by the project would be expected to create a permanent demand for new housing in Sonoma and Marin counties. Any temporary housing needed for construction employees would not be substantial and would be accommodated by existing facilities.

As previously noted, substantial population growth is expected in both Sonoma and Marin counties. In addition, population growth is also expected in Mendocino County. Due to its proximity to the rail station in Cloverdale, some of the expected growth in Mendocino County may be redirected to the southern portion of the county to utilize the transit opportunities provided by the proposed project. The Mendocino Council of Governments (MCOG) projects that Mendocino County's population will increase 38 percent, from 86,265 to 118,800 people, between 2000 and 2020.<sup>3</sup> Population density in Mendocino County is very low with only approximately 24 persons per square mile, which is an indicator of the rural nature of the region compared to the statewide average of 217 persons per square mile (U.S. Census, 2000). The growth in Sonoma, Marin and Mendocino counties is expected to occur with or without implementation of the proposed project. Likewise, the construction of new housing to meet this expected growth would occur with or without the proposed project. Creation of new housing is not included as part of the project.

The proposed project could indirectly cause a shift in where the population growth and housing development may occur. Implementation of passenger rail with stations in urban areas could play a role

<sup>2</sup> 2025 data is not available

<sup>3</sup> Ibid.

in shifting the population away from more sprawling auto-dependent development to greater concentrations in urban areas near transit stops in areas that historically had lower population numbers and were more focused on commercial uses. The proposed project would be supportive of transit-oriented infill development around stations. The majority of the general plans for communities along the corridor include goals or policies for encouraging development in existing urban centers adjacent to transit facilities.

Over time, commuters and businesses may choose to locate closer to rail stations to maximize the benefits of improved access, reliability and reduced travel time. This increase in demand would likely result in increased residential and commercial development in close proximity to stations. By permitting infill development that is compatible with the surrounding communities (as established in the local general plans), the number of new businesses and residences that could be accommodated at station locations would not be expected to substantially increase the population beyond current projections.

The proposed project would utilize an existing rail line and serve existing communities within established city limits; therefore, it would not significantly develop or encroach on existing expanses of agricultural land or open space. The project would not require changes to existing plans, policies, or regulations to specifically allow for growth in housing or employment along the rail corridor and therefore would not result in a precedent setting action that could lead to growth in unincorporated areas.

It is conceivable that the proposed project could result in the shifting of some growth and development within Sonoma and Marin counties to already developed areas in the vicinity of planned stations. The project would not, however, induce substantial population or employment growth in Sonoma and Marin counties, since it would not create economic expansion or growth, establish a precedent that would lead to growth, or result in substantial encroachment into isolated or adjacent open space.

While the proposed project would provide an alternative mode of transportation in a congested transportation corridor, it is not anticipated that it will induce substantial growth by removing an impediment to future growth. The primary obstacles to growth in Sonoma and Marin counties are the development limits and growth boundaries set forth by the general plans of the local jurisdictions. The communities within both counties have laid out guidelines as to where and how much growth will occur through zoning regulations, open space protection policies and general plan guidelines. Other obstacles to growth include the lack of infrastructure, public services and utilities in more rural areas. The proposed project would not remove any of these obstacles which regulate growth. As previously stated, the implementation of the proposed project could lead to a shift in where growth occurs. Development of stations could cause pressure for new development, which in turn could lead some jurisdictions to revise their zoning ordinances in the vicinity of stations to maximize development opportunities and benefits of denser transit-oriented development.

The train is new infrastructure in more rural areas such as areas north of Healdsburg. Since the train itself is an alternative mode of transportation, it may allow people to commute longer distances without using the freeway.

#### **5.4 EFFECTS FOUND NOT TO BE SIGNIFICANT**

CEQA Guidelines Section 15128 requires an EIR to briefly describe any possible significant effects that were determined not to be significant and were, therefore, not discussed in detail in the EIR. The following topics were eliminated from further evaluation in the scoping phase of the proposed project: mineral resources, utilities and service systems.

- Mineral Resources – Development of the proposed project would be limited to an existing right-of-way and urban areas within Sonoma and Marin counties. The proposed project would not require development in unincorporated areas of the project corridor, and therefore it was determined not to have a potential physical effect on important mineral resources.
- Utilities and Service Systems – Implementation of the proposed project would not burden the existing utility and service systems in place. The additional electricity, water, wastewater, and waste

collection which would be required for operation of the project facilities would be a nominal increase to the existing systems. The maintenance facility car wash at either Cloverdale or Windsor was designed to be an enclosed facility, recycling water and providing adequate dwell time from the detergent application until the wash brushes operate.

## **5.5 AREAS OF KNOWN CONTROVERSY / ISSUES TO BE RESOLVED**

CEQA Guidelines Section 15123 requires that Areas of Known Controversy identified by the public or other agencies and Issues to be Resolved be summarized in an EIR.

### **Areas of Known Controversy**

The following areas of concern have been raised through the scoping process and were incorporated into the environmental analysis:

- Traffic impacts associated with the station location and train operations in downtown San Rafael
- Impacts of corridor extension to the Larkspur Ferry Terminal
- Potential growth-inducement associated with the proposed project
- Effects on bus transit
- Patronage forecasts for the proposed passenger rail
- Impacts on freight operations.

### **Issues to be Resolved**

The following issues need to be resolved as part of the project evaluation and adoption process:

- Location of maintenance facility
- Final decision on station sites based on options analyzed in this document.