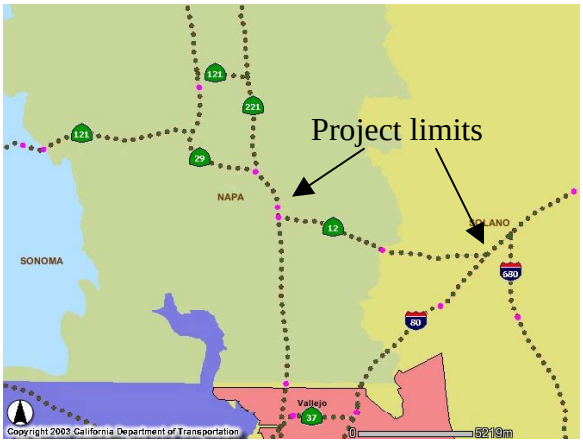
STATE ROUTE 12 JAMESON CANYON ROAD

WIDENING &

STATE ROUTES 29/12 INTERCHANGE PROJECT



Initial Study with
Proposed Mitigated Negative Declaration (CEQA)
and Environmental Assessment (NEPA)

04-NAP-12, KP 0.4/5.3 (PM 0.2/3.3)
04-SOL-12, KP 0.0/R4.2 (PM 0.0/R2.6)
Expenditure Authorization 264100
04-NAP-29, KP 6.7/8.7 (PM 4.2/5.4)
04-NAP-12, KP 0.0/0.4 (PM 0.0/0.2)
Expenditure Authorization 287900

AUGUST 2007

Prepared by:

Caltrans

04-NAP-12, KP 0.4/5.3 (PM 0.2/3.3)
04-SOL-12, KP 0.0/R4.2 (PM 0.0/R2.6)
EA 264100
04-NAP-29, KP 6.7/8.7 (PM 4.2/5.4)
04-NAP-12, KP 0.0/0.4 (PM 0.0/0.2)
EA 287900

On State Route 12 (Jameson Canyon Road)
from State Route 29 in Napa County to Red Top Road in Solano County
and
On State Route 29 in Napa County
from north of South Kelly Road to south of Route 221

INITIAL STUDY with PROPOSED MITIGATED NEGATIVE DECLARATION (CEQA) and ENVIRONMENTAL ASSESSMENT (NEPA)

Submitted Pursuant to: (State) Division 13, Public Resources Code
(Federal) 42 USC 4332(2)(C)

Prepared by
THE STATE OF CALIFORNIA
Department of Transportation

_____	_____
Date of Approval	Bijan Sartipi District Director District 4

General Information About This Document

What's in this document?

This document is an Initial Study – Proposed Mitigated Negative Declaration/ Environmental Assessment, which examines the potential environmental impacts for the proposed project located on SR 12 (Jameson Canyon Road) and the SRs 29/12 Intersection area in Solano and Napa County. The document describes why the project is being proposed, the existing environment that could be affected by the project, and any potential impacts.

What should you do?

- Please read this Initial Study (CEQA)/ Environmental Assessment (NEPA).
- We welcome your comments. If you have any concerns regarding the proposed project, please send your written comments to Caltrans by the deadline. Submit your comments via regular mail to Caltrans, Attn: Howell Chan, Office of Environmental Analysis, P.O. Box 23660, Mail Station 6-C, Oakland, CA 94623-0660; submit comments via email to Howell_Chan@ dot.ca.gov
- Submit comments by the deadline: September 25, 2007

What happens after this?

Dates for open forum public meetings have been tentatively scheduled in mid-September 2007. Please check your local newspaper for the formal announcements. After comments are received from the public and reviewing agencies, Caltrans may (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project were given environmental approval and funding were appropriated, Caltrans could design and construct all or part of the project.

It should be noted that at a future date FHWA or another federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that a final action has been taken on this project by FHWA or another federal agency. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the federal agency action is allowed). If no notice is published, then the lawsuit or claim can be filed as long as the periods of time provided by other Federal laws that govern claims are met.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Howell Chan, Senior Environmental Planner, P.O. Box 23660, Mail Station 6-C, Oakland, CA 94623-0660; (510) 286-5623 Voice, or use the California Relay Service TTY number, (510) 286-4454.

State of California
Department of Transportation

SCH Number: [ ]
04-NAP-12, KP 0.4/5.3 (PM 0.2/3.3)
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EA 264100
04-NAP-29, KP 6.7/8.7 (PM 4.2/5.4)
04-NAP-12, KP 0.0/0.4 (PM 0.0/0.2)
EA 287900

Negative Declaration (CEQA)
Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to widen the two-lane conventional highway State Route 12 (Jameson Canyon) to a four-lane conventional highway and improve the intersection of State Routes 29 and 12 to an interchange. This project involves both Napa and Solano County. This project will reduce the existing traffic congestion by adding two more lanes, thus solving existing operational problems along the Jameson Canyon Road. The intersection of State Routes 29 and 12 are substandard and Caltrans has proposed to improve it by either of two alternatives, single point interchange or tight diamond interchange.

Determination

Caltrans has prepared an Initial Study/Environmental Assessment and determines from this study that the proposed project would not have a significant effect on the environment for the following reasons:

- The project will not significantly affect fish, plant life or wildlife; nor will it significantly affect any rare or endangered species.
- There will be no significant impacts upon the aesthetic features of the area.
- The project will not significantly affect any important farmland, any floodplain or any wetlands.
- No historic or archaeological sites or structures of architectural or engineering significance will be affected.
- The project will not affect neighborhoods, social, cultural, or educational facilities, or the economy of the area.
- The potential for geologic or seismic hazards will not be increased by the project.
- The project is compatible with local, regional and state land use planning and will not introduce any new patterns of land use or any growth in the area. It will not alter present patterns of traffic circulation or movement.
- There will be no impacts on noise, air, and water quality. The project will not change the rate of use of any natural resources.

_____ _____

Bijan Sartipi
District Director
District 4
California Department of Transportation

Date

Summary

The California Department of Transportation (Caltrans), the Napa County Transportation Planning Agency, and the Solano Transportation Authority propose to widen State Route (SR) 12 through Jameson Canyon and convert the State Routes (SRs) 29 and 12 intersection into an interchange. The purpose of the project is to relieve traffic congestion along SR 12 by increasing its capacity and to reduce conflicts and delays at the junction of SRs 29 and 12. Traffic congestion on this portion of SR 12 is heavy during peak hours with demand exceeding the capacity of the facility. Traffic congestion also occurs at the SRs 29/12/Airport Boulevard intersection with queues and delays of 80 seconds or longer per vehicle. Without any capacity improvements, traffic congestion on SR 12 and at the SRs 29/12/Airport Boulevard intersection are projected to become even worse by the year 2035; the delay times at the SRs 29/12/Airport Boulevard intersection would increase from 80 seconds to between 290-320 seconds per vehicle.

The project is located in both Napa and Solano Counties. The project is approximately 9.1 km (5.7 miles) long starting from its eastern terminus at Red Top Road near the I-680/I-80/SR 12 junctions in Solano County and ending at its western terminus at the junction of SRs 29 and 12 and Airport Boulevard in Napa County.

The rolling terrain on either side of SR 12 is open space or being used for agricultural purposes. There are a few residences along SR 12 that are part of large ranches. The junction of SRs 29/12/Airport Boulevard is generally flat and surrounded by industrial parks. The Napa County Airport and two golf courses are nearby.

The proposed project has two build alternatives and a no-build alternative. Both build alternatives widen SR 12 from two lanes to four lanes and include a concrete median barrier to separate east- and westbound traffic. Two median openings, one in each county, would be provided along with acceleration and deceleration lanes. Nine retaining walls would be constructed—three cut walls (also known as soil nail walls) and six fill/MSE (mechanically stabilized earth) walls. The type of retaining wall used at each of the nine locations would depend on adjacent topography and geologic factors. The tallest retaining wall would be approximately 30 meters (100 feet) high and in two tiers. Cross culverts underneath SR 12 would be extended to the new width of SR 12.

Extisting utility facilities along SR 12 or near the SRs 29/12/Airport Boulevard intersection would be relocated to just beyond the outside shoulder areas and Caltrans right of way.

The two build alternatives differ in their configurations for the SRs 29/12/Airport Boulevard interchange. In Alternative 1, the interchange would be a tight-diamond configuration. In Alternative 2, the interchange would be a single-point configuration. Both interchange configurations would have SR 12 elevated, with a possible two span bridge, over Route 29, which would remain at grade. Both alternatives would accommodate all direct traffic movements for SR 12/Airport Boulevard to and from SR 29.

The no build alternative would leave SR 12, the SRs 29/12/Airport Boulevard intersection, and surrounding area unchanged.

The proposed project would require partial acquisitions of sixty-six parcels. Most of the partial acquisitions would be narrow strips—"slivers"—adjacent to SR 12 or the SRs 29/12/Airport Boulevard intersection. No residential relocations would occur. Two driveways would be relocated because of proposed new retaining walls.

A total of four residences along SR 12 are deemed affected by increased traffic noise; their predicted future noise levels would exceed 66 dBA Leq (h). The affected residential receptors all have direct, line-of-sight of the highway. Noise abatement in the form of sound walls has been investigated for all affected receptors. Only those sound walls that are determined feasible and reasonable would be considered further for construction. Where feasible, noise barriers can be designed as sound walls, earth berms, or a combination of both, as long as the noise attenuation they provide is comparable and their heights and locations are identical.

This project may affect the following federally listed species:

threatened

- California red-legged frog (CRLF; *Rana aurora draytonii*)
- vernal pool fairy shrimp (*Branchinecta lynchii*)

endangered

- vernal pool tadpole shrimp **(***Lepidurus packardi***)**
- Conservancy fairy shrimp (CFS; *Branchinecta conservatio*)

Additionally, the project may affect the following California state listed species:

endangered

- American peregrine falcon (*Falco peregrinus anatum*)

threatened

- Swainson's hawk (*Buteo swainsonii*)

species of concern

- fifteen California Department of Fish and Game (CDFG) amphibian, reptile, bird, and mammal species

Oak woodlands, riparian forests, wetlands, and other waters occurring within the project area will also be affected.

Caltrans is in the process of identifying mitigation sites for the implementation of onsite mitigation for temporary and permanent impacts to oak woodland, riparian forest, and wetland habitats. Where onsite mitigation is unavailable or infeasible, Caltrans will seek nearby offsite mitigation for permanent loss of habitats through the purchase of appropriate habitat or mitigation bank credits. Caltrans may participate in the preservation and restoration effort of at least 1.5 hectares (3.8 acres) to compensate for impacts to wetlands and other waters of the U. S. and 52.47 hectares (129.65 acres) for impacts to CRLF breeding and movement/aestivation habitat, pending approval of the participating agencies. Additional preservation and restoration of vernal pool habitat may be necessary to compensate for impacts to federally-listed large branchiopods. Caltrans will mitigate for the loss of at least 549 native trees by restoring oak woodland and riparian woodland. Locations of tree replacement plantings will be established at on- and off-site locations to be determined by Caltrans and the regulatory agencies.

There will be no impacts to cultural resources, air quality, hazardous materials, water quality, or the community resulting from this project.

Anticipated permits for this project include a California Department of Fish and Game Section 1602 Lake and Streambed Alteration Agreement; a Clean Water Act (CWA) Section 404 Individual Permit from the U. S. Army Corps of Engineers (USACE); a CWA Section 401 Water Quality Certification permit from the Regional Water Quality Control Board (RWQCB); and a Biological Opinion with a Section 7 incidental take permit from the U. S. Fish and Wildlife Service (USFWS).

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Chapter 1-Proposed Project

1.1. Introduction

The State Route (SR) 12 Jameson Canyon Road Widening and State Routes (SRs) 29 and 12 Interchange Improvement Project proposes to widen the existing two-lane conventional highway to a four-lane highway and convert the existing intersection of SRs 29 and 12 to an interchange. The project is approximately 9.1 km (5.7 miles) long starting from its east terminus at Red Top Road near the I-680/I-80/SR 12 junctions in Solano County and ending at its west terminus at the junction of SRs 12 and 29 in Napa County. (See Figure 1.1.)

1.2. Background

SR 12 is an important east-west highway that traverses San Joaquin, Sacramento, Solano, Napa, and Sonoma Counties and carries interregional as well as local traffic. It connects with I-5 (in San Joaquin County), I-80 (in Solano County), and U. S. Route 101 (in Sonoma County). The portion of SR 12 that is the focus of this project is known as Jameson Canyon Road and, in Solano County, it is also called SR 12 West (the portion east of I-80 is referred to as SR 12 East). On an average annual daily basis (counted at Kelly Road in 2003), SR 12 carries between 24,700 and 32,500 motorists, in either direction, between the southern Napa Valley and the Fairfield/Suisun Valley areas. Many of the motorists using this portion of SR 12 live in Solano County and work in Napa County. As more jobs have been established in Napa County and more residences built in Solano County, traffic volumes, congestion, and travel times have increased on this portion of SR 12.

This portion of SR 12 is mostly a two-lane conventional highway set in a rural landscape with flat to rolling terrain. (See Figure 1.2.) Beginning at SR 29, there is a third lane extending eastbound for approximately 1.5 km (0.93 miles), for passing purposes, before the highway tapers to two lanes. The existing lane widths are 3.6 m (12 ft) with shoulder widths ranging from 0.7 to 2.4 m (2.30 to 8 ft).

There are three at-grade, signal-controlled intersections (Kelly Road, Kirkland Ranch Road, and Red Top Road) and two at-grade, uncontrolled Y-intersections (Lynch Road and one unnamed) in Napa County. SR 12 is accessible from adjacent properties, except between SR 29 and Kelly Road.

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FIGURE 1.1

SR 29, running north-south, is also an important highway that traverses Solano, Napa, and Lake Counties. It connects the major cities of Napa County and carries recreationally- and agriculturally-related traffic into and out of the region. In the project area, SR 29 is a four-lane conventional highway. The existing intersection with SR 12 and Airport Boulevard consists of two southbound and three northbound through lanes for SR 29, one northbound left-turn lane to Airport Boulevard and two southbound left-turn lanes to SR 12. At this intersection, SR 12 consists of one through lane to Airport Boulevard and one left-turn lane to southbound SR 29. The lane configuration on Airport Boulevard includes two left-turn lanes to northbound SR 29 and one through lane to SR 12. All four quadrants of the intersection have right turn lanes.

1.3 Project Purpose and Need

The purpose of the project is to relieve traffic congestion and delays along SR 12 by increasing its capacity and reducing conflicts at the junction of SRs 29 and 12.

SR 12, in year 2005, carried an Average Daily Traffic (ADT) volume of 34,500 vehicles from Red Top Road (just west of I-80) to North Kelly Road (just east of the junction of SRs 29 and 12). SR 29, in year 2005, carried an ADT of 66,000 vehicles through the project limits from north of SR 12 to south of SR 12.

During the peak hour, SR 12 from Red Top Road through Jameson Canyon to North Kelly Road currently operates at an unacceptable Level of Service (LOS) "F" and carries more average daily traffic than its capacity. The intersections of SR 12 with SR 29, North Kelly Road, and Red Top Road also operate at generally unacceptable LOS ranging between "D" and "F." [See Section 2.1.6 in this document or *OPERATIONAL ANALYSIS FOR THE SR-12 WIDENING PROJECT & ROUTE 12/29 INTERCHANGE (2007)*.]

SRs 29 and 12 is currently a signalized intersection. In the AM and PM peak hours, the heavy volume of vehicles converging at that junction results in queues and delay times of approximately 80 seconds per vehicle before vehicles pass through or turn at the intersection.

LEVELS OF SERVICE

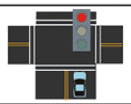
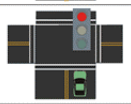
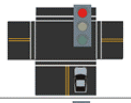
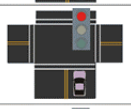
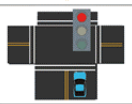
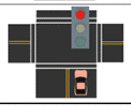
for Two-Lane Highways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		55+	Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed. **No delays**
B		50	Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. **No delays**
C		45	Stable traffic flow, but less freedom to select speed, change lanes or pass. **Minimal delays**
D		40	Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. **Minimal delays**
E		35	Unstable traffic flow. Speeds change quickly and maneuverability is low. **Significant delays**
F			Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. **Considerable delays**

Source: 2000 HCM, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1

LEVELS OF SERVICE

for Intersections with Traffic Signals

Level of Service	Delay per Vehicle (seconds)
A	 ≤10
B	 11-20
C	 21-35
D	 36-55
E	 56-80
F	 >80

Factors Affecting LOS of Signalized Intersections

Traffic Signal Conditions:
- Signal Coordination
- Cycle Length
- Protected left turn
- Timing
- Pre-timed or traffic activated signal
- Etc.

Geometric Conditions:
- Left- and right-turn lanes
- Number of lanes
- Etc.

Traffic Conditions:
- Percent of truck traffic
- Number of pedestrians
- Etc.

Source: 2000 HCM, Exhibit 16-2, Level of Service Criteria for Signalized Intersections

The Metropolitan Transportation Commission (MTC) notes in the North Bay Corridor Study, dated March 1998, that "population and job growth are expected to continue to intensify along SR 29, U. S. Route 101, and I-80, leading to increased east-west travel demand across …SRs 12, 116, 121...Travel demand is diverse and includes not only weekday commuting, but weekend tourism, truck traffic from agricultural operations, and traffic generated by major events." According to MTC's Regional Transportation Plan, "Transportation 2030 Plan," daily person trips from year 2000 to year 2030 between Napa and Solano Counties on SRs 12 and 29 are projected to increase 68%, which is exceeded in the Bay Area only by trips between San Benito/Monterey/Merced-Santa Clara at 120%, Lake/Colusa-Napa at 102%, and Mendocino/Sonoma at 83%.

In the year 2035, the ADT volume for SR 12 is projected to be 62,200. The ADT for SR 29 is projected to be 109,400.

In the year 2035, the operations of SR 12 are projected to remain at LOS "F" during the AM and PM peak hours. The operations of the SRs 29/12 intersection will also remain at LOS "F" in both the AM and PM peak hours.

The delay times at the junction of SRs 29/12 will increase from the current 80 seconds to between 290 and 320 seconds.

Safety

The accident rates (from January 1, 2003 to December 31, 2005) for SR 12 through Jameson Canyon are comparable to the statewide average for similar facilities.

The accident rates for SRs 29 and 12 at the SRs 29/12 intersection are two to four times the statewide average for similar facilities and intersections. The higher than average rate of accidents at the intersection indicates a potential need to separate vehicle movements between the two routes.

1.4 Project Description

The proposed project has two components—the SR 12 highway and the SRs 29/12 intersection. The SR 12 highway component begins at the intersection of Kelly Road and SR 12 in Napa County and ends at the intersection of Red Top Road and SR 12 (just 0.2 miles from the junction with I-80 and less than 1 mile from the junction with I-80 and I-680) in Solano County for a total length of approximately 9.1 km (5.7

miles). The SRs 29/12 intersection component begins on SR 29 just south of SR 221 and ends near Kelly Road South, and on SR 12 from Airport Boulevard to the intersection with Kelly Road.

Both components have been combined into the proposed project because of their proximity to each other. And, except for residents in the Jameson Canyon area, motorists utilize both the highway and the SRs 29/12 intersection together. Thus, the SRs 29/12 intersection and the SR 12/Red Top Road intersection are "logical terminii" for the proposed project because they are rational end points (project limits) for the proposed transportation improvements and for the review of environmental impacts.

The project, as proposed, has independent utility. The widening of the highway and the improvement of the SRs 29/12 intersection results in a usable facility even if no other transportation improvements in the area are made.

The implementation of the project as proposed does not restrict the consideration of alternatives for other reasonably forseeable transportation improvements in that portion of SR 12 or the SRs 29/12 intersection.

Alternatives

The following are the alternatives for the proposed project:

- **Alternative 1: Widen SR 12 to 4-lanes with a "Tight Diamond" interchange at its terminus with SRs 29/12**

- **Alternative 2:Widen SR 12 to 4-lanes with a "Single Point" interchange at its terminus with SRs 29/12**

- **No-Build**

For both build alternatives, the proposed project would widen SR 12 to a 4-lane highway with either a "tight diamond" or "single point" interchange at the intersection of SRs 29 and 12. For SR 12, the westbound facility would be designed to highway standards (design speed of 90 km/h, 55 mph), while eastbound would be designed to expressway standards (design speed of 110 km/h, 65 mph), with the exception of a 1 km (0.62 miles) stretch in Solano County that will be designed to

highway standards to minimize environmental and other impacts. The existing intersections with Kelly, Kirkland Ranch, Lynch, and Red Top Roads will be maintained. Two median openings, one in each county, are proposed along SR 12 with acceleration and deceleration lanes. Current accesses from adjacent properties to and from SR 12 will be maintained. However, at several locations, existing driveways may need to be relocated.

Both interchange alternatives would have SR 12 elevated, with a possible two span bridge over SR 29, which remains at grade. Both would accommodate all direct traffic movements for SR 12/Airport Boulevard to and from SR 29. An auxiliary lane would be added on southbound SR 29 between the SRs 29/221 intersection and the SRs 29/12 interchange. Both alternatives may need SR 12/Airport Boulevard to be realigned so that it is on a tangent through the intersection with SR 29. The roadway profiles for Devlin and Kelly Roads may need to be raised.

The ramps in the south quadrants would either have one exit lane splitting off into two lanes or two entrance lanes merging into one lane. At the northwest location, two lanes (one is the auxiliary lane) exit from southbound SR 29, diverge into four lanes at the end of the off-ramp; one turns west onto Airport Boulevard while the other three lanes turn east onto SR 12, merging to two lanes east of Kelly Road. At the northeast location, two lanes exit from westbound SR 12 to northbound SR 29.

For the “tight diamond” interchange alternative, all the ramps would either be on fill or bridge structures. A detour for east-west traffic on SR 12/Airport Boulevard would be built south of the existing intersection. Permanent traffic signals are anticipated at the ends of the ramps on SR 12/Airport Boulevard.

For the “single point” interchange alternative, all the ramps would either be on fill or bridge structures. A detour for east-west traffic on SR 12/Airport Boulevard would be built south of the existing intersection. A three-phase permanent traffic signal is anticipated at this interchange.

In detail, both alternatives would:

- Provide two 3.6 m (12 ft) lanes in each direction with 1.5 m inside shoulders, a 2.4 m outside shoulder for the westbound direction, and a 3.0 m (9 ft) outside shoulder for the eastbound direction on SR 12.
- Provide a minimum 3.6 m (12 ft) median or greater on SR 12 for adequate horizontal sight distances for motorists.

- Construct a concrete median barrier separating the two directions of traffic on SR 12.
- Upgrade the existing features of the current two-lane highway, such as grades, shoulder widths and horizontal and vertical curves to meet the current minimum highway standards for a design speed of 90 km/h (55 mph).
- Provide an overlay of asphalt concrete and widen the shoulders in some areas to standard dimensions for the existing SR 12, which will become the westbound direction facility.
  - Construct two new lanes for the eastbound direction to meet the minimum standards for a highway with a design speed of 90 km/h (55 mph), or better.
  - Accommodate all direct traffic movements for SR 12/Airport Boulevard to and from SR 29.
  - Maintain the four existing 3.6 m (12 ft) through lanes, two in each direction, on SR 29.
  - Provide five 3.6 m (12 ft) through lanes, two westbound and three eastbound, with 3.0 m (9 ft) shoulders, up to Kelly Road on SR 12. The three eastbound lanes merge to two lanes east of Kelly Road.
  - Provide one 3.6 m (12 ft) left-turn lane in each direction from SR 12-Airport Boulevard to the SR 29 on-ramps.
  - Construct 3.6 m (12 ft) auxiliary lane with 3.0 m shoulder on SR 29 in the southbound direction north of the interchange.
  - Maintain access control in all areas within the limits of the current SRs 29/12 intersection that are currently access controlled.
- Provide a detour for east-west traffic on SR 12/Airport Boulevard during construction of the interchange that will be built south of the existing SRs 29/12 intersection.
- Construct the ramps with at minimum 2.4 m (8 ft) right and 1.2 m (4 ft) left shoulders.
- Provide a new on-ramp in the southwest quadrant that will have two 3.6 m (12 ft) lanes from the SR 12/Airport intersection merging into one before the entrance to SR 29.
- Provide the ramp in the southeast quadrant with a single 3.6 m (12 ft) lane at the exit that expands into two 3.6 m (12 ft) lanes at the intersection. One lane will be for right turning movements (east) to SR 12, and the other will be for left turns (west) to Airport Boulevard.
- Provide two 3.6m (12 ft) lanes at the northwest location that will exit from southbound SR 29 and expand into four lanes at the intersection. One lane

will turn right (west) onto Airport Boulevard, while the other three lanes will turn left (east) onto SR 12.

- Provide a two-lane connector from westbound SR 12, at the northeast location, that will merge with the one lane from the left-turn pocket from eastbound SR 12/Airport Boulevard. These three 3.6 m (12 ft) lanes will drop to two, which will enter northbound SR 29 with the standard two-lane entrance ramp pattern. As shown in this standard, a 3.6 m (12 ft) wide merge lane with 3.0 m (9 ft) shoulder will be provided on northbound SR 29.

The No-Build Alterative would retain SR 12 and the SRs 29/12 intersection in their current configurations. The facilities would be unchanged other than routine maintenance operations.

Rejected Alternatives

SR 12 Jameson Canyon Road Widening

- **13.8 m (45 ft) median four-lane expressway with frontage roads**

This alternative proposed to convert the existing SR 12 Jameson Canyon Road to a four-lane expressway with a design speed of 110 km/h (65 mph). Two-way frontage roads would be built on both sides of the expressway so that access to it would be limited at selected intersections. However, the footprint of this alternative would create significant right of way and environmental impacts, with the median width of 13.8 m (45 ft) and nearly an 8 m (26 ft) separation between expressway and each frontage road. With the steep terrain, especially in Solano County, this alternative would require large cuts, fills and retaining walls [approximately 46 m (150 ft) at one location]. This alternative was rejected due to significantly greater right of way requirements, environmental impacts, and high construction costs.

- **PSR Alternative-18.6 m (61 ft) median four-lane expressway with frontage roads**

This alternative was the primary alternative proposed in the approved Project Study Report (PSR) to initiate this project. This alternative would convert the existing SR 12 Jameson Canyon Road to a four-lane expressway with a design speed of 100 km/h (62 mph). Two-way frontage roads would have been built on both sides of the expressway so that access would be limited to selected intersections. As with the 13.8

m (45 ft) median alternative, the footprint of this alternative would have created right of way and environmental impacts with the wide median, frontage roads and a required 8 m (26 ft) separation between the frontage roads and the expressway. Thus, it was dropped from further consideration.

- **6.6 m (21.6 ft) median four-lane expressway with collector-distributor roads**

This alternative proposed to convert the existing SR 12 Jameson Canyon Road to a four-lane expressway with design speed of 110 km/h (65 mph). On both sides of the expressway, collector-distributor roads (roads off the mainline) would collect multiple driveways together and distribute them to the expressway with one opening, thereby limiting access to it. Acceleration and deceleration lanes would allow ease of ingress and egress to and from the expressway. The footprint of this alterative was less than the above alternative, but it still created significant right of way and environmental impacts, with the median width of 6.6 m (21.6 ft) and nearly 8 m (26 ft) separation between expressway and the collector-distributor roads. This alternative was rejected due to significantly greater right of way requirements, environmental impacts, and high construction costs.

SRs 29/12 Intersection Improvements

- **At-Grade Intersection Improvement**

Several at-grade improvements were investigated to alleviate traffic congestion at the existing SRs 29/12 intersection. The three proposals studied in the PSR included various widening proposals to the existing at-grade intersection that added through-lanes on SR 29 and turning lanes between SRs 29 and 12.

The first proposal added a northbound lane to SR 29 and southbound left turn lane to SR 29 for a total of three left turn lanes to SR 12. This proposal was rejected because it did not address future traffic levels.

The second proposal included three left-turn lanes, two through lanes, and one through/right turn lane on SR 29 southbound. In addition, one left turn lane, three through lanes and one through/right turn lane on SR 29 northbound were included. Eastbound SR 12 had to be widened to three lanes to accommodate the southbound left turn movement. This proposal was rejected because it did not address future traffic levels and it could not accommodate an interchange configuration in the future.

The third proposal included four southbound left turn lanes, six northbound lanes (with one northbound left turn lane), four eastbound lanes, with two eastbound left turn lanes; and three westbound lanes, including one westbound left turn lane. Although it did meet the 2025 traffic projections (according to the traffic study performed at that time), this proposal was rejected because it was not technically feasible.

- **Spread Diamond Interchange**

This alternative was considered as a low-cost variant of the Partial Cloverleaf Alternative (below). The idea was that if the partial cloverleaf configuration was to be the ultimate concept, a "spread" diamond interchange could initially be constructed as an incremental improvement, then later incorporating the loop ramps in a future project. This alternative was rejected due to significantly greater right of way requirements and environmental impacts.

- **Partial Cloverleaf Interchange**

This alternative would include loop ramps in the northwest and southeast quadrants and diagonal ramps in all four quadrants. Auxiliary lanes on SR 29 would be required for the proposed two lane diagonal ramps in the northwest and northeast quadrants. This alternative was rejected due to significantly greater right of way requirements and environmental impacts.

- **Flyover**

The flyover alternative would have called for a direct connector from SR 29 southbound to SR 12 eastbound. The opposite movement would have been provided by a northeast quadrant diagonal ramp. Because only the two direct connections were considered with no other improvement to the SRs 29/12 intersection, this alternative was rejected because it could not relieve all the congestion at the SRs 29/12 intersection and it was not acceptable to the local stakeholders.

Transportation System Management and Transit

The Transportation System Management (TSM) alternative consists of activities that maximize the efficiency of the present system. Such activities include fringe parking, ridesharing, high occupancy vehicle (HOV) lanes, and traffic signal timing optimization. There is currently no transit service between the proposed project's terminii, Napa and Fairfield; so, there would be no way to connect fringe-parking

areas. Developing transit service between these two terminii is unlikely in the near term; transit service requires an operator, capital expenditures for buses, and subsidies for operation and maintenance of the service and buses. Ridesharing in vans or private vehicles would ease some of the congestion on SR 12, but ridesharing would have limited effectiveness on a two-lane highway because there will be no time advantage for the motorists and passengers who would be sharing the commute. Adding one HOV lane in each direction to SR 12 would require widening of that facility from two to four lanes, which is the action that the two proposed build alternatives would accomplish. The difference is, however, that the additional lanes would only relieve congestion for high occupancy vehicles in this TSM alternative, but would relieve congestion for both high occupancy and single-occupancy vehicles in the two proposed build alternatives. Traffic signal timing optimization is already being utilized at the SRs 29/12 intersection; it has negligible effect at the intersections with Kelly, Kirkland, and Lynch Roads because the traffic volumes on those roads are low. This alternative is unlikely to succeed in easing congestion on SR 12 and was, therefore, rejected as an alternative.

Project Cost and Funding Sources:

The right of way cost estimate for the widening of SR 12 to four lanes is $10,607,000 in 2007 dollars and $11,031,000 escalated to the mid-construction year of 2011. The construction cost estimate for roadway items is $115,758,000 in 2007 dollars and $154,857,000 escalated to the mid-construction year of 2011.

The right of way cost estimate for the conversion of the SRs 29/12 intersection to an interchange ranges from $11,781,000 (for the Tight-Diamond Alternative) to $12,588,000 (for the Single-Point Alternative) in 2007 dollars. The construction cost estimate ranges from $55,385,000 (for the Tight-Diamond Alternative) to $79,891,000 (for the Single-Point Alternative) in 2007 dollars. The right of way and construction cost estimates for the conversion of the SRs 29/12 intersection to an interchange have not yet been escalated because there is no target date for these actions yet.

Approximately $73,990,000 of the funding for the widening of SR 12 will be from the Corridor Mobility Improvement Account, which receives bond monies from Proposition 1B—the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006—that was approved by California voters on November 7, 2006. This amount would enable the completion of Phase 1—the construction of two lanes and shoulders for the eastbound direction and retaining walls. Phase 2—the widening and overlaying of existing highway—will be funded from a combination of

State Transportation Improvement Program (both Interregional Transportation Improvement Program and Regional Transportation Improvement Program), federal (SAFTEA-LU demonstration funds, and Surface Transportation Program funds), and, possibly, local sources.

The source of funding for the conversion of the SRs 29/12 intersection to an interchange is still to be determined.

1.5 Permits and Approval Needed

This project will require several permits, agreements, and concurrence from the resource agencies:

- Section 7 Incidental Take Permit for the California red-legged frog (USFWS; Federal Endangered Species Act)
- 1602 Lake and Streambed Alteration Agreement (CDFG; Section 1601 of the Fish and Game Code)
- 401 Water Quality Certification (RWQCB; Section 401 of the Clean Water Act)
- 404 Individual Permit (USACE; Section 404 of the Clean Water Act)