2.1.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section evaluates potential traffic impacts that could result from the Tier I and Tier II project alternatives, including impacts and benefits to vehicular traffic, transit, and bicycle and pedestrian facilities. Also included in this section is a comparison of the Tier I HOV Lane Alternative to the addition of a mixed flow lane, which is summarized from the HOV Report (2007). Impacts that would occur during project construction are discussed in Section 2.4, and cumulative impacts are discussed in Section 2.5.

Regulatory Setting

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

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 *Code of Federal Regulations* 27) implementing Section 504 of the Rehabilitation Act (29 United States Code 794). The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

The information in this section is derived from the *Traffic Operations Report* (2012), the HOV Report (2007), the *Community Impact Assessment* (2015), and the SR 1 HOV Lane Widening Project Parking Impact Analysis Memo (2011) prepared for the proposed project. The following sections describe the baseline conditions and traffic operations along Route 1 and include the project limits of the Tier I and Tier II Corridor Alternatives. The project team conducted a series of traffic counts within the study corridor, twice in 2001 and once in 2003. As the study area expanded southward during the course of this study, additional counts were conducted in 2003 for the southern portion of the study area. In November 2010, new traffic counts were collected by Caltrans (Caltrans 2010, Traffic and Vehicle Data System) for the study area and were used to compare against the 2001/2003 counts. In the middle and south segments portions of the corridor, the 2010 traffic volumes were 4 to 5 percent lower than the

2001/2003 counts. In the northern portion, 2010 volumes were 22 percent lower than the earlier counts. This variation is expected due to the economic downturn, especially at the northern end of the corridor, which is a job destination and a gateway to jobs in the Santa Clara Valley and San Francisco Bay Area. Despite these reductions in volumes, and even if these reduced volumes were sustained until opening year of the project, the purpose and need for the project would remain and changes to the final project design would likely be insignificant. Therefore, baseline traffic conditions were based on the 2001 and 2003 traffic data.

Compatibility of the traffic data from years 2001 and 2003 was also analyzed. It was determined that the volumes were within about 10 percent of each other, which is within the acceptable range of variability.

Baseline Roadway Network

Route 1 serves local traffic between the cities and communities in Santa Cruz County, commuter traffic continuing on SR 17 to jobs in Santa Clara County, and Santa Cruz commuters who work in Monterey County. Route 1 is the primary route for goods movement between Santa Cruz County communities. Route 1 also is the southern terminus for SR 9 and SR 17, which bring tourist and recreational-oriented traffic to coastal destinations in Santa Cruz and Monterey counties. Route 1, from Larkin Valley Road to Morrissey Boulevard in Santa Cruz, is a highly traveled, heavily congested traffic corridor. The annual average daily traffic along Route 1 within the project limits on an average day in 2010 was as high as 104,000 vehicles in both directions (Caltrans 2010, Traffic and Vehicle Data System). The major arterial roadway network, comprising the traffic study area, is illustrated in Figure 2.1.5-1.

Major local arterial streets feed into Route 1. Each major arterial is striped with a Class II bicycle lane. The major, local arterial streets in the traffic study area include:

- **41st Avenue –** 41st Avenue is the most heavily traveled of all of the arterials in the study area and comprises Santa Cruz's main retail corridor. It extends north and south between Soquel Drive and Cliff Drive on the waterfront. It is two lanes in most locations, but it is as wide as six lanes in sections between Soquel Drive and Capitola Road.
- **Porter Street and Bay Avenue –** Porter Street and Bay Avenue are the northern and southern segments of an approximately 1-mile-long alignment that runs from Monterey Avenue, across Route 1, to the foot of the Santa Cruz Mountains. North of Soquel Drive, Porter Street turns into Old San Jose Road. Very heavily traveled, Porter Street is two lanes wide. Bay Avenue, with slightly lower volumes, is four lanes wide. Both provide access from Route 1 to Capitola Avenue, south of Route 1, and Soquel Drive to the north.

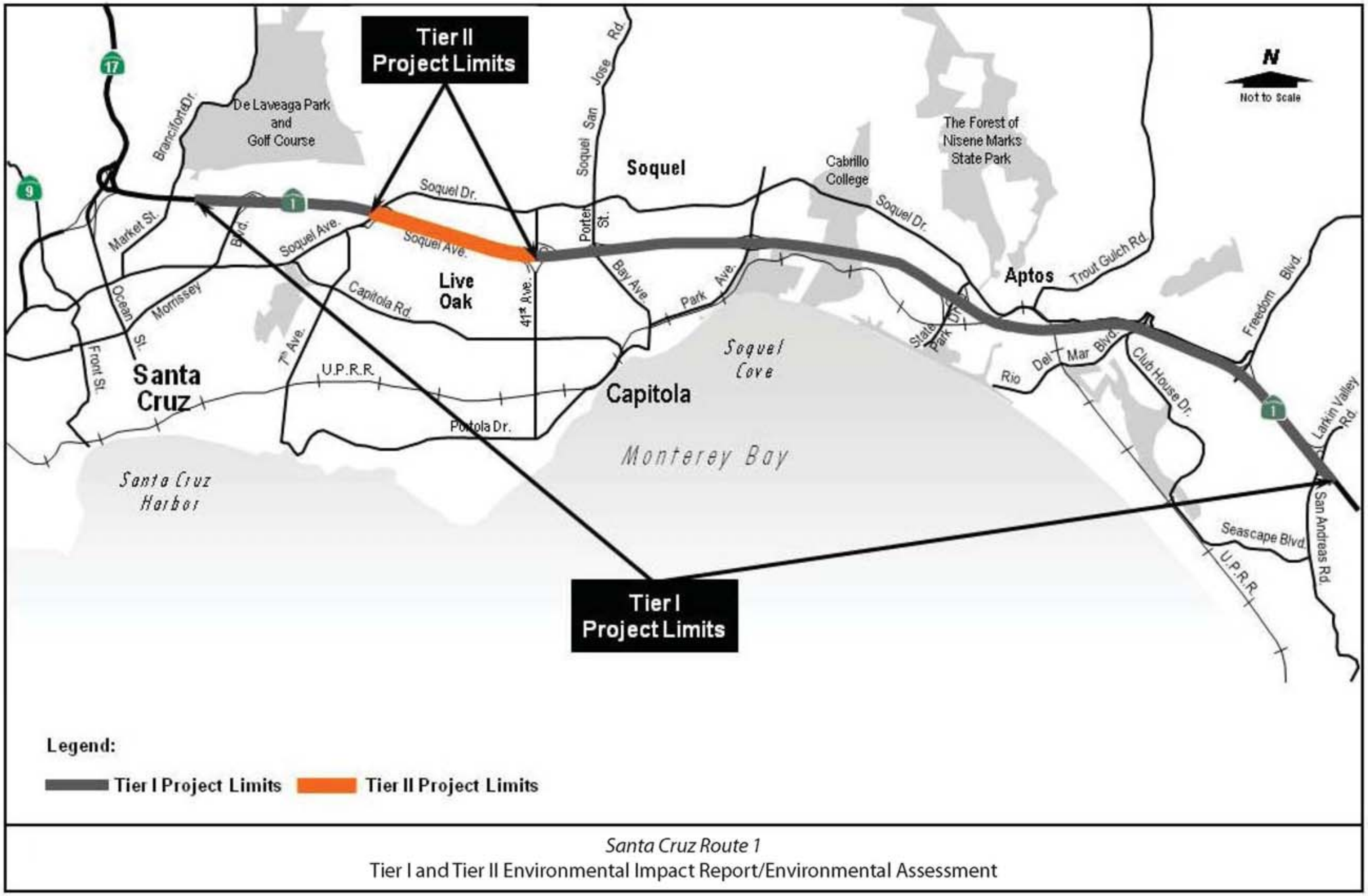


Figure 2.1.5-1: Arterial Roadway Network

- **Soquel Drive –** Soquel Drive is the main route parallel to Route 1 in the study area. It is approximately 8 miles long, starting in the north at its intersection with Soquel Avenue and ending at Freedom Boulevard at the southern end of the study area. It is two lanes wide for most of its distance. East of State Park Drive, it is primarily an access road for Route 1.
- **Soquel Avenue –** Soquel Avenue serves the southwestern part of the study area. To the east, it begins at Pacific Avenue and crosses over the San Lorenzo River. Just south of Route 1, Soquel Avenue turns right and continues south to Gross Road. Also at this junction, Soquel Avenue feeds into Soquel Drive, crossing over Route 1 and paralleling it on the north side. It is a 3.5-mile-long, primarily two-lane road that widens in some sections.
- **Rio Del Mar Boulevard –** Rio Del Mar Boulevard is the primary access route from Route 1 to the Rio Del Mar community. This two-lane road runs north-south for 1.4 miles from Beach Drive (private road) to Soquel Drive.
- **State Park Drive –** State Park Drive is a short (less than 1 mile long), two-lane road providing access from Route 1 to Seacliff Beach State Park to the south and Soquel Drive to the north. Its heavy volumes are a function of its connection with Soquel Drive and the Rancho Del Mar Shopping Center.
- **Park Avenue –** Park Avenue is a four-lane street dividing the city of Capitola to the west from the community of Aptos to the east. It begins in the hilly northern side of Capitola and runs south to Monterey Avenue, turning west to parallel the ocean after Coronado Street. It is 1.8 miles long.

Baseline Traffic Conditions on Route 1

Where this document refers to baseline traffic volumes or conditions, it refers to traffic data collected in 2001 and 2003.

Travel time surveys were conducted along the Route 1 study corridor in October 2003 during weekday morning, midday, and evening peak periods. The route surveyed, referred to as the “traffic study area,” extends for 8.9 miles between San Andreas Road/Larkin Valley Road and the Branciforte Drive Overcrossing, just south of the Route 1/SR 17 interchange. Surveyed travel times were used to calibrate the traffic operations model for baseline freeway operations during weekday morning and evening peak-hour conditions.

Various measures of effectiveness were developed to evaluate baseline and future traffic operations within the traffic study area, including average travel time, travel speed, and vehicle miles traveled. Measures of effectiveness are performance measures used to quantify the achievement of the traffic operations objectives of a project.

Table 2.1.5-1 shows baseline peak-hour measures of effectiveness. Due to the extended period of congestion on Route 1, an extended peak period was considered for this study, consisting of a 6-hour extended peak: 6:00 a.m. to 12:00 p.m. in the morning and 2:00 p.m. to 8:00 p.m. in the evening. These extended periods were used in order to observe the "heating up" and "cooling off" of traffic conditions before and after the respective peak periods of 7 a.m. to 10 a.m. and 3 p.m. to 6 p.m. In each case, one hour is included prior to the peak period and two hours are included following the end of the peak period in order to provide context for better understanding the peak period conditions. The peak hour represents the highest traffic volumes in a 1-hour time frame within the peak period. During the morning peak period, the northbound direction is heavy with commuters heading into the downtown area and toward SR 17 to commute to Santa Clara Valley and the San Francisco Bay Area; whereas during the evening peak period, most traffic travels southbound from downtown Santa Cruz. Within the project limits, during the morning peak hour, there is a baseline of 38,517 vehicle miles traveled in the northbound direction, and 30,348 vehicle miles traveled in the southbound direction. During the evening peak hour there is a baseline of 32,349 vehicle miles traveled in the northbound direction and 35,661 vehicle miles traveled in the southbound direction. Thus, traffic conditions are most congested in the commute directions, northbound in the morning and southbound in the evening. Travel speeds are as low as 26 miles per hour, showing congested, stop-and-go traffic conditions.

Table 2.1.5-1: Baseline Peak-Hour Measures of Effectiveness

	Northbound		**Southbound**	
	Morning	**Evening**	**Morning**	**Evening**
Travel Speeds (mph)	30	39	60	26
Travel Time (minutes/vehicle)	23	15	10	27
Vehicle Hours Traveled	1,274	823	507	1,391
Vehicle Miles Traveled	38,517	32,349	30,348	35,661
Delay (minutes/vehicle)	14	6	0	15
Source: Traffic Operations Report, 2012.				

Baseline Intersection Operations

Project area intersections were categorized into two groups for the intersection analysis: signalized (i.e., controlled by traffic signals) and unsignalized (i.e., controlled by stop signs). SYNCHRO software was used to analyze both kinds of intersections.

The study evaluated 25 intersections on either side of Route 1, between the San Andreas Road/Larkin Valley Road and Morrissey Boulevard interchanges. These intersections are listed in Table 2.1.5-2. Of the 25 study intersections, 2 are under jurisdiction of the City of

Santa Cruz, 1 is under jurisdiction of the City of Capitola, 4 are under jurisdiction of Santa Cruz County, and the remaining 18 intersections are under jurisdiction of Caltrans.

Table 2.1.5-2: Intersections in the Traffic Study Area

#	Intersection	Jurisdiction	Type
1	Morrissey Boulevard/Rooney Street/Pacheco Avenue	City of Santa Cruz	Unsignalized
2	Rooney Street/Route 1 northbound ramps	Caltrans	Unsignalized
3	Fairmount Avenue/Route 1 southbound ramps	Caltrans	Unsignalized
4	Morrissey Boulevard/Fairmount Avenue	Caltrans	Signalized
5	Soquel Avenue/Route 1 southbound ramps	Caltrans	Signalized
6	Soquel Drive/Paul Sweet Road/Commercial Way	Caltrans	Signalized
7	41st Avenue/Route 1 northbound off-ramp	Caltrans	Signalized
8	41st Avenue/Route 1 southbound ramps	Caltrans	Signalized
9	Porter Street/S. Main Street	County of Santa Cruz	Signalized
10	Porter Street/Route 1 northbound ramps	Caltrans	Signalized
11	Bay Avenue/Route 1 southbound ramps	Caltrans	Signalized
12	Park Avenue/Route 1 northbound ramps	Caltrans	Signalized
13	Park Avenue/Route 1 southbound ramps	Caltrans	Signalized
14	Park Avenue/Kennedy Drive/McGregor Drive	City of Capitola	Unsignalized
15	State Park Drive/Route 1 northbound ramps	Caltrans	Signalized
16	State Park Drive/Route 1 southbound ramps	Caltrans	Signalized
17	State Park Drive/ McGregor Drive	County of Santa Cruz	Unsignalized
18	Rio Del Mar Boulevard/Route 1 northbound ramps	Caltrans	Signalized
19	Rio Del Mar Boulevard/Route 1 southbound ramps	Caltrans	Signalized
20	Rio Del Mar Boulevard/Soquel Drive	County of Santa Cruz	Signalized
21	Freedom Boulevard/Route 1 northbound ramps	Caltrans	Unsignalized
22	Freedom Boulevard/Route 1 southbound ramps	Caltrans	Unsignalized
23	Freedom Boulevard/Bonita Drive	County of Santa Cruz	Unsignalized
24	San Andreas Road/Larkin Road/ Route 1 northbound off-ramp	Caltrans	Unsignalized
25	San Andreas Road/Route 1 southbound ramps	Caltrans	Unsignalized
Source: Traffic Operations Report, 2012.			

Analysis shows that the study intersections currently vary in terms of the delays experienced during the peak periods of 7 a.m. to 10 a.m. and 3 p.m. to 6 p.m. The intersections experiencing delays of approximately one minute or more under baseline conditions are presented in Table 2.1.5-3. The per vehicle delay at these intersections ranges from 36 seconds to 6 minutes.

Table 2.1.5-3: Study Intersections with per Vehicle Delays of One Minute or Greater in Baseline Condition

Morning Peak			PM Peak		
Intersection	**Delay**		**Intersection**	**Delay**	
	Min	**Sec**		**Min**	**Sec**
Fairmount Avenue/Route 1 southbound ramps	1	56	Fairmount Avenue/Route 1 southbound ramps	1	52
Park Avenue/Route 1 northbound ramps	1	25	Park Avenue/Kennedy Drive/McGregor Drive	1	15
Park Avenue/Kennedy Drive/McGregor Drive	1	32	State Park Drive/ McGregor Drive	4	0
State Park Drive/ McGregor Drive	6	26			
Rio Del Mar Boulevard/ Soquel Drive	4	9	Freedom Boulevard/Route 1 southbound ramps	2	4
Source: Traffic Operations Report, 2012.					

Safety

While fatal and injury accidents are lower than average for facilities of this type in most of the project corridor, congestion-related accidents are common along Route 1 within the Tier I project limits, based on accident data for the years 2005 through 2008.

During the 3-year period, there were 931 accidents, with 4 fatalities and 275 injuries, resulting in an accident rate of 1.08, which is below the statewide average rate of 1.10, as shown in Table 2.1.5-4.

Table 2.1.5-4: Three-Year Accident Data – Route 1, Tier I Project Limits (08/01/2005 – 07/31/2008) (Accidents per Million Vehicle Miles)

	Fatal	Fatal + Injury	Total
Actual	0.005	0.32	1.08
Statewide Average	0.012	0.35	1.10

Source: Caltrans Traffic Accident Surveillance and Analysis System (TASAS), 2011.

Tier II Auxiliary Lane Alternative

In the northern portion of the project corridor, within the Tier II project limits from 41st Avenue to Soquel Avenue/Drive (post miles 13.5 to 14.9), both the mainline of Route 1 and the Route 1 southbound off-ramp to 41st Avenue experience accident rates exceeding the statewide average for similar facilities. Accident rate data for this portion of Route 1 were collected over a 3-year time period from July 1, 2008, to June 30, 2011.

There were 166 collisions reported during this period on the affected mainline portion. Weaving width can be a factor in the incidence of rear-ending and sideswiping accidents, which represent 77 percent of the collisions reported during the period. Increasing the weaving width by adding an auxiliary lane would provide more opportunities for lane change maneuvers and would serve as a speed change lane, reducing the speed differential between vehicles on the mainline and those exiting or merging onto the mainline.

At the southbound 41st Avenue off-ramp, 14 collisions were reported during the 3-year period. One-half of the collisions were attributable to broadsiding, followed by sideswiping. The Tier II project would provide speed-reduction signage at this ramp.

Accident information for the Tier II project limits is provided in Tables 2.1.5-5 and 2.1.5-6.

Table 2.1.5-5: Three-Year Accident Data – Route 1, Tier II Project Limits (07/01/2008 – 06/30/2011) (Accidents per Million Vehicle Miles)

	Fatal	Fatal + Injury	Total
Actual	0.007	0.38	1.18
Statewide Average	0.008	0.30	0.82

Table 2.1.5-6: Three-Year Accident Data – Southbound Off-Ramp to 41st Avenue (07/01/2008 – 06/30/2011) (Accidents per Million Vehicles)

	Fatal	Fatal + Injury	Total
Actual	0.000	0.30	1.41
Statewide Average	0.003	0.35	1.01

Baseline Transit, Bicycle/Pedestrian, and Parking Conditions

Transit Facilities

Metro is the primary transit provider in Santa Cruz County. It operates 50 urban collector, express, and urban local feeder routes in the study area and 2 transit centers – in downtown Santa Cruz and the Capitola Mall. Transit coverage in the study area includes Cabrillo College, Capitola Mall, Dominican Hospital, and Seacliff State Beach.

Metro also complements its regular fixed-route bus service with ParaCruz, which is a shared ride, door-to-door paratransit service, as defined in the Americans with Disabilities Act.

ParaCruz service is available to anyone certified as unable to use regular fixed-route service as a result of a disability, and it serves any location within 0.75 mile of any regular Metro bus route, except the Route 17 Express service.

Metro is currently constructing MetroBase, which is a major transit facility within the city of Santa Cruz. MetroBase will bring operations, maintenance, and administration under one facility to provide the needed infrastructure to achieve service expansion goals. The Major Transportation Investment Study completed in 1999 allocated funding for the Santa Cruz Metro to expand annual service hours from 220,000 to 350,000 hours by 2015.

Tier I and Tier II Corridor Alternatives - Bus routes serving the Route 1 study corridor within the limits of Tier I and Tier II Corridor Alternatives are described below. All of these bus routes, with the exception of Route 71, use part of Route 1 within the project limits. Route 91x is the only bus service operating on Route 1 within the limits of the Tier II Auxiliary Lane Alternative.

- **Route 17 Express Service –** The Route 17 express bus serves a San Jose-based transit market. Jointly operated by Metro, Amtrak, and the Santa Clara Valley Transportation Authority, this service originates at the Metro Center in downtown Santa Cruz. The express service has seven northbound weekday trips originating and five southbound weekday trips terminating at the Soquel park-and-ride lot. Congestion on Route 1 causes delays to the Route 17 express service. Metro is considering the option of extending the Route 17 service farther south to State Park Drive if travel conditions for express buses on Route 1 improve.
- **Route 91x – Watsonville to Santa Cruz Commuter Express –** This limited-stop Metro bus line originates at the Watsonville Transit Center near downtown Watsonville and terminates at the Metro Center in downtown Santa Cruz. This line serves Cabrillo College, west side Santa Cruz employment centers, downtown Watsonville, Capitola Mall, Dominican Hospital, the Soquel Drive park-and-ride lot, and the County Government Center.
- **Routes 54, 55, and 56 – Mid-County Service –** These Metro bus routes serve the areas of Capitola, Aptos, and La Selva Beach. The bus lines originate in the Capitola Mall and terminate in the Seacliff area. Only Route 54 provides weekend and weekly evening services, as well as an expanded service area to La Selva Beach. Weekday services are provided by all three Mid-County bus lines. These routes do not serve any of the park-and-ride lots within the study corridor.

Routes 69A, 69W, and 71 – Capitola Avenue/Santa Cruz/Watsonville – These local Metro bus routes originate at the Watsonville Transit Center and terminate at the Metro Center in the city of Santa Cruz. Both weekday and weekend services are provided. This route does not serve any of the park-and-ride lots within the study corridor.

Bicycle Facilities

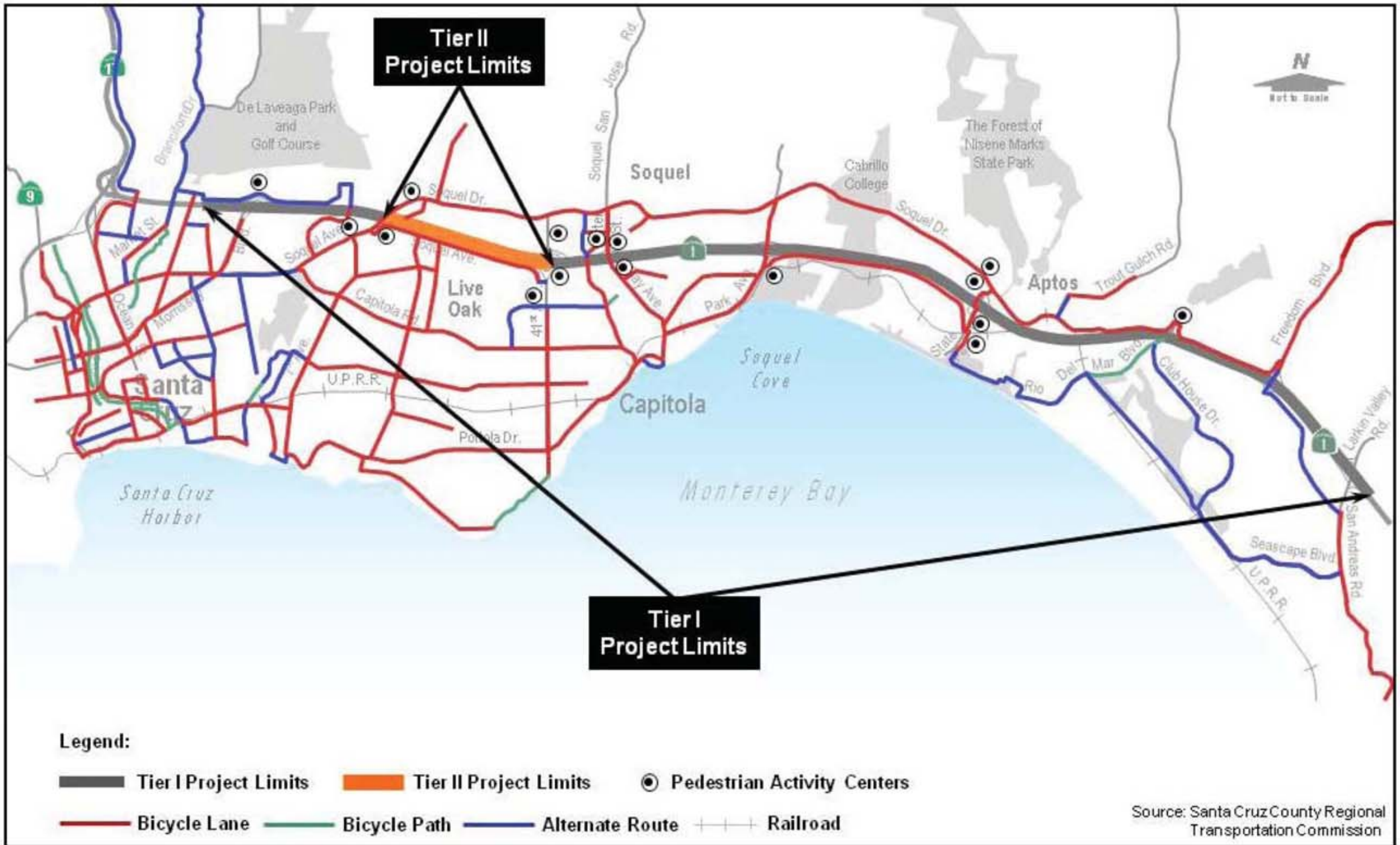
Bicycle facilities in the study area are shown in Figure 2.1.5-2. The Santa Cruz County Planning Department's Master Plan of Countywide Bikeways emphasizes safe and convenient bicycle routes that complement other transportation modes (e.g., transit, carpool) to serve places of employment, commercial districts, schools, beaches, and parks. The Master Plan of Countywide Bikeways defines a network of bikeways that coordinates with and complements the bikeway systems of local cities and adjacent counties. The bikeway network is made up of three types of facilities:

- Class I bikeways (bike paths), which provide a separated right-of-way for the exclusive use of bicycles and pedestrians
- Class II bikeways (bike lanes), which provide a striped lane for one-way travel on a street or highway
- Class III bikeways (bike routes), which provide for shared use with pedestrian or motor vehicle traffic

Tier I Corridor Alternatives – Many of the roadways within the Tier I project area and the city of Santa Cruz allow for safe bicycle travel. Class I bike paths exist along the San Lorenzo River levees, West Cliff Drive, and other locations, and Class II bike lanes exist along many of the city's arterial streets, including Water Street, Market Street, Soquel Avenue, Soquel Drive, Broadway, Capitola Road, and other high-activity corridors.

Many streets in the Capitola area, such as Capitola Road, Portola Drive, and Park Avenue, are equipped with Class II bicycle lanes. Although there are some gaps in the system, the City is progressing towards a more complete system for bicyclists using these bikeways for commuting and recreational purposes.

- Connecting the communities of Live Oak, Soquel, and Aptos to the cities of Santa Cruz and Capitola is a Class II bikeway that runs from the University of California at Santa Cruz campus to Watsonville along major streets including Soquel Avenue, Soquel Drive, and Freedom Boulevard. An alternate Class II route connects Soquel Drive to Watsonville along San Andreas Road.
- Class III bikeways (bike routes), which provide for shared use with pedestrian or motor vehicle traffic.



Santa Cruz Route 1
Tier I and Tier II Environmental Impact Report/Environmental Assessment

Figure 2.1.5-2: Bicycle and Pedestrian Facilities

Tier I Corridor Alternatives – Many of the roadways within the Tier I project area and the city of Santa Cruz allow for safe bicycle travel. Class I bike paths exist along the San Lorenzo River levees, West Cliff Drive, and other locations, and Class II bike lanes exist along many of the city's arterial streets, including Water Street, Market Street, Soquel Avenue, Soquel Drive, Broadway, Capitola Road, and other high-activity corridors.

Many streets in the Capitola area, such as Capitola Road, Portola Drive, and Park Avenue, are equipped with Class II bicycle lanes. Although there are some gaps in the system, the City is progressing towards a more complete system for bicyclists using these bikeways for commuting and recreational purposes.

Connecting the communities of Live Oak, Soquel, and Aptos to the cities of Santa Cruz and Capitola is a Class II bikeway that runs from the University of California at Santa Cruz campus to Watsonville along major streets including Soquel Avenue, Soquel Drive, and Freedom Boulevard. An alternate Class II route connects Soquel Drive to Watsonville along San Andreas Road.

Other roads throughout the county, such as Sumner Avenue, Rio Del Mar Avenue, Western Drive, and Escalona Drive, are identified as Alternate Bicycle Routes. Alternate routes are streets that are favorable to cyclists but are not striped and not necessarily signed. These routes connect to designated bicycle facilities and transit facilities within the county.

Tier II Auxiliary Lane Alternative – The Tier II project area includes mainly Class I and Class II bicycle facilities. These facilities connect the communities of Live Oak, Soquel, and Aptos to the cities of Santa Cruz and Capitola with a Class II bike lane that runs from the University of California at Santa Cruz campus to Watsonville along major streets including Soquel Avenue, Soquel Drive, and Freedom Boulevard. An alternate Class II route connects Soquel Drive to Watsonville along San Andreas Road. Additionally, Clares Street within Capitola is designated as an alternate route for bicycles seeking access to the Capitola Mall Transit Facility.

Pedestrian Conditions

This section discusses baseline pedestrian conditions and general plan actions within the Tier I Corridor Alternatives study area. These conditions also apply to the Tier II project limits. Pedestrian activity centers in the study area are shown in Figure 2.1.5-2.

One of the goals of the Santa Cruz County General Plan is to encourage pedestrian travel as a viable means of transportation, by itself and in combination with other modes. Policies to promote pedestrian activity focus on maintaining existing pathways, constructing new walkways, providing adequate lighting and other amenities, and ensuring safe and convenient pedestrian access to transit facilities.

Within the city of Santa Cruz, sidewalks, promenades, and hiking trails currently provide residents with a system of pedestrian walkways. The City of Santa Cruz Master Transportation Study Report identified six major pedestrian activity centers and several activity areas throughout the city. The analysis considered location, intensity and types of uses, the street and block pattern, and the natural features of the identified areas. The six major activity centers include Downtown Santa Cruz, Beach and Boardwalk, University of California at Santa Cruz, Harvey West Park, the Mission Street Commercial Area, and the Soquel Avenue Eastside Business District. These areas are considered hubs of the city's economic, educational, recreational, cultural, and social life.

The 2014 Capitola General Plan identified several corridors as critical elements for a comprehensive pedestrian system. The baseline pedestrian network includes paths along the beach and cliff areas, as well as walkways through certain neighborhoods. Baseline pedestrian routes in the study area include those along 41st Avenue, Portola Drive, Capitola Avenue, and Park Avenue.

Improving pedestrian safety and amenities is one of the major goals of the Soquel Village Plan. Central to the design concept for Aptos Village is the creation and development of a pedestrian zone in the Village core that would connect residents with local recreational opportunities.

Parking

Throughout the Tier I and Tier II Corridor project limits, there is a mix of on-street and off-street parking facilities. On-street parking facility enforcement is provided by the various cities and villages within the Tier I and Tier II project corridor. Private parking lots and garages constitute the off-street parking within the study area. On-street and off-street parking facilities support a variety of commercial uses and residential properties within the project limits.

Within Santa Cruz County, there are six park-and-ride lots: three are adjacent to Route 1 and three are adjacent to Route 17, northwest of the project area. The locations of these facilities are listed below:

- Resurrection Church, Aptos (Route 1 and Old Dominion Court/Soquel Drive-Seacliff/ State Park Drive exit).
- Soquel Drive/Paul Sweet Road, Santa Cruz (Route 1 and Soquel Drive)
- Quaker Meetinghouse, Santa Cruz (Route 1 and Morrissey at 225 Rooney Street)
- Pasatiempo, Santa Cruz (Route 17 at the Pasatiempo exit)
- Scotts Valley Transit Center (Kings Village Road, off Mount Hermon Road)
- Summit Road (Route 17 at Summit Road)

Environmental Consequences

The following sections describe the environmental consequences of the Tier I and Tier II Corridor Alternatives.

Design Year Analysis

The traffic analysis was based on the balanced traffic forecasts developed for this project using the Year 2030 Association of Monterey Bay Area Governments Regional Travel Demand Model. This model assumes growth in population, housing and employment based on approved jurisdictional plans. The travel demand model synthesizes the land use, socioeconomic/demographic, and roadway networks into future travel patterns as well as traffic volumes. The project team then extrapolated the year 2030 projections to year 2035 for a 20-year design horizon.

The FREQ software package was used to model future freeway traffic conditions for the design year (2035) traffic operations, using the Association of Monterey Bay Area Governments model's traffic patterns and volumes. FREQ simulation was conducted for the northbound and southbound directions for the morning and evening peak periods.

Americans with Disabilities Act Compliance

The proposed pedestrian improvements incorporated into the Tier I and Tier II Corridor Alternatives discussed in the following sections would comply with Americans with Disabilities Act design criteria.

Tier I Corridor TSM Alternative

Peak-Hour Traffic Conditions in 2035

The addition of ramp metering and auxiliary lanes with the Tier I Corridor TSM Alternative would enable Route 1 to serve more peak-hour traffic demand than under no-build conditions; however, metering on-ramps would increase delays for traffic entering the freeway and affect the performance of arterials and local intersections. As shown in Table 2.1.5-7, overall freeway operations would improve with ramp metering, although metering the corridor's on-ramps would result in delays to mixed-flow traffic entering the freeway. The overall increase in traffic throughput can be seen in improvements relative to the measures of effectiveness described below, both in the reverse commute direction and in the morning principal commute direction (northbound). However, in the evening principal commute direction (southbound), there would be a slight increase in the average travel time (62 minutes, 2 percent increase), while the average travel speed would slightly decrease (10 mph, 9 percent decrease) due to the severe breakdown of State Route 1 by year 2035. Providing ramp metering and auxiliary lanes would not relieve the congestion in the peak commute direction, although it would increase the corridor's ability to carry more vehicles (Traffic Operations Report, 2012).

Table 2.1.5-7: Comparison of Measures of Effectiveness – Year 2035 No Build Alternative and Tier I Corridor TSM Alternative

Measures of Effectiveness		2035 No Build		2035 TSM		% Difference	
		AM	PM	AM	PM	AM	PM
Northbound							
Average Travel Time (minutes)	Peak Hour	59	34	34	29	–42	–15
	Peak Period	*39*	*22*	*27*	*18*	*–31*	*–18*
Average Speed (miles per hour)	Peak Hour	12	17	21	21	75	24
	Peak Period	*18*	*28*	*27*	*33*	*50*	*18*
Delay (minutes per vehicle)	Peak Hour	48	25	22	19	–54	–24
	Peak Period	*28*	*12*	*15*	*9*	*–46*	*–25*
Number of Vehicle Trips (per hour)	Peak Hour	2,767	3,114	3,986	3,858	44	24
	Peak Period	*3,129*	*3,157*	*3,645*	*3,546*	*16*	*12*
Number of Persons Trips (per hour)	Peak Hour	3,132	3,874	4,847	4,870	55	26
	Peak Period	*3,542*	*3,927*	*4,441*	*4,474*	*25*	*14*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	2,749	1,784	2,260	1,871	–18	5
	Peak Period	*2,053*	*1,138*	*1,612*	*1,080*	*–21*	*–5*
Travel Distance (vehicle miles traveled)	Peak Hour	32,646	31,138	47,030	38,582	44	24
	Peak Period	*36,922*	*31,568*	*43,009*	*35,455*	*16*	*12*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.13	1.24	1.22	1.23	7	1
	Peak Period	*1.13*	*1.24*	*1.22*	*1.26*	*8*	*1*
Density (passenger cars per mile per lane)	Peak Hour	115	92	76	73	–34	–21
	Peak Period	*87*	*56*	*54*	*43*	*–38*	*–23*
Southbound							
Average Travel Time (minutes)	Peak Hour	29	61	12	62	–59	2
	Peak Period	*18*	*47*	*11*	*33*	*–39*	*–30*
Average Speed (miles per hour)	Peak Hour	22	11	54	10	145	–9
	Peak Period	*35*	*15*	*59*	*21*	*69*	*40*
Delay (minutes per vehicle)	Peak Hour	19	49	2	50	–89	2
	Peak Period	*8*	*35*	*1*	*21*	*–88*	*–40*
Number of Vehicle Trips (per hour)	Peak Hour	3,101	2,475	3,873	3,091	25	25
	Peak Period	*2,968*	*2,696*	*3,050*	*3,479*	*3*	*29*
Number of Persons Trips (per hour)	Peak Hour	3,597	2,911	4,623	3,750	29	29
	Peak Period	*3,443*	*3,168*	*3,638*	*4,216*	*6*	*33*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	1,498	2,523	756	3,165	–50	25
	Peak Period	*884*	*2,101*	*540*	*1,903*	*–39*	*–9*
Travel Distance (vehicle miles traveled)	Peak Hour	32,248	28,956	40,278	36,169	25	25
	Peak Period	*30,863*	*31,544*	*31,715*	*40,707*	*3*	*29*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.16	1.18	1.19	1.21	3	3
	Peak Period	*1.16*	*1.18*	*1.19*	*1.21*	*3*	*3*
Density (passenger cars per mile per lane)	Peak Hour	70	113	29	124	–59	10
	Peak Period	*42*	*90*	*21*	*66*	*–50*	*–27*

Peak Period – 6:00 a.m. to 12:00 p.m. and 2:00 p.m. to 8:00 p.m.
Peak Hour – Highest 1-hour within the peak period.
Source: Traffic Operations Report, 2012.

Delay – Traffic delay in the northbound direction during the morning peak hour is expected to average 22 minutes per vehicle, which is a decrease of 54 percent compared to the No Build Alternative. In the southbound direction during the evening peak hour, delay is expected to be 50 minutes per vehicle, which is a 2 percent increase compared to the No Build Alternative. This slight increase in delay over no-build conditions in the peak evening commute would occur despite the overall increase in traffic throughput that would result from the TSM improvements.

Average Travel Time and Travel Speed – Compared to no-build conditions, traffic performance under the Tier I Corridor TSM Alternative would improve during the morning peak hour in both the northbound (42 percent reduction in travel time) and southbound (59 percent reduction in travel time) directions. In the southbound direction during the evening peak hour, there would be a slight increase in the average travel time (62 minutes, 2 percent increase), while the average travel speed would slightly decrease (10 miles per hour, 9 percent decrease). Providing ramp metering and auxiliary lanes would not relieve congestion in the peak evening commute direction, although it would increase the ability of the corridor to carry more vehicles.

On the other hand, because traffic demand would be considerably less in the reverse commute directions, providing ramp metering and auxiliary lanes would improve speed by approximately 24 percent in the northbound direction during the evening peak hour and by approximately 145 percent in the southbound direction during the morning peak hour.

Density – Densities in the traffic study area would improve slightly. The corridor would operate at densities of 76 passenger cars per mile per lane in the northbound direction during the morning peak hour and 124 passenger cars per mile per lane in the southbound direction during the evening peak hour. Reverse commute conditions (i.e., northbound during the evening peak hour and southbound during the morning peak hour) would improve, especially in the southbound direction during the morning peak hour, which would improve from 70 passenger cars per mile per lane under No-Build conditions to 29 under the Tier I Corridor TSM Alternative.

Vehicle Miles Traveled and Vehicle Hours Traveled – Under the Tier I Corridor TSM Alternative, in the peak commute directions during the peak hours, vehicle miles traveled would increase and, except for the southbound PM peak hour condition, the vehicle hours traveled would decrease slightly. During the southbound PM peak hour there would be an increase in vehicle hours traveled. Overall, this shows that the Tier I Corridor TSM Alternative would result in a very slight improvement in traffic congestion when compared to the No Build Alternative.

Intersection Operations, Access, and Circulation

The Tier I Corridor TSM Alternative would not achieve sufficient congestion relief to attract any substantial number of vehicles that had diverted to the local street system back to the freeway. Local access to, and circulation around, community facilities near these intersections would not improve relative to no-build conditions.

As shown in Table 2.1.5-8, all 25 study intersections would experience delay during both the morning and evening peak hours with the Tier I Corridor TSM Alternative in 2035. Compared to no-build conditions, traffic operations at study intersections with Tier I Corridor TSM Alternative improvements would worsen marginally. Ramp metering tends to increase delays at the on-ramp leading into the mainline, with the lost time expected to be made up through better mainline operations. In the very congested conditions expected by 2035, ramp metering without mainline freeway improvements does not appear to be a viable traffic management strategy (Traffic Operations Report, 2012).

Safety

As shown in Table 2.1.5-9, the total accident rates overall and by segment in 2035 under the Tier I Corridor TSM Alternative would be the same as the accident rates for the No Build Alternative and greater than the accident rates for the Tier I Corridor HOV Lane Alternative, except at the freeway segment between the Larkin Valley Road interchange and Freedom Boulevard interchange. To improve safety, the Tier I TSM Alternative proposes to improve the existing nonstandard geometric elements at various ramps.

Transit

Under the Tier I Corridor TSM Alternative, several roadway capacity improvements and the deployment of Intelligent Transportation Systems technologies are currently being proposed for Route 1. The improvements include ramp metering on existing interchange ramps and construction of auxiliary lanes between interchanges, HOV bypass lanes on on-ramps, and Transportation Operations System infrastructure such as changeable message signs and vehicle detection systems. These project features would provide slightly improved highway conditions that would benefit transit operations on Route 1 when compared to conditions achieved under the No Build Alternative.

However, based on discussions with Metro and results of the *Transit Market Analysis Study* (2008), these facility improvements would not be sufficient to support increased transit service frequencies or encourage additional transit ridership.

Table 2.1.5-8: Study Intersections with Year 2035 Per Vehicle Delays of One Minute or Greater under the TSM Alternative

Morning Peak			PM Peak		
	Delay			Delay	
Intersection	**Min.**	**Sec.**	**Intersection**	**Min.**	**Sec.**
Morrissey Blvd./Rooney St./ Pacheco Ave.	4	49	Morrissey Blvd./Rooney St./ Pacheco Ave.	2	52
Rooney St./Route 1 NB Ramps	14	27	Rooney St./Route 1 NB Ramps	3	10
Fairmount Ave./Route 1 SB Ramps	12	13	Fairmount Ave./Route 1 SB Ramps	7	34
Morrissey Blvd./Fairmount Ave.	5	19	Morrissey Blvd./Fairmount Ave.	3	57
Soquel Ave./Route 1 SB Ramps	2	8	Soquel Ave./Route 1 SB Ramps	3	22
Soquel Dr./Paul Sweet Rd./ Commercial Way	3	28	Soquel Dr./Paul Sweet Rd./ Commercial Way	2	28
41st Ave./Route 1 NB Off-Ramp	0	58	41st Ave./Route 1 NB Off-Ramp	1	23
			41st Ave./Route 1 SB Ramps	1	51
Porter St./S. Main St.	1	30	Porter St./Route 1 NB Ramps	2	23
Porter St./Route 1 NB Ramps	3	7	Bay Ave./Route 1 SB Ramps	4	58
Bay Ave./Route 1 SB Ramps	7	6	Park Ave./Route 1 NB Ramps	1	34
Park Ave./Route NB Ramps	5	12	Park Ave./Route 1 SB Ramps	4	30
Park Ave./Route 1 SB Ramps	6	23	Park Ave./Kennedy Dr./ McGregor Dr.	16	40
Park Ave./Kennedy Dr./ McGregor Dr.	16	40	State Park Dr./Route 1 NB Ramps	3	12
State Park Dr./Route 1 NB Ramps	6	22	State Park Dr./Route 1 SB Ramps	4	20
State Park Dr./Route 1 SB Ramps	4	49	State Park Dr./McGregor Dr.	16	40
State Park Dr./McGregor Dr.	16	40	Rio Del Mar Blvd./Route 1 NB Ramps	5	14
Rio Del Mar Blvd./Route 1 NB Ramps	12	18	Rio Del Mar Blvd./Route 1 SB Ramps	2	37
Rio Del Mar Blvd./Route 1 SB Ramps	16	40	Rio Del Mar Blvd./Soquel Dr.	8	15
Rio Del Mar Blvd./ Soquel Dr.	5	3	Freedom Blvd./Route 1 NB Ramps	16	40
Freedom Blvd./Route 1 NB ramps	16	40	Freedom Blvd./Route 1 SB Ramps	10	4

Table 2.1.5-8: Study Intersections with Year 2035 Per Vehicle Delays of One Minute or Greater under the TSM Alternative

Morning Peak			PM Peak		
	Delay			Delay	
Intersection	Min.	Sec.	Intersection	Min.	Sec.
Freedom Blvd./Route 1 SB Ramps	1	40	Freedom Blvd./Bonita Dr.	16	40
Freedom Blvd./Bonita Dr.	16	40	San Andreas Rd./Larkin Rd./ Route 1 NB Off-Ramp	11	30
San Andreas Rd./Larkin Rd./ Route 1 NB Off-Ramp	1	5	San Andreas Rd./Route 1 SB Ramps	16	40
San Andreas Rd./Route 1 SB Ramps	16	40			

Source: Traffic Operations Report, 2012.
NB = northbound; SB = southbound.

Table 2.1.5-9: Tier I Corridor Alternatives Year 2035 Accident Analysis (accidents per million vehicle miles)

Freeway Segment		No Build Conditions		Tier I Corridor TSM Alternative		Tier I Corridor HOV Lane Alternative	
From	To	Freeway Type	Total Crash Rate	Freeway Type	Total Crash Rate	Freeway Type	Total Crash Rate
Larkin Valley Road interchange (7.670)[a]	Freedom Boulevard interchange (8.354)	4-lane SF	0.907	4-lane SF	0.907	6-lane SF	0.931
Freedom Boulevard interchange (8.354)	Between State Park Drive and Park Avenue interchanges (11.797)	4-lane SF	1.388	4-lane SF	1.388	6-lane SF	1.099
Between State Park Drive and Park Avenue interchanges (11.797)	North of Bay Avenue interchange (13.277)	4-lane UF	1.708	4-lane UF	1.708	6-lane UF	1.256
North of Bay Avenue interchange (13.277)	South of 41st Avenue interchange (13.460)	6-lane UF	1.176	6-lane UF	1.176	8-lane UF	1.137

Table 2.1.5-9: Tier I Corridor Alternatives Year 2035 Accident Analysis (accidents per million vehicle miles)

Freeway Segment		No Build Conditions		Tier I Corridor TSM Alternative		Tier I Corridor HOV Lane Alternative	
From	To	Freeway Type	Total Crash Rate	Freeway Type	Total Crash Rate	Freeway Type	Total Crash Rate
South of 41st Avenue interchange (13.460)	North of 41st Avenue interchange (13.732)	4-lane UF	1.474	4-lane UF	1.474	6-lane UF	1.093
North of 41st Avenue interchange (13.732)	North of Soquel Avenue interchange (15.050)	4-lane SF	1.317	4-lane SF	1.317	6-lane SF	1.108
North of Soquel Avenue interchange (15.050)	Morrissey Boulevard interchange (15.819)	4-lane UF	1.878	4-lane UF	1.878	6-lane UF	1.222
Average (weighted by vehicle miles of travel per segment)			1.456		1.456		1.134

Notes:
[a] Location (Post mile)
SF =- Suburban Freeway
UF = Urban Freeway
Source: Traffic Operations Report, 2012.

Pedestrian and Bicycle Conditions

The three new pedestrian and bicycle overcrossings that would be constructed with the Tier I Corridor TSM Alternative would have a positive impact on the multimodal connectivity of the Route 1 corridor by helping users to overcome the north-south barrier presented by the freeway. These include the Mar Vista Drive, Chanticleer Avenue, and Trevethan Avenue overcrossings. Pedestrian improvements would comply with Americans with Disabilities Act design criteria.

Parking

There would be no removal of parking under the Tier I Corridor TSM Alternative.

Tier I Corridor HOV Lane Alternative

2035 Peak-Hour Traffic Conditions

Adding HOV lanes, as well as ramp metering and auxiliary lanes, is expected to improve the ability of Route 1 to meet future travel demand within the traffic study area. Vehicle throughput would increase by 63 percent in the northbound direction during the morning peak hour and by 79 percent in the southbound direction during the evening peak hour. The improved freeway conditions would draw vehicles that would otherwise divert onto parallel arterials back to Route 1, relieving the local city streets from excessive cut-through commuter traffic.

Delay – As shown in Table 2.1.5-10, compared to the No Build Alternative in 2035, the Tier I Corridor HOV Lane Alternative would substantially reduce delays in both the northbound and southbound directions. In the northbound direction, the AM peak hour delay would decrease by 42 minutes, or 88 percent; the PM peak hour delay would decrease by 40 minutes, or 84 percent. In the southbound direction, the AM peak hour delay would decrease by 17 minutes, or 89 percent; the PM peak hour delay would decrease by 40 minutes. or 82 percent.

Average Travel Speeds and Travel Times – Overall (combining HOV lane and mixed-flow lane speeds), the average peak hour speed on Route 1 would be between 33 miles per hour and 52 miles per hour, depending on the time and direction. This would be an improvement over the no-build condition, in which average speeds would be as low as 11 miles per hour. Average travel times would also improve by 50 to 73 percent, depending on the direction of travel and the peak period. For the northbound direction during the AM peak hour and in the southbound direction during the PM peak hour, travel times would improve by 73 percent and 69 percent, respectively.

Density - Traffic density in the northbound direction during the morning peak hour would improve from 115 passenger cars per mile per lane) to 42 passenger cars per mile per lane in the mixed-flow lanes and 14 passenger cars per mile per lane in the HOV lanes. Similarly, traffic density in the southbound direction during the evening peak hour would improve from 113 passenger cars per mile per lane to 37 passenger cars per mile per lane in the mixed-flow lanes and 19 passenger cars per mile per lane in the HOV lanes.

Vehicle Hours Traveled and Vehicle Miles Traveled – Decreases in freeway congestion and improvements in travel conditions would attract previous “cut-through” traffic back to the freeway from the arterials. Arterial vehicle miles traveled would decrease and freeway vehicle miles traveled would increase compared to no-build conditions. In the peak travel directions, there would be a 54 to 69 percent increase in vehicle miles traveled on the freeway compared to no-build conditions. Decreasing freeway congestion reduces corridor vehicle hours traveled because vehicles would spend less time on the freeway. Vehicle hours traveled in the peak travel directions would decrease by 32 to 53 percent, indicating more efficient freeway operations when compared to the No Build Alternative.

Table 2.1.5-10: Comparison of Measures of Effectiveness – Year 2035 No Build Alternative and Tier I Corridor HOV Alternative

Measures of Effectiveness		2035 No Build		2035 HOV		% Difference	
		AM	PM	AM	PM	AM	PM
Northbound							
Average Travel Time (minutes)	Peak Hour	59	34	16	13	–73	–62
	Peak Period	*39*	*22*	*13*	*11*	*–67*	*–50*
Average Speed (miles per hour)	Peak Hour	12	17	39	42	225	147
	Peak Period	*18*	*28*	*46*	*52*	*156*	*86*
Delay (minutes per vehicle)	Peak Hour	48	25	6	4	–88	–84
	Peak Period	*28*	*12*	*3*	*2*	*–89*	*–83*
Number of Vehicle Trips (per hour)	Peak Hour	2,767	3,114	4,510	4,898	63	57
	Peak Period	*3,129*	*3,157*	*4,213*	*4,118*	*35*	*30*
Number of Persons Trips (per hour)	Peak Hour	3,132	3,874	5,742	6,276	83	62
	Peak Period	*3,542*	*3,927*	*5,271*	*5,271*	*49*	*34*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	2,749	1,784	1,285	1,126	–53	–37
	Peak Period	*2,053*	*1,138*	*1,025*	*773*	*–50*	*–32*
Travel Distance (vehicle miles traveled)	Peak Hour	32,646	31,138	50,360	47,555	54	53
	Peak Period	*36,922*	*31,568*	*47,269*	*40,048*	*28*	*27*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.13	1.24	1.27	1.28	12	3
	Peak Period	*1.13*	*1.24*	*1.25*	*1.28*	*11*	*3*
Density (passenger cars per mile per lane)	Peak Hour	115	92	42 (14)	37 (20)	N/A	N/A
	Peak Period	87	56	*34 (12)*	*27 (14)*	*N/A*	*N/A*
Southbound							
Average Travel Time (minutes)	Peak Hour	29	61	12	19	–59	–69
	Peak Period	*18*	*47*	*10*	*15*	*–44*	*–68*
Average Speed (miles per hour)	Peak Hour	22	11	52	33	136	200
	Peak Period	*35*	*15*	*59*	*42*	*69*	*180*
Delay (minutes per vehicle)	Peak Hour	19	49	2	9	-89	-82
	Peak Period	*8*	*35*	*1*	*5*	*-88*	*-86*
Number of Vehicle Trips (per hour)	Peak Hour	3,101	2,475	4,253	4,431	37	79
	Peak Period	*2,968*	*2,696*	*3,369*	*4,294*	*14*	*59*
Number of Persons Trips (per hour)	Peak Hour	3,597	2,911	5,181	5,684	44	95
	Peak Period	*3,443*	*3,168*	*4,090*	*5,443*	*19*	*72*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	1,498	2,523	834	1,502	–44	–40
	Peak Period	*884*	*2,101*	*584*	*1,144*	*–34*	*–46*
Travel Distance (vehicle miles traveled)	Peak Hour	32,248	28,956	43,081	49,038	34	69
	Peak Period	*30,863*	*31,544*	*34,179*	*47,692*	*11*	*51*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.16	1.18	1.22	1.28	5	9
	Peak Period	*1.16*	*1.18*	*1.21*	*1.27*	*5*	*8*
Density (passenger cars per mile per lane)	Peak Hour	70	113	29 (11)	37 (19)	N/A	N/A
	Peak Period	*42*	*90*	*20 (8)*	*35 (13)*	*N/A*	*N/A*

Peak Period – 6:00 a.m. to 12:00 p.m. and 2:00 p.m. to 8:00 p.m.
Peak Hour – Highest 1-hour within the peak period.
28 (10) – Density of mixed-flow lanes (Density of HOV lane)
Source: Traffic Operations Report, 2012.

Induced Demand on Freeways

The relationship between increases in highway capacity and traffic is very complex, involving various travel behavior responses, residential and business location decisions, and changes in regional population and economic growth. If improvements increase a highway's travel speed, then the peak-period traffic using the highway will likely increase. This is due to at least six separate factors – route changes (e.g., from arterials to freeway), departure time changes, travel mode shifts, destination changes, additional trips, and new development/additional land use.

The first three factors leading to increases in the number of vehicles using the highway during peak periods do not represent "induced travel." They represent decisions by travelers concerning where and how they will make their trips. The fourth and fifth factors, destination changes and additional trips, represent induced travel. Neither of these is accounted for in most traffic models, including the one used to analyze the traffic effects for this project.

There is controversy concerning the relative contribution of induced travel to total traffic volume; however, recent research indicates that the contribution is small (Barr, 2000; Cervero, 2003; Trantech Management, Inc. & Hagler Bailly, 2001; Hartgen, 2003). One recent study in California, which examined the question of induced travel by comparing improved and unimproved highway segments, found no statistical difference and thus "no evidence of induced demand" (Mokhtarian, *et al.,* 2002:214; Handy 2003).

The sixth factor, induced travel from new development/additional land use, typically applies where a new highway provides access to an undeveloped area. By contrast, Route 1 is a well-established highway through Santa Cruz County, and the project area encompasses land already developed and densely populated. A project-specific growth inducement study was performed for this project and concluded that this project would not induce unplanned growth in the project corridor.

Intersection Operations, Access, and Circulation

Improved freeway corridor conditions with the Tier I Corridor HOV Lane Alternative would attract vehicles diverted to parallel arterials back to Route 1, relieving local city streets from excessive cut-through commuter traffic. Traffic volumes on the arterials would decrease relative to no-build conditions, while traffic volumes on the freeway would increase. This would improve access to facilities and regional circulation. The Tier I Corridor HOV Lane Alternative would produce conditions similar to those for the No Build Alternative.
Table 2.1.5-11 shows delays at 9 of the 26 study intersections during the morning peak hour and delays at 14 of the 26 intersections during the evening peak hour under the Tier I Corridor HOV Lane Alternative in 2035. Figure 2.1.5-3 lists the two-way traffic volumes on local streets for 2001 and 2035.

Table 2.1.5-11: Study Intersections with Year 2035 Per Vehicle Delays of One Minute or Greater under the HOV Alternative

Morning Peak			**PM Peak**		
	Delay			**Delay**	
Intersection	**Min**	**Sec**	**Intersection**	**Min**	**Sec**
Soquel Dr./Paul Sweet Road/ Route 1 NB Ramps	3	39	Morrissey Blvd./Pacheco Ave./Route 1 NB Ramps	1	17
Park Ave./Route 1 NB Ramps	1	34	Morrissey Blvd./ Fairmount Ave.	1	19
Park Ave./Route 1 SB Ramps	2	35	Soquel Dr./Paul Sweet Road/ Route 1 NB Ramps	2	56
Park Ave./Kennedy Dr./ McGregor Dr.	8	8	41st Ave./Route 1NB Ramps	1	5
State Park Dr./ McGregor Dr.	2	36	41st Ave./Route 1 SB Ramps	1	9
Rio Del Mar Blvd./Route 1 NB Ramps	1	25	Porter Street/Route 1 NB Ramps	1	26
Rio Del Mar Blvd./ Soquel Dr.	5	54	Park Ave./Route 1 NB Ramps	1	34
Soquel Dr./Soquel Ave./ Route 1 SB Off-Ramp	3	33	Park Ave./Route 1 SB Ramps	4	6
			Park Ave./Kennedy Dr./ McGregor Dr.	15	21
			State Park Dr./ McGregor Dr.	2	20
			Rio Del Mar Blvd./Route 1 NB Ramps	2	14
			Rio Del Mar Blvd./ Soquel Dr.	4	44
			Soquel Dr./Soquel Ave./ Route 1 SB Off-Ramp	3	22

Source: Traffic Operations Report, 2012.
NB = northbound; SB = southbound.

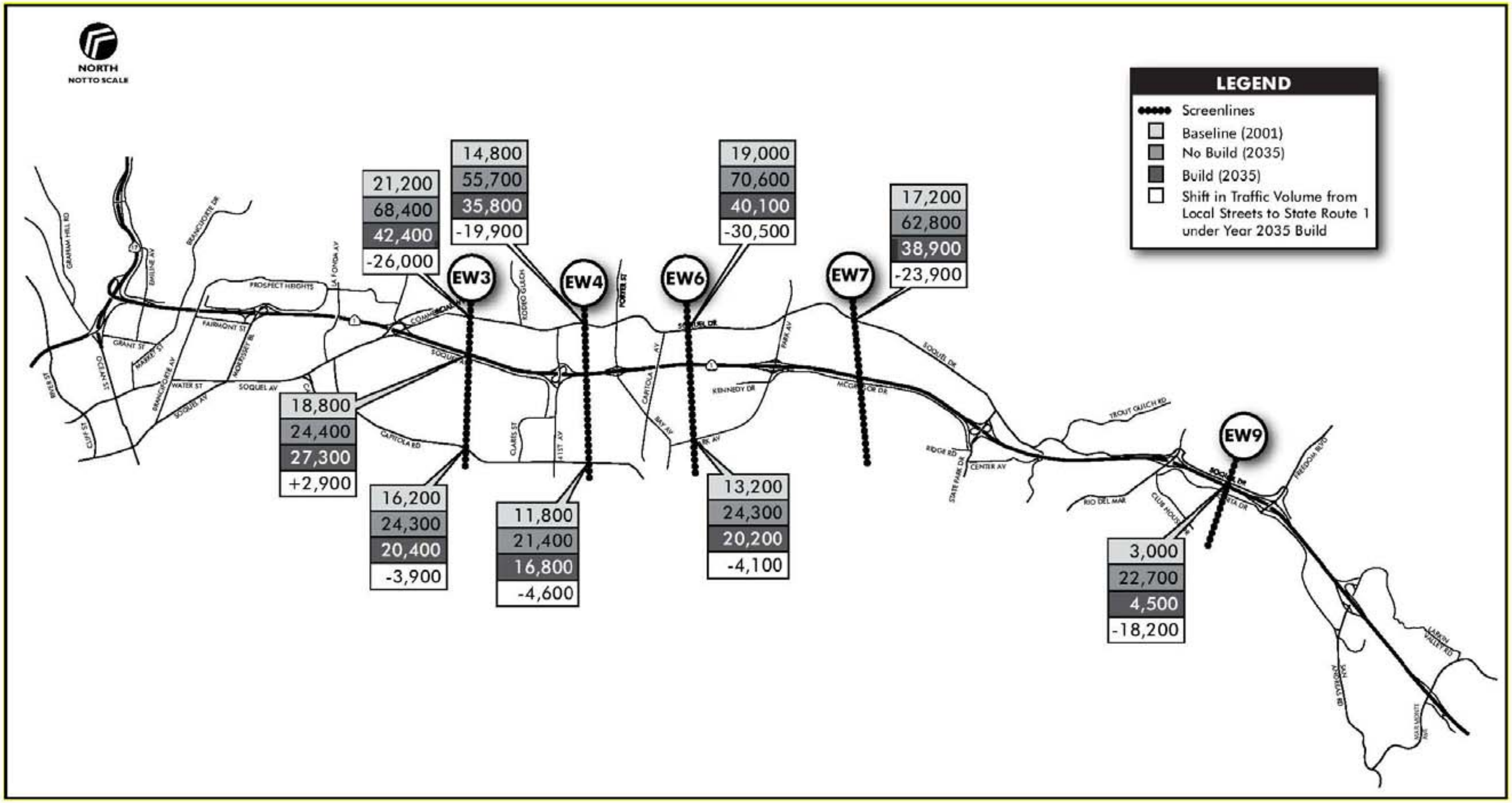


Figure 2.1.5-3: Two-Way Traffic Volumes on Local Streets for 2001 and 2035 with No Build Alternative and Tier I Corridor HOV Lane Alternative

Safety

Total accidents per million vehicle miles in 2035 for the No Build Alternative and Tier I Corridor Alternatives would be higher than the baseline rates at five of the seven freeway segments for which accident data are reported. The two freeway segments where the 2035 accident rates would be lower than baseline are the following:

- North of Bay Avenue interchange to south of 41st Avenue interchange; and
- South of 41st Avenue interchange to north of 41st Avenue interchange.

As shown in Table 2.1.5-9, total accident rates in 2035 would be lower overall and by segment with the Tier I Corridor HOV Lane Alternative than for the No Build Alternative and Tier I Corridor TSM Alternative conditions, except at the freeway segment located between the Larkin Valley Road interchange and Freedom Boulevard interchange. At this location, the total accident rate under Tier I Corridor HOV Lane Alternative conditions would be higher than under No Build Alternative and Tier I Corridor TSM Alternative conditions (i.e., 0.931 compared to 0.907). To improve safety, the Tier I HOV Lane Alternative proposes to improve the weave/merge geometry and widen the outside shoulder to 10 feet, allowing for evasive movements and better refuge for disabled vehicles.

Transit

The Tier I Corridor HOV Lane Alternative's long-term effects on bus travel would generally be positive because of reduced traffic delay and travel times along Route 1 and at surrounding project area intersections. With the addition of HOV lanes, results indicate that buses and other high occupancy vehicles would benefit from reductions in density (the number of passenger cars per mile per lane) in the HOV lane, when compared with the No-Build Alternative. Density would decrease during the AM and PM peak hours and peak periods in both directions. The greatest reduction in the density of passenger cars in the HOV lane, when compared with the No-Build Alternative, would occur during the northbound PM peak hour, when density would be reduced from 115 to 14 passenger vehicles per lane per hour in the HOV lane. The smallest reduction in density would occur during the southbound AM peak period, when density would be reduced from 42 to 8.

Transit enhancements under the Tier I Corridor TSM Alternative, such as more peak-period express service and connecting shuttle buses or expanded express routing to serve local destinations, would be generally supportive of transit, but they do not offer any real time savings. Even with the Tier I Corridor TSM Alternative enhancements, projected express bus ridership increases would likely not be realized, and Metro's ability to capture any of the latent demand would be severely impaired.

Under the Tier I Corridor HOV Lane Alternative, projected future transit ridership and latent demand can be realized. Elasticity analysis conducted as part of the transit study showed that the transit market is very sensitive to changes in travel time; therefore, the introduction of HOV lanes that would improve transit travel times is extremely important to capturing additional riders. Approximately half of the projected latent ridership could be captured by improvements in travel time with the addition of HOV lanes. If the runs that were cut back from Metro's three express routes in the past few years were added back or comparable express service were added, the rest of the latent demand could be captured. Capturing the latent market for transit also assumes bus pads at strategic corridor locations to improve rider access to the express buses and a pedestrian and bicycle friendly environment with access to and from park-and-ride lots and bus pad locations. The proposed Tier I Corridor HOV Lane Alternative would design the reconfigured interchanges to allow future installation of bus pads and shelters at the Park Avenue and Bay Street/Porter Avenue and 41st Avenue interchanges. Providing HOV lanes would also facilitate extension of the Route 17 express bus service farther south in the corridor to potential park-and-ride lots at State Park and farther south to help capture additional riders.

Pedestrian and Bicycle Conditions

Pedestrian Conditions – The Tier I Corridor HOV Lane Alternative would maintain or improve pedestrian facilities, including 5-foot-wide sidewalks at all nine interchanges within the project limits. Pedestrian improvements would comply with Americans with Disabilities Act design criteria. Changes to baseline pedestrian conditions would result at the following locations:

- <u>Morrissey/Pacheco Intersection</u> – The improved pedestrian network includes maintaining the existing four-way pedestrian crosswalk at the intersection of Pacheco Avenue, Morrissey Boulevard (Rooney Street), and Route 1 westbound on-and off-ramps north of the freeway. South of Route 1, the existing north-south crosswalks located on Morrissey Boulevard at Fairmount Avenue would be replaced with a four-way crosswalk allowing full pedestrian access to Fairmount Avenue and Morrissey Boulevard. Both of these intersections support Metro bus stops. The existing three-sided crosswalk at the intersection of Soquel Drive and Commercial Avenue would be maintained. This is an important interchange from a transit perspective because it includes major bus stops connecting Soquel Drive to Dominican Hospital Bay/Porter interchange. The existing crosswalks would be maintained at the Bay/Porter interchange.
- <u>Park Avenue, State Park Drive, and Rio Del Mar Interchanges</u> – The existing crosswalks would be maintained.
- <u>Freedom Boulevard Interchange</u> – The improved pedestrian network includes two four-way pedestrian crosswalks and one three-way crosswalk. There would be a four-way crosswalk at the intersection of Freedom Boulevard with Route 1 westbound on-and off-ramps north of the freeway and with eastbound on- and off-ramps; a new three-way intersection would be installed at Freedom Boulevard and Bonita Drive.

- San Andreas Road/Larkin Valley Road Interchange – Along with sidewalk improvements, the project plan would provide new crosswalks on one side of San Andreas Road/Larkin Valley Road to improve pedestrian safety at the on- and off-ramp locations.

Bicycle Impacts – According to the 2007 Santa Cruz County Bikeways Map and current aerial maps, Class II bike lanes exist at all Route 1 interchanges within the project limits. These bike lanes would not be affected by the project except during construction, as discussed in Section 2.4.4.

Pedestrian and Bicycle Overcrossings – The Tier I Corridor HOV Lane Alternative would also include three new pedestrian and bicycle overcrossings (at Mar Vista Drive, Chanticleer Avenue, and Trevethan Avenue), with the same improvements to local access and circulation as described for the Tier I Corridor TSM Alternative. These pedestrian and bicycle overcrossings would have a positive effect on multimodal connectivity by helping users to overcome the north-south barrier presented by the freeway.

Parking

Under the Tier I Corridor HOV Lane Alternative, an estimated 171 off-street parking spaces would be affected by the proposed project. A more detailed discussion of these parking impacts is provided below.

On-Street Parking Impacts – There would be a loss of 15 on-street parking spaces as a result of the Tier I Corridor HOV Lane Alternative, adjacent to the Morrissey Boulevard interchange.

Off-Street Parking Impacts – The Tier I Corridor HOV Lane Alternative would result in the loss of approximately 171 off-street parking spaces. These impacts would occur at four of the nine highway interchanges located within the Tier I project corridor: Bay Avenue/ Porter Street, 41st Avenue, Soquel Avenue, and Morrissey Boulevard interchanges. The numbers of parking spaces that would be affected by interchange area are listed in Table 2.1.5-12.

Tier II Auxiliary Lane Alternative

The Tier II Auxiliary Lane Alternative extends from 41st Avenue to Soquel Avenue and was identified as the first phase of the proposed Tier I Corridor HOV Lane Alternative to be considered for immediate implementation. The 2035 design horizon traffic analysis for the Tier I HOV Lane Alternative and Tier I TSM Alternative (described above) included the Tier II Auxiliary Lane Alternative as part of the overall improvements.

Table 2.1.5-12: Off-Street Parking Inventory Reductions by Interchange

Route 1 Interchange	Parking Impact	Number of Spaces Removed
San Andreas Road/Larkin Valley Road	No	0
Freedom Boulevard	No	0
Rio Del Mar Boulevard	No	0
State Park Drive	No	0
Park Avenue	No	0
Bay Avenue/Porter Street	Yes	25
41st Avenue	Yes	26
Soquel Avenue	Yes	109
Morrissey Boulevard	Yes	11
Total		**171**

The prioritization of the Tier II Auxiliary Lane Alternative was based on an analysis of operational improvements proposed as part of the Tier I HOV Lane Alternative, which considered the potential of the individual (or independent) Tier II project improvements to relieve congestion and minimize/avoid air quality hotspots in the corridor and included traffic modeling using the FREQ simulation tool.

The prioritization analysis identified the Tier II Auxiliary Lane Alternative as the priority improvement to advance to the Tier II level of analysis based on its operational independence and funding likelihood. In the northbound direction, the Tier II Auxiliary Lane Alternative was found to provide the greatest improvement in corridor operations when compared with the other improvements evaluated in the prioritization analysis. Although the Tier II Auxiliary Lane Alternative was not found to provide the greatest improvement in corridor operations in the southbound direction, the Tier II Auxiliary Lane Alternative, as described in this EIR/EA, was prioritized in order to avoid construction disruption associated with constructing disconnected segments in the northbound and southbound directions, provide for pedestrian/bicycle crossing facility over Route 1, and coordinate with the proposed improvements at Highway 1/Highway 17 and Morrissey Boulevard interchanges that are being implemented through the most congested portion of the study corridor.

The prioritization analysis concluded that the Tier II Auxiliary Lane Alternative would have the following effects on motor vehicle traffic:

- Eliminate the existing bottleneck located between the Soquel Avenue and 41st Avenue interchanges in the northbound direction;
- Improve traffic operations along the northbound corridor in the AM peak hour;

- Slightly worsen traffic operations along the southbound corridor in the PM peak hour, but improve vehicle and person throughputs; and
- Negligibly improve the Highway 1 corridor operations in the non-peak directions of travel, southbound in the AM peak hour and northbound in the PM peak hour.

Safety

The 2035 safety analysis for the Tier I HOV Lane Alternative and Tier I TSM Alternative included the Tier II Auxiliary Lane Alternative as part of the overall improvements. This alternative resulted in no significant impacts relative to safety.

Transit

Although traffic operations on northbound Route 1 during the morning peak hour would improve under the Tier II Auxiliary Lane Alternative, there would still be considerable congestion in the corridor. The long-term impacts on bus travel would be similar to that under the No Build Alternative.

Pedestrian and Bicycle Conditions

Pedestrian Conditions – The Tier II Auxiliary Lane Alternative would improve existing pedestrian facilities. The Tier II Auxiliary Lane Alternative would include an Americans with Disabilities Act-compliant new pedestrian and bicycle overcrossing at Chanticleer Avenue. The overcrossing would help pedestrians overcome the north-south barrier presented by the existing freeway.

Bicycle Impacts – According to the 2007 Santa Cruz County Bikeways Map and current aerial maps, Class II bike lanes exist at all Route 1 interchanges within the Tier II Auxiliary Lane Alternative limits. These bike lanes would not be affected by the project except during construction, as discussed in Section 2.4.4.

The new pedestrian and bicycle overcrossings at Chanticleer Avenue would have a positive effect on multimodal connectivity by helping users overcome the north-south barrier presented by the existing freeway.

Parking

The Tier II Auxiliary Lane Alternative would not result in parking impacts.

No Build Alternative

As described in Section 1.5.4, the No-Build Alternative assumes that none of the improvements proposed for the Tier I or Tier II Corridors would be implemented.

Peak-Hour Traffic Conditions in 2035

The Route 1 study corridor currently experiences recurrent congestion, especially in the peak travel direction. When the traffic study was performed in 2007, the primary bottleneck in the northbound direction was the Route 1/SR 17 interchange. The traffic study was performed before completion of the Route 1/17 Merge Lanes Project (completed December 2008) and the Highway 1 Soquel/Morrissey Auxiliary Lanes Project (completed December 2013). Both projects have been included in the no-build traffic analysis for this project, using Association of Monterey Bay Area Governments traffic volume projections to 2035. Models for 2035 show a northbound bottleneck persists in the Soquel-Morrissey stretch in the a.m. peak hour (Traffic Operations Report, 2012).

According to the traffic operations analysis, traffic performance would worsen dramatically by year 2035 under no-build conditions. Travel demand would continue to increase as population grows and the region matures. At the same time, the corridor's ability to serve the growing vehicle volumes would decrease, while delays and densities would escalate. Measures of effectiveness for the No Build Alternative in 2035 are shown in Table 2.1.5-13.

Delay – Under no-build conditions, Route 1 would not be able to accommodate future travel demand. In the southbound direction, during the evening peak hour, delays would grow to 49 minutes, which is an increase of 227 percent compared to baseline delays of 15 minutes. In the northbound direction during the morning peak, traffic delays would average 48 minutes per vehicle, which amounts to a 243 percent increase over baseline conditions of 14 minutes.

Average Travel Speeds and Travel Times – Increases in traffic demand without capacity improvements would exacerbate recurrent traffic congestion, characterized by low travel speeds and longer travel times. In the northbound direction, the average vehicle speed during the morning and evening peak hours would drop from 30 miles per hour and 39 miles per hour under baseline conditions to 12 miles per hour and 17 miles per hour under no-build conditions in 2035. The average northbound travel time during the morning peak hour would be as high as 59 minutes, which is a 157 percent increase over baseline conditions. Of the 59 minutes of average travel time in the northbound direction during the morning peak hour, 48 minutes would be attributable to traffic delays. In the southbound direction during the evening peak hour, travel time would average 61 minutes, up from 27 minutes under baseline conditions, which is a 126 percent increase. Travel speeds in the evening peak hour in the southbound direction would be 11 miles per hour, which is a 58 percent decrease compared to baseline conditions.

Table 2.1.5-13: Comparison of Measures of Effectiveness – Baseline Conditions and Year 2035 No Build Alternative

Measures of Effectiveness		Baseline		2035 No Build		% Difference	
		AM	PM	AM	PM	AM	PM
Northbound							
Average Travel Time (minutes)	Peak Hour	23	15	59	34	157	127
	Peak Period	*16*	*12*	*39*	*22*	*144*	*83*
Average Speed (miles per hour)	Peak Hour	30	39	12	17	–60	–56
	Peak Period	*44*	*52*	*18*	*28*	*–59*	*–46*
Delay (minutes per vehicle)	Peak Hour	14	6	48	25	243	317
	Peak Period	*4*	*2*	*28*	*12*	*600*	*500*
Number of Vehicle Trips (per hour)	Peak Hour	2,923	3,235	2,767	3,114	–5	–4
	Peak Period	*3,045*	*2,805*	*3,129*	*3,157*	*3*	*13*
Number of Persons Trips (per hour)	Peak Hour	3,308	4,024	3,132	3,874	–5	–4
	Peak Period	*3,447*	*3,489*	*3,542*	*3,927*	*3*	*13*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	1,274	823	2,749	1,784	116	117
	Peak Period	*821*	*544*	*2,053*	*1,138*	*150*	*109*
Travel Distance (vehicle miles traveled)	Peak Hour	38,517	32,349	32,646	31,138	–15	–4
	Peak Period	*35,933*	*28,045*	*36,922*	*31,568*	*3*	*13*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.13	1.24	1.13	1.24	0	0
	Peak Period	*1.13*	*1.24*	*1.13*	*1.24*	*0*	*0*
Density (passenger cars per mile per lane)	Peak Hour	49	41	115	92	135	124
	Peak Period	*35*	*27*	*87*	*56*	*149*	*107*
Southbound							
Average Travel Time (minutes)	Peak Hour	10	27	29	61	190	126
	Peak Period	*10*	*18*	*18*	*47*	*80*	*161*
Average Speed (miles per hour)	Peak Hour	60	26	22	11	–63	–58
	Peak Period	*61*	*39*	*35*	*15*	*–43*	*–62*
Delay (minutes per vehicle)	Peak Hour	0	15	19	49	N/A	227
	Peak Period	*0*	*6*	*8*	*35*	*N/A*	*483*
Number of Vehicle Trips (per hour)	Peak Hour	2,918	3,101	3,101	2,475	6	–20
	Peak Period	*2,332*	*2,885*	*2,968*	*2,696*	*27*	*–7*
Number of Persons Trips (per hour)	Peak Hour	3,385	3,664	3,597	2,911	6	–21
	Peak Period	*2,705*	*3,405*	*3,443*	*3,168*	*27*	*–7*
Freeway Travel Time (vehicle hours traveled)	Peak Hour	507	1,391	1,498	2,523	195	81
	Peak Period	*400*	*858*	*884*	*2,101*	*121*	*145*
Travel Distance (vehicle miles traveled)	Peak Hour	30,348	35,661	32,248	28,956	6	–19
	Peak Period	*24,251*	*33,182*	*30,863*	*31,544*	*27*	*–5*
Average Vehicle Occupancy (persons/vehicle)	Peak Hour	1.16	1.18	1.16	1.18	0	0
	Peak Period	*1.16*	*1.18*	*1.16*	*1.18*	*0*	*0*
Density (passenger cars per mile per lane)	Peak Hour	24	60	70	113	192	88
	Peak Period	*19*	*37*	*42*	*90*	*121*	*143*

Peak Period – 6:00 a.m. to 12:00 p.m. and 2:00 p.m. to 8:00 p.m.
Peak Hour – Highest 1-hour within the peak period.
Source: Traffic Operations Report, 2012.

Densities– Under baseline conditions, the peak commute directions (i.e., northbound during the morning peak hour and southbound during the evening peak hour) are already experiencing heavy congestion. By year 2035, traffic on Route 1 for both peak hours and directions would have densities ranging from 113 passenger cars per mile per lane (i.e., southbound direction during evening peak hour) to 115 passenger cars per mile per lane (i.e., northbound direction during the morning peak hour).

Vehicle Hours Traveled and Vehicle Miles Traveled – As congestion increases, so does the amount of time vehicles idle in traffic; therefore, the corridor vehicle hours traveled would also increase. The increase in corridor vehicle hours traveled would vary from 81 percent to 195 percent, depending on the direction and time of day (i.e., morning or evening). When freeway congestion increases, vehicles use local streets to circumvent freeway bottlenecks, increasing vehicle miles traveled on arterials and decreasing vehicle miles traveled on the freeway. As shown in Table 2.1.5-13, in the peak commute directions, peak-hour vehicle miles traveled on the freeway would decrease in 2035 compared to baseline conditions, indicating more travel on local streets to avoid congestion.

By 2035, the Route 1 corridor would be heavily congested with stop-and-go conditions during both peak periods. A freeway operating in such congested conditions for 6 continuous hours, twice a day (even assuming no accidents or incidents), is in need of demand management and capacity increase solutions.

Intersection Operations, Access, and Circulation

Not only would traffic volumes on Route 1 increase under Year 2035 no-build conditions, but traffic volumes on local parallel arterials also would increase. When there is severe congestion on the freeway during peak hours, “cut-through” traffic diverts to the local street network to circumvent bottlenecks on the highway, increasing congestion on these arterials, and affecting local circulation and access.

Under Year 2035 no-build- conditions, delays at all 25 study intersections are shown in Table 2.1.5-14 during both peak hours.

Also in year 2035 under no-build conditions, freeway mainline traffic congestion would extend onto freeway ramps and local streets. Traffic would experience higher delays entering the freeway, causing backups on the arterials.

Table 2.1.5-14: Study Intersections with per Vehicle Delays of One Minute or Greater under 2035 No Build Conditions

Morning Peak			PM Peak		
	Delay			Delay	
Intersection	**Min**	**Sec**	**Intersection**	**Min**	**Sec**
Morrissey Blvd./ Rooney St./ Pacheco Ave.	4	36	Morrissey Blvd./ Rooney St./ Pacheco Ave.	2	51
Rooney St./ Route 1 NB Ramps	14	0	Rooney St./ Route 1 NB Ramps	3	10
Fairmount Ave./ Route 1 SB Ramps	12	12	Fairmount Ave./ Route 1 SB Ramps	7	35
Morrissey Blvd./ Fairmount Avenue	5	17	Morrissey Blvd./ Fairmount Avenue	3	57
Soquel Ave./ Route 1 SB Ramps	2	12	Soquel Ave./ Route 1 SB Ramps	3	22
Soquel Dr./ Paul Sweet Rd./ Commercial Way	3	29	Soquel Dr./ Paul Sweet Rd./ Commercial Way	2	28
Porter St./ S. Main St.	1	28	41st Ave./ Route 1 NB Off-Ramp	1	23
Porter St./ Route 1 NB Ramps	3	14	41st Ave./ Route 1 SB Ramps	1	51
Bay Ave./ Route 1 SB Ramps	7	6	Porter St./ Route 1 NB Ramps	2	23
Park Ave./ Route 1 NB Ramps	5	13	Bay Ave./ Route 1 SB Ramps	4	59
Park Ave./ Route 1 SB Ramps	6	23	Park Ave./ Route 1 NB Ramps	1	34
Park Ave./ Kennedy Dr./ McGregor Dr.	16	40	Park Ave./ Route 1 SB Ramps	4	30
State Park Dr./ Route 1 NB Ramps	6	28	Park Ave./ Kennedy Dr./ McGregor Dr.	16	40
State Park Dr./ Route 1 SB Ramps	4	49	State Park Dr./ Route 1 NB Ramps	2	27
State Park Dr./ McGregor Dr.	16	40	State Park Dr./ Route 1 SB Ramps	4	20
Rio Del Mar Blvd./ Route 1 NB Ramps	12	20	State Park Dr./ McGregor Dr.	16	40
Rio Del Mar Blvd./ Route 1 SB Ramps	16	40	Rio Del Mar Blvd./ Route 1 NB Ramps	5	14
Rio Del Mar Blvd./ Soquel Dr.	4	59	Rio Del Mar Blvd./ Route 1 SB Ramps	2	37
Freedom Blvd./ Route 1 NB Ramps	16	40	Rio Del Mar Blvd./ Soquel Dr.	8	15

Table 2.1.5-14: Study Intersections with per Vehicle Delays of One Minute or Greater under 2035 No Build Conditions

Morning Peak			PM Peak		
	Delay			Delay	
Intersection	Min	Sec	Intersection	Min	Sec
Freedom Blvd./ Route 1 SB Ramps	1	40	Freedom Blvd./ Route 1 NB Ramps	16	40
Freedom Blvd./ Bonita Dr.	16	40	Freedom Blvd./ Route 1 SB Ramps	10	4
San Andreas Rd./ Larkin Rd./ Route 1 NB Off-Ramp	1	14	Freedom Blvd./ Bonita Dr.	16	40
San Andreas Rd./ Route 1 SB Ramps	16	40	San Andreas Rd./ Larkin Rd./ Route 1 NB Off-Ramp	11	31
			San Andreas Rd./ Route 1 SB Ramps	16	40

Source: Traffic Operations Report, 2012.
NB = northbound; SB = southbound.

Transit

Under the No Build Alternative, current transit operations would potentially decline due to anticipated increases in congestion, travel time, and delay on Route 1. Without capacity or operational improvements, travel time for transit trips would increase, and reliability of transit operations would be substantially degraded. Additionally, deteriorating travel conditions for transit operations would affect future transit ridership growth. The No-Build Alternative assumes no major construction on Route 1 through the project limits other than planned and programmed improvements and continued routine maintenance. By 2035 without capacity or operational enhancements on Route 1, congestion and travel time on Route 1 would worsen considerably. Buses and carpools would be subjected to very congested travel conditions.

Pedestrian and Bicycle Conditions

Planned pedestrian and bicycle improvements considered in the No Build Alternative would improve pedestrian and bicycle conditions on the local arterial network. These separate projects planned for implementation by 2035 include:

- Replacement of the La Fonda Avenue overcrossing of Route 1, included as part of the Soquel-Morrissey Auxiliary Lanes project, would create bicycle lanes and sidewalks on the new bridge;

- Improvements of roadways and roadsides on Rio del Mar Boulevard from Esplanade to Route 1, which includes the addition of bike lanes; and
- Installation of a Class 1 bicycle and pedestrian facility on Morrissey Boulevard overpass at Route 1.

The No Build Alternative would not result in the benefits to pedestrian and bicycle facilities described below for the Tier I Corridor Alternatives.

Parking

Baseline parking is not anticipated to change under the No Build Alternative.

Avoidance, Minimization, and/or Mitigation Measures

Tier I Corridor Alternatives

Selection of a Tier I Corridor Alternative would not result in actual construction. As portions of the Tier I corridor are programmed as Tier II projects, they will be subject to separate environmental review. Based on the impacts that have been identified in this section, the avoidance, minimization, and mitigation measures shown below are provided on a conceptual basis. These measures are subject to revision based on the changes in the setting, project design, or regulatory requirements in place when individual projects undergo environmental review.

Tier I Corridor TSM Alternative

The Tier I Corridor TSM Alternative would not result in permanent or long-term adverse effects to parking, transit, pedestrian, or bicycle facilities; therefore, impact minimization or mitigation measures are not anticipated to be needed. Overall the Tier I TSM Alternative would improve traffic throughput in the Route 1 corridor; the slight increase in delay in the southbound p.m. peak period is less than significant and does not require mitigation.

Tier I Corridor HOV Lane Alternative

The Tier I Corridor HOV Lane Alternative would not result in permanent or long-term adverse effects to circulation; therefore, no traffic impact minimization or mitigation measures are anticipated to be needed.

Based on current information, parking impacts under the Tier I Corridor HOV Lane Alternative may adversely affect identified commercial properties. The following impact mitigation measure is anticipated to be required to address impacts from parking loss:

- RTC and Caltrans will coordinate with all property owners/operators that would be affected by removal of off-street parking spaces and identify appropriate replacement parking locations, if necessary, to minimize the impacts to these properties.

Tier II Auxiliary Lane Alternative

The Tier II Auxiliary Lane Alternative would not result in permanent or long-term adverse effects to parking, transit, pedestrian, or bicycle facilities; therefore, no impact minimization or mitigation measures are required.

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