

EXECUTIVE SUMMARY

This Draft Environmental Impact Report (DEIR) analyzes the potential environmental impacts of the proposed Sonoma-Marina Area Rail Transit (SMART) District project, which would be installed between Cloverdale in Sonoma County and Larkspur in Marin County. This DEIR satisfies the requirements of the California Environmental Quality Act (CEQA) for analysis of the proposed multi-modal transit project as well as analysis of the sales tax measure that would be placed on the ballot for this project.

ES.1 PROJECT BACKGROUND

Until 1958, passenger rail service was provided along the Northwestern Pacific Railroad (NWP) from Humboldt Bay south to San Rafael. In the 1970s, public acquisition of the NWP right-of-way began and continued into the mid-1990s, with significant funding provided by federal and State sources to insure the transportation benefits of the corridor would be preserved for North Bay residents into the future. By 1993, the Northwestern Pacific Railroad Authority, Golden Gate Bridge, Highway and Transportation District (GGBHTD), Marin County and Marin County Transit District had acquired all the NWP right-of-way from Healdsburg south. The North Coast Railway Authority (NCRA) owns the railroad right-of-way north of Healdsburg to Willits.

In 1997, the Sonoma County Transportation Authority (SCTA) and the Marin Planning Agency hired a consultant to study transportation and land use issues along the Highway 101 corridor. The *Sonoma/Marin Multimodal Transportation and Land Use Study* (Calthorpe Associates, 1997) recommended that a commission be formed to guide the design and implementation of passenger train service to support transportation and land use patterns that minimize the negative environmental impacts of sprawl. As a result of the study, the SMART Commission was formed in 1998 with the goal to “provide passenger rail service to Sonoma and Marin County residents along the NWP corridor.” Figure ES-1 displays the location of the project corridor.

The SMART Commission developed an implementation plan for start-up passenger rail service, which would support transportation and land use patterns to counteract the effects of sprawl and reduce congestion along the Highway 101 corridor in Sonoma and Marin counties.

On January 1, 2003, the SMART District was created, replacing the SMART Commission, to provide for a unified, comprehensive institutional structure for the ownership and governance of a passenger rail system within the counties of Sonoma and Marin. Work to transfer ownership of the NWP rail line from the Northwestern Pacific Railroad Authority, GGBHTD, Marin County and Marin County Transit District to SMART was begun and is now nearing completion.

ES.2 PROJECT PURPOSE, NEED AND OBJECTIVES

The need for a diverse, multimodal improved transportation system within Sonoma and Marin counties is reflected in the growing congestion, travel times and delays on Highway 101, especially during peak travel periods. The capacity of the transportation system has not kept pace with the growth of travel demand in the two counties, a trend that is projected to continue into the future.

The need for an alternate mode of transportation in Sonoma and Marin counties is supported by:

- Capacity constraints on existing transportation systems, particularly on Highway 101, resulting in congestion and travel delays;
- Future growth in travel demand along the Highway 101 corridor as regional population and employment grows;

- Unreliability of existing travel modes due to congestion, weather, accidents, and lack of alternative north/south travel corridors; and
- Disproportionate reliance on automobile travel in the corridor.

The purpose of the proposed project is to provide an efficient and reliable multimodal transit option, consisting of passenger rail service and an ancillary pedestrian and bicycle pathway for local and regional travelers in Sonoma and Marin counties, cities and towns. In order to achieve the project purposes, the following project objectives have been identified:

- Increase transit ridership in the project corridor;
- Provide an alternative transportation option to automobile travel in the Highway 101 corridor to accommodate a portion of the projected travel demand, in furtherance of the general plan goals, objectives and policies of the counties, cities and towns along the NWP corridor;
- Provide cost-effective rail service that links to bus, ferry service and bicycle access to key employment and multimodal centers along the corridor;
- Provide rail service that supports transit-oriented development in city centers and at transit stations along the corridor to promote compact infill patterns in both Sonoma and Marin counties, consistent with SMART's policies, and the general plans of the counties, cities and towns along the NWP corridor;
- Maximize the use of an existing, publicly-owned rail right-of-way for rail services and as a bicycle/pedestrian pathway;
- Provide the transportation infrastructure needed to facilitate transit-oriented, pedestrian-friendly, mixed-use development in station areas and for seamless connections between rail, shuttle buses and fixed route bus service;
- Provide passenger rail service that operates safely and efficiently with freight operations within the rail right-of-way north of the Ignacio Wye (Highway 37); and
- Provide a bicycle/pedestrian pathway, generally within the rail right-of-way, from Cloverdale to Larkspur.

ES.3 PROJECT DESCRIPTION SUMMARY

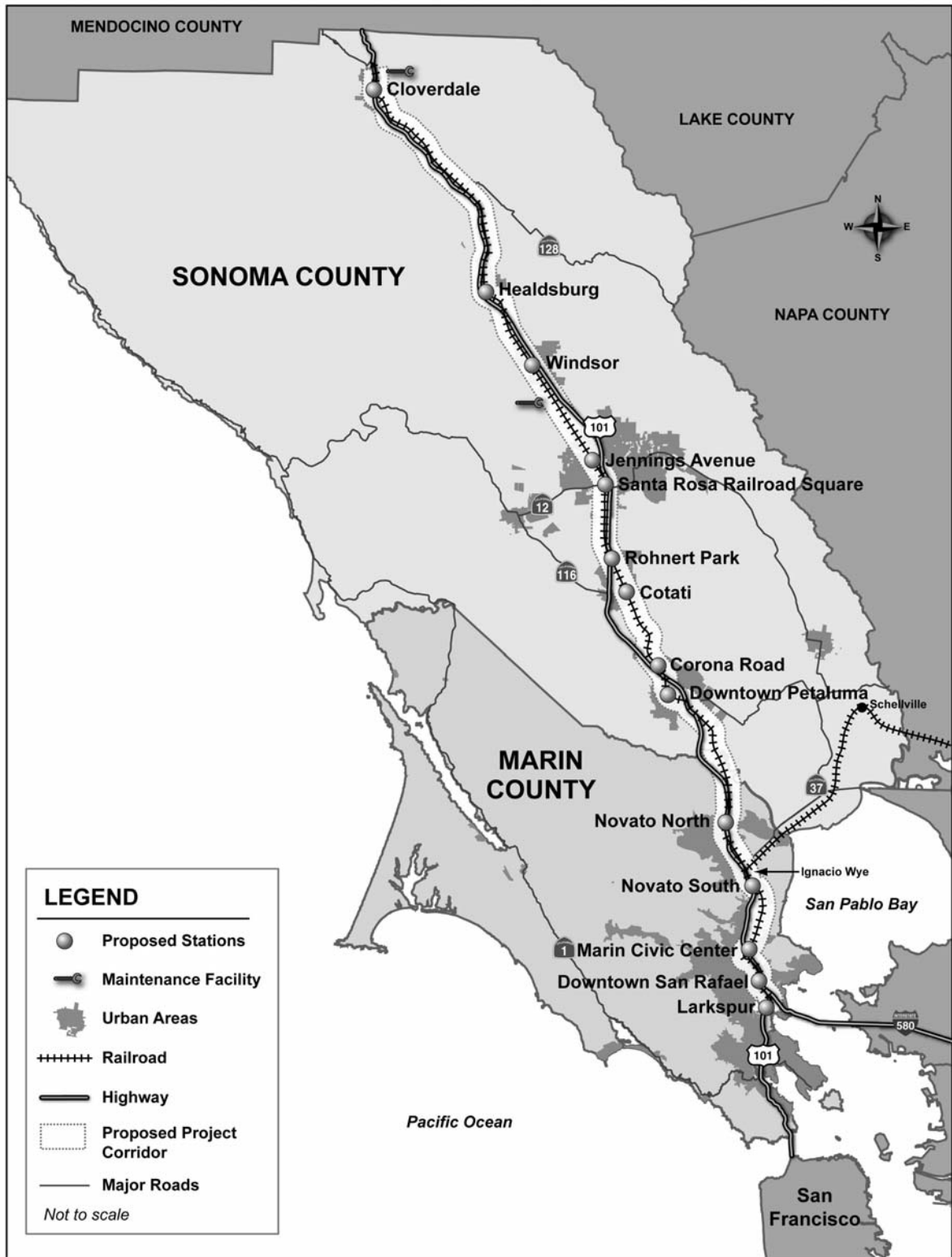
The proposed project would provide passenger rail service along approximately 70 miles of the SMART corridor from Cloverdale in Sonoma County to Larkspur in Marin County, with 14 rail stations, passing sidings, and a rail maintenance facility (see Figure ES-1). The proposed project also includes the implementation of a bicycle/pedestrian pathway generally within or adjacent to the rail corridor. The proposed bicycle/pedestrian pathway includes a combination of Class I and Class II facilities to be constructed along the project corridor.¹

¹ Class I Bikeway (Bike Path). Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow minimized.

Class II Bikeway (Bike Lane). Provides a striped lane for one-way bike travel on a street or highway.

Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic.

**FIGURE ES-1
PROJECT LOCATION**



The proposed project would provide weekday passenger rail service including four daily round trips between Cloverdale and Larkspur, two daily round trips between Healdsburg and Larkspur, three daily round trips between Windsor and Larkspur, two daily round trips between Petaluma and Larkspur, and two daily round trips between Healdsburg and Petaluma. The running speed, including stops, would generally be the same as posted speeds on adjacent roadways in urban areas and would average approximately 46 miles per hour (mph) from Cloverdale to Larkspur. Service would be operational only on weekdays. The forecasted 2025 daily ridership for the proposed project is approximately 4,800 passengers.

The proposed passenger rail service would serve 14 stations, nine in Sonoma County and five in Marin County. The stations would have convenient transfers to existing and proposed bus service, recommended shuttle services, ferry service and bicycle/pedestrian pathway connections. Park-and-ride lots would be provided at all stations except at Santa Rosa Railroad Square, Downtown San Rafael, and Larkspur stations. Each station would have one or two boarding platforms with shelter, lighting and other amenities such as signage, schedules, leaning bars, information kiosks and at least two ticket vending machines; and adequate space for bus bays, van and shuttle space, taxicabs and passenger drop-off. Bicycle parking would also be provided at all stations. Two alternative sites have been identified for a vehicle maintenance facility for the passenger rail service, one at Cloverdale and one at Windsor, both in Sonoma County.

A local shuttle system, using small 12-25 passenger vehicles, is proposed to distribute passengers at the work-end (i.e., non-home end) of their trip. The shuttles would be free, and would operate during the same hours as trains, in the morning and afternoon peak commute periods. There are a total of nine shuttle routes proposed. Downtown San Rafael and Marin Civic Center would have more than one route to serve the various employment centers in the vicinity. The shuttles would be dedicated to the rail service, allowing for a shorter timed-transfer connection between rail and bus services. Shuttles would be timed to meet trains traveling in the peak direction: southbound trains in the morning and northbound trains in the evening peak commute period.

Diesel multiple units (DMUs) are the proposed vehicles for the SMART passenger rail system. DMUs are rail cars that contain both passenger accommodations and propulsion (diesel engines located below the passenger compartment). Vehicle capacity is about 90 passengers per car. Because they are self-propelled, no large locomotive engine is required. As a result, a DMU has less noise and lower emissions when compared to a locomotive-hauled train system, but is still compatible with freight operations on the same line (unlike a light rail vehicle). SMART is considering the use of a biodiesel fuel mixture and also is continuing to consider the potential for using hybrid engines although a prototype hybrid DMU has not yet been released, thus no environmental data was available for analysis in this DEIR. A fleet of 14 DMUs would be needed to operate five two-car trains and two one-car trains and have two spare cars in reserve.

The proposed project would include components that would implement portions of the *Marin County Bicycle and Pedestrian Master Plan* (June 2000), as described in *Moving Forward: A 25-Year Transportation Vision for Marin County* (February 2003) and of the Sonoma County Bicycle Plan, as described in *2001 Countywide Transportation Plan for Sonoma County* (September 2001). Implementation of bicycle/pedestrian path components of these plans within the SMART and NWP rights-of-way would be an integral component of the proposed project.

The proposed bicycle/pedestrian pathway component would consist of approximately 54 miles of a Class I pathway located on the rail right-of-way and 17 miles of Class II pathway improvements. In locations where the existing rail right-of-way is not of sufficient width to accommodate a pathway or in environmentally sensitive areas, Class II pathways would be implemented outside of the right-of-way on existing streets, providing links between the Class I portions of the pathway. These proposed Class I and II improvements represent Phase 1 of a two-phase concept proposed by the Bicycle/Pedestrian Advisory Group (BPAG). Phase 2, which is not part of the proposed project, would convert the Class II portions of the pathway to Class I, and would require implementation and funding by either the local

cities and towns or counties. Construction of Phase 2 would require acquisition of additional right-of-way and further environmental review if and when a project sponsor is established.

ES.4 PURPOSE AND USE OF THE ENVIRONMENTAL IMPACT REPORT

This DEIR has been prepared in accordance with CEQA (Public Resources Code, Section 21000 et seq.) and the Guidelines for Implementation of the California Environmental Quality Act published by the Resources Agency of the State of California (California Code Regulations, Title 14, Section 15000 et seq. referred to herein as the CEQA Guidelines). The purpose of this DEIR is to evaluate the environmental effects associated with implementation of proposed passenger rail service in Sonoma and Marin counties by the SMART District. Section 15121 of the CEQA Guidelines states the purpose of an EIR “is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.” The SMART District is the Lead Agency for the proposed project defined by Section 21067 of CEQA as “the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment.” This DEIR provides decision makers, public agencies and the general public information on the temporary and long-term environmental effects associated with the construction and operation of the proposed project and project alternatives.

ES.5 SCOPE OF ENVIRONMENTAL IMPACT REPORT

The scope of this Draft EIR is based on initial review of the proposed project by agency representatives and environmental consultants and on comments received during the public scoping process. In accordance with Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) was issued by the SMART District on November 8, 2002 (State Clearinghouse number SCH#2002112033). The NOP was circulated for public review, indicating that the SMART District was preparing an EIR and invited comments on the proposed project from the general public and public agencies. The NOP included a 30-day comment period for public agencies, organizations and interested groups and individuals to provide their comments on the scope of the proposed project. In addition, public and agency scoping meetings were held in November 2002 and September 2003 to solicit input on the proposed project. The NOP and summary of scoping comments are contained in Appendix A of this EIR. Scoping comments covered a range of issues, concerns and recommendations including:

- A number of comments expressed concern about impacts associated with operation of the rail, including those related to noise, air quality, traffic, wildlife safety, and aesthetics.
- Comments suggested other alternatives for study including use of buses on the railroad right-of-way, monorail along Highway 101, Highway 101 lane expansion, and express bus service.
- Various comments were made in regards to rail operation including rail schedule, fares, ridership, connections with other transit, and safety.
- Questions were raised about the cost and funding for the proposed project.
- Comments were made in support of the proposed bicycle/pedestrian pathway.

These scoping comments were carefully considered by decision makers and DEIR preparers and were used to refine the final scope of the DEIR.

Specific environmental topic areas addressed in this DEIR include the following.

- Geology, Soils and Seismicity
- Water Resources
- Hazardous Materials
- Air Quality

- Transportation (Traffic, Bicycle and Pedestrian)
- Noise and Vibration
- Energy
- Biological Resources (Wetlands, Vegetation and Wildlife)
- Parks and Recreation
- Land Use and Planning
- Public Facilities and Safety
- Visual Quality/Aesthetics
- Historic Resources
- Archaeological Resources
- Growth Inducement

SMART has determined that the following topics would not be subject to potentially significant environmental impacts and therefore are eliminated from further evaluation in this DEIR: agricultural resources, mineral resources and utilities and service systems.

ES.6 POTENTIAL IMPACTS AND MITIGATION MEASURES

The environmental analysis incorporated in this DEIR identifies the environmental impacts of the proposed project, the level of the impact and the proposed mitigation measures. Each short or long-term impact is numbered and classified. Impacts are classified as:

- **Significant Unavoidable:** Substantial adverse impact that exceeds established or defined significance thresholds and remains significant after mitigation. Mitigation may be identified, but the mitigation measure would not reduce the impact to a less than significant level;
- **Significant Mitigable:** Substantial adverse impact that exceeds an established or defined threshold, but can be eliminated or reduced below the relevant significance threshold with implementation of one or more mitigation measures;
- **Less than Significant:** Adverse impact that does not meet or exceed an issue's established or defined significance thresholds (no mitigation needed); or
- **Beneficial:** Effect of the proposed project that is an improvement to an environmental issue area in comparison to the baseline information.

As required by the CEQA Guidelines, this DEIR examines the expected individual and cumulative impacts of the proposed project and alternatives. Table ES-1 at the end of this chapter describes impacts of the proposed project and mitigation measures.

The analysis found that the following significant adverse and unavoidable impacts result from the proposed project:

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.

ES.7 PROJECT BENEFITS

Based on the conclusions set forth in this DEIR, project related benefits would occur in the areas of water resources, transportation, parks and recreation, and land use and planning.

Water Resources

As discussed in Section 3.3.6, Water Resources, the proposed project would have the potential to improve water quality stormwater management and re-establish hydrologic zones along the project right-of-way. The proposed project would involve reconstruction of drainage facilities to improve hydrologic conditions. Over the years, many of the cross-culverts have become clogged with debris, which has caused erosion of surface and side slopes. As part of the proposed project, cross-culverts would be cleared, resized, or reconstructed, as necessary to re-establish hydrologic connections and minimize sediment delivery to waterbodies within the proposed project area.

Air Quality

As discussed in Section 3.5.6, Air Quality, the proposed project would result in a decrease of greenhouse gases. Typically diesel-fueled engines emit less greenhouse gases than gasoline-fueled engines. This, in addition to a reduction in the amount of motor vehicle use in the study area, would result in the proposed project reducing CO₂ emissions compared to the 2025 No-Project condition by about 0.8 percent. This is equivalent to a reduction of approximately 79,000 pounds per day of CO₂ in the Bay Area Air Basin and 26,000 pounds per day in the North Coast Air Basin.

Transportation

As discussed in Chapter 3.6, Transportation, the proposed project would have beneficial impacts on transportation by enhancing transit opportunities within the project area, which would relieve overall traffic congestion to some degree. With implementation of the proposed project, both VMT and VHT would decrease relative to the future baseline or No-Project condition.

The travel demand forecasts indicate that various segments of the Highway 101 corridor would experience improved operations under the proposed project compared to existing conditions, as well as decreases in travel demand compared to the Year 2025 No-Project conditions. Although the reduction in travel demands may not show substantial improvements in highway operation (i.e., the level of service still remains the same), the proposed project offers an alternative to driving the congested roadway

during weekday commute peak periods. In addition, several roadway segments are shown to improve with the proposed project relative to the 2025 No-Project conditions.

The proposed bicycle/pedestrian pathway would provide another mode of regional transportation in the project corridor and help ease demand on local streets for vehicle and non-motorized use. This facility would also link existing local pathways to the regional pathway system. Other benefits of the proposed pathway include providing linkages between transit facilities and between the two counties, as well as providing implementation of portions of numerous county and local bicycle trail plans.

Parks and Recreation

As discussed in Section 3.10.6, Parks and Recreation and Section 3.6, Transportation, the proposed project would provide recreational benefits to both Sonoma and Marin counties with the addition of the bicycle/pedestrian pathway. The bicycle/pedestrian pathway would provide improved connectivity to existing facilities and between the communities along the alignment. The bicycle/pedestrian path would provide a major increase in the amount of recreational facilities available and opportunities for use of those facilities in the region.

Land Use and Planning

As discussed in Section 3.11.6, Land Use and Planning, rail stations would be supportive of existing commercial uses within a ½ mile radius and provide the opportunity for mixed-use development. The area surrounding each of the station sites includes commercial, retail and office land uses. The Jennings Avenue, Santa Rosa Railroad Square, Downtown Petaluma, Novato North, Marin Civic Center and Downtown San Rafael station sites each include a substantial portion of commercial/retail/office uses within a ½ mile. Increasing the transit accessibility of these commercial areas would be a positive benefit of the project.

ES.8 ALTERNATIVES ANALYZED IN THIS DRAFT ENVIRONMENTAL IMPACT REPORT

The alternatives to the proposed project, described and analyzed in the alternatives analysis include the No-Project Alternative, the Express Bus Alternative and the Minimum Operable Segment (MOS) Rail Alternative: Windsor to San Rafael.

No-Project Alternative

Under State CEQA Guidelines Section 15126.6(e), evaluation of the specific alternative of “No-Project” is required. The No-Project Alternative addresses the effects of not implementing the proposed passenger rail project. Analysis of the No-Project Alternative is based on the existing conditions at the time the notice of preparation is published or when the environmental analysis is commenced. In addition, the No-Project analysis must include what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (CEQA Guidelines Section 15126.6(e)(2)). For this analysis, the No-Project Alternative accounts for growth and development that is foreseeable within the next 20 years. The No-Project scenario represents future conditions without the proposed project.

The No-Project Alternative consists of the existing transportation system in place in 2001, as well as all transportation projects that are planned for implementation by the year 2025 in the region, as defined in the 2001 MTC RTP (Committed or Track 1 projects). Projects that cannot be funded with existing revenues (i.e., those that are designated as “Blueprint” projects) are not assumed. When the Notice of Preparation for this DEIR was published in November 2002, the 2001 RTP was the approved regional transportation plan for the Bay Area and accordingly served as the basis for project analysis. Specifically, the travel demand model used in the analysis of the proposed project and alternatives includes programmed changes in the transportation network, transit systems, land use, employment, and

background growth documented in the 2001 RTP. Of particular importance is the assumption that the planned HOV lanes would be constructed on Highway 101.

Assumptions concerning bus service in the No-Project Alternative are based on the 2001 RTP just as they are with highway projects. The RTP assumed that regional bus service in Sonoma and Marin counties would remain at 2001 levels. For the purposes of this DEIR, the No-Project Alternative assumes that bus services, which have declined in recent years, would be restored to their 2001 levels by 2025, for consistency with the RTP. Intracounty and intercounty services that utilize Highway 101 would have the benefit of continuous HOV lanes between Windsor and Mill Valley.

Under the No-Project Alternative, the existing NWP corridor would remain, but there would be no passenger rail service and no track or corridor upgrades would be put in place as planned in the proposed project. Some track upgrade projects north of Novato may be independently implemented for freight purposes. Freight rail service could be re-introduced on the NWP corridor north of the Ignacio Wye in Novato by the North Coast Railroad Authority (NCRA).

The No-Project Alternative assumes that ferry transit services would remain at current levels, as no ferry expansion was proposed in the North Bay as part of the 2001 RTP. The Larkspur Ferry Terminal would continue to serve as the main ferry terminal for the North Bay.

The No-Project Alternative assumes some progress by local jurisdictions toward implementation of the Marin County Bicycle and Pedestrian Plan, as described in *Moving Forward: A 25-Year Transportation Vision for Marin County* (2003) and of the Sonoma County Bicycle Plan, as described in *2001 Countywide Transportation Plan for Sonoma County* (2001). However, a continuous north-south pathway along the Highway 101 corridor from Sonoma through Marin would not be in place, as there is neither adequate funding nor available right-of-way available for this comprehensive project.

The No-Project Alternative includes reasonably foreseeable population and employment growth, regional development, and transportation improvements over the next 20 years. Therefore, even without the proposed project, some physical impacts would occur as a result of the No-Project Alternative. Specific construction impacts associated with the proposed passenger rail project would not occur, but physical impacts associated with the planned transportation improvements, new housing and commercial development would take place.

Express Bus Alternative

The Express Bus Alternative focuses on expanded bus service in the two county study area to accommodate regional growth and increased traffic demand along the Highway 101 corridor.

The Express Bus Alternative assumes the same future baseline (Year 2025) highway and roadway improvements as the No-Project Alternative and the proposed project based on the 2001 RTP committed or Track 1 projects. The Express Bus Alternative would include the same 15% increase (over 2001 levels) in intracounty bus service in Sonoma and Marin counties also assumed for the proposed project. However, this alternative is different from the proposed project in that it would include increased frequency (above 2001 levels) of buses for the commuter service to San Francisco and the East Bay and route changes for the intercounty bus service. The alternative assumes the service pattern of Golden Gate Transit service from Sonoma and Marin Counties to San Francisco and the East Bay will generally remain consistent with that which was in place in 2001; however service levels will be adjusted to meet demand. The increase in service will include frequency improvements and route changes to provide peak period service to employment concentration and activity centers along the Highway 101 corridor.

The Express Bus Alternative would include several additional key improvements to Sonoma/Marin intercounty bus service that are not included in the other alternatives. Intercounty bus service would include three types of bus routes:

- **Express Bus Route** - An Express Bus Route service (a modification of the existing GGT Route 80) would stop at some or all of the freeway bus pads and off-freeway transit centers along Highway 101 between Cloverdale and the Larkspur Ferry Terminal.
- **Super Express Bus Route** - A Super Express Bus Route service, between Cloverdale and the Larkspur Ferry Terminal, would stop at five bus pads and four off-freeway transit centers that are an average of seven miles apart (ranging from three miles to 10 miles apart), thus more effectively utilizing the Highway 101 HOV lanes and reducing travel times.
- **Area-to-Area Commuter Service** - Area-to-Area Commuter Service lines (developed in and referred to as Point-to-Point services in the *Marin/Sonoma Express Bus Study*) would provide additional peak period/peak direction service with direct connections between residential areas and employment centers in Sonoma and Marin counties. These long distance lines would utilize the Highway 101 HOV lanes and supplement the San Francisco-oriented GGT buses.

The Express Bus Routes and the Super Express Bus Routes would stop at the bus pads, bus pullouts with passenger waiting areas, and transit centers along Highway 101. Two new freeway bus pads would be located at Highway 101/Steele Lane interchange in Santa Rosa and Highway 101/State Route 116 (Gravenstein Highway) interchange in Cotati.

The Express Bus Alternative assumes the same freight rail service, water-transit service and bicycle and pedestrian system as assumed for the No-Project Alternative.

Minimum Operable Segment (MOS) Rail Alternative

The MOS Rail Alternative would provide passenger rail service and a bicycle/pedestrian pathway along approximately 46 miles of the SMART corridor from Windsor in Sonoma County to San Rafael in Marin County. This alternative is essentially the same as the proposed project except it is a shorter segment of the proposed route, from Windsor to San Rafael rather than from Cloverdale to Larkspur.

The highway and roadway improvements would be the same as those identified for the proposed project, No Project and Express Bus Alternatives.

The MOS Rail Alternative would provide passenger rail service in the SMART corridor from the Windsor Station to the San Rafael Downtown Station. The operating plan within this segment would be the same as that described for the proposed project. Passenger rail service would serve 11 of the 14 stations of the proposed project: Windsor, Santa Rosa-Jennings Avenue, Santa Rosa Railroad Square, Rohnert Park, Cotati, Petaluma-Corona Road, Downtown Petaluma, Novato North, Novato South, Marin Civic Center, and Downtown San Rafael. The stations would be the same as described in the proposed project; see Chapter 2, Project Description. Stations and portions of the proposed bicycle/pedestrian pathway outside the Windsor - San Rafael segment would not be built.

ES.9 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The Environmentally Superior Alternative is the alternative that would result in the least adverse environmental impacts. If the No-Project Alternative is the environmentally superior alternative, the EIR must identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6(e) (2)). Identification of the environmentally superior alternative is to assist decision makers in considering project approval; however, CEQA does not require an agency to select the environmentally superior alternative (CEQA Guidelines Section 15043).

There are tradeoffs in impacts associated with the various alternatives and some issue areas bear more importance than others in the decision making process (e.g., short-term effects versus long-term conditions). Table 4.6-1 summarizes the impacts associated with each alternative in a comparative format. The alternatives also would result in varying degrees of achieving the proposed project objectives. Since the primary objective of the proposed project is to provide an alternative mode of

transportation on an existing rail corridor along Highway 101 with the intent to improve transportation conditions, the issue area of transportation is one of the key considerations in determining the environmentally superior alternative.

Based on the comparison of all issue areas and balancing of short- and long-term environmental factors, the proposed project would be the Environmentally Superior Alternative. The environmental advantages and disadvantages of the alternatives in comparison to the proposed project are summarized below.

Both the No-Project and Express Bus Alternatives would avoid the construction impacts associated with implementing the proposed project, particularly effects on sensitive biological resources. Although both of these alternatives would require some new construction, the proposed project involves substantially more construction and potential disturbance to environmental resources. It should be noted that most of the construction is along an established rail right-of-way and the majority of construction impacts are related to installing the proposed bicycle/pedestrian pathway, rather than the rail facility itself. Also, these construction impacts are either short-term effects that are not significant or can be mitigated to levels that are not significant through construction practices and protective measures.

With regard to long-term effects, the No-Project and Express Bus Alternatives would have fewer adverse impacts in the issue areas of noise and visual resources, relative to the proposed project. Train pass-by and train horn noise would be avoided and visual effects of the bicycle/pedestrian pathway safety structure would be avoided. Visual effects of the proposed project would not be significant, but train horn noise may be significant if Quiet Zones are not established. While safety considerations are important and there is a potential for accidents to occur as a result of the proposed rail facility, the risk is very low and is not greater than accident risks associated with other vehicle travel.

Both the No-Project and Express Bus Alternative would result in greater long-term impacts on transportation, air quality, energy use and land use relative to the proposed project. Furthermore, these two alternatives would not provide regional recreational benefits nor achieve the objective of providing an alternative to use of Highway 101. The combination of these following long-term environmental factors substantiates the finding that the proposed project is environmentally superior.

- The proposed project is environmentally preferred in the transportation impact area because it would result in overall lower VMT and VHT, higher ridership, more home based work trips, better v/c ratios, and faster travel times relative to the other alternatives. Localized congestion related to station access areas and at-grade crossings, while adverse and potentially significant in one location, would be offset to some extent by the regional transportation operational improvements.
- Long-term air emissions and energy consumption associated with the proposed project would be the lowest of all alternatives considered.
- The proposed project provides benefits in land use and recreation. The project supports local general plans' policy direction to develop transit-oriented land uses and provides a regional recreational facility. The proposed bicycle/pedestrian pathway would provide benefits for commuters and recreational users alike.
- The proposed project would benefit water resources through the re-construction of old clogged drainage facilities along the right-of-way, to improve hydrologic and water quality conditions and reduce the risk of flooding.
- The No-Project and Express Bus Alternatives would be inconsistent with the transportation elements of regional and local plans analyzed as part of this study because they would not provide passenger rail service as called for in the plans.
- The No-Project Alternative would not enhance transit opportunities in the SMART or Highway 101 corridors and would continue dependence on the private automobile, which would further contribute to adverse effects on the transportation network.

The MOS Rail Alternative would not be environmentally preferred because it would result in many of the same construction impacts associated with the proposed project, but would not provide a commensurate

amount of beneficial effects with regard to transportation, air quality, energy, recreation and land use. Specifically, this alternative would not provide a link to water transit service, as it does not extend to the Larkspur Ferry Terminal, the key link in Marin County to the Bay Area ferry system. The MOS Rail Alternative would require an inefficient transfer of modes for passengers using the ferry system.

Other considerations for decision makers are the ability of the alternatives to achieve the proposed project's objectives, as stated in Section 2.1 of this DEIR. The proposed project has two stated transportation objectives: 1) to provide cost-effective rail service that links to bus and ferry services, and to key employment and multi-modal centers along the corridor; and 2) to provide a continuous bicycle/pedestrian pathway generally within the SMART and NWP rights-of-way from Cloverdale to Larkspur. The No-Project Alternative fails to meet these major objectives. The No-Project Alternative would not provide any multi-modal options beyond those identified in the RTP. Since the No-Project Alternative would not offer major new transit services, it would not be expected to increase transit ridership in the corridor. The No-Project Alternative would not provide new links to bus or water transit services, key employment centers, or the transportation infrastructure needed to facilitate transit-oriented development in the cities along the project corridor.

The Express Bus Alternative would partially meet the project's purpose and need. Although the Express bus service would not provide a new mode of transportation for commuters, it would provide expanded bus service levels within Sonoma and Marin counties. The enhanced bus service would encourage transit as an alternative to automobile travel in the Highway 101 corridor. The express bus service, however, would not provide a dedicated transit corridor like the rail alternative and would not reduce the reliance on the automobile to the extent that the proposed project would. Like the No-Project Alternative, the Express Bus Alternative would not provide a bicycle/pedestrian pathway along the SMART and NWP rights-of-way from Cloverdale to Larkspur and would not provide bicycle access to key employment and multi-modal centers along the corridor. It should also be noted that the Express Bus alternative and the proposed project are not mutually exclusive. Development of the proposed rail project would not preclude implementation of the Express Bus Alternative in the future.

As noted in the transportation comparison, the proposed project would play a modest role in helping reduce the growing travel demands along Highway 101. The forecasted regional growth is such that there are very few feasible measures available to affect Highway 101 operations in terms of improving LOS conditions. The main benefit of the project is that the reintroduction of passenger rail service would provide an alternate mode of transportation for commuters along the Highway 101 corridor. Use of the dedicated rail right-of-way would result in an independent system that is not reliant on the operations of Highway 101 and would therefore be more reliable and efficient. The proposed project would provide a link to bus and water transit service and to key employment centers along the corridor. In addition, the implementation of rail stations would provide an opportunity for the creation of transit-oriented development and more compact growth patterns in the areas around the stations.

ES.10 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.

ES.11 IMPACT SUMMARY

A summary of impacts associated with the proposed project is provided in Summary Table ES-1

**TABLE ES-1
SUMMARY OF ENVIRONMENTAL EFFECTS**

| Impact | Significance Before Mitigation | Mitigation Measures / Environmental Compliance Measures | Significance After Mitigation |
|---|--------------------------------|--|-------------------------------|
| SU = Significant Unavoidable SM = Significant Mitigable LTS = Less than Significant B = Beneficial | | | |
| Geology | | | |
| <i>Construction-Related Impacts</i> | | | |
| G-1: Excavations may encounter shallow or perched groundwater, which would require dewatering and potential discharge that could cause erosion of soil | SM | MM G-1: Implement erosion control Best Management Practices (BMP) such as settling basins, the covering of soil stockpiles, runoff diversions, silt fences, and dewatering sediment filtersocks. Site-specific measures shall be determined during pre-construction planning. | LTS |
| G-2: Temporary excavations and dewatering may induce ground failure and settlement to adjacent structures. | SM | MM G-2: Implement properly designed restraint and shoring systems to avoid unstable excavations. | LTS |
| <i>Long-Term Impacts</i> | | | |
| G-3: Portions of the rail alignment are susceptible to erosion from surface runoff, particularly sloping areas adjacent to drainage swales and creeks and rivers. | SM | MM G-3: Implement erosion control measures including hydroseeding or erosion control materials on areas that have been graded or disturbed. Additionally, maintain and repair drainage structures (e.g. culverts, drop inlets, etc.) on cut and fill slopes to minimize long term erosion. Licensed civil engineers shall develop properly designed stormwater runoff collection structures and finished contours for new stations, rail sidings, and earthwork to maximize long-term slope stability. | LTS |
| G-4: The entire rail alignment and proposed structures are susceptible to significant groundshaking from earthquakes. | SU | MM G-4: 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 will depend on soil type and stratigraphy, which will be determined during final design. | LTS |
| G-5: Fault rupture can cause damage to above ground and underground built structures by horizontal or vertical | SM | MM G-5: Evaluation of fault rupture hazard shall be undertaken during subsurface geotechnical | LTS |

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| displacement at the ground surface. | | investigations as discussed in Mitigation Measure G-3 for this segment using guidelines specified in Special Publication 42 of CGS. The evaluation shall determine the specific design features that will be most appropriate for implementation. | |
| G-6: Segments of the proposed project corridor would be subject to liquefaction during strong groundshaking events. | SM | MM G-6: Proper subsurface investigation shall be conducted in areas with liquefaction potential prior to construction as detailed in Mitigation Measure G-4. This investigation should include Standard Penetration Test borings, laboratory grain size analysis and liquefaction analysis. Geotechnical design recommendations shall be incorporated into final project designs and verified during construction by monitoring of construction activities by a qualified geotechnical consultant. | LTS |
| G-7: Portions of rail alignment may be susceptible to landslide and slope movement. | SM | MM G-7: Minimize slope disturbance by performing scaling of loose rock, and install rock fall netting, soil nails or rock bolts as necessary. Conduct geotechnical evaluations of slope stability, including static and pseudo-static analysis to determine factors of safety and whether mitigation measures such as buttressing, retaining walls slope or rock bolting are appropriate. | LTS |
| G-8: Proposed new stations south of Windsor and north of the Petaluma River would be susceptible to expansive soils and some new structures would be subject to corrosion. | SM | MM G-8: Incorporate one of the following three measures to reduce the impact of expansive soils: (1) remove expansive soil and replace with select, non-expansive, engineered fill; (2) lime treatment of expansive soil; or (3) placement of structures on drilled piers or foundation elements founded on deeper, non-expansive bearing strata. MM G-9: Where corrosive soils are encountered, the project shall incorporate one or more of the following measures, as appropriate: epoxy coating of reinforcing steel, use of Type 5 Portland cement in structural concrete, or soil treatment to neutralize pH in the soil or | LTS |

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| | | <p>reduce excessive chloride and sulfate concentrations in the soil.</p> | |
| <i>Cumulative Impacts</i> | | | |
| <p>No significant cumulative impacts related to geology, soils and seismicity.</p> | <p>LTS</p> | <p>None required</p> | <p>LTS</p> |
| Water Resources | | | |
| <i>Construction-Related Impacts</i> | | | |
| <p>WR-1: Project construction could cause a temporary increase in surface erosion, sedimentation and stream alterations due to the use of earthmoving equipment.</p> | <p>SM</p> | <p>MM WR-1a: The proposed project shall comply with the NPDES permit process which requires project applicants to file a Notice of Intent (NOI) and prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) to the Regional Water Quality Control Board (RWQCB).</p> <p>MM WR-1b: The proposed project shall comply with the requirements for a Streambed Alteration Agreement for those portions of the project that would be completed along the banks of various surface waterbodies</p> | <p>LTS</p> |
| <p>WR-2: Adverse impacts on surface waters could occur from the release of hydrocarbons and similar pollutants during construction activities.</p> | <p>LTS</p> | <p>Accidental spills from refueling and lubrication would be avoided by implementing a spill prevention program.</p> | <p>LTS</p> |
| <i>Long-Term Impacts</i> | | | |
| <p>WR-3: The proposed project would have the potential to improve water quality and stormwater management and re-establish hydrologic zones along the project right-of-way.</p> | <p>B</p> | <p>None required</p> | <p>B</p> |
| <p>WR-4: The proposed project may cause an increase in runoff of pollutants from parking lots and the proposed rail maintenance facility.</p> | <p>LTS</p> | <p>The proposed project includes provisions to contain runoff. Surface runoff from the rail improvements, station construction, the maintenance facility, and park-and-ride facilities would be intercepted with bio-filtration swales or other appropriate containment devices. Surface water runoff from these areas would be dispersed in accordance with the measures required</p> | <p>LTS</p> |

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| | | under a SWPPP from the RWQCB. With these measures in place, potential impacts would be negligible | |
| WR-5: Placement of new structures or fill material within a designated 100-year floodplain could increase flooding upstream of the structures. | SM | MM WR-2: Design structures and other improvements on the site so as not to raise flood levels. Specific measures shall be based on site specific hydrologic studies conducted during the final design stage of the proposed project. When construction within the floodplain is unavoidable, efforts will be made to restore the floodplain, as necessary, to restore flood capacity. | LTS |
| <i>Cumulative Impacts</i> | | | |
| Limited amount of impervious surfaces and associated runoff added by the proposed project would not represent a considerable contribution to cumulative impacts. | LTS | Implementation of federal/state regulations and guidelines, including BMPs on stormwater management and runoff, would minimize the cumulative impacts of water resources in the proposed project area. | LTS |
| Hazardous Materials | | | |
| <i>Construction-Related Impacts</i> | | | |
| HM-1: There is the potential for encountering phenol, creosol or aerially deposited lead (ADL) during construction | LTS | MM HM-1: There are federal and state regulations that require specific handling and disposal procedures. If phenol and creosol compounds or ADL are present in the soil, then preparation of a Site Mitigation Plan (SMP) will be required to address potential exposure of workers to impacted soil in order to comply with applicable waste handling and disposal regulations (if offsite disposal of soil is necessary). | LTS |

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| HM-2: In areas where soil excavation or excavation to shallow or perched groundwater is anticipated, there is a low to moderate potential to encounter contaminated soil and groundwater. | LTS | MM HM-2: Precautions, including sampling of soil and groundwater prior to work activities in the areas where proposed excavations are planned and preparation of a SMP, shall be implemented. Construction-related impacts of soil excavation and groundwater dewatering in contaminated areas can be mitigated through implementation of BMPs, such as conducting daily health and safety meetings to discuss planned work in areas where contaminated soil/groundwater could be encountered. Mitigation measures to protect the public include limiting access to the railroad corridor during construction activities and implementation of BMP measures to prevent offsite migration of contaminated soil and groundwater. | LTS |
| HM-3: Eleven bridges along the corridor have the potential to contain lead-based paint (LBP) and/or asbestos. | LTS | MM HM-3: If friable asbestos materials are identified during bridge inspections, these materials shall be safely removed and properly disposed using procedures established by OSHA and the BAAQMD. Bridge workers shall be protected through the use of proper protective equipment. Standard procedures shall be used for capturing LBP during bridge cleaning and preventing it from being released into the environment. Proper containment shall be employed for all bridge maintenance activities to prevent LBP from impacting the environment. | LTS |
| <i>Long-Term Impacts</i> | | | |
| HM-4: Construction and operation of the proposed project would involve limited use of hazardous materials. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| The proposed project, in addition to the Marin Gap HOV project, could contribute to an overall cumulative impact with regard to hazardous materials. | LTS | Adherence to existing regulations regarding sampling of soil and groundwater, preparation of a SMP, and utilization of specially trained workers will ensure that cumulative impacts are less than significant. | LTS |

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| Air Quality | | | |
| <i>Construction-Related Impacts</i> | | | |
| AQ-1: The proposed project would generate dust and other criteria air pollutant emissions during construction. | LTS | None required | LTS |
| <i>Long-Term Impacts</i> | | | |
| AQ-2: The proposed project would not exceed any pollutant emission threshold established by the BAAQMD or NSCAPCD. | LTS | None required | LTS |
| AQ-3: The proposed project would result in a decrease of greenhouse gases. | B | None required | B |
| AQ-4: The proposed project would not conflict with or obstruct implementation of any applicable air quality plans. | LTS | None required | LTS |
| AQ-5: The proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. | LTS | None required | LTS |
| AQ-6: The proposed project would expose sensitive receptors to some additional pollutant concentrations. | LTS | Use of catalyzed diesel particulate filters and limiting idling to 15 minutes during train layover, are included in the proposed project. | LTS |
| AQ-7: The proposed project would not result in a cumulatively considerable net increase in pollutant emissions. | LTS | None required | LTS |
| AQ-8: The proposed project would not create objectionable odors affecting a substantial number of people. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| Cumulative development is implicitly included in the air quality analysis because it made direct use of traffic volume data and assessed air emissions based on cumulative future traffic conditions. | LTS | None required | LTS |

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| Transportation | | | |
| <i>Construction-Related Impacts</i> | | | |
| T-1: Construction activities may generate increased traffic demand on Highway 101 and local streets and may affect circulation at station sites. | LTS | A construction phasing/sequencing and traffic management plan will be developed and implemented to minimize impacts during construction. | LTS |
| <i>Long-Term Impacts</i> | | | |
| T-2: Forecasted VMT and VHT would decrease with the proposed project relative to the No-Project scenario in the year 2025. | B | None required | B |
| T-3: The proposed project would decrease peak hour travel demands along various segments of the Highway 101 corridor. | B | None required | B |
| T-4: The proposed project would increase peak hour travel demands along some segments of the Highway 101 corridor. | LTS | None required | |
| T-5: Implementation of the proposed project may lower the service levels on several local streets. | SU | MM T-1: Mitigation at appropriate locations shall include restriping of existing roadways and traffic control improvements such as signal timing and phasing modifications, where appropriate. Southbound Civic Center Drive would require mitigations such as traffic signal modifications at Merrydale Road and Civic Center Drive, and possibly a short exclusive right turn lane for the drop off traffic into the site from southbound Civic Center Drive at the intersection of McInnis Parkway. | SU if mitigation measure infeasible |
| T-6: Implementation of the proposed project may improve the service levels on several local streets. | B | None required | B |
| T-7: The proposed bicycle/pedestrian pathway would provide regional mobility and enhance local access for non-motorized modes of travel. | B | None required | B |
| T-8: Traffic operations and level of service would decline at three intersections during the a.m. peak hour and four intersections during the p.m. peak hour near the Downtown San Rafael Station. | SM | MM T-2: The implementation of the proposed project signaling and traffic control system shall include coordination and integration with the adjacent traffic signals to allow for progression of other non-conflicting | LTS |

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| | | traffic movements. Coordination and integration with the adjacent traffic signals in downtown Santa Rosa and Petaluma would minimize traffic impacts and reduce unnecessary delays and queues to less than significant. | |
| T-9: Travel time and queues may increase for vehicles approaching at-grade crossings when a passenger rail train is present. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| <p>The transportation analysis of the proposed project (Impacts T-2 through T-9) represents a cumulative impact evaluation that incorporates other regional projects and transportation improvements.</p> <p>Potential developments or projects within the corridor that were not included in the modeling for the proposed project include the Graton Rancheria casino/hotel development in the vicinity of Rohnert Park and possible future freight service on the project right-of-way. The proposed passenger rail project would not contribute to the cumulative impacts related to the casino development. In addition, freight service is not likely to combine with passenger rail service to create a significant cumulative increase in travel times and queues at at-grade crossings.</p> | LTS | None required | LTS |
| Noise and Vibration | | | |
| <i>Construction-Related Impacts</i> | | | |
| N-1: The proposed project would temporarily cause increased noise levels associated with construction equipment and activities. | LTS | MM N-1: In order to reduce construction noise at nearby receptors, the following noise abatement measures shall be implemented for construction contracts: <ul style="list-style-type: none"> • When practical, construction operations shall not occur between 7:00 p.m. and 7:00 a.m. or on weekends or holidays in residential areas. | LTS |

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| | | <ul style="list-style-type: none"> Each internal combustion engine shall be equipped with a muffler of a type recommended by the manufacturer. Other measures to reduce noise levels that may be implemented where appropriate include: <ul style="list-style-type: none"> Turning off construction equipment during prolonged periods of non-use. Requiring contractors to maintain all equipment and train their equipment operators to increase efficiency of operation. Locating stationary noise-generating equipment away from noise-sensitive receptors such as residences. | |
| <i>Long-Term Impacts</i> | | | |
| N-2: Train operations would cause a permanent increase in ambient noise levels in the project vicinity. | LTS | MM N-2: Limiting train speed between the San Rafael Station and Linden Lane to 25 mph would eliminate the only noise impacts predicted from the operation of DMU vehicles away from grade crossings. This measure would be implemented only if it does not restrict normal train operations. | LTS |
| N-3: The Windsor Station operations may cause a permanent increase in ambient noise levels in the project vicinity. | LTS | MM N-3: If the parking facility has a solid barrier separating it from the residential uses, the noise impacts would be eliminated. | LTS |
| N-4: The proposed maintenance facility would cause a permanent increase in ambient noise levels in the project vicinity. | LTS | MM N-4: Construction of a noise barrier or enclosure of the vehicle lay-up area at the Cloverdale Maintenance Facility would reduce noise experienced at residences near the northeast corner of the facility. | LTS |
| N-5: Train horns would cause a substantial increase in ambient noise levels in the project vicinity. | SU | MM N-5: Limiting the use of train horns and other audible warning devices by installing crossing controls that meet Federal Rail Administration (FRA) requirements and obtain Quiet Zone designations for crossings along the corridor. Local jurisdictions may apply to the FRA for designation as a Quiet Zone, where | LTS or SU if Quiet Zones not approved by FRA |

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| | | <p>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.</p> <p>SMART has committed to working 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.</p> | |
| <i>Cumulative Impacts</i> | | | |
| <p>For locations with low background levels, the proposed project may contribute noticeable additional noise to the total environment without causing a significant impact. For locations with higher background levels, the amount of additional noise that a project is allowed to contribute decreases. 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.</p> | SM | <p>This impact would be eliminated at any locations that are designated quiet zones. Mitigation Measure N-5, if it can be implemented, would eliminate the only significant noise impact predicted to occur with the SMART project.</p> | LTS (SU if Quiet Zones not approved by FRA) |
| Energy | | | |
| <i>Construction-Related Impacts</i> | | | |
| E-1: Construction and maintenance of the proposed project would require indirect energy consumption. | LTS | None required | LTS |
| <i>Long-Term Impacts</i> | | | |

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| E-2: Operation of the proposed project would require energy use. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| The proposed project would result in an overall decrease in total energy consumption relative to No-Project, and would not contribute to cumulative energy impacts in the region. | LTS | None required | LTS |
| Biological Resources | | | |
| <i>Construction-Related Impacts</i> | | | |
| BR-1: Project construction would cause damage to sensitive upland vegetation and wildlife habitat within temporary work areas. | SM | MM BR-1a: Construction access, staging, storage, and parking areas shall be located on ruderal or developed lands to the extent possible. Vehicle travel adjacent to wetlands and riparian areas shall be limited to existing roads and designated access paths. Sensitive natural communities (i.e., wetlands, waters, riparian zones and oak woodlands) shall be conspicuously marked in the field to minimize impacts on these communities, and work activities shall be limited to outside the marked areas. MM BR-1b: Qualified biologists shall monitor construction activities that could potentially cause significant impacts to sensitive biological resources. A worker education program shall be developed and presented to all construction personnel before they start work on the proposed project. | LTS |
| BR-2: There could be temporary disturbance of wetlands/Waters of the United States. | SM | MM BR-2a: Instream construction shall be confined to the dry or low-flow season. Pumps used for dewatering shall have agency-approved fish screens installed to minimize intake of fish into pumps. Diversion structures shall be left in place until all in-stream work is completed. Temporary culverts and all construction materials and debris shall be removed from the affected | LTS |

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| | | <p>area prior to reestablishing flow and prior to the rainy season.</p> <p>MM BR-2b: A qualified biological monitor shall be present during critical construction periods (e.g., grubbing and clearing, culvert installation, pouring concrete) in all streams and wetland areas.</p> <p>MM BR-2c: Upon completion of the proposed project, all temporarily disturbed natural areas, including stream banks, shall be returned to original contours to the extent feasible.</p> | |
| BR-3: There could be disturbance of nesting birds due to construction activities. | SM | <p>MM BR 3a: To the extent feasible, trees and shrubs in the construction zones shall be trimmed or removed between September 1 and January 31 to reduce potential impacts on nesting birds. If vegetation must be removed during the period from February 1 to August 31, a qualified wildlife biologist shall conduct pre-construction surveys for nesting birds.</p> <p>MM BR-3b: If construction is likely to occur during the nesting season of cliff swallows (March 1 to July 31), bridges shall be periodically inspected for swallow nests by a qualified biologist prior to the onset of bridge demolition and/or new bridge construction.</p> | LTS |
| <i>Long-Term Impacts</i> | | | |
| BR-4: The proposed project could result in the introduction or spread of noxious weeds in the project corridor. | SM | <p>BR-4: During construction activities, the following measures shall be implemented to the extent feasible to reduce the spread of exotic invasive plants in temporary work areas and throughout the project corridor:</p> <ul style="list-style-type: none"> Minimize vehicle travel through weed-infested areas. | LTS |

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| | | <ul style="list-style-type: none"> • Minimize soil disturbance and the removal of existing vegetation (exotic or native) to the extent feasible during construction activities. • Use only certified weed-free straw and mulch or weed-free fiber roll barriers or sediment logs. • Use only certified weed-free native seed mixes and native plants that are appropriate to the pre-existing or adjacent natural habitat for revegetation. • Monitor all erosion-control and revegetation sites for weed infestations at least twice yearly during the growing season, for at least three years after construction. | |
| BR-5: The proposed project would result in the loss or alteration of wetlands/Waters of the United States. | SM | <p>MM BR-5a: To replace impacted wetlands, a habitat restoration plan shall be developed and implemented to enhance wetland and riparian habitats in undeveloped portions of the right-of-way. Habitat should be restored or replaced at a minimum 1:1 ratio of acres of these habitats permanently impacted.</p> <p>MM BR-5b: In the event that habitat restoration and enhancement within the right-of-way is insufficient to compensate for all wetland losses resulting from the proposed project, SMART shall provide additional, off-site compensation as needed to achieve a minimum 1:1 replacement ratio for affected wetland areas.</p> | LTS |
| BR-6: The proposed project would result in the loss or alteration of vernal pools. | SM | Implementation of a habitat restoration plan or off-site compensation for vernal pools, pursuant to the provisions of Mitigation Measure BR-5a and BR-5b would reduce this impact to less than significant. | LTS |
| BR-7: The proposed project would result in the loss or alteration of riparian vegetation. | SM | Implementation of water resources Mitigation Measures WR-1b and measures BR-2c and BR-5a would reduce this impact to less than significant. | LTS |
| BR-8: The proposed project would result in the loss of | SM | MM BR-6: A qualified arborist shall conduct a tree | LTS |

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| oak woodlands and removal of individual protected trees. | | survey within the project corridor, prior to ground-disturbing activities, to identify trees that would be removed or potentially affected by the proposed project and trees that can be avoided. Where it is feasible to avoid protected trees, keep vehicles and mechanical equipment outside the dripline of these trees. In areas where oaks or other protected trees cannot be avoided, replace trees removed with the same native tree species at a minimum 3:1 ratio, or as required by applicable ordinance(s). SMART shall conduct monitoring for three years following planting to verify that trees have successfully reestablished. | |
| BR-9: The proposed project could result in the obstruction or alteration of wildlife corridors. | SM | MM BR-7: In non-urban areas of the corridor that are not directly adjacent to Highway 101 and where a safety structure or wall is proposed to be installed between the proposed bicycle/pedestrian pathway and railway, intermittent gaps shall be placed along the barrier to allow passage of wildlife. These gaps shall be at least three feet wide, extend from ground level to the top of the structure, and be spaced no farther apart than every quarter-mile where feasible within existing or potential wildlife movement corridors along the right-of-way. Gaps shall be located in the following areas: <ul style="list-style-type: none"> • Rural lands between Cloverdale and northern Santa Rosa where the right-of-way is at least 0.25 mile from Highway 101; and • Between Main Gate Road (MP 23.6) and Smith Ranch Road (MP 21.0) in Marin County. | LTS |
| BR-10: The proposed project could result in the loss of individuals or habitat of special-status plant species. | SM | MM BR-8a: Within three years prior to project construction activities that could affect vernal pool habitats in the Santa Rosa Plain, conduct the botanical survey protocol for federally endangered plant species in the Santa Rosa Plain. MM BR-8b: In the event that populations or individuals | LTS |

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| | | <p>of sensitive plant species are found in the project corridor, the following measures shall be implemented:</p> <ul style="list-style-type: none"> • Sensitive plant species that are found within the right-of-way but not where construction would occur shall be protected by installing temporary plastic fencing outside the population perimeter with “Sensitive Habitat Area” signs posted on the outside of the fence. Monitoring shall occur during and following construction to insure compliance with plant protection. • Where it is not feasible to avoid sensitive plant locations within the project corridor and the affected species is a non-listed annual that is sensitive pursuant to CEQA, seed collection and transplanting is proposed in suitable areas of the right-of-way outside of proposed construction. • If an affected sensitive plant is a non-listed perennial, native plant nursery propagation is proposed as well as right-of-way planting outside of construction areas. All mitigation sites would be chosen for their suitability to each species. • All sensitive plant restoration and planting areas shall be protected as described in (a) above and monitored for five years. • Potential impacts on state- or federally listed species would necessitate consultation with the CDFG and/or USFWS and mitigation meeting the resource agency requirements. | |
| BR-11: The proposed project could result in the loss of individuals or habitat of California linderiella. | SM | Implementation of Mitigation Measures BR-2c, and BR-5a would apply to this species and would reduce the impact to less than significant. | LTS |
| BR-12: The proposed project could result in the loss or disturbance of individuals of Central California Coast coho salmon, California Coastal chinook salmon and | SM | MM BR-9a: For work in stream zones that harbor federal- or state-listed salmonid fish, SMART shall consult with NOAA Fisheries and CDFG and implement | LTS |

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| Central California Coast steelhead. | | <p>protection measures specified in consultation with those agencies.</p> <p>MM BR-9b: In streams that harbor state- or federally listed salmonid fish species, in-stream work shall not start before July 1 and shall be completed by October 15, unless otherwise approved by appropriate agencies.</p> | |
| BR-13: The proposed project could result in the loss or disturbance of individuals of Pacific lamprey, Russian River tule perch, and Sacramento splittail. | SM | Implementation of Mitigation Measures WR-1a and b and BR-2a-c to protect stream habitats would reduce this impact to a less than significant level. | LTS |
| BR-14: The proposed project could result in the loss or disturbance of individuals or habitat of the California tiger salamander. | SM | <p>MM BR-10a: For areas where construction would occur within the range of the California tiger salamander in Sonoma County (i.e., non-urban areas between Windsor and Penngrove), SMART shall consult with the USFWS and CDFG to obtain authorization for activities that could affect this species and implement all applicable protection measures specified through this consultation. Protection measures shall be focused on locations where California tiger salamander habitats have been identified within and adjacent to the right-of-way and where California tiger salamander could potentially be affected as determined in consultation with the USFWS.</p> <p>MM BR-10b: If permanent loss of occupied or potential CTS breeding habitat cannot be avoided, compensation shall be provided through protection and enhancement of CTS habitat within the right-of-way, purchase of off-site mitigation credits, and/or contribution to regional conservation and recovery efforts for the species as determined in consultation with the USFWS and CDFG.</p> | LTS |
| BR-15: The proposed project could result in the loss or disturbance of individuals or habitat of the northwestern pond turtle (NWPT). | SM | MM BR-11: A qualified biologist shall conduct a pre-construction survey for NWPT no more than 30 days prior to construction in suitable aquatic habitats within the project corridor, including stream crossings, | LTS |

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| | | drainage ditches, and culverts. If occupied habitat can be avoided, an exclusion zone shall be established around the habitat and temporary plastic fencing shall be installed around the buffer area with "Sensitive Habitat Area" signs posted and clearly visible on the outside of the fence. If avoidance is not possible and the species is determined to be present in work areas, the biologist with approval from CDFG may capture turtles prior to construction activities and relocate them to nearby, suitable habitat out of harm's way. | |
| BR-16: The proposed project could result in the loss or disturbance of individuals or habitats of the salt-marsh harvest mouse (SMHM), California clapper rail and California black rail. | SM | MM BR-12: For areas where the construction activities would occur within or adjacent to salt marsh or brackish marsh habitats, consult with the USFWS and CDFG to determine locations where salt-marsh harvest mouse, California clapper rail and California black rail could potentially be affected by the proposed project. All applicable protection measures specified through consultation with these agencies would be implemented during project construction. | LTS |
| BR 17: The proposed project could result in disturbance or injury to special-status bats. | SM | MM BR-13: A qualified biologist shall conduct a pre-construction survey for bats at bridges that have sufficient thermal cover for bat roosting, abandoned buildings and old station sites prior to demolition or construction at these sites. | LTS |
| BR-18: The proposed project could result in train collisions with wildlife. | SM | MM BR-14: A qualified biologist shall conduct monitoring surveys to assess wildlife collision impacts along the entire corridor at least two times a year, once during spring and once during fall, for the first three years of train operation. The results shall be reported to the CDFG and, if federally listed or migratory bird species are affected, to the USFWS. If the CDFG or USFWS determines that collision impacts are excessive or adverse effects on federal- or state-protected species (including listed species, migratory birds and raptors) are occurring, remedial measures (e.g. redesign of | LTS |

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| <p>BR-19: The proposed project could result in disturbance to stream zones, special-status species and nesting birds during railway maintenance activities.</p> | <p>SM</p> | <p>structures and gaps) shall be developed and implemented in consultation with these agencies.</p> <p>MM BR-15a: SMART shall consult with the resource agencies (USFWS, NOAA Fisheries and CDFG) to develop habitat and species protection measures for scheduled and emergency maintenance activities to minimize impacts on wetlands, streams, riparian habitats, and special-status species.</p> <p>MM BR-15b: For all herbicide applications used during right-of-way maintenance, herbicides shall be used only according to label directions, applications shall be confined to within the right-of-way and appropriate BMPs shall be followed to prevent uncontrolled release of chemicals.</p> | <p>LTS</p> |
| <p><i>Cumulative Impacts</i></p> | | | |
| <p>The proposed project could contribute to cumulative effects on local plant communities, wetland resources and wildlife habitats by direct removal or temporary disturbance during construction.</p> | <p>SM</p> | <p>Implementation of the biology mitigation measures would reduce the cumulative impacts to a less than significant level.</p> | <p>LTS</p> |
| <p>Parks and Recreation</p> | | | |
| <p><i>Long-Term Impacts</i></p> | | | |
| <p>PR-1: The proposed project would provide recreational benefits to both Sonoma and Marin counties with the addition of the Phase I bicycle/pedestrian path</p> | <p>B</p> | <p>None required</p> | <p>B</p> |
| <p><i>Cumulative Impacts</i></p> | | | |
| <p>The beneficial impacts of the proposed project along with other planned and current recreational facility improvements and conservation efforts of both Sonoma and Marin counties would help offset the expected increase in demand for recreational resources</p> | <p>LTS</p> | <p>None required</p> | <p>LTS</p> |

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| Land Use and Planning | | | |
| <i>Long-Term Impacts</i> | | | |
| LU-1: The project would require the conversion of approximately two acres of farmland. | LTS | None required | LTS |
| LU-2: Rail stations would be supportive of existing commercial uses within a ½ mile and provide the opportunity for mixed-use development. | B | None required | B |
| LU-3: Development of station sites for transportation purposes is not permitted within current local zoning at several stations | LTS | None required | LTS |
| LU-4: An option for the Corona Road Station would require the acquisition of a portion of one residential property. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| No significant cumulative impacts were identified. | LTS | | LTS |
| <i>Project Consistency with Local and Regional Plans</i> | | | |
| The proposed project would be inconsistent with portions of several local plans including: <i>Santa Rosa General Plan, Rohnert Park General Plan, Petaluma General Plan and Central Petaluma Specific Plan, and Larkspur General Plan.</i> | LTS | None required | LTS |
| Public Facilities and Safety | | | |
| <i>Construction-Related Impacts</i> | | | |
| PFS-1: Project construction activities could cause emergency response delays. | LTS | None required | LTS |
| <i>Long-Term Impacts</i> | | | |
| PFS-2: Response times may increase for emergency vehicles approaching at-grade crossings when a passenger rail train is present. | LTS | None required | LTS |
| PFS-3: The proposed project would increase demand for | LTS | None required | LTS |

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| emergency response services from local providers. | | | |
| PFS-4: The proposed project could result in the creation of a hazardous condition (e.g. pedestrian/train conflicts), with regard to safety of the public and schools. | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| No significant cumulative impacts were identified | LTS | | LTS |
| Visual Quality | | | |
| <i>Construction-Related Impacts</i> | | | |
| V-1: The presence of project-related construction equipment and other construction activities would create a temporary visual disturbance. | LTS | MM V-1: SMART shall install temporary fencing where views from adjacent residences are adversely affected during construction. These areas shall be identified in greater detail during design review and the type of temporary fencing selected, as part of the design review. Fencing materials would remain in place until finish work has been completed. | LTS |
| <i>Long-Term Impacts</i> | | | |
| V-2: Development of stations, including park-and-ride lots, and the maintenance facility would introduce new sources of nighttime light to their surrounding areas. | LTS | MM V-2: Fixture types, cut off angles, shields, lamp arm extensions, and pole heights will be determined, in consultation with the local jurisdictions. | LTS |
| V-3: The bicycle/pedestrian safety structure would add a dominant feature in areas where there is open space and no nearby structures. | SM (in some places) | MM V-3: To reduce the adverse visual impacts of the proposed bicycle/pedestrian safety structures where there is no intervening landscaping or structures such as existing privacy fencing, the safety structure associated with bicycle/pedestrian pathway shall be designed to fit in contextually with adjacent nearby fencing via the use of different materials or landscaping. SMART shall work with local jurisdictions and property owners to select the structure that minimizes visual impacts and | LTS |

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| | | provides additional vegetation or other design elements to integrate the safety structure to a greater extent into the viewshed while providing adequate safety. | |
| V-4: Relocation of the existing soundwall structure would affect views from residential areas. | SM | MM V-4: To reduce adverse visual impacts should the soundwall be placed to immediately west of the residences, Caltrans should consult with the local jurisdiction and property owners to select a design that minimizes the visual impacts and provides design elements to integrate the structure to a greater extent into the viewshed while meeting Caltrans noise wall standards and maximizing the noise reduction afforded by the structure. | LTS |
| <i>Cumulative Impacts</i> | | | |
| With the projects that are reasonably foreseeable in the corridor, there would be a visual change in areas that are currently undeveloped or underdeveloped | LTS | None required | LTS |
| Historic Resources | | | |
| <i>Construction-Related Impacts</i> | | | |
| HR-1: Disturbance of historic Healdsburg Station turntable could occur as a result of construction activities. | SM | MM HR-1: Exclusionary plastic mesh fencing shall be installed and maintained to prohibit equipment from impacting the structure. | LTS |
| <i>Long-Term Impacts</i> | | | |
| HR-2: Inappropriate rehabilitation techniques could affect the historic Healdsburg Station. | SM | The proposed project does not include any work on the historic structure itself. Sonoma County Transit is in the process of building a transit center and park and ride lot adjacent to the historic Healdsburg Depot. As part of this separate Sonoma County Transit project, the exterior of the depot is being repaired and upgraded following review and approval by the California Historic Preservation Office. | LTS |
| HR-3: Proposed changes to the Santa Rosa Railroad | LTS | MM HR-2: Any new street furniture, train platform, or | LTS |

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| Square Station landscaping could affect the historic character of the Railroad Square District. | | shelters shall be sympathetic to the local historic character, landscaping spatial patterning, and designed in concert with the Community Development Department City Cultural Heritage Board. | |
| HR-4: Inappropriate rehabilitation techniques could affect the historic Petaluma Station. | LTS | MM HR-3: Any proposed rehabilitation, changes, alterations and additions shall comply with City of Petaluma policy which requires conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings. | LTS |
| HR-5: Railroad construction would affect historic features associated with a section of trackwork that retains integrity. | SM | MM HR-4: Prior to construction, a report shall be prepared by a professional architectural historian and shall be accompanied by requisite sets of large format camera Historic American Landscape Survey (HALS) Level II black-and-white 8-by-10 inch archival quality prints produced by a professional photographer. The report and accompanying photography would provide a permanent record of this section of the former NWP track and right-of-way. This record would preserve the historic information and context for this section of track. | LTS |
| HR-6: Proposed rehabilitation of the Russian River Railroad Bridge could impact the integrity of the bridge. | SM | MM HR-5: The following shall be conducted prior to any rehabilitation effort: a report shall be prepared by a professional architectural historian and shall be accompanied by requisite sets of large format camera Historic American Engineering Record (HAER) Level II black-and-white 8-by-10 inch archival quality prints taken by a professional photographer. After this effort, the bridge shall be rehabilitated using Secretary of the Interior Guidelines and Standards. The new concrete members shall be colored to match the existing metal to lower the visual impacts to less than significant levels. | LTS |
| HR-7: Proposed replacement of the Petaluma River Haystack Bridge would affect the significance of this | SM | MM HR-6: Implementation of Mitigation Measure HR-2, with the exception that a set of prints and drawings be | LTS |

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| historical resource. | | sent to the Petaluma Museum. Advertisements shall be placed in local newspapers, and historical advocacy groups that may be interested in acquiring the bridge shall be contacted. Arrangements shall be made for the relocation of the historic structure with its subsequent rehabilitation and adaptive re-use at its new site, including compliance with all State Historic Building Code requirements. | |
| HR-8: Proposed bicycle/pedestrian pathway safety structures could cause adverse visual impacts on adjacent historic resources. | SM | MM HR-7: Where tall safety structures are required in close proximity to historic resources, design safety structures similar to the surrounding historical landscape. For example, structures should be built with similar materials (e.g., horizontal wooden planks and vertical wooden posts near historic wooden structures or brick near historic brick buildings). Adjacent property owners and local government shall be consulted about the design details of the safety structures and landscaping, safety structures should be consistent with applicable local historic preservation policies and guidelines. | LTS |
| <i>Cumulative Impacts</i> | | | |
| Two of the proposed projects in the vicinity of historic buildings and structures related to this project would contribute to the cumulative impacts. These projects include the Santa Rosa Square Station transit-oriented development, Santa Rosa and the Petaluma Depot Station transit-oriented development. | SM | Review and approval of the final designs for the two TOD projects by a qualified architectural historian. | LTS |
| Archaeological Resources | | | |
| <i>Construction-Related Impacts</i> | | | |
| AR-1: Several locations exist within the project corridor that have a high probability to contain historic or prehistoric archaeological deposits including: Cloverdale Area, Cloverdale Maintenance Site, Healdsburg Station, | SM | MM AR-1: Extended Phase I archaeological study is recommended at these sites in locations where ground disturbances are planned. If an archaeological site is discovered, additional fieldwork (Phase II testing) may | LTS |

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| Santa Rosa Depot, Petaluma Area, Petaluma Station, Novato North Station, Novato South Station, and San Rafael Area. | | be required to establish site boundaries and determine each site's eligibility for listing on the NRHP. If a site is determined to be eligible, consultation shall be initiated with the SHPO and other appropriate consulting parties to either avoid the site or to develop a data recovery plan. | |
| AR-2: Subsurface historic archaeological deposits associated with the Coast Miwok ethnographic village north of Cotati could be impacted by construction. | SM | MM AR-2: Archaeological and Native American monitoring is recommended in this area because subsurface historic and possibly prehistoric archaeological deposits could be impacted by construction. | LTS |
| AR-3: Ground disturbing construction activities could adversely affect unknown potentially important subsurface cultural materials in the vicinity of the Marin Civic Center Station. | SM | MM AR-3: If construction personnel locate buried cultural materials, work shall be halted or shifted to another area and a qualified archaeologist shall be contacted to determine proper treatment of the find. | LTS |
| AR-4: Eleven culturally sensitive historic and prehistoric sites have been identified in the area that extends north from the Marin/Sonoma county line to the Haystack Bridge south of Petaluma. Sites near the railroad tracks have been identified that have the potential for being impacted by trackwork. | SM | MM AR-4: Trackwork shall be avoided or undertaken in a manner to avoid ground disturbance beyond the current track limits (e.g., by undertaking construction from the existing track) in the most culturally sensitive railroad segments. | LTS |
| AR-5: Any replacement bridgework has the potential to disturb potentially significant archaeological resources since prehistoric and historic archaeological sites are often located on stream banks or near the confluence of streams. | SM | MM AR-5: Of the five bridges and trestles located between MP 31 to MP 37, the open deck trestle between MP 35 and MP 36 should be avoided. If the trestle needs to be replaced, then archaeological site determination (Extended Phase I testing), Phase II eligibility testing, and possible data recovery would be required. The remaining four bridges would require monitoring by a qualified archaeologist and a Native American monitor. | LTS |
| AR-6: Site preparation and use of some of the proposed pre-construction staging areas could disturb unknown and potentially significant cultural resources. | SM | MM AR-6: If ground disturbances are planned and staging areas cannot be avoided, an archaeologist shall be present for all grading or other ground disturbing activities planned in the staging area. In the vicinity of | LTS |

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| | | the staging areas near Ignacio, if ground disturbances are planned, an archaeologist and Native American monitor should be present for all grading or other ground disturbing activities planned in the staging area. | |
| <i>Long-Term Impact</i> | | | |
| No long-term impacts to archaeological resources | LTS | None required | LTS |
| <i>Cumulative Impacts</i> | | | |
| Three cumulative projects are located in areas with increased cultural sensitivity: <ul style="list-style-type: none"> • Albertsons Grocery Store, Ignacio; • Marin Business Center, Novato; and • Proposed Food and Wine Center, Santa Rosa. These developments, in combination with the proposed project, could result in cumulative impacts on prehistoric or historic archaeological sites. | SM | Archaeology mitigation measures identified for project. | LTS |