Santa Rosa Bicycle and Pedestrian Bridge
Feasibility Study

Prepared for the City of Santa Rosa
November 2010
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**Acronyms Used in this Report**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AASHTO</td>
<td>American Association of State Highway Transportation Officials</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
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<td>APS</td>
<td>Advance Planning Study</td>
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<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>EA</td>
<td>Expenditure Authorization</td>
</tr>
<tr>
<td>EIR</td>
<td>Environmental Impact Report</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
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<tr>
<td>PEAR</td>
<td>Preliminary Environmental Assessment Report</td>
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<tr>
<td>PID</td>
<td>Project Initiation Document</td>
</tr>
<tr>
<td>PSR-PR</td>
<td>Project Study Report - Project Report</td>
</tr>
<tr>
<td>RBN</td>
<td>Regional Bicycle Network</td>
</tr>
<tr>
<td>RTP</td>
<td>Regional Transportation Plan</td>
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<tr>
<td>SCTA</td>
<td>Sonoma County Transportation Authority</td>
</tr>
<tr>
<td>SGA</td>
<td>Steven Grover &amp; Associates</td>
</tr>
<tr>
<td>SMART</td>
<td>Sonoma Marin Area Rail Transit</td>
</tr>
<tr>
<td>SRJC</td>
<td>Santa Rosa Junior College</td>
</tr>
<tr>
<td>TOD</td>
<td>Transit-oriented Development</td>
</tr>
<tr>
<td>VMT</td>
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Introduction

This report documents the need for and feasibility of constructing a bicycle and pedestrian bridge over the Highway 101 freeway near the Santa Rosa Junior College (SRJC) in Santa Rosa, California. This study was conducted by Steven Grover & Associates (SGA), a consulting architecture and engineering firm in Berkeley, California. Numerous other entities provided contributions and assistance. These include City of Santa Rosa staff, representatives of the SRJC, the Santa Rosa School District, Caltrans, and local stakeholders. SGA was also assisted by several subconsultants including PBS&J, Kleinfelder, and Bicycle Solutions of San Francisco, California.

The Executive Summary below provides an overview of the findings of this study. Sections 2 and 3 of this report together define the problem to be solved; Section 2 provides an analysis of the project context, and Section 3 documents goals for the project identified during the study period and design criteria for achieving them. Section 4 presents solution alternatives studied, and assessment of their relative merits. Section 5 provides a summary of project development steps that will be needed for project implementation, should the City of Santa Rosa elect to move forward with the project.

In addition, the Appendices include a draft Preliminary Environmental Assessment Report (PEAR), as well as a draft Project Study Report - Project Report (PSR-PR). These documents are preliminary; they lack supporting studies which are beyond the current scope of this feasibility study. However, each has been prepared in accordance with the latest Caltrans templates and guidelines and provides a starting point for accurately scoping the Project Initiation Document (PID) phase of the project.
Executive Summary

This study finds that there is a need for improved bicycle and pedestrian access across Highway 101 within the project study area, that this need will increase significantly within the next decade, and that improvements to existing crossings at Steele Lane and College Avenue will not adequately address this need. Broadly speaking, to be considered successful, the proposed project must a) effectively close a gap in the bicycle and pedestrian transportation network, and b) encourage walking and biking in Santa Rosa and the region.

This study finds that a freeway overpass structure near the center of the project study area can substantially achieve the project goals identified, provided it is designed to

1. Attract interest by presenting an inviting and exciting visual presence,
2. Encourage repeat usage by providing a safe and comfortable user experience by meeting and in some cases exceeding minimum width, design speed, gentle ramp slopes, mode separation, and sightline requirements established by American Association of State Highway and Transportation Officials (AASHTO) and California Department of Transportation (Caltrans),
3. Accommodate future peak usage and bicycle/pedestrian mode split requirements unique to this location,
4. Make safe and strong connections to existing bicycle and pedestrian routes and to transit.

The proposed project also presents opportunities for additional benefits beyond fulfilling a transportation need:

- The project can help invigorate pedestrian/bicycle and transit-oriented development in its immediate vicinity.
- Because of its prominent location on the Highway 101 corridor, the project could provide a symbolic gateway to Santa Rosa and a source of civic pride for residents.

Importance of User and Viewer Experience

Quality of user experience is perhaps the most important factor in determining whether people will regularly choose to use a grade-separated crossing when they have an equal travel-time alternative of crossing at-grade or driving a car. Public input gathered at community meetings as part of this study supports this: an attractive structure and comfortable geometry were overwhelmingly considered high priorities by public meeting attendees. Specifically, "standard" concrete crossing structure designs were considered less desirable, and gentle ramp slopes and greater width of the traveled way were consistently identified as important goals for the project.¹

User safety is a key aspect of user experience. Unlike roadways, bicycle/pedestrian pathways must accommodate different travel modes simultaneously; cyclists may be moving 10 or more times faster

¹ Two community meetings were held for this project, on February 19, 2009 and June 16, 2009. See Appendix E.
than pedestrians. Gentle curves, good lighting, clear sightlines, and plenty of room at the bottom of ramps before users need to mix with vehicular traffic are all important for a successful project.

Because bicycle and pedestrian crossings are typically enclosed by railings and fencing, they may be considered architecturally more like urban sidewalks than open pathways, and the principles of pedestrian and bicycle friendly urban streetscape design – with respect to things like lighting, traveled way widths, materials, sightlines, and stopping points – which have gained traction in the past two decades, may be applied to bridge and underpass design to good effect.

Unfortunately, these design principles have not yet fully made their way into highway facilities design guidelines, and many bicycle/pedestrian crossings for large roadways in the US continue to be built to meet minimum geometric, lighting, and safety standards which make walking or taking a bike possible, but not necessarily pleasurable, safe, or easy. To make the proposed project as successful as possible, we recommend the City of Santa Rosa formally adopt project-specific design guidelines to guide subsequent phases of the project.2

**General Crossing Type and Geometric Recommendations**

Based on the project goals and constraints, project context and usage analyses, experience with similar projects, and the input from the public and stakeholders, we conclude that a bridge with ramps is the most appropriate type of bike/pedestrian crossing facility for this project.3 Further, based on community input, anticipated volumes, usage patterns, and mode splits, we recommend that:

- ramps connecting the bridge with adjacent streets and sidewalks be gently sloped at 1:20,
- both the bridge and ramps have adequate width (15.5 feet) to allow for positive mode separation,
- the design incorporate large radii curves in accordance with Caltrans Class 1 multiuse pathway design criteria (at least 154 feet) and open sightlines for a safe and positive user experience for all travel modes,
- touch-down areas for ramping should be located where there is ample “run out” room for descending cyclists as well as space for safe merging and mixing of bikes and pedestrians with automobile traffic.

Detailed recommended design criteria is presented in Section 3.

**Project Study Area**

The project vicinity is expected to undergo significant change over the coming decade; as density increases and new transit options become available, bicycle/pedestrian circulation can be expected to play a greater role throughout the project area. On the west side of Highway 101, while land use at Coddington Mall and the surrounding area is expected to remain primarily commercial and retail, the type of retail and the specific markets served are changing quickly. To the south, several large

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2 Design Guidelines adopted by the City of Berkeley in 1997 at this stage of a similar project helped guide decisions during the detailed design review process, and the cumulative impact of design compromises in response to physical, financial, and political constraints was avoided. Today, the Berkeley structure is widely recognized as highly successful in encouraging cycling and walking and reducing vehicle miles traveled. Proposed Design Guidelines for the project are presented in Section 3.

3 Elevator and underpass options were also considered. Underpass options are not recommended due to the cost and risks of excavation with a high water table under an active freeway, and the challenge of designing for a satisfactory user experience in a tunnel over 200’ long. Elevator options are not recommended primarily because they cannot conveniently serve the expected volume of cyclists, and require ongoing maintenance.
medium-density housing developments have been constructed within the last decade and the remaining 19 acres of agricultural lands are also zoned for medium density housing. While the use and character of the SRJC campus is not expected to change, improvements to campus bicycle and pedestrian circulation are planned. A new Sonoma Marin Area Rail Transit (SMART) station is to be constructed in the coming few years, along with a bicycle/pedestrian multiuse path which runs along the rail line.

**Best Location for a Crossing**

Either of two existing streets on the east side of the highway, Elliott Avenue and Bear Cub Way, could effectively serve as conduits for east-west through bicycle and pedestrian traffic, and as entry corridors for bicycle and pedestrian traffic headed to or from the Santa Rosa Junior College campus. Both of these routes currently have existing constraints that could be addressed in connection with a Highway 101 crossing project. Signalization and striping improvements could be explored to improve safety for cyclists and pedestrians where Elliott Avenue and Dexter Lane make an offset intersection with Mendocino Avenue. Bear Cub Way has a constriction at the Haehl Pavilion limiting sightlines and width available for mode separation.

Connections at the center of the SRJC campus, in the Scholars Drive area, were also studied. These rank lower in overall viability than the other locations considered, primarily because the SRJC indicated they foresee significant challenges to safely routing bicycle traffic through the campus, and secondarily because existing development on the west side presents some challenges to accommodating a ramp structure and safe touch-down area.

Connections between destinations east of Highway 101 and the proposed SMART station emerged early on as a key factor in assessing alternative bridge locations and alignments. Throughout the first part of the study period, indications were that a station would be located at the “Wye” property south of Jennings Avenue. More recently, indications are a station will be located at Geurneville Road, near Coddingtontown.

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Constructability and Ease of Implementation

Detailed site analyses, conceptual design studies, and cost and constructability assessments were developed for both an Elliott Avenue location (alignment families A and B) and for a Bear Cub Way location (alignment families F and G). See Section 4 of this report for details.

For a project like this one, several key factors influence the feasibility and ease of constructing an overcrossing:

1. Ample space is required on either side of the crossing to accommodate ramp structures without the need for tight curves on the ramps.
2. Open areas also facilitate construction, particularly for steel structures, by allowing for large sections to be staged before lifting over the roadway.
3. If side spans can be more or less in line with the main span, this allows for a greater number of structure type options, which can offer a signature appearance more economically, a thinner deck depth and thus shorter ramps.
4. If geometric conditions can allow for a structure type that can economically span the entire freeway, this significantly simplifies Caltrans review and approval processes.
5. Construction of a crossing at an area with existing development may require removal or relocation of existing buildings and/or right-or-way acquisition, which adds to the complexity and cost of project delivery.

The Elliott Avenue location is characterized by several conditions that constrain the feasibility of realizing a successful bridge and ramp structure: mature heritage trees, fully developed parcels, high...
voltage overhead utilities, an elevated freeway, and terrain on the west side that slopes away from the freeway. In comparison, the Bear Cub Way location has more favorable topography, large undeveloped parcels on the west side, and a wide-open parking lot devoid of mature vegetation on the east side.

**Detailed Alignment Studies Connecting to Jennings SMART Station**

Detailed studies during the initial phase of this study were based on the understanding that the proposed SMART station would be located south of Jennings Avenue. For this station location, an alignment at Bear Cub Way enjoys a direct connection to SMART, open layout space allowing for good constructability and traveled-way geometrics for comfortable user experience, few impacts on existing uses, strong community consensus, and potential for speedier project implementation. However this alignment does not provide as direct a connection to Coddingtown Mall and the northern pedestrian core of the SRJC campus.

**Additional Alignment Studies Connecting to Guerneville SMART Station**

In the fall of 2009, SMART began considering requests by community groups to move the proposed Jennings station northward to Guerneville Road. Because such a change could affect the findings of this
study, the City elected to postpone delivery of a final feasibility study report. At this date indications are that the SMART station will be located at Guerneville Road. Consequently, in early 2010, additional detailed geometric, property acquisition, and construction cost studies were requested to more fully assess the feasibility of a bridge and ramps at Elliott Avenue.\(^5\) Perhaps the most important impact a Guerneville station location has relative to selection of a bicycle/ pedestrian bridge location is the establishment of a nexus of transit-oriented development (TOD) in the Coddingtown/Guerneville Road area.

ALIGNMENT A : Northern alignment with SMART station assumed at Guerneville Rd.

![Figure 3 Alignment A-1: Northern alignment with SMART station assumed at Guerneville](image)

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\(^5\) See Section 4.
Several observations can be made:

1. For pedestrians traveling between the SRJC campus and Coddingtontown destinations, a crossing at the Elliott Avenue location would provide shorter walking distances than a crossing at Bear Cub Way. For either location the distances involved exceed the generally accepted range of 0.25 to 0.5 miles considered comfortable for pedestrians in urban settings.6

2. Any bridge within the study area would provide for comfortable biking between the general Coddingtontown/SMART area and the SRJC campus.

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The Next American Metropolis 1993 by Peter Calthorpe, p 56.
3. A crossing located at Elliott Avenue would provide approximately 16% shorter travel distances between SMART and the center of the SRJC campus compared with Alignment F at Bear Cub Way.

4. A crossing at Elliott would be more strongly associated with the Coddington/SMART/Guerneville commercial development area, and could provide greater impetus for bicycle-friendly development of this retail area.

5. A crossing at Bear Cub Way would be more strongly associated with residential and possibly urban park development.

6. A crossing located at Bear Cub Way would provide more direct connections to currently designated bicycle routes at Jennings on the west and Pacific Avenue on the east side.

For alignments connecting to Bear Cub Way, if SMART is located at Guerneville, Alignment F-1 is preferable to G. Alignment F-1 connects directly to the Jennings Avenue bike route, and from there to the Guerneville SMART station location along the future SMART multiuse pathway. Compared to Alignment G, Alignment F would be less costly to construct due to a shorter main span. Alignment F offers an opportunity to integrate the west bridge ramping and touch-down area with a small urban park proposed to accompany future development in this area.

While several families of ramp and bridge alignments are possible for connections to Elliott Avenue, they all involve some combination of compromises to adjacent uses, project delivery and cost, the functional design, and aesthetics. With the exception of an alignment that runs down Elliott Avenue eastward past Illinois Street, and bisects the former “Los Robles” parcel, all alignment alternatives at this location will not meet Class 1 bikeway criteria for design speed and curves. Most alternatives at this location present significant structural design challenges if construction within the Caltrans right-of-way is to be avoided.

Alignment A-1 allows for adequate touchdown areas on each side, has gentle ramp slopes and ample widths, does not require relocation of overhead utilities crossing the freeway, and has larger traveled way curves than other alternatives at this location. A-1 also has touchdown areas with ample area for bike/pedestrian mode mixing before this traffic mixes with automobiles. Alignment A-1 requires acquisition and demolition of an existing residence and an existing commercial building, and would visually impact the SRJC Pedroncelli Center. It also requires loss of parking and trees, and relocation of above-ground utilities along the Pedroncelli Center parking lot.

Alignment B-1 has fewer impacts on the Pedroncelli Center building. B-1 has more compromised path of travel on the east side; a tight turn near the bottom of the east ramp and it spills bicycle traffic directly onto Elliott Street. B-1’s western touchdown is not at an intersection, so traffic calming measures, the addition of bike lanes on Edwards Avenue, and enough land acquisition to provide a small touchdown ‘plaza’ would be desirable for this Alignment alternative. Alternative B-2 avoids these issues at its western touchdown, and would also lead more directly to Coddington, however in order to do so it bisects the former “Los Robles” parcel.

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7 See for example, the design concept submitted by Architect Paul Harris to the February 2010 American Institute of Architects SMART ideas design charrette and competition.

8 See Chapter 4 for more detailed alignment alternatives assessments.

9 A-1 has path of travel curves radius of about 50 feet. Caltrans design guidelines prescribe a radius of 261 feet for a design speed of 30 mph for a Class 1 bikeway.
Comparison of Alignments A-1, B-1, B-2, and F-1

<table>
<thead>
<tr>
<th>Distances and Costs</th>
<th>A-1</th>
<th>B-1</th>
<th>B-2</th>
<th>F-1</th>
</tr>
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<tbody>
<tr>
<td>Bailey Hall SRJC to Guerneville SMART</td>
<td>1.0 miles</td>
<td>1.0 miles</td>
<td>1.0 miles</td>
<td>1.2 miles</td>
</tr>
<tr>
<td>Bailey Hall to Northside Transfer Center at Coddington Town</td>
<td>0.89 miles</td>
<td>0.88 miles</td>
<td>0.88 miles</td>
<td>1.1 miles</td>
</tr>
<tr>
<td>Total length of bridge with ramps(10)</td>
<td>1,143 feet</td>
<td>1,121 feet</td>
<td>1,118 feet</td>
<td>980 feet</td>
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<tr>
<td>Estimated total project cost(11)</td>
<td>$13.3 million</td>
<td>$13.4 million</td>
<td>$14.1 million</td>
<td>$10.0 million</td>
</tr>
</tbody>
</table>

Table 1 Quantitative comparison of Alignments A-1, B-1, and F-1

Cost Estimates Notes:
- Construction cost estimates are based on linear feet of main span, side spans, ramps on fill, at-grade trail.
- Unit costs for construction were developed based on review of costs for similar projects in the Bay Area, adjusted to 2010 dollars using Caltrans costs escalation criteria.
- Unit costs used are considered conservative.
- A and B have longer main spans due to the width of the freeway at that location.
- A and B have longer ramps due to the elevated freeway and sloping topography to the west.
- F does not include costs for possible improvements along Bear Cub Way to the east of the touchdown (these are considered a separate project already identified in SRJC transportation plan.)
- B requires more extensive utilities relocation.
- Right-of-way acquisition costs for ramping and trail on the west side of F not included (assumed to be part of separate project developing small urban park already identified by City as a condition for housing development on a 19 acre area)
- Soft costs were generated as a percentage of construction cost based on a review of costs for similar projects in the Bay Area, adjusted to 2010 dollars using Caltrans costs escalation criteria.
- A higher percentage was used for soft costs for A and B because these alternatives a) may require Caltrans right-of-way acquisition and certification, b) will involve more agency process and utilities engineering, c) will require ROW from more than one private owner, d) may require separate Caltrans project study (PSR) and project (PR) reports, rather than a combined PSR-PR, e) have more constraints requiring greater engineering design efforts for civil and structural design.
- Refer to Section 4 and Appendix D for more cost information.

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\(10\) Assuming 1:20 ramp slopes and above-deck structure for main span. A below-deck structural system, such as a concrete box girder, would result in approximately 160' greater total length.

\(11\) Total Project Cost includes Construction Costs and Soft Costs (e.g. Design & engineering fees, construction administration/inspection, environmental studies, City staff project management, fundraising costs, grant proposal preparation, utility relocation planning, permitting, etc.)
<table>
<thead>
<tr>
<th></th>
<th>A-1</th>
<th>B-1</th>
<th>B-2</th>
<th>F-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Co-development Opportunity</strong></td>
<td>In tandem with commercial development.</td>
<td>In tandem with commercial development.</td>
<td>In tandem with commercial development.</td>
<td>In tandem with an urban park.</td>
</tr>
<tr>
<td><strong>Project Delivery</strong></td>
<td>Greater complexity and additional coordination may require longer project schedule and higher soft costs.</td>
<td>Greater complexity and additional coordination may require longer project schedule and higher soft costs.</td>
<td>Greater complexity and additional coordination may require longer project schedule and higher soft costs.</td>
<td>Fewer constructability, utilities, and environmental or adjacency issues may mean faster delivery and lower soft costs.</td>
</tr>
<tr>
<td><strong>Travel Path</strong></td>
<td>Curve radii do not meet Caltrans Design Guidelines.</td>
<td>Curve radii do not meet Caltrans Design Guidelines.</td>
<td>Curve radii do not meet Caltrans Design Guidelines.</td>
<td>Location is ideal for accommodating ideal pathway geometry.</td>
</tr>
<tr>
<td><strong>Touchdown Areas</strong></td>
<td>West Excellent, East Adequate. West touchdown associated with increasingly pedestrian-oriented retail, has plenty of space, and virtually no vehicular traffic. East side has bike/ped mixing area before mixing with autos.</td>
<td>West Poor, East Adequate. West side touchdown is mid-block, adjacent to residences, and mixing area constrained by lot development goals and sidewalk. East touchdown splits for eastbound and westbound users.</td>
<td>West Excellent, East Adequate. West touchdown associated with increasingly pedestrian-oriented retail, has plenty of space, and virtually no vehicular traffic. East touchdown splits for eastbound and westbound users.</td>
<td>West Excellent, East Good. West side touchdown would be in park, east in ample landscape-delineated area. Curves in accordance with agency guidelines provide greater safety and quality of user. Open sightlines.</td>
</tr>
<tr>
<td><strong>Bikeway Connections</strong></td>
<td>West: Coddingtontown Ctr would need to be designated as a bikeway. Connects to Range Ave. East: Elliott Ave to Mendocino Ave.</td>
<td>West: Edwards would need to be designated as a bikeway. Connects to Range Ave. East: Elliott Ave. to Mendocino Ave.</td>
<td>West: Coddingtontown Ctr connects to Range (Coddingtontown Ctr would need to be designated as a bikeway.) East: Elliott Ave to Mendocino.</td>
<td>West: Jennings Avenue connects to Range Ave. and SMART bikeway. East: Bear Cub Way connects to Mendocino Ave.</td>
</tr>
<tr>
<td><strong>Character of Bridge as seen from freeway</strong></td>
<td>Structural options are limited and pragmatics or economics more likely to overrule aesthetic options.</td>
<td>Structural options are limited and pragmatics or economics more likely to overrule aesthetic options.</td>
<td>Structural options are limited and pragmatics or economics more likely to overrule aesthetic options.</td>
<td>Signature bridge structure is more feasible.</td>
</tr>
</tbody>
</table>

Table 2 Qualitative comparison of Alignments A-1, B-1, and F-1
Figure 5 Oblique aerial view of Alignments A-1 and F-1
# 2 Project Context & Constraints

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2.1 Project Study Area
The project study area is located along the Highway 101 corridor between the College Avenue Interchange (Post Mile 20.74) and the Steele Lane Interchange (Post Mile 21.74). It extends from Range Avenue on the west to Mendocino Avenue on the east.

In this area US Highway 101 consists of four northbound and four southbound lanes, with a total right of way width of approximately 135 feet. Major landmarks within the project study area are the Santa Rosa Junior College on the east and Coddingtown Mall on the west.

2.2 Land Use Patterns
The land uses within the project study area are highly disparate in type, scale, and the number of people involved. The area includes a variety of light industrial uses, academic campuses up to 100 acres in size, government buildings, a large shopping mall, single family dwellings on both small and large lots, open agricultural land, apartment block developments, a business park, and commercial strips comprising a wide variety of business types. Even land uses of similar type and size are highly disparate: for example, the Santa Rosa Junior College has 23,000 students and 2,000 staff, while the immediately adjacent Santa Rosa High School has 2,000 students and 100 staff. This diversity results in complex travel route demand patterns within and through the study area.

While land use patterns on the east side of 101 can be expected to remain stable, those on the west side are likely to change substantially over the next decade. The recent construction of high density housing along Cleveland Avenue and along Frances Street is a trend that may be expected to continue with the development of approximately 20 acres of open land between Jennings Avenue and Frances Street\(^1\) and the gradual densification of the large block circumscribed by Jennings, Range, Edwards, and Cleveland. The types of businesses at Coddingtown Mall are also expected to change, as evidenced by the departure of Gottschalks and a variety of small retailers from the mall, combined with the arrival of Whole Foods in 2010.\(^2\) With large-scale housing developments and neighborhood infrastructure improvements on the 5- to 10-year horizon, Coddingtown Mall, despite its depressed popularity at the moment, is a mainstay of the project study area and can be expected to revitalize along with the surrounding area. The proposed Sonoma Marin Area Rapid Transit (SMART) station, at its expected location at Guerneville, will both directly create and catalyze land use changes in the Coddingtown area, and the Gateways Redevelopment Plan will facilitate growth and land use changes in this area.

\(^1\) An application for construction of 310 housing units on this lot was withdrawn in 2009; however, according to realtor Jim Brown of Bertolone Realty, plans to develop this property have not been abandoned.

Figure 2-1  The study area is located along the Highway 101 corridor between Post Mile 20.74 and 21.74.
The changing land use patterns on the west side of Highway 101 are relevant to the current study because the pattern of travel origins and destinations will also change. Currently, Coddington and the bus transit center located on its west edge are perhaps the largest magnets for bicycle and pedestrian traffic; however, with increasing high density residential development south of Coddington and the construction of a rail transit station, the 'center of gravity' of urban density moves southward.

Most buildings in the project study area are under two stories, though there are some three-story buildings and more are expected in the future.
Figure 2-3 Zoning map of the project study area.

Figure 2-4 View of former railroad right of way. Like Bear Cub Way on the opposite side of the freeway, it is currently a large area of paved asphalt used as parking. The entrance to Myers Restaurant Supply is on this corridor.

Figure 2-5 Opposite perspective from former railroad right of way, towards SRJC. Little room between frontage road and freeway barrier. Also view of mature vegetation on SRJC campus, near Bear Cub Way.
Figure 2-6 View of Bear Cub Way towards the freeway. Bear Cub Way is currently a wide expanse of asphalt with striped parking spaces.

Figure 2-7 Range Avenue, south of Jennings Avenue. New housing developments along west side of Range Avenue.

Figure 2-8 National Guard on Armory Drive, south of Bear Cub Way.

Figure 2-9 View down Elliott Street from Northbound Highway 101.

Figure 2-10 Coddington Mall

Figure 2-11 View south on Cleveland Avenue towards Edwards Avenue and former Los Robles Lodge.
2.3 Transportation

A new crossing structure must be designed to accommodate construction over state and local roadways.

2.3.1 Routes and Rights-of-Way

Caltrans Right-of-Way: Highway 101 bisects the study area, creating a major north-south visual axis, a major barrier to east-west travel, and a significant barrier to the overall coherence of the urban landscape. The need to stitch low speed transportation routes in the project study area across the Caltrans right-of-way is well documented.³

City Streets: The network of streets and pathways which work their way between the varied land uses in the project study area do not follow any strong pattern predating the construction of Highway 101. As a result, making connections across 101 is not simply a matter of reconnecting previously joined public rights-of-way. In the northern half of the project study area, there are no public rights-of-way that align across Highway 101. In the southern half of the study area only Ridgeway Avenue and Carrillo Street are aligned on each side of the freeway.

Private Streets and Pathways: In addition to public city streets, private streets and pathways also make up the access network within the project study area, particularly on the SRJC campus. Bear Cub Way, on the southernmost edge of SRJC, is a private campus street providing through access from Armory Drive all the way to Mendocino Avenue. Other campus streets which allow public access include Scholars Drive, Planetarium Way, and Burbank Circle.

Former Railroad Right-of-Way: At the approximate center of the project study area a former railroad right-of-way intersects Highway 101 at a diagonal and aligns across the freeway. On the west side, this land is currently owned by the adjacent restaurant supply business, which uses a small portion of it adjacent to Cleveland Avenue for parking. The remainder is open fields with some trees. On the east side the former right-of-way is named Bear Cub Way, is owned by the SRJC, and is entirely paved for parking and automobile travel.

2.3.2 Automobile

The following chart summarizes the peak hour volume each direction of Highway 101 at College Avenue and at the Steele Lane interchange, and gives the annual ADT for each freeway direction. The ADT value is taken from the 2008 Traffic Volumes on California State Highways. Highway 101 near the proposed project carries approximately 113,000 vehicles per day based on year 2008 counts from Caltrans.⁴

Following are charts showing traffic volumes, accidents, and traffic signals in the project study area.⁵

---

³ 1) “Highway 101 creates a major barrier to bicycle transportation. Two major vehicle crossings at Steele Lane and College Avenue are extremely intimidating to even serious cyclists.” Santa Rosa Bicycle/Pedestrian Master Plan 2001 Update (E-2). 2) “Highway 101 form[s] a barrier that significantly limits pedestrian and automobile access between the eastern and western portions…” Downtown Station Area Specific Plan (2-10). 3) “The barriers created by freeways are among the most difficult challenges for bicyclists and pedestrians in many locations” SCTA Countywide Bike/Ped Master Plan (12, 23). See Appendix__ for additional related comments by community members.

⁴ Data obtained from Caltrans Traffic Data Branch, at: [http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2008all/r101i.htm](http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2008all/r101i.htm)

⁵ Data obtained from Dawn Roe, CHP Information Services Unit.
### Table 2.1 Volumes on city arterials in the project study area

<table>
<thead>
<tr>
<th></th>
<th>ADT</th>
<th>AM Peak Hour Volume</th>
<th>PM Peak Hour Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Avenue underpass</td>
<td>34,309</td>
<td>3,179</td>
<td>3,560</td>
</tr>
<tr>
<td>Steele Lane underpass</td>
<td>44,997</td>
<td>2,904</td>
<td>4,541</td>
</tr>
<tr>
<td>Mendocino Avenue (from College Avenue to Ridgeway Avenue)</td>
<td>26,201</td>
<td>1,859</td>
<td>2,187</td>
</tr>
<tr>
<td>Mendocino Avenue (from Ridgeway Avenue to Pacific Avenue)</td>
<td>28,837</td>
<td>2,035</td>
<td>2,389</td>
</tr>
<tr>
<td>Mendocino Avenue (from Elliott Avenue to Steele Lane)</td>
<td>29,322</td>
<td>1,916</td>
<td>2,434</td>
</tr>
</tbody>
</table>

### Table 2.2 Traffic Volumes on 101

2008 Traffic Volumes—Highway 101 at College Avenue and at Steele Lane Interchanges

<table>
<thead>
<tr>
<th>District</th>
<th>Route</th>
<th>County</th>
<th>Post Mile</th>
<th>Description</th>
<th>South of Count Location</th>
<th>North of Count Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>101</td>
<td>SON</td>
<td>20.740</td>
<td>Santa Rosa, College Avenue</td>
<td>8900 113,000 110,000</td>
<td>8300 106,000 103,000</td>
</tr>
<tr>
<td></td>
<td>101</td>
<td>SON</td>
<td>21.741</td>
<td>Santa Rosa, Steele Lane Interchange</td>
<td>8300 106,000 103,000</td>
<td>7900 101,000 98,000</td>
</tr>
</tbody>
</table>

### Table 2.3 Traffic Volumes on 101 On and Off Ramps at Steele Lane and College Avenue

<table>
<thead>
<tr>
<th>Post Mile</th>
<th>Description</th>
<th>2007 ADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>020.619</td>
<td>NB off to College Ave</td>
<td>8,100</td>
</tr>
<tr>
<td>020.630</td>
<td>SB on from College Ave</td>
<td>N/A</td>
</tr>
<tr>
<td>020.903</td>
<td>NB on from College Ave</td>
<td>5,500</td>
</tr>
<tr>
<td>020.949</td>
<td>SB off to College Ave</td>
<td>N/A</td>
</tr>
<tr>
<td>021.558</td>
<td>SB on from Steele Lane</td>
<td>10,300</td>
</tr>
<tr>
<td>021.593</td>
<td>NB off to Steele Lane</td>
<td>9,200</td>
</tr>
<tr>
<td>021.929</td>
<td>NB on from Steele Lane</td>
<td>6,700</td>
</tr>
<tr>
<td>021.955</td>
<td>SB off to Steele Lane</td>
<td>7,500</td>
</tr>
</tbody>
</table>

---

6 Source: Caltrans Traffic Data Branch

Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
### Table 2.4 Traffic Accidents on 101


<table>
<thead>
<tr>
<th>Year</th>
<th>Total Collisions</th>
<th>Fatal Collisions</th>
<th>Injury Collisions</th>
<th>Property Damage Only</th>
<th>Victims Killed</th>
<th>Victims Injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2004</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>2005</td>
<td>18</td>
<td>0</td>
<td>6</td>
<td>12</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>2006</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2007</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2008</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>45</td>
<td>0</td>
<td>14</td>
<td>31</td>
<td>0</td>
<td>22</td>
</tr>
</tbody>
</table>

**Figure 2-12** Traffic Signals

2-9 Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
Parking and Congestion
Currently, a large percentage of Santa Rosa Junior College students and staff commute long distances. 47% of SRJC students and 41% of staff commute over ten miles each way. With 74% of students and 92% of staff arriving to campus by automobile, the SRJC generates high volumes of traffic. Despite the recent construction of a 1,100-space parking garage on the SRJC campus, the streets near the SRJC campus continue to suffer from traffic congestion and insufficient parking.

After the new SMART station is built, there will be a higher volume of commuters on the western side of 101 who will need to travel to locations on the eastern side, particularly Santa Rosa Junior College.

2.3.3 Transit

Bus
Santa Rosa CityBus operates seventeen fixed routes with a fleet of thirty-three buses, covering a service area of 41 square miles in the city of Santa Rosa. Eight of the CityBus routes serve the project study area, running along Mendocino Ave, College Ave, Steele Lane, Range Ave, and Cleveland Ave.

The Northside Transfer Center is located on Range Avenue, west of and directly adjacent to the Coddingtown Mall. This transit hub is a bus terminus for Routes 11 (Fulton Rd), 15 (Stony Point Rd), and 17 (Piner Rd), and is also a transit stop on Route 10 (Codingtown). These four routes take riders as far south as Bellevue Ave and as far north as Piner Rd.

Golden Gate Transit (GGT) provides regional fixed-route bus service which connects San Francisco, Marin, and Sonoma counties. Limited service is also available between San Rafael and the El Cerrito del Norte BART Station in western Contra Costa County. GGT has three bus lines running along Mendocino Ave, two of which are commuter bus routes connecting to San Francisco by way of Rohnert Park, Cotati, and Petaluma.

---

7 SRJC Bicycle Survey, Fall 2005.
Sonoma County Transit is a countywide regional bus service provider with twenty-two fixed routes serving eighteen cities of Sonoma County plus San Rafael. There are seven bus routes covering the project area, most of which have transit stops along Mendocino Ave.

Table 2.5 Sonoma County Transit Average Weekday Ridership (May 2009).\(^8\)

<table>
<thead>
<tr>
<th>Route</th>
<th>Connections</th>
<th>Service</th>
<th>Mendocino Ave. service/ stop freq.</th>
<th>Average weekday ridership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 20</td>
<td>West Sonoma County to Downtown Santa Rosa</td>
<td>Daily service</td>
<td>approx. every 2 hrs</td>
<td>457 passengers</td>
</tr>
<tr>
<td>Route 30</td>
<td>Sonoma Valley to Downtown Santa Rosa</td>
<td>Daily service</td>
<td>approx. every 1.5 hrs</td>
<td>513 passengers</td>
</tr>
<tr>
<td>Route 44</td>
<td>Santa Rosa to Petaluma via Rohnert Park/SSU</td>
<td>Daily service</td>
<td>approx. every 1.25 hrs</td>
<td>849 passengers</td>
</tr>
<tr>
<td>Route 48</td>
<td>Santa Rosa to Petaluma via Cotati</td>
<td>Daily service</td>
<td>approx. every 1.25 hrs</td>
<td>689 passengers</td>
</tr>
<tr>
<td>Route 60</td>
<td>Downtown Santa Rosa to Healdsburg/Cloverdale</td>
<td>Daily service</td>
<td>approx. every 1 hrs</td>
<td>1,029 passengers</td>
</tr>
<tr>
<td>Route 62</td>
<td>Santa Rosa to Sonoma County Airport – Windsor Intermodal Facility</td>
<td>Monday to Friday</td>
<td>approx. every 2.5 hrs</td>
<td>118 passengers</td>
</tr>
</tbody>
</table>

\(^8\) Source: Bryan Albee, Transit Systems Manager, Sonoma County Transit.
**Rail**

Sonoma-Marin Area Rail Transit (SMART) is a future passenger rail service that will serve Sonoma and Marin counties with fourteen rail stations from Cloverdale to Larkspur (9 in Sonoma County, 5 in Marin County). The corridor is 70 miles long and includes a parallel bicycle-pedestrian path along the entire route. Funding for this project comes largely from Measure Q, a one-quarter percent sales tax increase approved by the voters in November 2008. The project moved into final engineering design in 2009, with construction scheduled to begin in 2011.

A SMART Station was initially planned for Jennings Avenue, to be located west of Frances Street and South of Jennings Avenue. Recently, the location was re-evaluated by the SMART District Board and plans are proceeding for the development of SMART Station at Guerneville Road. The Guerneville Road SMART Station is to be located within the project study area, south of Guerneville Road and east of North Dutton Ave, near Coddingtown Mall and the Northside Bus Transfer Center.

The SMART Final Environmental Impact Report (EIR) dated June 2006 contains projected ridership numbers and mode split information for Station as initially planned at Jennings Avenue. The Final EIR estimates that there would be approximately 650 daily boardings at the Jennings Avenue Station, and about the same number of alightings. About 60% of passengers are projected to arrive by car, including people who park, are part of a carpool, or are dropped off by car. The remainder, approximately 40%, includes people accessing the station on foot, by bike, or by transit. These ridership estimates did not assume a nearby bicycle/pedestrian overcrossing, which may create induced demand for rail ridership or higher mode split.

Consistent with its goal of reducing vehicular congestion on Highway 101, SMART will allow bicycles to be brought on board all trains, and there are intentions to provide secure bike parking facilities at all stations. At the Guerneville Road Station, the bicycle/pedestrian pathway parallel to the rail alignment will be located on the east side of the tracks.

Because over half of SRJC students and staff live outside of a Santa Rosa zip code, SMART has great potential to serve large numbers of SRJC students and staff.
2.3.4 Bicycle and Pedestrian Infrastructure

![Figure 2-14 Existing/Programmed and Proposed Bicycle Network (Santa Rosa Bicycle/Pedestrian Master Plan 2008 Update Draft)](image)

**Bicycle and Pedestrian Routes**

Sidewalks are generally present and adequate throughout the project study area. However, on both Frances Street and Edwards Avenue, a sidewalk is currently available only on one side. On Jennings there are no sidewalks, and in the SRJC campus on Bear Cub Way/Glenn Street a sidewalk is only available on one side of the street between Armory and the Walter Haehl Pavilion. Sidewalks are missing in sections between the Haehl Pavilion and Mendocino Avenue.

Bicycle routes within the project study area range from relatively safe and easy to use to very challenging. Generally speaking, north-south route options are available, acceptable to most cyclists,
and make good connections to points beyond the project study area. These routes include Range/Frances, Cleveland, Armory, Mendocino, and the future multiuse pathway on the SMART right-of-way.

It should be noted that schematic layout plans for the SMART project show the SMART multiuse pathway on the east side of the tracks. This arrangement provides the best access for people approaching from either the east or west because North Dutton parallels the tracks immediately to the west and is a designated bike route.

On the west side of 101, Edwards, Jennings, and Frances provide good east-west bike routes and connect well at Cleveland; however, of these, only Jennings provides a good connection to the west of Range, and the future presence and character of this connection is not established. If a connection at Jennings is not provided, cyclists will need to use the SMART multiuse pathway to access rail crossings at Guerneville, Steele, or College.

On the east side of 101, east-west bicycle routes are generally somewhat more challenging. Elliott Avenue and Ridgeway Avenue are both wide shaded streets designated for bike lane striping and both make good connections at each end; however, during class period changes when SRJC classes are in session, Elliott is crossed by many pedestrians at multiple locations, only one of which is signalized. Further south, Scholars Drive is relatively narrow, does not make good through connections to the east, and is highly congested with pedestrian traffic when classes are in session. Bear Cub Way/Glenn Street is not heavily used by pedestrians, but it accommodates 2-way automobile traffic, is not striped with bike lanes, and narrows to only 23' in front of the Walter Haehl Pavilion.

Currently, pedestrians and bicyclists crossing Highway 101 must use either Steele Lane or College Avenue, which carry a high volume of motorists -- each carries roughly 40% of the daily volume that Highway 101 carries. While these crossings are both expected to be striped for bike lanes in the future, their desirability as routes for cyclists and pedestrians is likely to remain low. This is not only due to the high traffic volume each carries, it is also due to the fact that cyclists and pedestrians using these streets to cross under 101 must navigate major intersections with on and off ramps and north-south streets.

---

9 Email from John Nemeth (3.5.09) on SMART Board's position regarding a grade separated crossing at Jennings.

10 Santa Rosa Bicycle Pedestrian Master Plan (2001 Update)

11 The SRJC 2006-2008 Operational Parking and Transportation Plan (Feb 2006 Draft) identifies both Scholars Drive and Bear Cub Way.

12 Per Otto Bertolero, City of Santa Rosa Public Works (2.11.09 email) College Ave Underpass, as currently configured, is wide enough to allow for bike lane striping in only one direction. There is a future City/Caltrans project that will widen College Avenue from Cleveland to Morgan with bike lanes, including the underpass direction that is currently not wide enough to accommodate a bike lane. This project is scheduled to start within one year. There is a City infrastructure improvement project on Steele Lane that may be going in this year. On a subsequent year, it will receive an overlay and at that time include striping for bike lanes. These dates are tentative.
Figure 2-15 Steele Lane approaching Highway 101 from the west. Bicycle lanes currently do not exist on the street. Automobiles turn into the on-ramp accelerating into high speeds. Also, automobiles have the option of turning right on red or green light.

Figure 2-16 Steele Lane underpass. The segment of Steele Lane between Range Avenue and County Center Drive is a major arterial that, like the adjacent Guerneville Road, carries extremely heavy traffic volumes. Steele Lane carries approximately 44,997 vehicles per day, on average.

Figure 2-17 College Avenue underpass. College Avenue is a major east-west arterial corridor that runs near the geographical center of the City. College Avenue carries approximately 34,309 vehicles per day, on average. Most of the corridor is comprised of a five-lane street section.
Bicycle and Pedestrian Crime & Accidents

The September 2010 Draft of the Santa Rosa Bicycle and Pedestrian Master Plan ranks Steele Lane and College Avenue as the two roadway segments (out of 25 segments evaluated) with the fifth and ninth highest incident rate of bicycle accidents, respectively.\(^\text{13}\) Steele Lane between Myers Drive and Marlow Road had an accident rate of 1.3 accidents per mile per year for 2002-2006, while College Avenue between 4th Street and Fulton Road had 1.0 accident per mile per year.

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\(^{13}\) Santa Rosa Bicycle and Pedestrian Master Plan September 2010 Draft Table 2.11.

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Figure 2-18 Pedestrian Collisions between 2002 and 2006, Source: Santa Rosa Bicycle and Pedestrian Master Plan September 2010 Draft.
Figure 2-19 Pin Map from Santa Rosa Police Department showing bike thefts and bike accidents reported from 2007 to 2008.

Figure 2-19 provides more recent data from the Santa Rosa Police Department – Crime Analysis Unit, for bike thefts and bike accidents reported in 2007-2008, within the project study area. Incidents of bicycle-vehicular collisions are concentrated along Steele Lane.

2.4 Planning Context

State-level planning has long recognized that by promoting bicycling and walking as alternative yet reliable modes of transportation, the efficiency of the existing transportation system will improve as a whole. The California Blueprint for Bicycling and Walking calls for a 50% increase in bicycling and walking trips by 2010, a 50% decrease in bicycle and pedestrian fatality rates by 2010, and increased funding for bicycle and pedestrian programs.14 The Bicycle Transportation Act, which provides for funding within the State Transportation Fund, establishes that the bicycle transportation network “shall be designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist’s property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills.”15 Thus, bicycle and pedestrian access infrastructure must be considered in land-use and community planning, all phases of transportation planning, and in all project designs.

15 California Streets and Highways Code Sections 890-894.2
Consistent with this vision, regional and local planning has called for improvements to and expansion of bicycle and pedestrian facilities, and has specifically targeted the need to enhance grade-separated access across Highway 101 to close gaps in the east-west transportation network. See chart below for more details on all references within regional and local planning documents.

On a regional level, projects in the MTC Regional Bicycle Network (RBN) get recognized as in the MTC Regional Transportation Plan (RTP). In January 2009, MTC said it was open to considering revisions to the RBN. The City of Santa Rosa has made it known that it has an interest in adding Highway 101 bicycle/pedestrian crossing project to the RBN. Because revisions to the RBN were exceeding the budget identified in the 2035 RTP, MTC is now entertaining the idea of providing local flexibility to allow local Congestion Management Agencies (CMAs) to substitute projects within the RBN when the call for projects is made. SCTA is aware of the City’s intentions to include a Highway 101 bicycle/pedestrian crossing project.

On either side of the proposed overcrossing, both Jennings Ave and Bear Cub Way are clearly identified as proposed bicycle routes in all relevant master plans. Hence, an overcrossing would close a gap in the transportation network.

Table 2.6 Summary of relevant planning documents

| Santa Rosa Bicycle/Pedestrian Master Plan (2001 Update) | “Highway 101 creates a major barrier to bicycle transportation. Two major vehicle crossings at Steele Lane and College Ave are extremely intimidating to even serious cyclists. The two existing bicycle/pedestrian bridges are useful despite their grade, but more safe crossings of Highway 101 are needed. It should be noted that bike lanes are being planned under Highway 101 at College Avenue and Steele Lane as part of the reconstruction of those interchanges with the widening of U.S. 101.” Proposed crossing listed as “high priority project” and one of top five bike paths/overcrossings. (pg 5-3) Jennings Ave classified as proposed Class II bike boulevard. |
| Santa Rosa Bicycle/Pedestrian Master Plan (2008 Update) DRAFT | Project is named in list of prioritized west-east bicycle projects, as Segment F of Route 37 (Halyard Drive / Jennings Avenue / Armory Drive / Bear Cub Way / Pacific Avenue / 4th Street / Sonoma Highway). Route 37 also considers Jennings Ave (starting from Range Ave to Cleveland Ave) as Segment E, a proposed Class III bikeway, and Bear Cub Way (starting from Armory Dr to Mendocino Ave) as Segment G, also a proposed Class III bikeway. |
| SCTA Countywide Bicycle & Pedestrian Master Plan (May 2008) | “The major reconstruction of Highway 101 is presenting multiple opportunities to improve associated bicycle and pedestrian crossings.” (pg 23) “…the barriers created by freeways are among the most difficult challenges for bicyclists and pedestrians in many locations.” (pg 12) Jennings Ave is considered a proposed Class III bike route (see Figure 2-14). |
| 2035 Santa Rosa City General Plan (November 2009) | Stated objective for bicycle/pedestrian infrastructure: “Strengthen and expand east-west linkages across the Highway 101 corridor” (Sec 5-8, pg 5-20) Plan identifies Jennings Avenue (from Piner Creek to Mendocino Ave) as Proposed Bicycle Boulevard, and also Bear Cub Way (from Armory Dr to Mendocino Ave) as proposed Class III bike route (see Figure 2-14). |
2.5 Subsurface Conditions

A Preliminary Geotechnical Assessment was prepared as part of this study for the portion of the project study area where foundation work would be required to construct an overcrossing (see Appendix C.)

Key findings are that geotechnical subsurface conditions are relatively consistent throughout the area, and that the preferred foundation type would be driven piles. This type of foundation system would

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16 Activities in the Gateways Redevelopment Project Area, approximately 1,100 acres primarily along the central north-south axis of Santa Rosa, had been put on hold pending the appeal of a Superior Court decision in a lawsuit challenging the validity of the Gateways Redevelopment Plan. The Court of Appeal ruled on July 17, 2009 that the plan is valid.
create noise during construction and require appropriate construction scheduling to minimize impacts on adjacent uses.

2.6 Utilities
The project study area contains both overhead and underground utility distribution lines, however no major power transmission lines are present. Details on the utilities in the project study area can be found in Appendix A. Impacts and potential utility relocation requirements for alternate crossing alignments are discussed in Section 4 of this report.

2.7 Land Ownership and Easements
For a list of ownership information and parcel numbers, please see Appendix B.

2.8 Stakeholders

2.8.1 Santa Rosa Residents
City of Santa Rosa residents are stakeholders for all city projects and policies. According to U.S. Census Bureau demographic estimates, Santa Rosa has 155,796 residents, 25.6% of which are of a minority race. 7.9% of Santa Rosa families and 11.6% of individuals live below poverty level. Weighted average poverty threshold for a 5-person household in Santa Rosa for 2007 is $25,080. According to the 2005-2007 American Community Survey 3-Year Estimates, 44% of households earn below $50,000.

Within ½ mile of the western terminus of the proposed overcrossing, there are approximately 700 residents who live in HUD-financed, below market rate, and/or affordable rental housing units: “Jennings Court” at 1080 Jennings Ave, 55-unit HUD-financed senior affordable apartment complex on one acre lot; “The Crossings at Santa Rosa” at 820 Jennings Ave, 48-unit apartment building reserved for families earning from 30 to 50 percent of the area median income for Sonoma County, as published by HUD; “Monte Vista Apartments” at 1421 Range Ave, 107-unit affordable apartment complex consisting of clusters of townhouses and flats on a 3.91 acre triangular site; “Arroyo Point Apartments” at 1090 Jennings Ave, 70 new affordable for-rent homes.

Two special meetings of the City Council, Bicycle and Pedestrian Advisory Board, and Planning Commission were held where Santa Rosa residents were invited to share their thoughts relating to a proposed Highway 101 crossing. These meetings were noticed on the city public works website, newspaper, and approximately 2,000 invitations were mailed out to project area residents. Following is a summary of key project goals and concerns expressed by attendees.

Public Meeting Attendees Key Project Goals and Concerns

- An overwhelming majority of attendees felt that a "crossing is a key investment for health safety and economic vitality of the community."
- An overwhelming majority of attendees felt that the visual character of the project is very important. Many felt that the project should be a signature landmark for the city.

17 See Appendix E for record of these meetings and input provided by attendees.
An overwhelming majority of attendees felt that existing minimum design standards for overcrossings for bicycle and pedestrian comfort and safety are inadequate and should be substantially exceeded.

Attendees consider a connection between SMART and the SRJC to be more important than connections between SRJC and Coddington or SRJC and points west along the proposed Jennings Avenue bike route.

Many attendees expressed concerns about user safety (both crime and accident) and indicated they think crossings at Steele and College will never be safe enough, even with improvements.

There was a strong sentiment that getting a crossing project done soon anywhere in the project area is very important.

Project area residents will be affected by the construction of an overcrossing even if they do not use it or reside adjacent to it. The existing transportation facilities used by these residents will be affected in the following ways: 1) reduction of traffic congestion in the project area, 2) reduced demand for available parking facilities, 3) increased numbers of cyclists and pedestrians on routes connecting to the overcrossing.

To minimize potential negative impacts on area residents, an important project goal is design to minimize potential for conflicts at ramp touchdown points and along approach pathways.

2.8.2 Potential Crossing Users

Induced Demand

The National Bicycling and Walking Study, prepared by the Federal Highway Administration, 1994 suggests that the implementation of bicycle and pedestrian facilities as part of a comprehensive plan may result in a doubling of existing mode shares for bicycle and pedestrian trips.

Residents at community meetings for this study explicitly indicated that they consider an attractive facility important. This may be partially attributed to a general desire for an attractive city and a positive visual experience for freeway users, however it can also be attributed to an inherent recognition of the induced demand resulting from construction of transportation facilities. Notably, attendees agreed strongly with statements indicating that a crossing structure should be designed as a landmark and in a way that attracts users.

Attendees also shared their concern that current Highway 101 crossings in the project study area are unsafe. At the first public meeting, one resident commented, “Crossing the Steele Lane or College underpass, you literally take your life in your hands— it is a very scary experience. Bike lanes aren’t going to make a difference. Because of on/off ramps, it is a convoluted situation. There is no direct way – you have to cross streets”. Another resident stated that “Steele and College are both horrendous.” One JC

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18 Also known as latent demand; the phenomenon that after a supply increases, more is consumed.
19 See http://www.fhwa.dot.gov/environment/bikoped/study.htm
20 Similar projects have experienced significant growth in usage. A bicycle-pedestrian bridge in Austin, Texas, that expanded an existing narrow sidewalk grew from 700-1000 pedestrians and bicyclists per day to 4000-5000 pedestrians and bicyclists each day. See http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=42.
21 See 1st Public Meeting Public Input Results, Appendix B.
employee stated that every time that she has tried biking, the experience has been “harrowing.” Another referred to cycling in the area as “awful.”

These comments regarding existing conditions provide some indication, albeit unquantifiable, of the induced demand that will result from construction of a safe and attractive new east-west Highway 101 crossing.

Similarly, in a survey of SRJC students and employees, the majority of employees identified the following major problems for cyclists outside the campus:\(^{22}\)

- Insufficient bike lanes (58%)
- Difficulty navigating through traffic (63%)
- Dangerous intersections (77%)

As an indication of induced demand, 73% of SRJC students and faculty/staff indicated that they would ride their bikes to campus more often if they faced fewer of the barriers listed above.\(^{23}\)

For Santa Rosa in general, safety concerns and lack of paths and connections is the biggest reason residents choose not to bicycle. Safety issues (hazardous pathway conditions and personal security) comprised over 54 percent of the responses for top reasons NOT to bike, followed closely by the lack of paths/connections and time/distance to destinations. Other reasons for not biking for transportation included lack of secure bike racks and other end of trip facilities. For pedestrians, the time and distance to get to the destination is the biggest reason residents choose not to walk. Other reasons include hazardous conditions, lack of paths and connections, and user conflicts.\(^{24}\)

- For the proposed Highway 101 crossing facility, community input and planning goals indicate that enhancing induced demand should be considered an important project goal. Factors which can be expected to enhance induced demand include:
  - Design for accident safety and personal security of users so people who are currently afraid to walk or bike will feel comfortable doing so.
  - Provide connections minimizing the travel time/distance for the greatest number of expected origin/destination combinations so that choosing not to drive is an attractive alternative.
  - Design for clarity of function and attractiveness to entice potential users, particularly motorists.

**Origins and Destinations**

An analysis of expected travel propensities, or desire lines, for potential crossing users figures strongly in identifying the most advantageous location and alignment for a crossing facility. The following chart groups potential users with their mode options and travel purposes, and presents observations pertinent to selection of a crossing location.

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\(^{22}\) SRJC Bicycle Survey 2005, 8-9

\(^{23}\) SRJC Bicycle Survey 2005, 10

\(^{24}\) Refer to Appendix D for Design Guidelines which illustrate potential user conflicts.
Table 2.7 Potential users with their mode options and travel purposes

<table>
<thead>
<tr>
<th>Potential User Group</th>
<th>Observations Relevant to Selection of Best Crossing Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. People choosing to walk or bike to do errands or get food.</td>
<td>Shortest distance/time figures strongly in choice of mode, route, and destination.</td>
</tr>
<tr>
<td>a. Trips originating within the SRJC campus (23,000 students + 2,000 staff)</td>
<td>For people on foot or bicycle, businesses on Mendocino Avenue that can accommodate most lunch-hour errands and off-campus meals will be closer than businesses west of 101, regardless of crossing location.</td>
</tr>
<tr>
<td>b. Trips originating within the existing and potential future residential areas south and west of Coddingtown (2000-3000 people)</td>
<td>Many of these people are likely find Coddingtown businesses more convenient than traversing a 101 crossing and the SRJC campus to get to Mendocino Avenue businesses.</td>
</tr>
<tr>
<td>c. Trips originating from other locations (Ridgeway swim center, area businesses, Santa Rosa high school…)</td>
<td>This group is likely to remain small relative to the two above.</td>
</tr>
<tr>
<td>2. People using transit with origins or destinations east of 101.</td>
<td></td>
</tr>
<tr>
<td>a. Commuting via SMART to SRJC or other points east of 101. Commuting via SMART from points east of 101.</td>
<td>Without an overcrossing, the shortest route from SMART to SRJC and points east is via the College Avenue underpass. With an overcrossing, travel distance from SMART to the northern part of the SRJC campus would be shorter regardless of overcrossing location. A southern location, however, with a structure that is visible from the station, makes the option of biking or walking more apparent to SMART commuters.</td>
</tr>
<tr>
<td>b. Commuting via using CityBus lines 11, 15, 17 from north and southwest areas of Santa Rosa via the Northside Transfer Center to points east of 101. People starting east of 101 who want to take a bus leaving from the Northside Transfer Center. People starting west of 101 who will be boarding a GGT or other bus on Mendocino.</td>
<td>Depending on destination, pedestrians commuting via bus may be more likely to choose CityBus #10 to cross Highway 101 than a 101 crossing (frequency of #10 at the Northside Transfer Center is every 1/2 hour). Conversely, cyclists who brought their bike on the bus may be more likely to use a crossing at any location rather than wait for #10 bus. Due to trip distance, pedestrians arriving at the Transfer center with SRJC as their destination would be likely to use an overcrossing instead of the #10 bus only if the crossing is located at Elliot Avenue, however pedestrians wishing to board GGT or other buses on Mendocino would be likely to find any crossing location helpful.</td>
</tr>
<tr>
<td>3. People originating east of 101 whose destination is Coddingtown.</td>
<td>Cyclists heading for Coddingtown from the east are likely to find an overcrossing preferable to College or Steele regardless of crossing location. Pedestrians who do not have the option of driving would be served well by a crossing at any location. If driving is an option people are only likely to choose walking if an overcrossing is located at Elliot.</td>
</tr>
<tr>
<td>4. People traveling east-west through the project study area.</td>
<td>With most crossing locations, Jennings Avenue, between Range and Herbert, is likely to get virtually all of the east-west bike/ped traffic even if a track crossing at Jennings is not possible. A crossing alignment that directs people toward the future SMART station may encourage people to connect to the SMART multiuse pathway via Frances Street.</td>
</tr>
<tr>
<td>5. People approaching a 101 crossing from Armory Drive or Cleveland Avenue.</td>
<td>Location is may be relatively neutral for people approaching a crossing via the frontage road; however, ease of access to the crossing at the frontage roads depends on the configuration of the approaches.</td>
</tr>
</tbody>
</table>
**Comfortable Walking Distance**

Numerous studies and design guidelines for transit oriented development indicate that people can be expected to comfortably walk 0.25 to 0.5 mile and bike up to 2 miles to transit facilities or as an alternative to driving. The graphic below illustrates what this distance range encompasses for pedestrians originating at the core area of the Santa Rosa Junior College campus.

![Comfortable Walking Range from SRJC pedestrian core. The crossing location, whether at Elliott Avenue or at Bear Cub Way, is well within ¼ mile from the perimeter of SRJC's campus, thus making the crossing accessible to SRJC students and employees who wish to reach the destinations on the west side of the freeway by walking.](image)

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The Next American Metropolis 1993 by Peter Calthorpe p 56.
**Total Projected Demand**

The expected demand for the proposed overcrossing was estimated by assuming that 50% of existing users of the Highway 101 crossings on either side of the proposed project will use the new crossing after it is built. Counts of existing crossing use were conducted in accordance with MTC standards in July 2009 (note that SRJC was not in session, so these counts are conservative relative to peak demand), and peak hour count was estimated to represent 10% of total daily count. The resulting estimate was then doubled based on an expected doubling of area residential population in the project area within a decade. The expected contribution from SMART rail was based on the estimates provided in the 2005 SMART Final EIR and assuming that at least 60% of passengers boarding or alighting at the Jennings station will head eastward (toward the SRJC campus). The final subtotal was then doubled to account for induced demand typical for similar projects.

<table>
<thead>
<tr>
<th>Table 2.8 Projected Average Daily Demand</th>
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<tbody>
<tr>
<td>Factor</td>
</tr>
<tr>
<td>Existing Count for College Avenue Crossing</td>
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<tr>
<td>Existing Count for Steele Lane Crossing</td>
</tr>
<tr>
<td>Portion from College expected to switch to new crossing</td>
</tr>
<tr>
<td>Portion from Steele expected to switch to new crossing</td>
</tr>
<tr>
<td>Subtotal (Total Existing Demand)</td>
</tr>
<tr>
<td>10 year projected population growth within 1/2 mile of crossing</td>
</tr>
<tr>
<td>Increase in JC and HS populations</td>
</tr>
<tr>
<td>Subtotal (Total Projected Demand due to local Growth)</td>
</tr>
<tr>
<td>Contribution from SMART (650 boardings + 650 Alightings) x 40% not using cars x 60% going east from station</td>
</tr>
<tr>
<td>Subtotal (Total Existing Demand + SMART)</td>
</tr>
<tr>
<td>Induced Demand</td>
</tr>
<tr>
<td>Increase due to mode shift from automobile trips</td>
</tr>
<tr>
<td>Increase in total trips due to overall growth in region</td>
</tr>
<tr>
<td>Total Projected Average Daily Demand (10 year horizon)</td>
</tr>
</tbody>
</table>

26 The Jennings Station demand estimates did not assume a crossing; if a Highway 101 crossing is built, actual station demand is therefore expected to be higher than what was projected in the 2005 Final EIR.

27 The National Bicycling and Walking Study, prepared by the Federal Highway Administration, 1994 suggests that the implementation of bicycle and pedestrian facilities as part of a comprehensive plan may result in a doubling of existing mode shares for bicycle and pedestrian trips. http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=42
2.8.3 Project Area Transportation Providers

*Caltrans*

The design and project process will be carefully reviewed by Caltrans. Conformance to Class 1 bikeway standards will be expected unless exceptions are deemed warranted by project conditions.

Caltrans is an important stakeholder in the proposed project because 1) the project would encroach upon the State right-of-way, and 2) because Caltrans would need to allocate staff resources to review the project design, costs and impacts.

Specific Caltrans concerns include the safety and well-being of people within the State right-of-way; for example, protection of motorists from debris thrown onto roadway, minimizing potential for vandalism, visibility of signage for motorists, ensuring viability of utilities and drainage systems. If there are compelling reasons for the project design not to meet Caltrans standards for safety features, such as minimum turning radii on approach ramps, design exceptions can be applied for (see Section 6).

Caltrans facilities typically experience impacts during construction of an overcrossing, including closures and detours, reduced overhead clearances, changes in sightlines.

Caltrans facilities will also experience permanent impacts. These include a possible reduction in traffic volume, changes to the visual character of the freeway, and geometric limitations created by structural supports if they are placed within the State right-of-way. If features of the proposed project will result in the existing roadway facility no longer meeting Caltrans standards, then a design exception would be required. For example, because the existing State right-of-way in the project area is fully utilized for traffic lanes, shoulders, and barriers, if the Advance Planning Study (APS) finds that a structure requiring a center support is clearly the best alternative for this project, then a design exception application process for sub-standard shoulders at the center median (probably 8'-6" rather than the existing 10'0") will be required. For a discussion of the process for requesting a design exception, see Section 6.

Finally, for overcrossings where a local entity is the lead sponsor, Caltrans typically enters into a cooperative maintenance agreement with the local entity, and remains permanently responsible for maintenance of certain portions of the structure.28

*Bus Service Providers*

Bus service providers typically will experience increases in ridership and the number of bikes carried on buses as a result of improved walking and biking facilities. Providers may also find there are shifts in the locations where bus stops and bus routes, and possibly transfer centers, are desired.

*SMART*

The proposed project would improve connectivity options for SMART riders and thus increase SMART ridership. The project would also increase use of the SMART multiuse trail. Because SMART plans to provide a park and ride lot, motorists not using SMART may use or wish to use the park and ride lot as an overflow parking area for the SRJC campus.

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28 Typically cooperative maintenance agreements for this type of project provide for Caltrans billing the local entity for inspection and maintenance activities it is responsible for.
2.8.4 Project Area Institutions

Santa Rosa Junior College
The SRJC is an important project stakeholder that has committed to providing construction funding and an easement for the proposed project. Should a project go forward, the SRJC will experience physical changes to its campus, circulation patterns, and travel mode splits. Having a direct connection to a SMART station would provide SRJC staff and students with additional commute options, which could reduce demands on parking and congestion on nearby streets. A Highway 101 overcrossing would also provide additional travel options for students and staff to reach the Northside bus Transfer Center, Coddingtontown, and points west.

One of the SRJC’s stated primary concerns is the increased potential for bicycle/pedestrian conflicts on campus, especially given that the SRJC has one of the largest disabled student populations among California community colleges. Currently, bicycles are not allowed on pedestrian pathways within campus.

As part of its 2006-2008 Operational Parking and Transportation Plan, the SRJC has committed to adding bike lanes along its campus arterial roadways, such as Bear Cub Way. It has also committed to making improvements to its bike parking facilities and accessibility to bicycle infrastructure. If, for example, a Bear Cub Way alignment is chosen, then reconfiguration of some parking areas and curbs along Bear Cub Way would be required.

The SRJC has pledged $1 million towards this project. This pledge is contingent upon the City’s committing to proceed with construction by December 31, 2012. Furthermore, as part of the Operational Parking and Transportation Plan, the SRJC will designate an access point of connection with the overcrossing, once the alignment is chosen.

Santa Rosa High School
The Santa Rosa High School campus is located adjacent and to the south of the SRJC campus. The high school currently does not have an un-gated outlet to Bear Cub Way, however a crossing that connects directly to Bear Cub Way would provide an opportunity for high school staff and students to easily use the bridge. Currently, most students at SRHS drive to school, are given rides, or ride school buses. Some students commute by bike, but there is little use of bike racks at this time. High school officials believe the bridge may not have a large impact on students’ commute to school, because students that live immediately west of 101 attend Piner High School. This could change if schools districts are modified.

The high school has expressed concerns about possible conflicts between bicyclists and vehicles on Bear Cub Way and at Mendocino Avenue and Pacific Avenue. As noted previously, Bear Cub Way is

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29 3.5.09 Email from John Nemeth, planner at SMART.
30 Phone call with Doug Bower, Vice Principal, 12.2.08.
31 ibid.
constricted where it passes the Haehl Pavilion. Adding bike lanes to Bear Cub Way or creating a Class 1 bikeway along this corridor would require use of land on both the SRJC and SRHS campuses.

School officials have also expressed a need for the bridge to be well-lit, and have asked about whether the facility would be open 24 hours a day. There are many skateboard users at the school who may find the bridge to be an attractive place to skateboard.

**US Army**
The US Army has an armory on Armory Drive, just south of the SRJC campus. The Army requested confirmation that any overcrossing structure near their facility would provide for at least 15’-6” overhead clearance. The Army expressed no other concerns with regard to the proposed project.

### 2.8.5 Adjacent Business and Property Owners

People who own or use properties adjacent to a new overcrossing and its approaches may be impacted by the project. These impacts are discussed for each specific alignment alternative in Section 4.

**Coddingtown Mall**
The Coddingtown Mall, located northwest of the project study area, is visited by 350,000 shoppers in an average month and approximately 4,000,000 shoppers a year. In 2005, Codding Enterprises sold a 50% stake in the mall to Indianapolis-based Simon Property Group, the nation’s largest mall owner, who has since tried to urbanize and revitalize the mall by bringing in well-known retailers and eateries. Whole Foods Market opened in 2010.

Trade area of the mall is quite large, extending both east and west directions, all the way out to Clearlake. The main buildings of the mall are surrounded by a large parking lot of approximately 3,900 parking spaces. The mall manager has indicated that visitors to the mall predominantly arrive by car; few customers bike to the mall. However, some employees commute to the mall by bicycle, and she has received requests from mall employees to install bike racks on the mall premises.

The future outlook of Coddingtown Mall is uncertain. Currently, it is weathering the national economic downturn as with other retailers across the country, and some tenants are leaving as their leases expire. However, it may be premature to consider Coddingtown Mall a “blank slate;” with the housing developments going in south of the area, the mall – given its location and proximity to other important origins and destinations – will become an appealing transit-oriented destination.

### 2.8.6 Advocacy Groups

**Sonoma County Bicycle Coalition**
The Sonoma County Bicycle Coalition is a nonprofit organization created to encourage bicycling in Sonoma County. In March 2005, the Coalition entered into an agreement with the SRJC, whereby the SRJC committed to contributing $1 million towards construction of a bicycle/pedestrian overcrossing, and to providing an easement for this overcrossing.

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32 Tim Lipscomb, Senior Land Agent, 4.23.09 email.
33 Laura Kozup, mall manager. Phone call on 2.17.09
Friends of SMART
Friends of Sonoma Marin Area Rail Transit is a citizens group dedicated to realizing the benefits of rail service in the North Bay. The group expressed interest in moving the potential northern Santa Rosa SMART station from the Jennings Avenue location to the Guerneville location nearer Coddington Mall and the Northside Transfer Station.
# 3 Project Goals and Design Guidelines

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Based on the analysis of the unique project context presented in Section 2, this section summarizes the key goals, and priorities for the project and provides detailed suggested design guidelines.

In the context of a transportation project's formal review process, a formal "Purpose and Need" statement is developed and refined. For this statement, a project’s “Need” is an identified transportation deficiency or problem, and its “Purpose” is the set of objectives that will be met to address the transportation deficiency.1

To fully capture the community's ideas, concerns, and issues and what these mean in terms of design priorities, this section provides both a formal purpose and need statement and a somewhat broader account of community goals and priorities. Combined, these provide the criteria used to develop specific design guidelines presented in this Section, and to assess conceptual design alternatives in Section 4.

3.1 Purpose and Need

Highway 101 has been a major transportation asset to the City of Santa Rosa since its construction in the late 1950's, but because the freeway bisects the city it has had significant impacts on travel options, particularly for cyclists and pedestrians in the area north of College Avenue near the Santa Rosa Junior College (SRJC) and Santa Rosa High School (SRHS) campuses. In this area there are no separated bicycle/pedestrian crossings of 101 and the two available roadway crossings, at College Avenue and Steele Lane, present challenges to cyclists and pedestrians because they are spaced one mile apart, have high traffic volumes, and have multiple intersections with freeway ramps and major north-south streets.

On the east side of 101, the SRJC Santa Rosa Campus has close to 23,000 students and is the second largest employer in the Sonoma County.2 Because 74% of students and 92% of staff arrive to campus by automobile,3 the SRJC generates high volumes of traffic. Despite the recent construction of a large parking garage on the SRJC campus, the streets near the SRJC campus continue to suffer from traffic congestion and insufficient parking. Recent plans indicate that this area is expected to draw increasing numbers of pedestrians and cyclists, and specific infrastructure improvements have been proposed to accommodate them.4

On the west side of 101 between College Avenue and Steele Lane various development trends combine to increase the need for local VMT reduction and for safe alternatives for east-west bicycle and pedestrian travel across Highway 101. These include the addition of between 500-1,000 housing units within 1/4 mile of the proposed overcrossing's western terminus,5 an east-west bicycle boulevard at Jennings, increasingly pedestrian oriented retail at the Coddington Mall, a north-south

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1 http://www.dot.ca.gov/hq/env/emo/definition_background.htm
2 SRJC Fact Book 2008
3 SRJC Bicycle Survey, Fall 2005
4 Mendocino Avenue Corridor Plan (May 20, 2009, Final Plan); SRJC 2006-2008 Operational Parking & Transportation Plan.
5 “Jennings Court” at 1080 Jennings Ave, 55-unit HUD-financed senior affordable apartment complex on one acre lot; “The Crossings at Santa Rosa” at 820 Jennings Ave, 48-unit apartment building reserved for families earning from 30 to 50 percent of the area median income for Sonoma County, as published by HUD; 1020 and 1060 Jennings Ave, proposed 310-unit apartment complex on approximately 11.87 acres, plus a 2.22 acre neighborhood park; “Monte Vista Apartments” at 1421 Range Ave, 107-unit affordable apartment complex consisting of clusters of townhouses and flats on a 3.91 acre triangular site; “Arroyo Point Apartments” at 1090 Jennings Ave, 70 new affordable for-rent homes.

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3-2 Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
bicycle/pedestrian pathway along the proposed Sonoma Marin Area Rail Transit (SMART) line, and a proposed SMART station near Guerneville Road.

The purpose of the project is to close an existing and increasingly significant gap in the local and regional transportation network. The project would also help improve safety for bicyclists and pedestrians, support revitalization of the area west of Highway 101, help mitigate pressures on the existing automobile infrastructure on the east side of 101 near the SRJC, provide quality of life benefits for the general Santa Rosa population in the form of VMT reduction and recreational opportunities, and improve travel opportunities including safer routes to transit for commuters, students, and low income and other disadvantaged residents.

Project Purpose
The project would close a significant gap in the transportation network through the following actions:

- Offering a regional east-west connector over Highway 101 for the City and County.
- Offering a safer and more enjoyable alternative for crossing 101 compared to existing roadway crossings at Steele Lane and College Avenue.
- Offering more direct connections for bicycles and pedestrians crossing 101 to important origins and destinations including SMART, SRJC, SRHS, the proposed Jennings Ave east-west Bicycle Boulevard, Coddington Mall, the SMART bicycle/pedestrian trail pathway, and housing developments along Range Avenue.

Project Need
The needs for the project can be discerned from negative characteristics that exist in the project area and from expected changes that significantly expand existing needs:

- Highway 101 creates a barrier to east-west travel and neighborhood coherence.
- Existing east-west routes at Steele Lane and College Avenue do not adequately attract and serve bicycles and pedestrians because a) people are concerned for their safety when crossing the multiple existing arterial intersections and un-signaled on and off ramps near Highway 101, and b) the one-mile distance between existing crossings results in trip lengths exceeding a comfortable range for pedestrians and many cyclists.
- Traffic congestion problems and parking shortages in the SRJC area persist despite the recent addition of a 1100 space parking garage on the SRJC campus.
- A new light rail transit station projected to serve over 1,300 people each day with approximately 500 of these not arriving or departing by automobile is planned for the west side of 101 near Guerneville Road.
- Proposed high density housing in the project area will significantly increase residential population in the immediate project area. Recent housing developments in the project area are

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6 Email from John Nemeth, Rail Planning Manager for SMART, based on 2005 SMART Final EIR.
reserved for low-income and elderly residents; populations that rely more heavily on alternative transportation modes.

- A number of alternative transportation improvements are slated for the project area including the Jennings Avenue Bike Route, the SMART light rail station, pedestrian-oriented improvements on Mendocino Avenue, bicycle and pedestrian improvements on the SRJC campus, striped bike lanes along Mendocino Avenue (2009), and a multi-use pathway along the proposed light rail route.

### 3.2 Community Goals & Priorities

The Santa Rosa community has expressed a desire to complete a project expeditiously and without compromising safety features or the ability of the project to accommodate and encourage bicycling and walking for many years to come. Following is a summary of the strongest and most widely-held positions regarding the project and what these mean in terms of design direction and alternatives assessment.

**Key Priorities:**

1. **Schedule**: Bring a project to fruition expeditiously:
   a. Reject alternatives that involve potentially significant impacts to existing uses that could result in lengthy environmental review process.
   b. Seek solutions that offer high feasibility and ease of implementation.

2. **Design to Induce Demand**: Entice more people to choose transit, biking, and walking by creating a facility which is:
   a. **Safe**; providing a safer crossing alternative than College Avenue and Steele Lane underpasses.
   b. **Special and Attractive**; a point of civic pride. The project should be designed to be exciting and inviting.
   c. **Comfort and Capacity**; the design should aim for a high quality user experience for all types of users. It should accommodate the disparate needs of bikes and pedestrians, and individuals with disabilities, and expected increases in demand.
   d. **Facilitate Use of Transit**; alternatives which make direct connections to existing and future transit should be given greater weight than alternatives which make more indirect connections to transit.
   e. **Link the project with new development.**

### 3.3 Project Opportunities

Construction projects often offer potential additional benefits not strictly within scope of objectives defined for the project. While it is important that opportunities not become distractions to the core project objectives, it is valuable to keep in mind where context analysis has identified improvements that could be realized with little or no additional expenditure. For the current project, these include:

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7 280 housing units have been added in the past 5 years within ¼ mile of the west touchdown of the proposed Highway 101 crossing location. Current zoning allows for future development adding as many as 310 housing units within ¼ mile of the proposed crossing location.
• The project can help invigorate pedestrian/bicycle and transit-oriented development in its immediate vicinity.
• Because of its prominent location on the Highway 101 corridor, the project could provide a symbolic gateway to Santa Rosa and a source of civic pride for residents.
• The City has determined that a small park should be included when land on the west side of 101 is developed. Because a bike/pedestrian pathway is compatible with a community park, and can serve as a green buffer zone between development tracts, if the west approach to a crossing goes through this land, design integration should be considered.
• The eastern portion of Bear Cub Way, and the western end of the former railroad right-of-way east of 101 (Myer’s Restaurant Supply parking lot) are both currently characterized by large expanses of asphalt, without trees or other landscaping to soften the landscape and reduce storm water runoff. The scale and character of these areas could be improved by landscaping included in a bridge crossing project.
• The SRJC campus is heavily used by pedestrians, yet some routes do not provide for adequate separation from motor vehicles, and a number of pathways on the campus are too narrow. This project could serve as an impetus for bike/pedestrian infrastructure improvements on the SRJC campus.
3.4 Design Guidelines

3.4.1 Summary of Design Guidelines
To meet the project goals, it is recommended that detailed design guidelines be formally adopted at the outset of the PID phase of the project. Suggested design guidelines are provided on the following pages. Below is a summary of key parameters:

- Clear width of the traveled way shall be 15.5 feet (minimum width 2-way bike + separate minimum width pedestrian sidewalk)
- A minimum radius of curvature of 154 feet. A preferred minimum radius of curvature of 261 feet.
- Fencing that is highly transparent both when viewed perpendicularly, from the freeway, and at very acute angles on the bridge.
- Within and near the missile-proof fencing enclosure, minimum direct visibility should be 65 feet.
- A handrail at 42 inches above the traveled way serving the pedestrian sidewalk.
- A minimum cross-slope of 2%.
- LED-based lighting directed on the traveled way from below eye-level.
- Maximum integration with new planting and landscaping along ramps, including trees where feasible.

For comparison purposes, we have provided the following table comparing guidelines for key west coast agencies.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Maximum Grade</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSDOT</td>
<td>5%</td>
<td>1</td>
</tr>
<tr>
<td>ODOT</td>
<td>5%</td>
<td>2</td>
</tr>
<tr>
<td>AASHTO</td>
<td>5%</td>
<td>3</td>
</tr>
<tr>
<td>CALTRANS</td>
<td>5%</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Minimum Curve Radius*</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSDOT</td>
<td>260 ft</td>
</tr>
<tr>
<td>ODOT</td>
<td>Not specified</td>
</tr>
<tr>
<td>AASHTO</td>
<td>225 ft</td>
</tr>
<tr>
<td>CALTRANS</td>
<td>261 ft</td>
</tr>
</tbody>
</table>

*with superelevation of 2% and design speed of 30 mph
### Minimum Width | Desirable Width | Reference
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>WSDOT</td>
<td>14 ft (10+2+2)</td>
<td>16 ft (12+2+2)</td>
</tr>
<tr>
<td>ODOT</td>
<td>14 ft (10+2+2)</td>
<td>16 ft (10+3+3)</td>
</tr>
<tr>
<td>City of Vancouver</td>
<td>12 ft</td>
<td>18-20 ft</td>
</tr>
<tr>
<td>City of Portland</td>
<td>14 ft (10+2+2)</td>
<td>16 ft (12+2+2)</td>
</tr>
<tr>
<td>CALTRANS (Class 1)</td>
<td>12 ft (8+2+2)</td>
<td>18 ft (12+3+3)</td>
</tr>
</tbody>
</table>


### 3.4.2 Width and User Separation

**Discussion**

Multi-use trail recommendations are generally consistent regarding appropriate two-way trail widths. With 5 feet as the standard for a single bike lane, guidelines commonly state that 10 to 12 feet are needed for overall width, and that 8 feet may suffice only when warranted by special circumstances such as very little use by pedestrians, gentle grades, and excellent sightlines. Overall widths of up to 22 feet are recommended if: a) the path is likely to be shared with pedestrians, joggers, and in-line skaters, b) bikes may ride two abreast, c) maintenance vehicles will need access, d) there are steep and/or long grades, or e) substantial bike volume is expected.

Recognizing the importance of user safety and quality of experience, recommended minimum widths for bicycle/pedestrian bridges have generally been increased over the past decade from 8 feet to 12 or more feet.

Clear width greater than 12 feet should be used, if possible, where the traveled way is constrained by fences, curbs, or guardrails, since the width criteria given above for multi-use pathways assume an open pathway with no guardrails and 2 to 3 feet of clear graded area on each side. When guardrails are placed at the immediate edge of a pathway, the effective usable width is reduced by an amount called the “shy” distance. The width of multi-use trails should be increased by shy distances whenever fencing or guardrails are needed.

As a rule of thumb for freeway crossings, each additional foot of width costs approximately $150,000, and most of that incremental cost is for the main span structure. While required minimum distances from intermittent obstructions is 2 feet, and 3 to 4 feet are recommended, the shy distance from continuous objects like fences or walls may be reduced to as little as one foot, according to some:

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8 Caltrans Highway Design Manual, page 1000-4

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3-7 | Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
experts. The *Caltrans Highway Design Manual* appears to support this by saying, “If a wide path is paved contiguous with a continuous fixed object (e.g. block wall), a 4” white edge stripe, one foot from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it.”

The question of whether to physically separate slower moving users from faster moving users also plays into the question of overall width. Because it is anticipated the proposed bridge will need to serve a relatively high number of both bicyclists and pedestrians per day, we recommend the design should employ a mode separation device such as the low angled curb, like the one used on the Berkeley I-80 bicycle/pedestrian bridge. Use of an angled or rolled curb with a raised pedestrian sidewalk has generally been received favorably because:

- it is well-understood and would not need to rely on signage to be successful due to a strong association with vehicular streets and sidewalks.
- it allows for a lower guardrail height adjacent to the sidewalk, thus improving views and openness.
- it creates a sense of refuge for pedestrians from higher speed traffic.
- it allows for reduced shy distances.

If feasible, permanent, aesthetically-pleasing striping using integral pavement coloring is also appropriate for this project.

**Specific Recommended Guidelines**

- Minimum width of the traveled way of 15.5 feet, consisting of: a 5 foot wide raised sidewalk; an approximately 6 inch wide, 3 inch high, rolled curb; two 4 foot wide bike lanes, each having minimum 1 foot wide continuously paved shy distances at their outer edges.
- The shy distance shall be defined using 4” wide continuous white stripes, and the two bike lanes shall be separated by a 6” wide dashed yellow stripe.
- The preferred sidewalk width shall be 5.5 feet; however, increases in sidewalk width shall not be considered unless the bike lane widths have been increased to at least 5 feet.

### 3.4.3 Approach slope and resting spots

**Discussion**

A 1:20 (5%) slope is the steepest rise which meets ADA criteria for a sidewalk. Any steeper slope is formally classified as a ramp and requires flat landing spots every 30 vertical inches as well as special guardrail and curb details.

Generally, a 1:12 slope reduces the total ramp length by about 30%; this represents significant savings in construction costs. However, the difficulties that steep grades create for children, seniors, and other users, as well as the additional costs and functional disadvantages for non-wheelchair users associated with the special ADA features required on steeper slopes, outweigh, in our judgment, the cost and geometric advantages of using a ramp with a slope steeper than 5%. Simply put, the functional, safety, and quality of user experience goals identified by the Santa Rosa community for this project are unlikely to be achieved using 1:12 ramp slopes.

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9 Caltrans Highway Design Manual, page 1000-4
For all alignments considered, the ramps will very likely be over 400 feet long, and various guidelines would indicate that a resting or stopping point somewhere along the traveled way is advisable. This resting point can be combined with a viewing spot, and can be a physical respite where pedestrians or wheelchair users can pull off the main pathway with higher travel speed. Most relevant regulations and design guidelines have special provisions for particularly long ramps. For example, California ADA requirements specify that a long, continuously sloped sidewalk must include a flat resting spot at least every 400 feet,¹ Florida’s Department of Transportation (DOT) identifies grades steeper than 5% as undesirable for multi-use trails, especially for segments longer than 500 feet,² and Caltrans bikeway design guidelines call for a maximum 5% slope and a recommended 2% slope on bikeway segments longer than 150 meters (492 feet) which are intended to accommodate a wide range of riders.

Judging from the public’s input during the two community meetings, this population of potential users regards safety and usability as two of the most important bridge features. An overwhelming majority of meeting attendees expressed that existing bicycle/pedestrian facilities design standards for safety and comfort are inadequate and should be substantially exceeded. Design to maximize user comfort is important for encouraging future demand.

Specific Recommended Guidelines

- A 1:20 slope shall be used on the approaches.

3.4.4 Surface of Traveled Way and Adjacent Areas

Color coding to distinguish between slow-and fast-moving-user portions of the traveled way is desirable. A smooth riding surface is important to all wheeled users, however, skid resistant qualities must not be sacrificed.

Specific Recommended Guidelines

- Use a light sponge float finish on concrete surfaces. Coarse broom or burlap drag finishes on concrete surfaces can present a hazard to in-line skaters and other small-wheeled users and are therefore unacceptable. A highly troweled finish is equally unacceptable because it can become slippery under wet conditions.
- Edge protection for paved approach pathways should be provided to prevent edge raveling and consequent narrowing of the effective traveled way.
- Wherever possible, grass is the preferred ground cover for areas adjacent to paved pathways without guardrails. This is especially true at curves and near the bottom of the approach ramps where higher speeds will contribute to the possibility of wheeled users losing control.
- All expansion or construction joints in the traveled way shall be bicycle-safe and shall meet ADA requirements for maximum vertical allowances.
- Speed bumps and other traffic calming devices used for automobiles have been shown to be unsafe for multi-use trails, thus speed bumps, bump strips, and other pavement modifications intended to warn, slow, or calm traffic shall not be used.
3.4.5 Railing and Fencing

Discussion
There are four fundamental cross-section conditions for the traveled way affecting guardrail and fencing geometry:

- paved open pathway with no guardrails
- paved pathway with guardrail on one or both sides (may not be applicable)
- free-span with guardrails only
- free-span with guardrails and missile-proof fencing

Additionally, curves, a steep grade, or a sidewalk may each have an effect on how guardrails and fencing should be configured.

Railing requirements differ according to the location of the pathway (height above the ground and whether roadways run below), the type of user (pedestrians and people with wheelchairs or bicyclists), and the slope of the pathway.

Various experts, as well as design precedents in Europe and the United States, indicate that a “flatrail”, also referred to as a “rubrail”, is the preferred type of handrail next to a bikeway for safety reasons. Bicycle handlebars do not get caught up in flatrails as easily as in standard round handrails with exposed supporting brackets. Flatrails, as a consequence, have the additional advantage of reducing the shy distance required.

![Diagram of Conditions requiring railings or curbs for traveled way on earth embankments](image)

**Figure 3.1** Conditions requiring railings or curbs for traveled way on earth embankments.
Since cyclists have a higher center of gravity than pedestrians, in addition to a handrail, most guidelines specify that a higher guardrail be provided on bikeways to prevent toppling. Generally, the recommended bicycle guardrail height is 4'-6”.

While railings are necessary under certain conditions, bikeways with graded or grassy buffer zones instead of railings are safer. Thus, for safety, conditions requiring railing and fencing should be avoided wherever possible. When railings are necessary next to bike lanes, the possibility of increased bicycle lane widths should be explored.

**Protective Fencing:**

Caltrans historically requires a type 3 “missile-proof” fencing (2” openings) configuration on the portion of the pedestrian structure directly above the roadway. This fencing is intended to prevent crossing users from throwing objects into the roadway. This enclosure must be at least 2.51 meters (8'-3") high and extend 0.915 meters (3 feet) inward at the top. The new standard is 1” mesh with 10’ straight fencing, which creates less of a closed-in feeling, but blocks incident views more due to the tighter mesh openings.

While missile-proof fencing will only be required on the main span and parts of the approaches, it will be a prominent visual element on the most visible portion of the facility. The community’s feedback from the 1st Public Meeting indicated that high transparency was identified as a key design criteria for both safety and aesthetics. Alternatives to standard Caltrans missile-proof enclosure geometry, supporting framework, and chain link infill material should be explored and evaluated in terms of cost, sightlines, and aesthetics.

**Specific Recommended Guidelines**

- The Caltrans Memo to Bridge Designers, the Uniform Building Code, and ADA standards all require railing for pathways when a drop-off greater than 30 inches exists at the path edge.
- The accepted minimum guardrail height for pedestrians and wheelchairs is 42 inches above the pathway or sidewalk surface.
- As per Caltrans publications, the minimum railing height is 4’-6” alongside bikeways without fencing, with the exception allowed that “a lower rail may be used if a curbed sidewalk separates the bikeway from the railing.” To better serve pedestrians, and minimize visual mass, a round handrail rather than a flat rubrail is recommended.
- Missile-proof fencing shall be highly transparent both when viewed perpendicularly, from the freeway, and at very acute angles, from on the bridge.

### 3.4.6 Design Speed

- Caltrans has established 40 km/h (25 mph) as the minimum design speed for Class I bike paths and 50 km/h for bike paths with long downgrades steeper than 4%.

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10 Caltrans Highway Design Manual, page 200-43
12 Caltrans Memo to Bridge Designers, section 13-1; CalDAG, page 173; 1994 Uniform Building Code, section 509.2
13 Caltrans Highway Design Manual, page 200-47
14 ibid.
3.4.7 Cross-Slope or Superelevation
- A minimum cross-slope of 2% should be provided on all paved surfaces to ensure adequate drainage. Sloping in one direction should be used instead of crowning.
- Cross-slopes steeper than 2% should only be considered at critical curves and should only be used where a separate sidewalk facility with cross-slopes no greater than 2% is provided.

While steeper cross-slopes would assist bicyclists and other faster moving users, cross-slopes in excess of 2% are reportedly disconcerting and potentially unsafe for wheelchairs.

3.4.8 Curves
Caltrans bikeway design criteria establish minimum radii of curvature as follows:

<table>
<thead>
<tr>
<th>Design Speed</th>
<th>Minimum Radius of Curvature (Caltrans bikeway guidelines)$^{15}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>25mph</td>
<td>154 feet</td>
</tr>
<tr>
<td>30mph</td>
<td>261 feet</td>
</tr>
</tbody>
</table>

Specific Recommended Guidelines
- A minimum radius of curvature of 154 feet. A preferred minimum radius of curvature of 261 feet.

Note: This criteria may not be feasible for the Elliott Avenue location. A Caltrans design exception would be required, and measures such as increased widths to mitigate the functional and safety issues associated with tight turns on ramps should be included if possible.

3.4.9 Sightlines
Caltrans bikeway guidelines provide sight stopping distance guidelines as follows:$^{16}$

<table>
<thead>
<tr>
<th>Slope</th>
<th>Design speed</th>
<th>Required stopping distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% downgrade</td>
<td>30mph</td>
<td>279 feet</td>
</tr>
<tr>
<td>flat (0%)</td>
<td>25mph</td>
<td>170 feet</td>
</tr>
<tr>
<td>5% upgrade</td>
<td>20mph</td>
<td>138 feet</td>
</tr>
</tbody>
</table>

$^{15}$ Caltrans Highway Design Manual, page 1000-9
$^{16}$ Caltrans Highway Design Manual, page 1000-10
The Federal Highway Administration (FHWA) publication *Bicycling and Walking in the Nineties and Beyond* gives significantly shorter bicycle stopping sight distances as general guidelines: 20 meters (65 feet) for 0% grade and 40 meters (131 feet) for downhill slopes.

Caltrans design guidelines indicate that both ascending and descending sight stopping distances should be taken into account in establishing sightlines at curves where objects at the inside of the curve may completely block views.

**Specific Recommended Guidelines**

**Sightlines in general:**
- Because traffic noise on the overcrossing will generally exceed levels adequate to hear approaching cyclists, clear sightlines are of primary importance to ensure safety. Maximum visibility by one bridge user of other bridge users should be established as a design goal.

**Sightlines on approach ramps:**
- People at the top of the ramp (where the alignment crosses the Caltrans right-of-way) shall be able to see others within the top half of the ramp--including any resting platform. People mid-way down the ramp shall be able to see other bridge users on the lower half of the ramp and in the touchdown area.

Note: This recommendation is not intended to prevent tree or shrub planting in the approach areas. However, to achieve the intent of the recommendation, special attention should be given to the selection, maintenance, and locations of trees and shrubs.

**Sightlines within the Caltrans right-of-way:**
Where the overcrossing passes through Caltrans right-of-way, required missile-proof fencing will create a condition where the open path becomes similar to an enclosed corridor, and sightlines will be affected.

Visibility issues are very important from both a crime- and accident-safety point of view, and will have a strong impact on the success of the architectural space created (see figures below). Visibility issues created by a missile-proof fencing enclosure can be simulated using computer modeling.

On a straight, fenced pathway the angle of incidence of the viewer’s sightline with the fencing becomes increasingly acute with increasing distance from the viewer. When the angle of incidence becomes sufficiently acute, the view through the fencing becomes completely obscured and a tunnel effect is created. This angle is denoted $\beta$ (Beta) and is given for various types of fencing in Error! Reference source not found. below.

On a curved, fenced pathway, looking toward points just around the curve, one cannot see through fence-enclosure materials. However, as the angle of viewing incidence increases, visibility of the traveled path, albeit through the fencing, is regained. The distance between these two visible sections is the length of the blind area, and is denoted L.
<table>
<thead>
<tr>
<th>Type of fencing material</th>
<th>Construction</th>
<th>Beta (observed)</th>
<th>Beta (calculated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” chain link (galvanized)</td>
<td>1/8” SQ. @ 2” O.C.</td>
<td>6.0°</td>
<td>-</td>
</tr>
<tr>
<td>Omega</td>
<td>0.192” diam. @ 2” O.C.</td>
<td>-</td>
<td>6.8°</td>
</tr>
<tr>
<td>Typical steel picket fence</td>
<td>3/4” SQ. @ 4 3/4” O.C.</td>
<td>12.2°</td>
<td>10.9°</td>
</tr>
<tr>
<td>1” “prison” chain link (vinyl coated)</td>
<td>1/8” diam. @ 1” O.C.</td>
<td>20.0°</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3.1 Angles of incidence at which view through fencing becomes obscured

Figure 3.2 Angled Missile-proof Fencing in Atlanta, GA (photos courtesy Omega Co.)
Figure 3.3 Fencing on both the Jack London Square/Oakland Amtrak Station Bridge (top) and the Emeryville Amtrak Station Bridge (above) show high transparency when viewed from a distance.
Figure 3.4 Fencing on Pedestrian Bridge at Jack London Square, Oakland retains its transparency for people crossing the tracks.

Figure 3.5 Pedestrian Bridge at Amtrak Station Emeryville is opaque for users.
Figure 3.6 Blind Spots on curved pathways.

Figure 3.7 Blind spots on straight pathways.
Figure 3.8 Sightline Geometry for Curving Fenced-in Pathways.

Assuming a highly transparent fencing material ($\beta=7^\circ$), but otherwise worst case conditions, consider a cyclist riding in a curving bike lane such that his line of sight is only three feet from the fencing on the inside of the curve ($d=3'$). To avoid hitting an obstacle or a stopped bridge user ahead on the $d=3'$ travel path, visibility must be adequate, both directly and through the fencing.

Analytical results indicate that for these conditions, curves with a radius of tighter than 100 feet will result in a moving blind spot only approximately five feet long. However, due to the tightness of the curve, the rider will have less than 50 feet to stop if an obstruction in the line of travel is for some reason not visible through the fencing ahead of the blind spot. This translates to an adequate stopping distance only if the rider is going 9 mph or less. Based on stopping distance guidelines noted above, a 65-foot direct visibility minimum stopping distance, $L_{dv}$, is probably more appropriate. This translates to a minimum radius of curvature of 175 feet.

At radii of curvature greater than approximately 300 feet, the length of the blind spot becomes longer than 25 feet and the sense of openness of the bridge becomes compromised. Therefore, for $\beta=7^\circ$ fencing materials, radii of curvature in the 175 to 300 foot range results in optimal visibility conditions (see figure below).

Note that for curved pathways, sight distances and blind areas can be significantly improved by altering the configuration of the fencing itself.

Bridge cross-section configurations which increase the effective length of “$d$” by placing or curving the inside fencing away from the edge of the traveled pathway are encouraged.

Greater direct visibility may actually reduce overall visibility. At radii of curvature greater than 1,000’, direct visibility is available for over 155 feet, and thus meets the Caltrans criteria for 40 km/h sight
stopping distances. Notably, however, straight paths and radii of curvature over 1,000 feet actually result in significantly less visibility of the traveled way beyond this directly visible area and create less openness.

For example, on a straight path, even if a viewer is 5 feet from the fencing and a fencing material with a low $\beta$ is used ($\beta=7^\circ$), visibility through the fencing will only be possible for approximately 40 feet. Thus, even with very transparent fencing materials, if the traveled way alignment is straight over the freeway, most of the approximately 250 feet of the main-span structure will appear as a tunnel to the user. The negative impact of this tunnel effect must be weighed against the need to provide adequate direct visibility.

![Figure 3.9 Direct Viewing Distances and Length of Blind Spots.](image)

With fencing materials having a large $\beta$ value, although transparency may be very high when viewed perpendicularly, the tunnel effect can be quite pronounced. Consequently, materials having high $\beta$ values are probably unacceptable for a fenced pathway as long as that required for the proposed bicycle footbridge.
Additionally, it should be noted that straight fenced pathways with a turn at the end create a static rather than a moving blind spot. This blind spot can be visualized as appearing just around the corner at the end of the “tunnel.” Especially from a crime-safety point of view, creating such a hidden spot should be avoided if possible. As indicated in the figure below, the size of this static blind spot does not decrease significantly until a user actually reaches the turn.

<table>
<thead>
<tr>
<th>Distance from 50' radius turn (on straight pathway)</th>
<th>Length of blind spot (θ=7')</th>
</tr>
</thead>
<tbody>
<tr>
<td>250'</td>
<td>60'</td>
</tr>
<tr>
<td>100'</td>
<td>31'</td>
</tr>
<tr>
<td>50'</td>
<td>26'</td>
</tr>
</tbody>
</table>

*Table 3.2 Static Blind Spots on Straight Fenced-in Pathways*

*Specific Recommended Guidelines*
- Within and near the missile-proof fencing enclosure, minimum direct visibility should be 65 feet.
- The radius of curvature of the inside line of the missile-proof fencing should be in the range of 175 to 300 feet.
- If radii larger than 300 feet prove necessary due to structural, geometric, or other constraints, then a radius of curvature of at least 1,000 feet should be used for the missile proof fencing enclosure, but a straight segment is preferred.

### 3.4.10 Minimum Clearances
- The preferred distance from the path edge to trees, signposts, and other obstructions is 3 feet. The minimum distance from the path edge to trees, signposts, and other obstructions is 2 feet.\(^{17}\)
- The minimum vertical clearance is 10 feet above traveled way.
- The minimum horizontal to obstructions is 2 foot.
- At Caltrans R/W, the minimum vertical above paved surface is 5.6 meters (18.37 feet).
- Culverts or pipes running under pathway shall extend at least 10 feet from pathway

### 3.4.11 Miscellaneous Safety Features

#### Signage and Striping
Signage should not take the place of good geometrics. From the Florida DOT design manual: “Some pavement marking materials are slippery when wet and should be avoided in favor of more skid resistant materials. Adding grit to thermoplastic increases skid resistance.”\(^{18}\)
- Only skid resistant pavement marking materials should be used.

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\(^{17}\) Caltrans Highway Design Manual, page 1000-4
\(^{18}\) Florida, page 5-24
- Painted pavement signage indicating separate bicycle and pedestrian pathways should be provided at the bottom of each approach ramp and intermittently along the entire facility.

**Gratings**
- Gratings should be avoided within the traveled way. If unavoidable, gratings shall be oriented with the long openings perpendicular to the path of travel in compliance with ADA standards.  

**Lighting**
For accident safety reasons, lighting of the traveled way surface shall be the first priority in lighting design. ADA requirements for clearance at light fixtures and other obstructions in the traveled way are not adequate for the safety of cyclists, skaters, and other faster moving users.

- According to Caltrans as well as the Florida DOT guidelines, average maintained illumination level of 5 lux to 22 lux should be considered; higher levels should be considered if special security problems exist.
- Lighting directed on the traveled way from below eye-level.
- All light fixtures shall be placed outside the traveled way and should meet vertical clearance requirements noted above. ADA standards allowing light posts and other obstructions within the traveled way shall not be considered acceptable.
- To minimize maintenance costs, LED-based fixtures should be used wherever feasible.

**Emergency Telephones**
- One pay telephone or special police call box should be considered at each touchdown plaza.

**Vehicle Access Restriction & Emergency Vehicle Access**
- Use of bollards shall be avoided. Alternative, safer methods of restricting automobile access should be used wherever possible.

**Graffiti**
Because graffiti removal programs, which do not result in immediate removal (within 48 hours) often prove ineffective, graffiti deterrence, through design, is preferred. Actual graffiti removal, even when facilitated by graffiti-proofing surface treatments, is often impractical or cannot be done quickly enough to deter additional graffiti and accessible surfaces will be tagged with graffiti.

- Large flat surfaces, as well as lighting which highlights flat surfaces, should be avoided.
- For surfaces which may be accessible to graffiti artists, surface treatments which accept cover-up paint should be chosen.

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19 *CalDAG*, page 182
20 Caltrans Highway Design Manual, page 1000-15

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**3-21** Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
4. Alternatives Assessment

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4.1 Location Alternatives

Alignment families studied are grouped at three locations. The northern alignment families are located at Elliott Avenue on the East. The central alignment families at Jennings Avenue. The southern alignment families are located at Bear Cub Way.

Figure 4.1 Crossing Area
<table>
<thead>
<tr>
<th>Alignment Family A</th>
<th>Advantages</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Direct connections between Coddingtown/Northside Bus Transfer Center and</td>
<td>• Impacts on parking, and views of and from SRJC District police building.</td>
</tr>
<tr>
<td></td>
<td>the Santa Rosa JC pedestrian core.</td>
<td>• Due to geometric constraints, ramp curves will not meet functional and safety design</td>
</tr>
<tr>
<td></td>
<td>• Route for through-traffic going east-west follows existing bike and</td>
<td>criteria, and will require Caltrans design exception.</td>
</tr>
<tr>
<td></td>
<td>pedestrian-friendly streets.</td>
<td>• Potential for conflicts between crossing users and other traffic at eastern touchdown.</td>
</tr>
<tr>
<td></td>
<td>• West approach may not significantly impact existing land uses.</td>
<td>• May close Elliott and/or cross streets.</td>
</tr>
<tr>
<td></td>
<td>• Ample construction layout area if landing is in Coddingtown parking lot.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.2 East side touch-down area from S.B. 101, in front of the Pedroncelli Police Center.

Figure 4.3 West side of Alignment A, as seen from southbound 101.
### ALIGNMENT FAMILY B

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Location makes connection between SMART/Coddington and SRJC easy to grasp.</td>
<td>• Costly utility relocations.</td>
</tr>
<tr>
<td>• Potential for integration with new development at former Los Robles property on West side.</td>
<td>• Potential for conflicts between crossing users and other traffic at eastern touchdown.</td>
</tr>
</tbody>
</table>

**Figure 4.4** East side of Location B as seen from northbound 101. East side touch-down locations.

**Figure 4.5** Freeway sign and utilities on West side of Location B.
<table>
<thead>
<tr>
<th>ALIGNMENT FAMILIES C &amp; D</th>
<th>Advantages</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Few direct impacts on existing uses.</td>
<td>• Conflicts with existing buildings and parking on west side.</td>
</tr>
<tr>
<td></td>
<td>• Good connection to Jennings bike route.</td>
<td>• Caltrans design exception may be required for horizontal radii of curve on east-side ramp.</td>
</tr>
<tr>
<td></td>
<td>• East approach area offers opportunity to connect to all three main SRJC east-west routes: Elliott, Scholars, and Bear Cub.</td>
<td>• SRJC has concerns about introducing bicycle traffic at center of campus.</td>
</tr>
<tr>
<td></td>
<td>• Minimal land acquisition.</td>
<td></td>
</tr>
<tr>
<td>ALIGNMENT FAMILY E</td>
<td>Advantages</td>
<td>Concerns</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>• May not require property acquisition.</td>
<td>• Would impact views for residents of apartment building on west side.</td>
</tr>
<tr>
<td></td>
<td>• Good connection to Jennings bike route.</td>
<td>• Steep ramp leading to west touchdown at vehicular entrance to housing complex may result in conflicts between bridge users and vehicles.</td>
</tr>
<tr>
<td></td>
<td>• East approach area offers good opportunity to connect to two main SRJC east-west routes: Elliott, and Bear Cub.</td>
<td>• Loss of trees on east side.</td>
</tr>
<tr>
<td></td>
<td>• May not impact parking.</td>
<td>• Caltrans design exception may be required for horizontal radii of curvature on east-side ramp.</td>
</tr>
<tr>
<td>ALIGNMENT FAMILY F</td>
<td>Advantages</td>
<td>Concerns</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>• Excellent geometrics; crosses perpendicular to freeway, ample backslopes, freeway elevation differences are minimal.</td>
<td>• Large property acquisition or co-development with new park on west side.</td>
<td></td>
</tr>
<tr>
<td>• Good connection to Jennings bike route.</td>
<td>• Relocation of freeway sign.</td>
<td></td>
</tr>
<tr>
<td>• Ample construction layout.</td>
<td>• Displaces parking at SRJC.</td>
<td></td>
</tr>
<tr>
<td>• Highly feasible to avoid Caltrans right-of-way acquisition.</td>
<td>• 20% longer route from SRJC Bailey Hall to Guerneville SMART station compared with A and B.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.10 Location F as seen from southbound 101. Note mature trees on each side of alignment.

Figure 4.11 Location F, west side, as seen from northbound 101. Note freeway sign that would need to be relocated.
<table>
<thead>
<tr>
<th>ALIGNMENT FAMILY G</th>
<th>Advantages</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Harmonious urban intervention, re-using existing, abandoned right-of-way.</td>
<td>• Skewed alignment with freeway increases main span cost.</td>
</tr>
<tr>
<td></td>
<td>• Complements rails-to-trails conversion along SMART corridor.</td>
<td>• Skewed alignment may be difficult to resolve visually from the freeway user’s perspective.</td>
</tr>
<tr>
<td></td>
<td>• Ample construction layout areas.</td>
<td>• Impact on commercial building signage.</td>
</tr>
<tr>
<td></td>
<td>• Straight alignment means minimal pedestrian/cyclist conflict.</td>
<td>• Circuitous connection to Codding-town/SMART at Guerneville.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Loss of existing parking on East side.</td>
</tr>
</tbody>
</table>

Figure 4.12 West side of Location G as seen from northbound 101.

Figure 4.13 East side of Location G as seen from northbound 101.
4.2 Alignment Alternatives

Alternative alignments were considered at all locations A through G.

Given the tight geometric requirements at locations A through E, several alignments were studied initially with steeper 1:12 ramps. However, the indications from both community meetings is that a bridge with 1:12 ramps will not meet community goals, so these alignments were eliminated from further consideration and are not presented here.

We have developed preliminary visualizations that are representative of the other alignments for a given location. For example, the visualizations for Alignment B-1 on the east side also apply to Alignment B-2.

The visualizations presented here are intended to show the relative scale of a potential bridge in relation to existing buildings, trees, and roadways. They are not intended to be representative of the variety of structure types or architectural treatments possible. Aesthetic refinement of the architectural and structural qualities of the bridge will take place in the next project phase.
4.2.1 Location A Alternatives

ALIGNMENT A-1

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>$10.2 const</td>
<td>$3.1 soft costs</td>
<td>$13.3 total</td>
</tr>
<tr>
<td>Steel main span structure, no center support, concrete girder ramps, supports at edge of Caltrans ROW.</td>
<td>• Direct connection between SRJC and Coddingtown.</td>
<td>• Impacts on mature trees, utilities, police building, driveway and parking.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Relatively direct route to Guerneville SMART.</td>
<td>• Tight turns less safe/functional.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Opportunity for integration with commercial development on west side.</td>
<td>• Significant grade difference between freeway and surrounding streets means longer ramps, higher costs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Connects to bike-friendly streets.</td>
<td>• Mid-block touchdown.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Open parking lot simplifies layout on west side.</td>
<td>• Requires demolition of residence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Caltrans ROW Acquisition.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 4.15 Section through Hwy. 101, Armory Drive, and the Pedroncelli Police Center

Figure 4.16 Elevation of Pedroncelli Police Center with bridge in front.
Figure 4.17: Alignment A-1 view looking south along Armory Drive with Pedroncelli Building on the left.
Figure 4.18 Alignment A-1, view facing east elevation of Pedroncelli Center

Figure 4.19 Alignment A-1, view facing north with Pedroncelli Center on right

Figure 4.20 Alignment A-1, view facing northeast from intersection Armory Drive and Elliott Avenue
Figure 4.21 Alignment A-1, view facing west from entry of Pedroncelli Center
Figure 4.22 Alignment A-1, Photograph of physical model

Figure 4.23 Alignment A-1, Photograph of physical model

Figure 4.24 Alignment A-1, Photograph of physical model
Figure 4.25 Alignment A-1, Photograph of physical model

Figure 4.26 Alignment A-1, Photograph of physical model
Figure 4.27 Alignment A-1, Photograph of physical model

Figure 4.28 Alignment A-1, Photograph of physical model
4.2.2 Location B Alternatives

ALIGNMENT B-1

Figure 4.29 Alignment B-1 plan

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
</table>
| B-1                  | $10.3 const. $3.1 soft costs $13.4 total | • Direct connection between SRJC and Coddingtown.  
• Relatively direct route to Guerneville SMART.  
• Opportunity for integration with commercial development on west side.  
• Connects to bike-friendly streets. | • Closure of Elliot to through auto traffic.  
• West-bound bicycle traffic must cross Elliot.  
• Caltrans ROW Acquisition.  
• Freeway crossing overhead utilities must be moved.  
• Tight curves less safe/functional.  
• Requires demolition of residence.  
• Possible conflict with heritage trees. |
Figure 4.30 Alignment B-1 Section B at Edwards Ave.

Figure 4.31 Alignment B-1 Section A at Edwards Ave.

Figure 4.32 Alignment B-1 Section C at Edwards Ave.
Figure 4.33 Alignment B-1 Section D at Elliott Ave.

Figure 4.34 Alignment B-1 Section E at Elliott Ave.
Figure 4.35 Alignment B-1, view looking southeast from Elliott Avenue/Armory Drive intersection

Figure 4.36 Alignment B-1, view looking south along Armory Drive

Figure 4.37 Alignment B-1, view looking northwest from the SRJC Graphic Services Division from Elliott Avenue/Armory Drive Intersection
Figure 4.38: Alignment B-1, view looking east toward the touch-down which closes a portion of Elliott Avenue.
Figure 4.39 Alignment B-1, view looking west from touch-down location at Elliot Avenue looking towards Highway 101
Figure 4.40 Alignment B-2 plan and profile

**Description**

- Steel main span structure, no center support, concrete girder ramps.

**Preliminary Cost Est.**

- $10.9 const.
- $4.2 soft costs
- $14.1 total

**Benefits**

- Direct connection between SRJC and Coddingtown.
- Relatively direct route to Guerneville SMART.
- Opportunity for integration with commercial development on west side.
- Connects to bike-friendly streets.

**Concerns**

- Possible conflict w/heritage trees.
- Closure of Elliott to through auto traffic.
- West-bound bicycle traffic must cross Elliot.
- Caltrans ROW Acquisition.
- Freeway-crossing overhead utilities must be moved.
- Tight curves less safe/functional.
- Requires demolition of residence.
Figure 4.41 Alignment B-6 plan and profile

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-6 Concrete structure w/ elevator on both sides</td>
<td>$5.0 const. $1.4 soft costs $6.4 total</td>
<td>• Smaller footprint. • Lower construction cost.</td>
<td>• Maintenance cost of elevators. • Safety and emergency response during night hours. • Costly overhead utility relocation. • Elevators do not serve cyclists well.</td>
</tr>
</tbody>
</table>
Figure 4.42 Alignment B-7 plan and profile

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-7 Steel mainspan structure with no center support, support at east edge</td>
<td>$8.8 const.</td>
<td>• Straight ramping where cyclist speeds are likely to be highest.</td>
<td>• Safety concerns at center of street touch-downs.</td>
</tr>
<tr>
<td>of Caltrans ROW.</td>
<td>$2.7 soft costs</td>
<td>• Minimal acquisition and impact to existing uses due to center of street</td>
<td>• Costly overhead utilities relocation.</td>
</tr>
<tr>
<td></td>
<td>$11.5 total</td>
<td>touch-down.</td>
<td>• Freeway sign relocation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Connects to bike-friendly streets.</td>
<td>• Sharp curves require Caltrans design exception.</td>
</tr>
</tbody>
</table>

ALIGNMENT B-7
Figure 4.43 Alignment B-8 plan and profile

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-8</td>
<td>$11.9 const.</td>
<td>Opportunity for integration with commercial development on west side.</td>
<td>Complex form difficult to resolve aesthetically.</td>
</tr>
<tr>
<td></td>
<td>$3.6 soft costs</td>
<td>• Avoids tight constraints at Elliott Avenue.</td>
<td>Design exception required for ramps.</td>
</tr>
<tr>
<td></td>
<td>$15.5 total</td>
<td>• CalTrans R.O.W. Acquisition.</td>
<td>• Loss of student parking, impacts on existing campus bldgs. on east.</td>
</tr>
</tbody>
</table>

Alignment B-8
- Concrete structure, possibly with center support.
- Calibration costs:
  - $11.9 const.
  - $3.6 soft costs
  - $15.5 total
Figure 4.44 Alignment B-8 w/ Edwards Avenue option plan and profile

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-8</td>
<td>Steel structure w/ 1:20 ramps, no center support</td>
<td>$11.9 const. $3.6 soft costs $15.5 total</td>
<td>• Impacts on driveways and property on west side. • Opportunity for integration with commercial development on west side. • Avoids tight constraints at Elliott Avenue.</td>
</tr>
</tbody>
</table>
Figure 4.45 Alignment B-8, view looking north along Armory Drive, showing impacts on the Bech Lot Annex Parking on SRJC campus.
4.2.3 Location C Alternatives

ALIGNMENT C-1

Table 4.23 - Location C Alternatives

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1 Concrete box girder, possible center support.</td>
<td>-</td>
<td>• No property acquisition required.</td>
<td>• Reduces width of frontage roads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Simple geometrics.</td>
<td>• Design exception required for ramps.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Minimal utility impact.</td>
<td>• Safety concerns w/ crosswalks.</td>
</tr>
</tbody>
</table>

Figure 4.46 Alignment C-1 plan
4.2.4 Location D Alternatives

ALIGNMENT D-1

Description: Prelim. Cost Est.

| D-1 | Structure type TBD | - |

Benefits:
- Minimal utilities impact.
- Few impacts on existing uses

Concerns:
- Introduction of bicycle traffic on Scholars Way.
- Tight turns near bottom of ramps less safe/functional.
- Impacts on driveway and parking on west side.
## Location F Alternatives

### ALIGNMENT F-1

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
</table>
| Steel ramp and main span structure, no supports in or adjacent to Caltrans ROW. | $8.4 cost | $1.6 soft costs $10.0 total | • Cleanest project delivery.  
• Excellent geometrics; crosses perpendicular to freeway and elevation differences are minimal.  
• Minimal impacts on exiting uses and trees.  
• Strong connection to Jennings bike route.  
• Ample construction layout areas.  
• Opportunity for connection to Codington by splitting block between Edwards Avenue and Jennings Avenue. | • Property acquisition or co-development with new park on west side required.  
• Relocation of freeway sign.  
• Displaces SRJC parking.  
• 16% longer and less direct route from SRJC Bailey Hall to Guerneville SMART station compared with A and B alignments. |

Figure 4.48 Alignment F-1
Figure 4.49: Alignment F-1, view looking west toward Armony Drive and Hwy. 101 from Bear Cub Way.
Figure 4.50 Alignment F-1, Photograph of physical model
Figure 4.51 Alignment F-1, Photograph of physical model

Figure 4.52 Alignment F-1, Photograph of physical model

Figure 4.53 Alignment F-1, Photograph of physical model
## 4.2.6 Location G Alternatives

### ALIGNMENT G-1

<table>
<thead>
<tr>
<th>Description</th>
<th>Prelim. Cost Est.</th>
<th>Benefits</th>
<th>Concerns</th>
</tr>
</thead>
</table>
| G-1 Cable-Stayed, no center support, above deck structure, 120 ramps | $10.6 const. $2.1 soft costs $12.7 total | • Harmonious urban intervention, re-using existing, abandoned right-of-way.  
• Complements rails-to-trails conversion along SMART corridor.  
• Landscape/park development opportunity on west side.  
• Straight alignment simplifies structural design and reduces potential for user conflict.  
• Easily accommodates clear sight lines and ample width.  
• Opportunity for long-span signature structure.  
• Ample construction layout areas. | • Skewed alignment increases main span cost.  
• Skewed alignment may be difficult to resolve visually from the freeway user perspective.  
• Impact on commercial building signage visibility.  
• No direct connection to Coddingtown.  
• Displaces existing SRJC parking on east side. |

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**Figure 4.54 Alignment G-1**

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4-36 Santa Rosa Bicycle and Pedestrian Bridge Feasibility Study
4.2.7 SRJC Approaches for Alignments F-1 and G-1

Figure 4.55 Existing pathway connecting Bear Cub Way to Scholars Drive is too narrow to accommodate the amount of traffic expected if a bridge over 101 is constructed. Widening this pathway would require converting adjacent open channel drainage.

Figure 4.56 Bicycle and pedestrian improvements are proposed in the SRJC Operational and Transportation Plan 2006-2008 Draft Such improvements would be important for the success of an overcrossing if it is located at Alignment F or G. A Class 1 bikeway to provide a safe route for east-west bike and pedestrian travel along Bear Cub Way in the vicinity of the SRJC playing fields is possible without any loss of parking.
Figure 4.57 In the vicinity of the Walter Haehl Pavilion, a Class 1 bikeway along Bear Cub Way would require minimal impact on the SRHS.

Figure 4.58 The sidewalk in front of the Haehl Pavilion does not safely accommodate wheelchair traffic, and the 23 foot wide roadway does not have adequate width for both two-way vehicular traffic and bike lanes.
Figure 4.59 In the area near the SRJC track, there is no continuous or explicit accommodation for pedestrians. Creating a Class 1 pathway in this area would require loss of existing diagonal parking, or reconfiguration of the lot to make it more efficient.
4.3 Structure Type Alternatives

This section provides an assessment of broad categories of structure type options for the proposed project. Should the City of Santa Rosa decide to proceed with a crossing project, a detailed Advance Planning Study (APS) reviewed by Caltrans of structure type alternatives is one of several recommended immediate next steps.¹ The purpose of an APS is to build on the work developed thus far in order to recommend a specific structure type and configuration.

Deck Depth and Ramp Length

Caltrans requires 18.5 feet clearance between the surface of the freeway and the underside of a pedestrian bridge structure. Bridge deck depth can vary from one foot for steel deck structures to four feet for concrete box girder structures. The bridge deck surface would vary between 19.5 to 22.5 feet above the surface of the freeway.

For a 1:20 slope, the length of ramping required on each side of the freeway is:

\[ 20 \times (18.5 \text{ feet} + \text{depth of bridge deck} + \text{elev. difference at the landing}) \]

For 1:12 slope ramps, with ADA required 5 foot long rest stops every 30 feet, the required length of ramping is:

\[ 14 \times (18.5 \text{ feet} + \text{depth of bridge deck} + \text{elev. difference at the landing}) \]

For deep bridge decks, such as for concrete box structures, the length of ramping needed on each side would therefore be on the order of 320 feet for 1:12 ramping, and 460 feet for 1:20 ramping. For shallow bridge decks, such as for steel truss structures, ramping on each side of the freeway would need to be 273 feet and 390 feet. For alignments at locations A and B, actual ramping length will be longer due to the fact that the ground slopes away from the freeway on the west side, and the fact that the freeway is elevated by about 3 feet.

Thus, for a 1:20 ramp slope, a shallow deck structure could save as much as a total of 140 feet of ramping. This translates to a construction cost on the order of $500,000 to $900,000, as well as less distance that bridge users will need to walk, less height to climb, and less impact to public/private property.

Concrete Box Girder

The most common bridge structure type on California freeways is the concrete box girder. For bicycle and pedestrian bridges, this type of structure is commonly constructed with a depth-to-span ratio of about 1/22 and a maximum span of about 100 feet.

Longer spans and sleeker proportions are possible and can be economically viable in some situations. For example, the Ralston Avenue bridge for the City of Belmont was recently approved by Caltrans with a variable depth concrete box section, a maximum span of 160 feet and a depth/span ratio at the center of 1/40 (4 feet) and 1/23 (7 feet) at the supports. Despite the relatively thin depth at the center of this bridge, the depth of the deck is still substantial and may not have been justified if the alignment had not required very long approaches for reasons unrelated to the ramp slope.

For this project, given the spans involved, a concrete box structure is unlikely to be economically competitive in terms of construction cost unless a support is constructed at the center of the freeway. Soft costs and other disadvantages related to center supports may outweigh this. Because Highway 101 has been widened to the maximum extent of the State right-of-way in the project area, construction of a center support would likely require a design exception for substandard shoulders.

¹ An APS is a key component of a PID. See section 5
Advantages:
- Local contractors and Caltrans are very familiar with this structure type.
- Very low maintenance.
- Low construction cost.

Disadvantages:
- Requires falsework.
- Requires construction of a support at the center of Highway 101.

Aesthetics:
- Fence enclosure system is not integrally related to the structure and can visually overwhelm structural form.
- More challenging to satisfy “special visual appearance” project goal with this standard structure type.

**Steel Through Truss**
A steel through truss is a common structure type for pedestrian bridges. It has the fundamental advantage of the structure being located above the traveled way, thus minimizing the depth of the deck and lengths of ramps.

Advantages:
- Pre-fabricated option may save design costs.
- Minimal deck depth means ramping lengths and total climb is minimized.
- The enclosure is integral to the structure, so visual resolution of the fencing as a separate element is not required.
- For clear widths of up to about 12 feet, can be assembled on-site and lifted into place, thus minimizing traffic control costs.
- Inherently ductile and redundant; good seismic performance.

Disadvantages:
- Main span and bridge width requirements for this project may exceed practical range for a truss bridge without a center support.
- High maintenance costs due to large steel surface area. (Weathering steel to reduce maintenance costs may not be acceptable to Caltrans.)
- Smooth painted steel surfaces may attract graffiti.
- Heavy structural members create heavy visual appearance.

**Tied Arch**
Advantages:
- Provides advantages of above-deck structure type (minimal ramp length), while introducing a minimal amount of steel surface area that must be maintained.
- Curving lines may present pleasing “gateway” effect and opportunities for dramatic lighting.
- Visually open.
- Lateral thrust forces are efficiently resolved within deck.
- Transport of large steel fabrications to this location is relatively feasible, and large construction staging areas are available.
Disadvantages:
- Typically requires falsework during construction; construction process and traffic control may be more complicated than for other above-deck structure types.
- Prefabricated is not an option.

**Cable Stayed**

**Advantages:**
- Provides advantages of above-deck structure type (minimal ramp length).
- Visually striking.
- Compatible with span length and straight geometry of G alignment.
- Ease of construction (segmental cantilever approach using steel deck was quite successful in Cupertino).
- Self-anchoring; no large thrust forces to resolve at foundation.

**Disadvantages:**
- Uncommon structure type.
- High design costs.
- Requires tall tower (may be seen as positive landmark, or out-of-scale visual element depending on how successful the design is worked out)

---

Figure 4.60 Typical Bridge Sections
4.3.1 Cost Analysis Overview

Preliminary cost estimates were based on the review of nine similar projects, mostly in the Bay Area. Project costs were adjusted based on normalized deck width.\(^2\) This analysis indicates:

- The construction cost for the main span for steel structures is about 30% more than concrete box structures. This is typically true whether the structure is a ‘signature’ structure or a pre-fabricated steel structure.\(^3\)
- The biggest difference between ‘signature’ and standard concrete box or prefab truss structure types is in the soft costs; engineering costs are higher when designing a bridge with an unconventional or obscure structure type.

4.3.2 Soft Cost Analysis

<table>
<thead>
<tr>
<th>Project</th>
<th>Location</th>
<th>Construction Costs in 2010 Millions of Dollars (^1)</th>
<th>Soft Costs in 2010 Millions of Dollars</th>
<th>Soft Costs as Percentage of Construction Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-80 Bicycle/Pedestrian Bridge</td>
<td>Berkeley, CA</td>
<td>$8.4</td>
<td>$1.1</td>
<td>13 %</td>
</tr>
<tr>
<td>Bicycle Footbridge at Mary Ave.</td>
<td>Cupertino, CA</td>
<td>$9.7</td>
<td>$6.9</td>
<td>71 %</td>
</tr>
<tr>
<td>Iron Horse Trail Bridge at Treat Blvd.</td>
<td>Contra Costa County</td>
<td>$8.5</td>
<td>$3.5</td>
<td>41 %</td>
</tr>
<tr>
<td>Route 101 &amp; 237 Bridge at Borregas Ave.</td>
<td>Sunnyvale, CA</td>
<td>$7.3</td>
<td>$1.0</td>
<td>13 %</td>
</tr>
<tr>
<td>US 101 Bicycle Pedestrian Bridge</td>
<td>Belmont, CA</td>
<td>$8.2</td>
<td>$0.9</td>
<td>11 %</td>
</tr>
<tr>
<td>Stevens Creek Trail Bridge</td>
<td>Mountain View, CA</td>
<td>$6.1</td>
<td>$2.0</td>
<td>33 %</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>$8.0</td>
<td>$2.6</td>
<td>31 %</td>
</tr>
</tbody>
</table>

Table 4.1 Soft cost comparison chart of recent similar projects.

“Soft costs” refer to all project costs outside of construction, including design and engineering, project management, property acquisition, and costs associated with agency review. Soft costs are affected by a large number of variables, such as:

- Complexity of design issues to be resolved.
- Extent of environmental review and environmental clearance required.
- Right-of-way acquisition, if any.

\(^2\) Based on $150,000 per additional foot of width.
\(^3\) This ratio was determined by comparing the final construction cost of the main structural span.
• Utilities under-grounding or relocation.
• Unknown subsurface conditions.
• Degree of community support or controversy.
• Degree of customization in design, and selection of an unconventional structure type.
• Diversity in community goals and objectives.

Among the projects reviewed, soft costs ranged from 11% to 71% when expressed as a percentage of project construction costs. Cupertino’s soft costs were high because the project was re-engineered twice and the project delivery period was long. The Pleasant Hill project also required high soft costs due to the complexity of utilities in the area and complexity of the architectural detailing. The projects at the low end of soft costs employed standard design details, common structure types, required minimal environmental reviews, and limited utility and geometric constraints.

4.3.3 Support at Center of Highway 101

While direct structure construction costs are typically lower when the span over a large roadway can be supported at its center, structures which rely on a center support within Caltrans right-of-way will require higher traffic management costs, and higher coordination and administration costs during the PID and PS&E processes.

4.3.4 Utilities

The soft costs associated with alignments A and B are higher, in part due to a distribution line which runs north-south along Cleveland Avenue. These are 12,000V distribution poles at 48’ height with transformers on the pole. Relocating or grounding the utilities is not simple for the following reasons:

• Requires $10,000 fee for PG&E to study and provide accurate cost estimate.
• There are “so many variables” which influence the costs of relocating or grounding utilities.\footnote{According to Dana Massuk, PG&E.}
• Relocating the distribution line over a freeway could easily cost $500,000.
• An underground transformer is very expensive. To underground the line on Cleveland for the southern alignments could also cost $500,000.

However, raising the height of the poles does not require a full study for cost estimation by PG&E and is a much simpler undertaking but only applicable for the southern alignments. The factors worth considering are:

• $7,000 to $10,000 per pole to raise from 45’ to 65’.
• Might need to raise additional poles if slope is too great.
• Top of bridge construction must provide 10’ clear below lowest power line.
4.3.5 Elevators

Even though up-front costs for elevators are typically lower than ramp alternatives, common wisdom for bicycle and pedestrian crossings over freeways indicates that elevators should be considered only as a last resort. Some considerations when considering a bridge which utilizes elevators instead of ramps:

- To cyclists, the ability to maintain momentum on a bicycle is more important than minimizing distance traveled. A longer route via easy-to-navigate ramping is more attractive to cyclists than a shorter route that requires stopping, getting off a bike, waiting for an elevator, and possibly conflicting with pedestrians.

- Maintenance costs average about $4,000 annually for the lifetime of the elevators. Operation, repair, and replacement costs are not readily known.

- Due to large areas with flat surfaces and enclosed interiors, elevators are more prone to vandalism, graffiti, and service concerns. Janitorial and maintenance costs are higher.

- For this project, the high water table dictates shallow elevator technologies. Hydraulic elevator systems are therefore unfeasible.

- An important element among grant funding agencies’ scoring criteria is the demonstrated ability for a project to close significant gaps in the bicycle transportation network. By using elevators instead of ramps, this project might encounter more difficulty in grant funding application process.

4.3.6 Construction Costs

<table>
<thead>
<tr>
<th></th>
<th>Pre-fab box style tied arch</th>
<th>Cable-stayed (Cupertino CA)</th>
<th>Concrete box girder (Belmont CA)</th>
<th>Stressed ribbon with low profile arch (Durham NC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main span(s) (feet)</td>
<td>290</td>
<td>325</td>
<td>390</td>
<td>268</td>
</tr>
<tr>
<td>Total side span (feet)</td>
<td>430</td>
<td>148</td>
<td>381</td>
<td>-</td>
</tr>
<tr>
<td>Total length (feet)</td>
<td>720</td>
<td>473</td>
<td>771</td>
<td>-</td>
</tr>
<tr>
<td>Average width (feet)</td>
<td>15</td>
<td>18</td>
<td>11</td>
<td>268</td>
</tr>
<tr>
<td>Deck surface (sq ft)</td>
<td>10,800</td>
<td>8,514</td>
<td>8,481</td>
<td>4,040</td>
</tr>
<tr>
<td>Total main span construction cost (Engineer’s Estimate)</td>
<td>$2,467,040</td>
<td>$3,563,983</td>
<td>$4,931,000</td>
<td>$2,592,380</td>
</tr>
<tr>
<td>Estimated main span construction cost per LF</td>
<td>$8,507</td>
<td>$10,966</td>
<td>$6,396</td>
<td>$9,673</td>
</tr>
</tbody>
</table>

1 Construction cost escalation based on CALTRANS Price Index for Selected Highway Construction Items Summary (Dec. 31, 2009)

Table 4.2 Per linear foot main span construction cost comparison
### 4.3.7 Preliminary Construction Cost Estimates

#### A-1

<table>
<thead>
<tr>
<th>QUANTITY NUMBER</th>
<th>UNIT</th>
<th>UNIT COST</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Structure: Main span</td>
<td>177</td>
<td>LF</td>
<td>$9000/LF</td>
</tr>
<tr>
<td>Bridge Structure: Side spans</td>
<td>526</td>
<td>LF</td>
<td>$7000/LF</td>
</tr>
<tr>
<td>Ramp on embankment/ ret walls</td>
<td>440</td>
<td>LF</td>
<td>$5000/LF</td>
</tr>
<tr>
<td>Trail &amp; Landscaping</td>
<td></td>
<td>LF</td>
<td>$230/LF</td>
</tr>
<tr>
<td>ROW Acquisition</td>
<td></td>
<td>LS</td>
<td>$680,000</td>
</tr>
<tr>
<td>Utility Relocation</td>
<td></td>
<td>LS</td>
<td>$40,000</td>
</tr>
<tr>
<td>Move Freeway Sign</td>
<td></td>
<td>LS</td>
<td></td>
</tr>
</tbody>
</table>

**SUBTOTAL** | |  | $8,195,000 |

% Construction Contingency | |  | 25% |

**SUBTOTAL** | |  | $10,243,750 |

% Soft Costs | |  | 30% |

**TOTAL** | |  | $13,316,875 |

*Table 4.3 Preliminary construction cost estimate for Alignment A-1*

#### B-1

<table>
<thead>
<tr>
<th>QUANTITY NUMBER</th>
<th>UNIT</th>
<th>UNIT COST</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Structure: Main span</td>
<td>140</td>
<td>LF</td>
<td>$9000/LF</td>
</tr>
<tr>
<td>Bridge Structure: Side spans</td>
<td>528</td>
<td>LF</td>
<td>$7000/LF</td>
</tr>
<tr>
<td>Ramp on embankment/ ret walls</td>
<td>453</td>
<td>LF</td>
<td>$5000/LF</td>
</tr>
<tr>
<td>Trail &amp; Landscaping</td>
<td></td>
<td>LF</td>
<td>$230/LF</td>
</tr>
<tr>
<td>ROW Acquisition</td>
<td></td>
<td></td>
<td>$500,000</td>
</tr>
<tr>
<td>Utility Relocation</td>
<td></td>
<td>LS</td>
<td>$500,000</td>
</tr>
<tr>
<td>Move Freeway Sign</td>
<td></td>
<td>LS</td>
<td></td>
</tr>
</tbody>
</table>

**SUBTOTAL** | |  | $8,221,000 |

% Construction Contingency | |  | 25% |

**SUBTOTAL** | |  | $10,276,250 |

% Soft Costs | |  | 30% |

**TOTAL** | |  | $13,359,125 |

*Note: northern alignments require longer ramps due to greater elevation of freeway with respect to surrounding grade.*

*Table 4.4 Preliminary construction cost estimate for Alignment B-1*
### Table 4.5 Preliminary construction cost estimate for Alignment F-1

<table>
<thead>
<tr>
<th>QUANTITY NUMBER</th>
<th>UNIT</th>
<th>UNIT COST</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Structure: Main span</td>
<td>230</td>
<td>LF</td>
<td>$9000/LF</td>
</tr>
<tr>
<td>Bridge Structure: Side spans</td>
<td>380</td>
<td>LF</td>
<td>$7000/LF</td>
</tr>
<tr>
<td>Ramp on embankment/ ret walls</td>
<td>370</td>
<td>LF</td>
<td>$5000/LF</td>
</tr>
<tr>
<td>Trail &amp; Landscaping</td>
<td>250</td>
<td>LF</td>
<td>$230/LF</td>
</tr>
<tr>
<td>ROW Acquisition</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility Relocation</td>
<td>1</td>
<td>LS</td>
<td>$40,000</td>
</tr>
<tr>
<td>Move Freeway Sign</td>
<td>1</td>
<td>LS</td>
<td>$250,000</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td>$6,960,730</td>
</tr>
<tr>
<td>% Construction Contingency</td>
<td></td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td>$8,352,876</td>
</tr>
<tr>
<td>% Soft Costs</td>
<td></td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>$10,023,451</td>
</tr>
</tbody>
</table>

*Assumes that the approximate $250,000 cost to acquire property for western ramp and connecting trail will be covered by a separate urban park project.

### Table 4.6 Preliminary construction cost estimate for Alignment G-1

<table>
<thead>
<tr>
<th>QUANTITY NUMBER</th>
<th>UNIT</th>
<th>UNIT COST</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Structure: Main span</td>
<td>296</td>
<td>LF</td>
<td>$10000/LF</td>
</tr>
<tr>
<td>Bridge Structure: Side spans</td>
<td>430</td>
<td>LF</td>
<td>$7000/LF</td>
</tr>
<tr>
<td>Ramp on embankment/ ret walls</td>
<td>390</td>
<td>LF</td>
<td>$5000/LF</td>
</tr>
<tr>
<td>Trail &amp; Landscaping</td>
<td>400</td>
<td>LF</td>
<td>$230/LF</td>
</tr>
<tr>
<td>ROW Acquisition</td>
<td>1.83</td>
<td>AC</td>
<td>$205,000/AC</td>
</tr>
<tr>
<td>Utility Relocation</td>
<td>1</td>
<td>LS</td>
<td>$40,000</td>
</tr>
<tr>
<td>Move Freeway Sign</td>
<td></td>
<td>LS</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td>$8,461,380</td>
</tr>
<tr>
<td>% Construction Contingency</td>
<td></td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td>$10,153,656</td>
</tr>
<tr>
<td>% Soft Costs</td>
<td></td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>$12,184,387</td>
</tr>
</tbody>
</table>
5 Implementation

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The physical realization of the proposed project will be shaped not only by the goals and constraints determined from analysis of the physical and community context but also by agency standards and requirements for design of bicycle and pedestrian facilities, such as those in the Caltrans Highway Design Manual Chapter 1000. Furthermore, for a project which impacts the State Highway System, Caltrans maintains oversight of the project development process and requires adherence to its standards and procedures as defined in the Project Development Procedures Manual (PDPM).

This section describes the anticipated process-related implementation requirements specific to this project. The material contained herein is gathered from manuals and sources publicly available at http://www.dot.ca.gov. Descriptive text defining terminology or processes has been copied directly without specific attribution to the myriad government document sources where these descriptions can be found. The material presented here is intended to concisely summarize the key process considerations for this specific project. Referral to the Caltrans website is recommended for greater breadth and depth of information and as the definitive source of process requirements information.

The “next steps” outlined at the end of this section are the key requirements as we can best envision them at this stage.

Within the project initiation process, a key milestone is the environmental clearance. This project will be subject to the California Environmental Quality Act (CEQA) and, if federal funds are used, to the National Environmental Policy Act (NEPA). In essence, both acts set forth procedural requirements for describing level of environmental impact likely to be caused by the project, and for any mitigation necessary.
Additionally, the environmental process, particularly NEPA, requires that all alternatives, including the no-build alternative, be considered in order to minimize negative environmental impacts.

If an accelerated project timeline is deemed desirable, it is recommended that some of these implementation requirements be tackled earlier than they ordinarily would be within the project development process. These specific requirements are detailed in this section. Most importantly, the environmental scoping activities should be started as soon as possible.

Sources of the project implementation procedures and guidelines contained in this section include the Caltrans Highway Design Manual, the Caltrans Project Development Procedures Manual, the Caltrans Traffic Manual, the California Manual of Uniform Traffic Control Devices, American Disability Act Requirements, Federal Highway Administration documents, and bicycle facility design guidelines from AASHTO.

5.1 Anticipated Caltrans Review Process

5.1.1 Project Initiation Document and Project Report
The project development process begins with feasibility studies and ends with the completion of construction. A crucial first step is the nomination of the project for the Regional Transportation Plan (RTP) by the Sonoma County Transportation Authority SCTA. Projects in the Metropolitan Transportation Commission (MTC) Regional Bicycle Network (RBN) get recognized as part of the RTP. The Caltrans process is then initiated by securing an Expenditure Authorization (EA). A district may choose to assign an EA early.1 In this region, there are already a number of other transportation projects that SCTA may nominate for Caltrans review; this is anticipated to be a challenge. The chart in Figure 6.1 provides an overview of the entire project development process from PID through construction.

Project Initiation Documents (PID) are engineering reports whose purpose is to document agreement on the scope, schedule, and estimated cost of a project so that the project can be considered for inclusion in a future programming document such as the STIP. A Project Study Report (PSR) is a PID format that meets statutory, California Transportation Commission (CTC), and Caltrans requirements for STIP candidate projects.

The development of a PSR is the first formal project phase in developing a solution for a specific transportation problem. A PSR should accomplish the following:

- Define the purpose and need for the project
- Document input from stakeholders
- Systematically collect and analyze existing information
- Identify alternatives
- Develop a plan of action to deliver the project, and
- Estimate the project cost and schedule.2

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1 See http://www.dot.ca.gov/hq/oppd/pdpm/chap_pdf/chapt08.pdf
The key purposes of a PSR are to establish a well-defined purpose and need statement, and a reasonable project schedule and reliable cost estimates. A PSR is prepared in order to ensure that a project is sound, well-planned, and well-conceived. The PSR should identify any flaws with the project so that they can be resolved before financial and staff resources are invested. The PSR will also identify whether sufficient community support is present. A strong PSR is key for the process of obtaining funding. Many of the tasks required for a PSR have been completed or initiated as part of this feasibility study.

A Project Report (PR) is a report that documents Caltrans approval of a project. It documents environmental clearance for the project. It answers the question "Which way provides the greatest public good with the least private harm?" and explains why other alternatives were rejected.

Proposed projects that have the consensus of key stakeholders and clearly defined project completion requirements can be scoped early in the project development process. If this project is determined to have a well-defined “purpose and need” and a well-defined project scope (in this case, a clear choice for crossing structure alignment), Caltrans will likely approve consolidation of the PID and project report into a Combined Project Study Report-Project Report (PSR-PR). This significantly reduces the total project delivery timeline. A Combined PSR-PR must meet the requirements for both a PID and a PR.  

Particular features make projects ineligible for the use of a combined PSR-PR (Project Development Procedures Manual 2009, 9-46). One criteria that could potentially be an issue is whether an environmental impact report to comply with California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) is required. Given the likelihood of using federal funds, NEPA requirements will apply. However, based on the studies performed by the project environmental sub-consultants so far, it is not anticipated that an environmental impact report will be required.

Once it is determined that the project is not specifically ineligible from using a combined PSR-PR, the following factors, at a minimum, will be considered before allowing the project to proceed on an expedited PSR-PR track:

- Consensus of key stakeholders on the project purpose and need.
- Consensus of key stakeholders on the project scope. Stakeholders may include, in addition to community stakeholders, the City of Santa Rosa, Caltrans, California Transportation Commission (CTC), Union Pacific, SMART, and other agencies.
- Impacts to the State Highway System as identified by traffic studies.
- Impacts to the environment and community. The Caltrans District 4 environmental generalist provides factors to make this evaluation.
- Availability of Caltrans project initiation and capital support resources to provide independent quality assurance.
- Geometric feasibility of the proposed alternatives.
- A reasonable funding source.

Based on the two community meetings held for this project, there is a clear consensus on the project purpose and need from community stakeholders. As stated above, it is anticipated that impacts to the

environment and community, if any, will be moderate. Alignments F and G are removed from the dense urban landscape, and therefore there is less conflict with existing land uses. These two alignments appear to have no significant impact on trees, utilities, buildings, or other features. Alignments A and B may have impacts on existing uses, such as heritage trees, that could trigger more extensive environmental review requirements.

Of the requirements listed above for obtaining approval for a combined PSR-PR, the most challenging for this project may be: a) documenting a well-defined project scope as represented by a specific crossing alignment, b) defining a reasonable funding source, c) and allocating resources for Caltrans oversight and quality review.

5.1.2 Environmental Review Process

As part of the PSR process, a Preliminary Environmental Assessment Report (PEAR) will need to be completed and reviewed by Caltrans. A draft PEAR is provided in Appendix J. The purpose of a PEAR is to scope out the anticipated environmental documentation that will be needed for the project, which, if any, of the special studies that will need to be prepared, and the anticipated cost of environmental impact mitigation. PEAR is based on a preliminary review of the field. Once a preliminary design for the bridge has been developed and preliminary engineering is underway, the formal environmental review process can commence. Environmental review will be required under the California Environmental Quality Act (CEQA), with the City of Santa Rosa serving as Lead Agency. Environmental review will also be required under the National Environmental Policy Act (NEPA), assuming the project receives Federal funds. In California, the Federal Highway Administration (FHWA) has delegated much of its NEPA work to Caltrans, whose staff must review and approve all draft environmental documents prepared to comply with NEPA. The environmental review process typically consists of three phases, which can run concurrently under both CEQA and NEPA:

Environmental Scoping (Phase 1)

Environmental scoping is the process of identifying environmental issues associated with the proposed project and determining the type of environmental documents that will be prepared as well as the issues that will be addressed in those documents. The types of environmental documents available under CEQA are:

- Categorical or Statutory Exemption

  A project is categorically exempt from CEQA based on a finding that the class of projects does not have a significant effect on the environment. Recent projects in the Bay Area have qualified for the categorical exemption without falling squarely into any of the exemption categories. For example, the creation of bicycle lanes on existing rights-of-way is listed as categorically exempt in Section 15304.

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4 Examples include the bicycle/pedestrian bridges over 101 in the City of Belmont at Ralston Avenue, over 101 and 237 in the City of Sunnyvale, and along Mary Avenue at 280 in the City of Cupertino.
• Initial Study/Negative Declaration (ND)

An initial study formalizes the lead agency’s preliminary analysis to determine whether an EIR or Negative Declaration must be prepared. This is typically based on a checklist including the various environmental impacts which may result from development. The study must also explain the reasons for supporting the checklist findings; supporting information may include specific studies which examine the potential significance of an anticipated environmental effect. A negative declaration (ND) is a brief report written by the lead agency describing the reasons that a proposed project not exempt from CEQA, will not have a significant effect on the environment and therefore does not require the preparation of an EIR. An ND is prepared when the lead agency finds that there is no substantial evidence that a project may have a significant environmental effect.

• Initial Study/Mitigated Negative Declaration (MND)

A Mitigated Negative Declaration (MND) is possible when all potentially significant effects of the project can and will be avoided, or mitigated to a level of insignificance, by project revisions or other requirements imposed on the project. The project changes and mitigation measures must be agreed to or made by the proponent before the draft ND is circulated for public review and comment.

• Environmental Impact Report (EIR)

An environmental impact report (EIR) is a detailed report written by the lead agency describing and analyzing the significant environmental effects of a proposed project, identifying alternatives and discussing ways to reduce or avoid the possible environmental damage. An EIR is prepared when the lead agency finds substantial evidence that the project may have a significant effect on the environment.

The types of environmental documents available under the FHWA/Caltrans NEPA process are:

• Categorical Exclusion

Categorical exclusion means a category of actions which do not individually or cumulatively have a significant effect on the environment, and therefore, neither an environmental assessment nor an environmental impact statement is required. Actions which are categorical exclusions (CEs) do not induce significant impacts to planned growth or land use for the area, do not require the relocation of significant numbers of people; do not have significant impact on any natural, cultural, recreational, historic or other resource; do not involve significant air, noise, or water impacts; do not have significant impacts on travel patterns; and do not, otherwise, either individually or cumulatively, have any significant environmental impacts. An action which would normally be classified as a CE but could involve unusual circumstances will require the FHWA/Caltrans, in cooperation with the applicant, to conduct appropriate environmental studies to determine if the CE classification is proper.

• Environmental Assessment (EA)
The purpose of an EA is to determine if a project will cause significant effects necessitating the preparation of an Environmental Impact Statement (EIS). If the assessment concludes that an EIS is required, the information contained in the EA facilitates its preparation. If the EA concludes that no significant impacts will occur, a Finding of No Significant Impact (FONSI) is prepared. EAs are divided into two categories: complex EAs and routine EAs.

- Complex Environmental Assessment with a Finding of No Significant Impact
  Complex EAs are those that include multiple location alternatives, debate related to purpose and need, strong public controversy, issues related to logical termini or independent utility, individual Section 4(f) determinations, complex Endangered Species Act issues, numerous cumulative impacts, or high mitigation costs. Complex EAs undergo a stringent review process identical in virtually every way to the EIS review.

- Routine Environmental Assessment with a Finding of No Significant Impact
  Routine EAs do not present any of the issues listed above, and are prepared, reviewed and approved entirely within the Caltrans district/region.

- Environmental Impact Statement (EIS)
  A federal agency must prepare an EIS when it determines that a proposed action may significantly affect the quality of the human environment. An EIS is a full disclosure document that details the process through which a transportation project was developed, includes consideration of a range of reasonable alternatives, analyzes the potential impacts resulting from the alternatives, and demonstrates compliance with other applicable environmental laws and executive orders.

To the extent that past experience with similar projects can be a guide, and provided that multiple location alternatives are not carried beyond the feasibility study phase, there is a reasonable likelihood that Santa Rosa’s CEQA requirements can be fulfilled with a Mitigated Negative Declaration and that the NEPA requirements can be fulfilled by preparation of Special Studies to support a Categorical Exclusion. However, the discovery of any potentially significant environmental impacts at any time in the environmental review process could escalate the process to requiring an EIR under CEQA and/or an Environmental Assessment under NEPA.

Preparation of Environmental Documents
This activity consists of conducting scientific studies in accordance with the applicable State and Federal environmental procedures and regulations. This is typically a multi-disciplinary effort with qualified specialists taking responsibility for the analysis in their respective areas of expertise. The work normally begins in earnest once the project has been sufficiently well defined to enable meaningful analysis of the potential environmental consequences and concludes with the publication of draft environmental documents.

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Review of Documents
Under CEQA, any draft environmental documents (on non-exempt projects) are formally published and circulated for public review. Public hearings are not required, but are commonly held. The Lead agency is required to prepare written responses to public comments relating to the adequacy of the document, and the decision making body must consider the environmental document and the comments and responses before making a decision on the project.

Under NEPA, EA's and EIS's are circulated for formal public review, and public hearings are required. Special Studies to support a Categorical Exclusion are used by Caltrans and FHWA in the project review and approval process. While they are public documents, they are not circulated for public review and comment.

5.1.3 Right-of-Way Acquisition Process
The right-of-way acquisition process cannot begin until after environmental clearance is obtained. Right of way acquisition will likely be required from private parties. Alignment A-1 would require right-of-way acquisition on both sides of the freeway. Alignment F-1 would require acquisition at the western terminus. Various other legal permissions must be obtained. A Caltrans ROW certification is an important milestone culminating the ROW acquisition process. Documents necessary to obtain certification for this project will include an encroachment permit, which is necessary for projects that enter State highway right of way.\(^7\) It gives permissive authority for the permittee to enter State right of way to construct approved facilities or conduct specified activities.

5.1.4 Cooperative and Maintenance Agreements
Whenever there is an exchange of effort, funding or materials between the State and another local entity for work on the State Highway System, a cooperative agreement is necessary. The cooperative agreement is a legally binding contract between the appropriate parties involved in the project. It documents the roles and responsibilities for each party and defines what work will be performed, by whom, how it will be paid for, scheduling, and any other roles and responsibilities. It also addresses liability and indemnification issues. Another formal agreement that will likely be necessary is a maintenance agreement regarding the maintenance for the project. Various models for cooperative agreements with Caltrans are available (See Appendix I for a sample agreement from a similar District 4 project).

In similar projects, responsibility for maintenance for portions of the facility on City property typically is handled by the City. Long-term maintenance responsibility for the proposed bridge structure has not been established. Generally Caltrans provides maintenance at the City’s expense for all structural components within their right-of-way that are beneath the path of travel.

5.1.5 Summary of Completed Actions
- Existing reports, studies and maps have been obtained and reviewed.

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\(^7\) See http://www.amtrakcalifornia.com/hq/traffops/developserv/permits/encroachment_permits_manual/index.html
• Environmental scoping to identify possible constraints, anticipated environmental requirements, and estimated mitigation costs, have been done. The environmental effort contributes to the Preliminary Environmental Analysis Report (PEAR) process.
• Public and local agency input has been obtained.
• Concept geometrics have been developed.
• A Preliminary Geotechnical Report has been prepared.
• Possible non-standard design features have been identified.
• Preliminary Cost Estimates have been prepared.

5.1.6 Possible Project Delivery Timeline
Figure 5.1 Possible Project Delivery Timeline from Feasibility Study through Construction
5.2 Funding Sources

City policies and fiscal constraints dictate that funding must be obtained from outside sources, such as State and Federal grants.


5.2.1 Federal

<table>
<thead>
<tr>
<th>Program Description, Eligible projects</th>
<th>Eligible applicants</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation Enhancement Activities (TEA)</strong></td>
<td>See subtypes below. Private sector groups can partner with a public entity that can execute a master agreement.</td>
<td>Required local match 11.47%. Proposals projects must total a minimum of $100,000 in federal funds.</td>
</tr>
<tr>
<td>For CIP projects except research and education. Not for maintenance or operation, feasibility studies, program planning or improvements to private property. Projects must relate to surface transportation system through function, proximity or impact. Funds transportation projects that help enhance the travel experience. Three of 12 eligible categories are bicycle-oriented: bicycle and pedestrian facilities, bicycle and pedestrian educational activities and preservation of abandoned railway corridors for bicycle and pedestrian use. Funds are dispersed to these TEA programs: Regional, Conservation Lands, Caltrans and Statewide Transportation Enhancement (STE). 2000-2001: Regional: RTPAs receive and allocate 75S ($45 Million annually). Conservation Lands: (Not applicable to Santa Rosa overcrossing project) Caltrans: Controls 11% ($40 Million over TEA-21’s 6 years; about $6.6 Million annually). Statewide Transportation Enhancement (STE): State Resources Agency controls about 11% of funds ($40 Million over 6 years; $20 million per each of two funding cycles). STE program administered through EEM program umbrella. See Local Assistance Procedures Manual <a href="http://www.dot.ca.gov/hq/Local">www.dot.ca.gov/hq/Local</a> Programs/public.htm</td>
<td>Regional: Local, state or federal depending on TEA category. Sponsor applies to RTPA and to Caltrans Local Assistance for eligibility check. Deadline depends on RTPA. Submittal to start date: 3-6 months. Caltrans: RTPAs, counties, cities, non-profits or citizen groups with Caltrans District partner. Headquarters TEA Branch Chief approves eligibility, sends list to District Directors for consent. Projects are shown in State Highway Operation and Protection Program (SHOPP) list. Deadline same as SHOPP projects; see TEA website. STE: State (except Caltrans), federal, and regional. Local or private/non-profit agencies with a state or federal partner. Sponsor submits 3-part application to Caltrans, which determines eligibility. State Resource Agency prioritization panel ranks projects, recommends to CTC. CTC approves program amount and schedule, selects from recommended list, allocates funding. Deadline depends on STE funding cycles; see TEA website.</td>
<td></td>
</tr>
<tr>
<td>Program Description, Eligible projects</td>
<td>Eligible applicants</td>
<td>Details</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Congestion Mitigation and Air Quality Improvement Program (CMAQ)</strong></td>
<td>Cities, counties, transit operators, Caltrans and MPOs. Non-profit organizations and private entities if work through a public-private partnership.</td>
<td>MPOs prioritize and approve projects</td>
</tr>
<tr>
<td>Block grant program for projects in Clean Air Act non-attainment areas that will help attain national ambient air quality standards stated in 1990 Clean Air Act amendments. The California Transportation Commission (CTC) may reprogram the CMAQ funds if they are not obligated within three years of federal eligibility.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.dot.ca.gov/hq/transprog/reports/Official_CMAQ_Web_Page.htm">www.dot.ca.gov/hq/transprog/reports/Official_CMAQ_Web_Page.htm</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regional Surface Transportation Program (RSTP)</strong></td>
<td>Cities, counties, transit operators, Caltrans and Metropolitan Planning Organizations (MPOs). Non-profit organizations and private entities if work through a public-private partnership</td>
<td>MPOs prioritize and approve projects</td>
</tr>
<tr>
<td>Federal block grant program for roads, bridges, transit capital and bicycle and pedestrian projects including bike parking facilities at terminals, bike racks on buses, bicycle transportation facilities, pedestrian walkways, bikey-activated traffic lights and preservation of abandoned railway corridors for pedestrian and bicycle trails.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.dot.ca.gov/hq/transprog/cmaqrstp.htm">www.dot.ca.gov/hq/transprog/cmaqrstp.htm</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Highway Safety Improvement Program (HSIP)</strong></td>
<td>Initially administered by Division of Local Assistance with three project categories:</td>
<td></td>
</tr>
<tr>
<td>Source: <a href="http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm">http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm</a></td>
<td>Safety Index (major category). Bicycle and pedestrian improvements are ineligible due to lack of accident reduction factors and life cycles.</td>
<td></td>
</tr>
<tr>
<td>SAFETEA-LU Section 1401 amended Section 148 of Title 23. HSIP replaces Hazard Elimination Safety (HES) program.</td>
<td>Work Type (projects not yet supported by data collection). 21 categories including (i) intersection safety, (ii) pavement and shoulder widening to remedy an unsafe condition, (v) pedestrian, bicyclist safety or safety of the disabled, Traffic Data (improved data collection, including for bicycles and pedestrians)</td>
<td></td>
</tr>
<tr>
<td>State develops Strategic Highway Safety Plan (SHSP) and annual 5% Report showing locations with highest fatalities and severe injuries. These are used to develop CA’s Strategic Highway Safety Implementation Plan (SHSIP), scheduled for Spring 2008. Project selection is intended to be “data-supported”. Projects:</td>
<td>Applicants are agencies that assume responsibility and accountability for use and expenditure of federal-aid highway funds. Must be city or county.</td>
<td></td>
</tr>
<tr>
<td>should be “important safety projects that can be designed or construction expeditiously”</td>
<td>Caltrans will issue Call For Projects in Spring 2009; District Local Assistance Engineers will notify all local agencies.</td>
<td></td>
</tr>
<tr>
<td>should not require acquisition of significant rights of way exceeding 10% of construction cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>should not typically require extensive environmental review beyond Categorical Exclusion (CE) determination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds available for any highway safety improvement project on any public road, publicly owned bicycle, pedestrian pathway, or trail.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 5.2.2 California (State)

<table>
<thead>
<tr>
<th>Program Description, Eligible projects</th>
<th>Eligible Applicants</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[CA] Safe Routes To Schools (SRTS)</strong></td>
<td>Cities and counties</td>
<td></td>
</tr>
<tr>
<td><strong>Bicycle Transportation Account (BTA)</strong></td>
<td>Cities and counties with BTA-compliant Bicycle Transportation Plans no older than 5 years.</td>
<td>Annual cycle. $7 Million annually statewide.</td>
</tr>
<tr>
<td>Caltrans administered.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For city and county projects that improve safety and convenience for bicycle commuters. Eligible projects include new bikeways that serve major transportation corridors, secure bicycle parking, bicycle-carrying facilities on transit vehicles, Installation of traffic control devices, planning, bikeway improvements, maintenance and hazard elimination.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="http://www.dot.ca.gov/hq/LocalPrograms">http://www.dot.ca.gov/hq/LocalPrograms</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>State Transportation Improvement Program (STIP)</strong></td>
<td>Cities, counties, transit operators, Caltrans</td>
<td></td>
</tr>
<tr>
<td>Two funding categories: Regional Transportation Improvement Program (RTIP) and Interregional Transportation Improvement Program (ITIP). 75% of STIP is allocated by Regional Transportation Planning Agencies (RTPAs).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5.2.3 Regional (MTC Bay Area), Sonoma County, and City of Santa Rosa

<table>
<thead>
<tr>
<th>Program Description, Eligible projects</th>
<th>Eligible Applicants</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation Development Act, Article 3 (TDA-3)</strong></td>
<td>Cities and counties</td>
<td>Annual cycle, applications due December.</td>
</tr>
<tr>
<td>Percentage of state sales tax and gasoline tax. Allocated by MTC to counties, many of which allocate to cities by population.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sonoma County Measure M</strong></td>
<td>Cities within Sonoma County, also SMART rail program</td>
<td>Bike-Ped Project #14 = US-101 crossings</td>
</tr>
<tr>
<td>Quarter cent county sales tax for transportation. Administered by Sonoma County Transportation Authority (SCTA). Measure M Strategic Plan is updated every 2 years; 2009 is an update year. SMART receives 5% off the top.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>City of Santa Rosa Developer Impact Fees</strong></td>
<td>City collects and allocates. Nexus requirement.</td>
<td></td>
</tr>
<tr>
<td>Offset the public costs required to accommodate new development with public infrastructure.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2.4 Funds Obligation & Flow of Funds

Funds obligation is a formal milestone for many grants and public funding sources. To obligate funds, Plans, Specifications, & Estimates (PS&E) must be sufficiently complete to satisfy Caltrans auditors that the project can be built during the funding cycle and within the budget allocated. Typically, PS&E must be at least 70% complete for funds obligation.

Extensions of the funds obligation deadline are not normally granted for projects in their planning phase. Therefore, if the funds obligation deadline cannot be met, it is important that as much tangible and documented progress be made as possible (e.g. environmental clearance and right-of-way certification) prior to the funds obligation deadline.
6 References


City of Santa Rosa Bicycle and Pedestrian Advisory Committee, Department of Transit and Parking. Bicycle Use Survey. 2002.

City of Santa Rosa Bicycle and Pedestrian Advisory Committee, Department of Transit and Parking. Bicycle Use Survey. 2003.


Sonoma County Transportation Authority. 2007 Measure M Strategic Plan. September 2007.


Appendix Contents

Appendix A: Utilities
Appendix B: Parcel Ownership and Easements
Appendix C: Preliminary Geotechnical Report
Appendix D: Design Guidelines and Requirements
Appendix E: Community Meeting Minutes
Appendix F: Crime Statistics
Appendix G: Pedestrian & Bicycle Usage Statistics
Appendix H: Draft PEAR
Appendix I: Sample Cooperative Agreement
Appendix J: Alternatives Cost Analysis
A. Utilities

OLD TOWN TRUNK SEWER

UTILITIES - SOUTHERN ALIGNMENTS
WATER
SEWER
ABOVE-GROUND UTILITIES
UTILITY POLES ARE APPROXIMATELY 45' TALL
### B. Parcel Ownership and Easements

<table>
<thead>
<tr>
<th>#</th>
<th>Street Address</th>
<th>Owner</th>
<th>Acreage</th>
<th>Current Docu-</th>
<th>APN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1850 Armory Drive</td>
<td>SRJC</td>
<td>0</td>
<td>03/19/1975</td>
<td>180-480-012</td>
</tr>
<tr>
<td>2</td>
<td>Unknown</td>
<td>SRJC</td>
<td>15.24</td>
<td>03/11/1998</td>
<td>180-480-013</td>
</tr>
<tr>
<td>3</td>
<td>Unknown</td>
<td>SRJC</td>
<td>0</td>
<td>03/11/1975</td>
<td>180-480-014</td>
</tr>
<tr>
<td>4</td>
<td>1500 Armory Drive</td>
<td>State of California</td>
<td>2.93</td>
<td>01/01/1975</td>
<td>180-480-015</td>
</tr>
<tr>
<td>5</td>
<td>1377 Cleveland Ave</td>
<td>Minnis Gary L Tr</td>
<td>1.03</td>
<td>12/10/2003</td>
<td>012-081-017</td>
</tr>
<tr>
<td>6</td>
<td>37 Frances St</td>
<td>Parker Family Partnership</td>
<td>0</td>
<td>01/12/2000</td>
<td>012-081-004</td>
</tr>
<tr>
<td>7</td>
<td>35 Frances St</td>
<td>BTX Corporation</td>
<td>0</td>
<td>03/29/1996</td>
<td>012-081-005</td>
</tr>
<tr>
<td>8</td>
<td>31 Frances St</td>
<td>BTX Corporation</td>
<td>0</td>
<td>03/29/1996</td>
<td>012-081-021</td>
</tr>
<tr>
<td>9</td>
<td>21 Frances St</td>
<td>Pegg Ernest L &amp;</td>
<td>0</td>
<td>08/23/1996</td>
<td>012-081-020</td>
</tr>
<tr>
<td>10</td>
<td>1020 Jennings Ave</td>
<td>Harriet A Tr</td>
<td>19</td>
<td>06/04/2009</td>
<td>041-161-021</td>
</tr>
<tr>
<td>11</td>
<td>1060 Jennings Ave</td>
<td>Finali Mary Christina Tr</td>
<td>.34</td>
<td>06/04/2009</td>
<td>041-161-004</td>
</tr>
<tr>
<td>12</td>
<td>810 Jennings Ave</td>
<td>UHC Santa Rosa LP</td>
<td>2.1</td>
<td>04/27/2005</td>
<td>041-161-029</td>
</tr>
<tr>
<td>13</td>
<td>1621 Cleveland Ave</td>
<td>Finali Family Partnership II LP</td>
<td>0.940</td>
<td>11/06/2002</td>
<td>041-161-013</td>
</tr>
<tr>
<td>14</td>
<td>1615 Cleveland Ave</td>
<td>Tylawsky Gregory</td>
<td>0</td>
<td>12/14/2000</td>
<td>012-084-008</td>
</tr>
<tr>
<td>15</td>
<td>35 Foley St</td>
<td>Davis Barbara E</td>
<td>0</td>
<td>05/06/2008</td>
<td>012-084-002</td>
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<tr>
<td>16</td>
<td>41 Foley St</td>
<td>Davis Barbara E</td>
<td>0</td>
<td>05/06/2008</td>
<td>012-084-006</td>
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<tr>
<td>17</td>
<td>45 Foley St</td>
<td>Davis Barbara E</td>
<td>0</td>
<td>05/06/2008</td>
<td>012-084-005</td>
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<td>18</td>
<td>51 Foley St</td>
<td>Fischer Robert R Tr</td>
<td>0</td>
<td>01/25/1999</td>
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<td>19</td>
<td>125 Foley St</td>
<td>Victoria 2004 LLC</td>
<td>0.26</td>
<td>10/28/2004</td>
<td>012-084-010</td>
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<tr>
<td>20</td>
<td>Unknown Foley St</td>
<td>Buckner Properties</td>
<td>1.37</td>
<td>03/02/2005</td>
<td>012-084-011</td>
</tr>
<tr>
<td>21</td>
<td>134 Foley St</td>
<td>LLC</td>
<td>0</td>
<td>05/19/2004</td>
<td>012-081-008</td>
</tr>
<tr>
<td>22</td>
<td>100 Foley St</td>
<td>Norris, Timothy L &amp;</td>
<td>0</td>
<td>10/05/1998</td>
<td>012-081-009</td>
</tr>
<tr>
<td>23</td>
<td>30 Foley St</td>
<td>Linda S</td>
<td>0.7</td>
<td>11/03/2004</td>
<td>012-081-011</td>
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<tr>
<td>24</td>
<td>1599 Cleveland Ave</td>
<td>Partners</td>
<td>0</td>
<td>12/30/1998</td>
<td>012-081-023</td>
</tr>
</tbody>
</table>
C. Preliminary Geotechnical Report

The following letter report presents the results from the preliminary geologic/geotechnical feasibility study, prepared by Kleinfelder Geotechnical Engineering, for the proposed Highway 101 Pedestrian Overcrossing to be located in Santa Rosa, California.
TECHNICAL MEMORANDUM

Date: May 27, 2009
To: Mr. Steven Grover
Steven Grover & Associates
800 Heinz Avenue, Studio 11
Berkeley, CA 94710

From: Jeff Richmond, C.E.G.
Terence Craven, G.E.

Kleinfelder Project: 104028

Subject: Preliminary Geologic/Geotechnical Feasibility Study
Highway 101 Pedestrian Overcrossing
Santa Rosa, California

This memorandum presents the results of Kleinfelder's preliminary geologic/geotechnical feasibility study for the proposed Highway 101 Pedestrian Overcrossing to be located in Santa Rosa, California. The objective of this memorandum is to provide Steven Grover & Associates with findings and conclusions regarding the current geologic conditions of the study area, and discuss anticipated foundation elements the proposed structure may require given these conditions. Our assessment included review of published geologic literature and maps, review of pertinent geotechnical investigation reports performed in the vicinity by private consultants, and preparation of this memorandum.

This study did not include subsurface exploration, laboratory testing, or any geotechnical analysis of the site conditions, and is intended only to provide a preliminary assessment of the geologic and geotechnical conditions that can be discernible from existing data sources.

LOCATION AND STUDY AREA DESCRIPTION

The study area is located along the Highway 101 corridor between Post Mile 21.2 through 21.46. The highway consists of eight (8) lanes: (4) northbound and (4) southbound along this section, and maintains a total approximate right of way width of approximately 135 feet. The irregularly shaped study area is a maximum of approximately 800 feet wide, which incorporates the highway and extends up to 350 feet east and west of the right of way. To the east, the study area includes Armory Drive (east frontage road to Highway 101) which provides
access to Scholar Drive, Santa Rosa Junior College Parking areas, the Campus Police Station, and other campus structures also located within the study area. West of the freeway, Cleveland Avenue (west frontage road to Highway 101) provides access to Foley Street, Jennings Avenue, and frontage business locations within the study area.

Topography within the study area is essentially flat but has been graded to maintain positive flow to infrastructure drainage facilities.

GEOLOGIC SETTING

Regional and Site Geology

The site is located on the Santa Rosa plain in central Sonoma County within the Coast Range Geomorphic Province of Northern California. This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which are a reflection of the dominant northwest structural trend of the bedrock in the region. The basement rock in the northern portion of this province consists of the Great Valley Sequence, a Jurassic volcanic ophiolite sequence with associated Cretaceous to Jurassic sedimentary rocks, and the Franciscan Complex, a subduction complex of diverse groups of igneous, sedimentary, and metamorphic rocks of Upper Jurassic to Cretaceous age (140 to 65 million years old). The Great Valley Sequence was tectonically juxtaposed with the Franciscan Complex most likely during subduction accretion of the Franciscan, and these ancient fault boundaries are truncated by a modern right-lateral fault system that includes the San Andreas, Healdsburg-Rodgers Creek, and Maacama Faults. The San Andreas Fault defines the westernmost boundary of the local bedrock, approximately 19 miles southwest of the site. In the site vicinity, the Great Valley Sequence and Franciscan Complex are unconformably overlain by Tertiary age continental and marine sedimentary and volcanic rocks. These Tertiary age rocks are locally overlain by younger Quaternary alluvial deposits.

The site geology has been mapped by McLaughlin et al. (2008, United States Geological Survey, Open File Report 2008-1009, Geologic and Geophysical Framework of the Santa Rosa 7.5' Quadrangle, Sonoma County, California); Jennings (1988, California Geological Survey, Open File Report 88-5, Preliminary Geologic Map of the Northwest Quarter of the Santa Rosa 7.5-Minute Quadrangle, Sonoma County, California); and Huffman and Armstrong (1980, California Division of Mines and Geology, Special Report 120, Geology for Planning in Sonoma County). McLaughlin et al. (2008) indicate the site is underlain by undivided Holocene (<11,000 years old) alluvial fan and fluvial terrace deposits consisting of gravel, sand, and silt. Jennings (1988) shows the site to be underlain by stream and valley alluvium. Huffman and Armstrong (1980) mapped the site as being underlain by Quaternary age older alluvial fan deposits composed of deeply weathered, poorly sorted coarse sand and gravel, up to 100 feet in thickness.
The publications identify no landslides or slope instability features within the study area. Huffman and Armstrong have located the site within Slope Stability Zone A, considered an area of greatest relative stability due to low slope inclination (dominantly less than 15%).

Faulting and Seismicity

The site is located within the seismically active North Bay/North Coast region of California and is subject to seismically induced ground shaking from nearby and distant faults. Several faults have been mapped in the general site vicinity. The San Andreas fault zone, located southwest of the site, is the boundary between two tectonic plates, the Pacific Plate (west of the fault) and the North American Plate (east of the fault). At this boundary, the Pacific Plate is moving north relative to the North American Plate. In the North Coast region of California, this movement is distributed across a complex system of predominantly strike-slip, right-lateral, parallel, and sub-parallel faults that include the San Andreas, Healdsburg-Rodgers Creek, and Maacama among others.

The site is not located within an Earthquake Fault Zone as defined by the California Geological Survey (CGS) in accordance with the Alquist-Priolo Earthquake Fault Zone Act of 1972. The nearest known active fault is the Healdsburg-Rodgers Creek fault, located approximately 5,600 feet northeast of the site, which is capable of producing a maximum earthquake magnitude event of 7.0. Moderate to major earthquakes generated on the Healdsburg-Rodgers Creek fault can be expected to cause strong ground shaking at the site. Strong ground shaking can also be expected from moderate to major earthquakes generated on other faults in the region such as the Maacama fault (located 9 miles north of the site) and the San Andreas fault (located 19 miles southwest of the site).

McLaughlin (2008), Jennings (1988), and Huffman and Armstrong (1982) have mapped fault traces associated with the Healdsburg-Rodgers Creek fault in closer proximity to the site. The closest of these is located approximately 4500 feet northeast of the site. The publications do not indicate the estimated activity level of the fault traces, nor have the traces been zoned as active by the CGS.

A number of large earthquakes have occurred within this region in the historic past. Some of the significant nearby events include two 1969 Santa Rosa earthquakes (M5.6, 5.7), the 2000 Yountville earthquake (M5.2), and the 1906 San Francisco earthquake (M8+). Future seismic events in this region can be expected to produce strong seismic ground shaking at this site. The intensity of future shaking will depend on the distance from the site to the earthquake focus, magnitude of the earthquake, and the response of the underlying soil and bedrock.

Flooding

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Index (Map Number 06097CIND0A) for Sonoma County, the site is located on Panel
06097C0728E. This panel was not printed, as no special flood hazard areas were identified within its coverage area.

PREVIOUS STUDIES

Geotechnical investigation reports prepared by Kleinfelder and other private consultants, pertinent to the site and site vicinity were reviewed as part of this study. The following section identifies the selected reports reviewed and provides a brief summary of the findings and recommendations presented by the consultants.


Harding-Lawson Associates performed a geotechnical investigation for a proposed gymnasium on the Santa Rosa Junior College Campus. The gymnasium is located approximately 1,000 feet east of the project study area for the overcrossing. The investigation included drilling of four (4) borings with hollow stem auger to depths ranging between 23.5 and 50 feet below the ground surface (bgs). The report indicates the presence of weak surficial fill underlain by stiff to very stiff sandy clay subsoil with low expansion potential and moderate compressibility. The surface soil layers were underlain by discontinuous, heterogeneous alluvium of high strength and low compressibility under the anticipated building loads. Groundwater was encountered at approximately 10 feet bgs. The report recommended removal of all fill soils within and adjacent to the proposed structure and exterior concrete slabs. The report suggested building support could be achieved with standard spread footings a minimum of 12 inches in width. The geologic hazards review indicated low potential for liquefaction due to the high density of the underlying soils, and little to no hazard of fault surface rupture.

Herzog Geotechnical Consulting Engineers, 1997-1998, Geotechnical Investigation & Geologic Hazards Evaluation, Health Sciences Facility, Santa Rosa Junior College, Santa Rosa, California, Project No. 289-01-96

Herzog Geotechnical Consulting Engineers performed a geotechnical investigation and geologic hazards evaluation for the proposed Santa Rosa Junior College Health Sciences Facility, located approximately 1200 feet northeast of the study area. The investigation included drilling four borings with mud rotary and hollow stem auger in 1997, and two subsequent borings with mud rotary in 1998 to a maximum depth of 51 feet bgs. Their report indicates the site is underlain by 1 to 1.5 feet of non-plastic to highly plastic fill underlain by alluvial deposits comprised of medium dense to very dense gravelly and clayey sand, and medium stiff to stiff sandy clay. Groundwater encountered ranged between 5 and 11 feet bgs. The report concluded foundation support could be achieved through construction of a select fill pad extending 3 feet below subgrade and 7 feet beyond the perimeter of the building. The investigation identified two discontinuous layers which could undergo liquefaction during an
earthquake event, producing differential settlements of up to 0.75 inches at the surface. After performing the subsequent borings and additional analysis in 1998, the maximum settlement due to liquefaction was reduced to 0.5 inches. In addition, the geologic hazards evaluation identified expansive soils and potentially compressible soils on the site.

Kleinfelder, Inc., 2006. Geotechnical Investigation Report, Proposed Building Renovation, 2222 Cleveland Avenue, Santa Rosa, California, Kleinfelder Job No.: 72837

Kleinfelder, Inc. performed a geotechnical investigation for the proposed renovation of an existing structure located approximately 1,800 north of the study area. The investigation included drilling 2 borings within the structure to a depth of 15 feet bgs, and one boring along the exterior perimeter to a depth of 52.5 feet bgs. Near the surface, the borings encountered a maximum of approximately 3 feet of fill underlain by highly expansive in-situ clay. The surficial soils are underlain by discontinuous, heterogeneous alluvial layers consisting of medium to dense sand and gravel, and medium stiff to hard silt and clay. Groundwater was encountered between 7 and 11 feet bgs in the borings. The report recommended placement of 24 inches of select fill (below subgrade) in new construction areas. The report stated that thin (approximately 1 foot thick) sand layers encountered at the site have the potential to liquefy during seismic events, but engineering analysis indicated the liquefaction would have little to no effect at the surface.

GEOLOGIC HAZARDS

Geologic/seismic and subsurface conditions in the site vicinity described in this memorandum are based on existing available geologic maps and literature as well as geotechnical investigations performed by private consultants. On the basis of those conditions, the potential for adverse geologic hazards that may influence the study area are discussed below.

Groundwater

The three consultant reports indicate groundwater was encountered between 5 and 11 feet bgs in the vicinity of the site. Recorded measurements of California Department of Water Resources monitoring wells within the Santa Rosa plain indicate fluctuating groundwater levels between 20 and 50 feet bgs. Shallow perched groundwater (within 5 feet of the surface) should be anticipated within the study area.

Expansive, Compressible, and Collapsible Soils

Expansive soils have the capacity to undergo large volume changes with changes in moisture content and typically are associated with high plasticity. Compressible soils are typically fine-grained soils that possess low density and are incapable of supporting significant vertical loads.
without excessive settlement. Compressible soils tend to coincide with younger, Holocene age deposits that have not had sufficient time to densify.

The Harding-Lawson Associates report identified surficial soils of low expansion potential and moderate compressibility at the gymnasium site. Herzog encountered highly plastic surface and near-surface soils. The Kleinfelder, Inc. report encountered high plasticity near-surface soils underlain by potentially compressible soils of varied depth and thickness.

As such, it is our opinion that the existence of expansive and compressible soils should be anticipated within the study area.

Ground Surface Rupture

The nearest known active fault is the Healdsburg-Rodgers Creek fault, located approximately 5,600 feet northeast of the site. There are no known faults crossing the site. As such, the potential for ground rupture to occur at this site is considered to be low.

Earthquake Ground Motions

The site will experience strong seismic ground shaking resulting from future earthquakes on the Healdsburg-Rodgers Creek, Maacama, San Andreas, and other active faults in the region during the lifetime of construction at this site. Time, location, and magnitude of earthquakes are not accurately predictable with existing technology. It is, however, generally agreed that the intensity of ground shaking from future earthquakes will depend on several factors including the distance from the site to the earthquake focus, the magnitude and duration of the earthquake, and the response of the underlying soil and bedrock. It will be necessary to design the proposed overcrossing in accordance with the earthquake-resistant provisions of ASCE/SEI 31-03, Seismic Evaluation of Existing Buildings, published by American Society of Civil Engineers (ASCE) and the Structural Engineering Institute, or by an appropriate standard. Based on our interpretations of the findings and the field and laboratory investigation portions of the consultant reports reviewed for this study, we consider the preliminary site soil class for the site to be Class D. Class designation at the site should be confirmed through a site-specific, comprehensive geotechnical investigation.

Liquefaction and Lateral Spreading

Soil liquefaction is a condition where saturated, granular soil undergoes a substantial loss of strength due to pore pressure increase resulting from cyclic stress application induced by earthquakes. In the process, the soil acquires mobility sufficient to permit both horizontal and vertical movements if the soil mass is not confined. Soils most susceptible to liquefaction are saturated, loose, clean, uniformly graded sand deposits. If liquefaction occurs, foundations resting on or within the liquefiable layer may undergo settlements. Sowers et al. (1998, United States Geological Survey Open File Report OFR 98-460, Quaternary Deposits and
Liquefaction Susceptibility Maps, Napa, California, 1:100,000 Quadrangle: A Digital Database) indicate the site is underlain by Holocene age fan deposits with moderate susceptibility to liquefaction. The reports produced by Herzog Geotechnical Consulting Services for the Santa Rosa Junior College, and by Kleinfelder, Inc. for the structure renovation both identified liquefiable alluvial soils underlying their respective sites. The coarse grained alluvial deposits encountered by Harding-Lawson Associates in their borings could potentially be considered liquefiable by current standards. Based on this limited data, it is our opinion the potential for liquefaction to occur on the site is moderate. A site-specific geotechnical investigation, including exploratory borings located at the proposed location of each foundation element, advanced to a minimum of 50 feet below the existing ground surface and liquefaction analysis, should be performed.

Lateral spreading and lurching are potential secondary seismic effects commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of liquefiable material. These phenomena typically occur adjacent to free faces such as steep slopes and creek channels. The site is located on an essentially flat plain with no apparent drainage channels within or in close proximity to the study area. As such, we believe the potential for lateral spreading or lurching within the study area is low.

Landsides and Slope Instability

The site is located on an effectively flat plain. Thus the potential for landsliding and slope instability to occur within the study area is believed to be non-existent.

Tsunami and Seiche

Tsunamis are oceanic waves that are generated by earthquakes, submarine volcanic eruptions, or large submarine landslides. The waves are generally formed in groups that may have very long wavelengths (several miles to more than 100 miles), but only a few feet high. As a tsunami enters shallow water near coastlines, the wave velocity diminishes and the wave height increases. If the trough of the wave reaches land first, the arrival of a tsunami is preceded by recession of coastal waters; if the crest of the wave reaches land first, there would be a rise in water level. The large waves that follow can crest at heights of more than 50 feet and strike with devastating force. However, since the study area is more than 19 miles from the nearest coastline, the potential for this condition is considered non-existent.

Seiche is a standing wave condition whereby large bodies of water, when subjected to seismic accelerations, can generate significant waves that overtop the basin boundaries. The nearest large body of water to the site is 2 miles to the north/northeast. Therefore, the potential for a seiche hazard within the study area is also non-existent.
FOUNDATIONS

Previous investigations have identified compressible, expansive, and potentially liquefiable soils extending to depths exceeding 10 feet. Groundwater was encountered as shallow as five feet. It may be possible to support the proposed structure on shallow foundations by over-excavating and replacing poorer quality soils. However, the depth of these poor quality soils, in combination with the potential for shallow groundwater, will probably make this economically impractical. The preferred foundation system is likely to consist of some type of deep foundation.

Because of the high groundwater table and sandy nature of some of the soils at this site, drilled shafts or deep excavations may tend to cave and slough. Casing or drilling with slurry could be required for this type of deep foundation installation. Based on the preceding comments, it is our opinion that driven piling probably offer the best type of foundation support for the proposed facility. If construction noise and/or vibrations are a concern, then alternative foundation systems, such as augercast piles or proprietary systems, such as Tubex or Torque Down piles could be considered, usually at higher cost. Driven piling should be able to provide adequate support for both downward and uplift loads. Lateral loads can be resisted by a combination of pile stiffness and passive pressure against the pile cap. Soil conditions are variable and pile lengths should be based on a combination of depth and driving resistance (blow counts). A detailed site specific geotechnical investigation would be required to provide specific information on pile capacities and/or alternative foundation designs.

LIMITATIONS

This memorandum has been prepared by Kleinfelder for the exclusive use of Steven Grover & Associates and their consultants for development of the proposed project described in this memorandum. Conclusions in this memorandum are intended for preliminary planning purposes only and are not adequate for project design.

This memorandum represents a preliminary assessment of the study area based on existing and accessible data from our files. No subsurface investigation or laboratory testing was performed for the study by Kleinfelder nor does this memorandum provide engineering analysis or recommendations for the project. We provide no other warranty, either expressed or implied. Additional planning or design must be accompanied by a detailed geotechnical investigation of the site proper.

Site conditions and cultural features described in the text of this report are those existing at the time of this assessment, and may not necessarily be the same or comparable at other times.

This memorandum may be used only by Steven Grover & Associates and only for the purposes stated, within a reasonable time from its issuance, but in no event later than 18
months from the date of the report. Land or facility use, on and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of the memorandum, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

We trust this memorandum provides you with the information needed at this time. If you have questions or require further assistance, please contact us at (707) 571-1883.

Sincerely,

KLEINFELDER WEST, INC.

Jeff Richmond, CEG 2424
Project Geologist

Terence Craven, GE 2572
Principal Geotechnical Engineer
## D. Alternatives Cost Detail

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First Community Meeting Notes

Date: Thursday, February 19, 2009
Time: 7:00pm
Location: Odd Fellows Hall, 545 Pacific Avenue, Santa Rosa

Speakers:
Mr. Otto Bertolero, City of Santa Rosa, Public Works Department
Mr. Gary Wysocky, City Council
Mr. Steven Grover, Steven Grover & Associates

Presentation Format:
- Attendees were asked to sign-in at the door and were furnished with a hand-out detailing the agenda for the evening. Site maps of the project area were posted around the meeting hall.
- At 7:00pm, Mr. Bertolero introduced Mr. Wysocky.
- Mr. Wysocky introduced members of boards and commissions in the audience: City officials, representatives from the Community Advisory Board, BPAB, Planning Commission, City Council, and Santa Rosa Junior College were present. Mr. Wysocky explained that no action would be taken at this meeting, and that the purpose of the meeting was to receive input from the public regarding the proposed project.
- Mr. Wysocky then turned it over to Mr. Bertolero, who introduced Mr. Grover.
- After the introductions, Mr. Grover took the floor and began a slide show that ran until approximately 8:30 pm.
- After the slide show, an additional handout was distributed to the attendees. This handout was a set of worksheets that attendees were asked to fill out and return either at the completion of the presentation or to the City by mail or email. This handout included several questions that will help ascertain key community concerns and issues related to the pedestrian bridge.
- Mr. Grover then opened the floor for questions. The Q&A session lasted until approximately 10:00 pm.
- Mr. Wysocky adjourned the meeting at 10:00 pm.

Discussion:
The slide show presented by Mr. Grover provided the public with an overview of the many varieties, types, and styles of pedestrian bridges that can be found around the United States and in other countries. The purpose of this overview was to engage the audience in thinking
about what makes a bridge project like this successful, to demonstrate why a certain bridge type is suitable for a specific site and to outline the myriad of criterion that play a role in selecting a bridge configuration.

Key design criteria items discussed by Mr. Grover included cost/benefit analyses, user-experiences, user-safety, context (site surroundings), viewer experiences, and structural needs. Some or all of these criteria were described for each of the example bridges shown in the slide show to allow the audience to understand how a certain bridge type was selected.

Mr. Grover then moved on to present project-specific considerations as they relate to planning, usage, physical, and internal contexts. Excerpts from various master plans and planning documents were shown, as were site maps illustrating land use constraints and opportunities, proposed and existing bike routes in the area, and alignment possibilities. Based on these guidelines, Mr. Grover described some of the site-specific issues including site topography, traffic flow patterns (vehicular, pedestrian, and bicyclist), and user safety.

At this point the community participation handout was distributed. After approximately 15 minutes, the question and answer session began.

For more details on Mr. Grover’s general overview of bridge types and design criteria, please see Exhibit A.

For more details on the second part of Mr. Grover’s presentation, on project-specific considerations, please see Exhibit B.

Comments and Q&A

1) One of the assumptions you made was that the bus stops are fixed. Bus stops can be moved much more easily. SMART plan has emphasized connectivity.

2) Several CityBus routes go to Coddingtown. There are plans to extend bus routes southwards.

3) It is difficult for me to imagine that walkers can feel safe without a separated space. Do you have experience with other modes or designs where pedestrians are as comfortable without some sort of separations?
   a. There have been recent articles about conflicts between peds and bikes on multi-use pathways. The trend is clearly toward 12’ wide standard. The idea of striping and mode separation is definitely not standard practice. Personally, I think it needs to be. How much do you think in 10 years will this bridge be used?

4) Prince Greenway bike path/walking path. I go over it twice a day. No separation between bikes and peds. I like your mode separation idea.
   a. One of the things to keep in mind in terms of difference between an overpass and a multi-use trail is shy distance. On an overpass, you need to add at least a foot of width to the side so that pedestrians feel safe.

5) Do you plan for peds to walk in pairs? Have bikes go single file? I don’t know if Santa Rosa is thinking of a lightrail – is it being taken into account?
   a. Pedestrians will tend to walk in pairs unless you cue them to do otherwise. By creating an actual curb, peds like to stay up on the sidewalk because they don’t like to be in “roadway”. Does anyone know about lightrail?

6) I know of some talk about a possible shuttle. How wide is the bridge?
a. In Berkeley, the width is 15’ – about 5’/5’/5’

7) Why not make it wider? Make it wide enough so peds feel safe.
   a. Cost of a spanning structure is roughly proportional to width. Foundation costs
      and construction costs for erection processes and mobilization costs are a very
      large part of budget. Sometimes this can be justified if there is enough projected
      usage.

8) I am concerned about children and kids on skateboards. Will there be separation for
    skateboards? We are always on the west side of 101 but we do a lot on the east side. I
    drive mostly now. I’m wimpy and would not feel safe riding.
   a. At Homer Ave we put in skateboard deterrent things on edges, which is now a
      standard practice. On long downgrade ramps, people are going to use it for
      skateboarding. It would be a City policy question whether it is allowed. I think we
      need to design for skateboards even if they would not be used. Good design is
      always better than good signs.

9) I think we need a north-south pedestrian route in order for this to be used a lot.
   a. SMART corridor is also going to be a bike/ped thoroughfare.

10) What is the projected cost for this? When will it happen? How is it going to be paid for?
    a. Come to the 2nd meeting and you’ll get better answers. This first meeting we will
       focus on where is the preferred location, then we will drill into details. There is
       roughly half a mile of possible area where we can put this thing. There are a lot
       of utilities. In order to plan this right, we need to know where everything is.
       Story: master plan for Berkeley called for putting nice landscape berms between
       water and freeway. Unfortunately, the people who put together the master plan
       failed to know that there was an existing old sewer line, which threw the whole
       master plan out the window. This first meeting is for info gathering, so that we
       can provide answers during 2nd meeting.

11) My wife won’t use east-west Joe Rodota trail due to concerns about safety. Armory in
    south side is a local shelter (not anymore). Concerns about personal safety, homeless
    shelters.

12) I live in the JC neighborhood. I teach at the JC, at classes all around town. Whenever
    I’m asked to teach a new class, I look at map and bus schedules. I always try biking a
    few times, each time is harrowing. A year and a half ago, I was asked to take on a new
    class. I thought we’re going get a bike/ped bridge. My vote is to connect Armory Road
    to Jennings, but just put one in anywhere.
    a. You are talking about cycling specifically. If your primary mode is walking, would
       you feel the same? What about bike lanes on Steele/College?

13) Joe Rodota trail is safe. I take the bus and bring my bike on. The proposed location
    dumping people out onto JC campus is scary. Unless you have a contract or agreement
    with the JC, there’ll be a problem. Cycling on JC campus is awful. We’re not allowed to
    cycle on campus at all. We can cycle on Elliott. I think a touchdown on Scholars is fine.
    The two southern routes, proximity to downtown make sense.

14) Crossing the Steele Lane or College underpass: you literally take your life in your
    hands, it is a very scary experience. Bike lanes aren’t going to make a difference.
    Because of on/off ramps, it is a convoluted situation. There is no direct way – you have
    to cross streets.
    a. Police Dept gave us some up-to-date stats: about 1 accident per month in this
       region (bike and vehicle).

15) I am a student of the JC and a resident of the JC area. The campus is not designed for
    pedestrians and cyclists. Even without having overpass, it is insane there already. If
    more people cycling on campus are cutting towards Mendocino, that would be insane.
Elliott would work best. Separation between vehicles and bike/peds needs to be studied.

16) If you are putting in a ped underpass under the tracks on Jennings, the Public Utilities Commission will be difficult to deal with. Maybe you could make it a vehicle underpass, too. I think the platform could be a little bit south of Jennings. To serve JC/Coddingtown area, a northern alignment is better.
   a. If an underpass is going in, it should happen before other development.

17) I have worked around the JC in the past. Elliott is very crowded. When the light changes, people crossing don't cross at the crosswalk and don't wait for cars. Cars do the same thing. It would be a mistake to put it in on Elliott. No matter where it is, I want it, I don't care even if I have to battle a bunch of pedestrians. Steele and College are both horrendous. I'm concerned about graffiti, I know there are materials you can use to deter it. At Prince Greenway, so much money was spent to make it nice, but there needs to be so much upkeep. Use some kind of material against graffiti and skateboarding.
   a. We'll address those topics during detailed design phase.

18) Does the landing have to be in vicinity of JC? Wouldn't it be helpful to enhance the crossing experience at College or Steele by putting the overcrossing right on College, for example? That would create a natural corridor which continues along College Ave, right in the middle of Santa Rosa. There would be greater utility so much beyond the JC that the bridge may have more utility overall.
   a. Putting an overcrossing right at a major highway interchange like College is difficult – jumping over on/off ramp the thing gets so long, or coming down amidst of on/off ramps defeats the purpose in terms of safety.

19) Can you connect to a bike path? Connect to Sebastopol, for example?
   a. Bear Cub vs. Elliott – show of hands?

20) I'm not sure how you'll deal with Bear Cub, but bike/ped facilities need to be separated from parking facilities. And do this project!

21) The atmosphere of competition on JC streets (Mendocino, for instance): it's like a "U of death". It's the source for all congestion, with people hurrying into classes. Parking structure right in the middle of Mendocino makes it worse. Take a bit of Coddingtown parking lot for JC use.

22) I live one block north of Elliott, and I walk to JC campus often. I don't think you want a landing on Elliott. Elliott is a very busy street, a lot of peds traveling between two sides of campus. Bear Cub is through street not heavily used except for parking, so it's not necessarily bad. When you're parking you're going slowly. Scholars goes into middle of campus and kind of dies, access to faculty parking. I would vote for Bear Cub. There's a turn lane on Elliott, but it's a very busy street. Close Elliott to cars? That had been discussed for years, it'll be interesting to see what the neighborhood reception is. I've been told that the JC is the biggest trip generator of Sonoma County. Traffic on Steele and College both quite bad. Steele & Administration/Armory is the intersection with heaviest traffic. This bridge has the potential to give Santa Rosa an identity, if done with architectural flair. I want this overcrossing. I want to reduce traffic. JC and SMART train are perfect for each other.

23) I like the Bear Cub alignment. Pacific to Bear Cub across Mendocino has stop light. Intersection at Elliott and Mendocino, Dexter St doesn't line up, there's a concrete median, and at the light to continue into the neighborhood you have to turn left – not a great intersection for cyclists. I am more scared to bicycle here than in San Francisco. Class 2 bike lanes probably not to be seen in the near future, there's just too much traffic.
24) Curt Groninga from the JC. I concur that Elliott Ave is most horrific location when you have cars, students crossing that street, trucks, so forth. When we looked at it in working with the City, it is our understanding that the point of connections are at Mendocino and Bear Cub, and Bear Cub and Armory set out to be Class 3 bicycle route. Logically if one of the goals here is to benefit the students, and going back to discussions with SMART folks years ago on this, then it would seem like you’d want to make this closer to SMART, and use the Bear Cub/Armory Drive location. One other point you’d want to take into consideration: there are reasons why we don’t want folks riding a bike on campus pedestrian paths, which will lead to conflicts between bicycles and pedestrians, and between bikes and disabled population. We have one of the largest disabled populations among community colleges. Also a large senior population. Mode separation will be important.

25) SMART does not own any location, they have not committed to where the station will be. It is misleading to show station location on you map. Coddington will in its future get use from high-density, so getting SMART to get closer to Coddington would have advantages. Synergy between SMART’s need for parking and Coddington’s need for parking, could be complementary. One way to see a lot of use on this bridge is to get a shuttle running on it. Back to getting it wider. Electric shuttle running across there. Aesthetic part, we have multiple icons/mascots around Santa Rosa and the Schultz museum, what design elements will this bridge have?

26) When I travel, I use my bicycle as often as I can. If going east to west, I’d want as direct a route as possible. Pacific to Bear Cub.

27) Matt Stevens, representing SMART district. SMART is actively pursuing Union Pacific property right now.

28) I think most of us are from Santa Rosa but there are a lot of students from all over who go to the JC, which is why there’s so much traffic going to the JC. There are not a lot of options to get to the JC from Petaluma or Cloverdale, where are no colleges. I took the bus to the JC when I lived in Petaluma after I graduated from high school. If there was a SMART train, I would be trying to get from the station to the JC so it’s way beyond Santa Rosa we have to think about in thinking about accommodating people.

29) I have a concern about landing in the JC during off hours. It’s dark and spooky there.

30) I live in the Ridgeway District, and I work over at Dutton Ave and Tesconi Circle, and my concern is if I use the bridge to commute to work, everybody will be commuting to the JC, what’s the possibility there will be a conflict when large pool of people coming off the train and JC people going opposite direction?
Exhibit A – Detailed summary of Mr. Grover’s presentation (Part 1)

- **Introduction**
  - Key questions:
    - Why do a project like this in thick of economic downturn?
    - How does a project like this happen? What are the sequence of steps?
    - When is it going to happen?
    - Where is it going to go?
  - Some of these questions addressed tonight, others at next public meeting.
  - The question most interested in for this meeting is “what”
    - Interested in defining the problem.
    - The clearer we define the problem, the smoother the process will be.
  - From experience: importance of upfront work to avoid surprises later, value of community’s input.
    - San Lorenzo bridge project: at the 2nd or 3rd public meeting, we learned from a member of audience that there was a major bird migratory path right down river bed. All design work with cable-supported structures went out the window.
    - Public is one of best resources there is at this stage.
  - Unique about bike/ped projects: we don’t have the data to work with the way traffic engineers do, therefore public input on how heavily something might be used, potential mode split, key origins-destinations, etc. is very important.
  - Each project is quite different from the last.
    - Bridge in Durham, NC, is very “happy”: no ramping structures required, raised embankment on both sides of freeway, no need to fit ramping into urban and landscape context.
    - Bridge in Berkeley: we had to work very hard to find a way to weave ramping structures into existing roadscape and landscapes.
    - Bridge in Cupertino: there were existing vehicular ramps originally planned for an overpass that were then abandoned.
  - This bridge, if built, will be about 1000 ft long, but only 10-20% will be the bridge, which means 80%-90% needs to fit within existing streetscape.
  - We’ve done background work and have some handle on what your goals, issues, concerns are, but this is a project which requires spending taxpayer money, a project to be seen by many people.
  - Agenda tonight: Presentation (focusing on what makes a project like this successful), findings on planning context and urban design context, input sheets, Q&A’s.
  - We’ll try to keep agenda for tonight as tight as possible: we will not get into specific geometry of bridges, structure types, how they would appear from motorists’ point of view, no details on process involved, environmental/Caltrans review. We will be focusing on your overall goals, constraints, concerns.

- **What makes a project like this successful? One which makes the community proud, and the press excited?**
  - Is it money? Is it about putting a ton of money into it?
    - Bow Bridge in Central Park: tried to save money by using cast iron instead of stone, by working within their constraints.
    - Conventional design sometimes more expensive.
  - Innovation?
    - Sometimes inappropriate, sometimes not.
• Sundial Bridge: $20M
• Michigan “Tridge”: $2.8M in today’s dollars
• N-Judah roof structure: $300/square foot. El Cerrito roof structure: $70/sq ft
  ▪ About design, not necessarily about dollars.
    o Good design is about proportions, relationship to context.
    o Longest, oldest, tallest?
      ▪ Golden Gate Bridge is still very successful even though no longer longest suspension bridge.
  o Mimetic design?
    ▪ Designing buildings to make it look like something, e.g. a building which looks like a basket.
    ▪ Sundial: successful because it looks like a sundial?
    ▪ Fish/bird bridge: successful because it was inspired by fish, not because it looks one.
    ▪ DNA bridge
    ▪ Native American-inspired theme in Arizona
    ▪ Rattlesnake bridge (where?)
  o Shape, form, relationship to context
    ▪ Maillart, Bridge in Switzerland
  o Relation of form to structural function
    ▪ Bow Bridge
  o Experience of user
    ▪ POC in Jack London Square vs. POC over Emeryville rail crossings
      ▪ Look similar, but vastly different user experience
        ▪ Use of materials, sense of openness
    o Fencing: keeps people from throwing stuff over the freeway.
    o Stripe down the middle: an innovation which makes a big difference.
      ▪ Reminds you of when you’re driving
    o Cage structure: low cost, but very open feeling
  o Dramatic:
    ▪ Santiago Calatrava in Chile
  o Bridge can be just a roadway, a conduit of travel. But if it is a pedestrian bridge, the pace is much slower, roadway becomes an architectural space.
    ▪ Needs to breathe differently.
    ▪ Pausing points, acknowledgement of good view.
    ▪ If width of pathway varies, it makes the experience feel like an architectural space.
  o Inherent coherence of design
    ▪ Internal coherence
  o Brooklyn Bridge: almost cathedral-like
  o Jurgen Schlach: crossing suspenders, fencing is a simple chain-link but relates to overall structure.
  o Approaches
  o Innovation at Berkeley Bridge: sidewalk, traditional way people understand separation of modes.
    ▪ On freeway, ratio of fastest vehicle to slowest vehicle is about 2:1, but on a bike/ped bridge the ratio can be as much as 10:1.
    ▪ Separate slow from fast on high volume use becomes important as usage increases.
- Mode separation is one major reason why Berkeley Bridge is so successful.
- Also in Homer Ave underpass.
  - Pedestrians need to feel safe
    - Crime
    - Bridge can become a catch point, throttle point, a place where you can get mugged.
  - Bridge is a place where you look from, not just a thing you see.
    - Viewing points, a place for people to stop: GG Bridge, Berkeley bridge (swept out over water), Tridge
  - Bridge needs to relate to context
    - Venice
    - Cupertino: suspension bridge
  - Respecting existing land uses, integrate urban design plans
    - Cupertino: Landscaping, retaining walls, pointy plants to keep zone completely separate from residential zone
  - Grab something from local context
    - Emeryville
  - Internal coherence:
    - North Carolina bridge example: truss conflicts with missile proof fence
    - Or, structure can be so much bigger than fence it recedes
  - ADA/ramp structures
    - Not necessarily good enough for cyclists
    - Usually have to exceed minimum requirements
    - Ramp structures
    - Keep ramping at gentler slope so ADA provisions don’t kick in
  - Pedestrian experience
    - Homer Ave: break down vertical walls with terraced landscaping
    - Use of materials
    - Graphic themes from context
Exhibit A – Detailed summary of Mr. Grover’s presentation (Part 2)

- Goals and Constraints for a project like this
  - Planning Context
    - Land use and transportation plans
  - Usage Context
    - Stakeholders’ needs
    - Maintenance issues
  - Physical Context
    - Topography, existing land uses
  - Internal Context
    - Fencing, ADA
- This is a feasibility study
  - We are here to assess benefits, impacts, complexity, costs, opportunities, functional and economic quality of life benefits.

- Planning Context
  - Santa Rosa Bike/Ped Master Plan calls this a “high priority project”.
    - Also proposes crossing of some kind over SMART rail, at Jennings.
    - Steele and College getting bike lanes, but it is still dangerous to ride through underpasses.
  - SCTA Countywide Bike/Ped Plan:
    - Crossings over 101
    - Bicycle boulevards
  - General Plan: strengthen east-west linkages
    - Jennings: bike boulevard
  - SCTA Comprehensive Transportation Plan: listed project
  - Measure M Project 14: access over 101
  - SRJC Transportation Plan
  - SMART

- Where?
  - Need to think about big planning point of view, not worrying about ramping and structures.
  - If we could magically connect two points across 101, which ones?
    - Scholars and Jennings
    - Edwards and Elliott
    - Foley and Bear Cub Way
  - Pedestrian comfortably and easily walks ¼ mile
    - ¼ mile from SRJC core pedestrian zone: into Coddingtown on west side, much of Mendocino Ave on east side.
  - Existing or planned bike routes
  - Land use: two campuses
    - About 60% of SRJC students commute from outside zip code.
    - Low numbers of students commuting to school by bike.
    - On west side, south of Coddingtown Mall, there has been an application for development of high-density housing, including postage stamp park.
    - Coddingtown Mall
    - Employment/Industrial
    - Residential
    - Potential SMART Station
- Bus routes: bus transit station on Range, west side of Mall
  - Some people have advocated for pushing SMART station northwards
  - More important to connect to train station or bus center?
- Origins and Destinations scenarios
  - Pacific Ave to SR Business Park
  - JC to Coddington
  - Walkable Mendocino Ave
    - But intersection at Mendocino & Pacific challenging
  - Exactly one mile between College and Steele
  - Dump bicycle traffic onto Elliott Ave?
  - More room southwards, Foley/Bear Cub Way
- Urban design
  - North of Jennings, land is pretty developed, more constraints, but greater opportunities to make connections to existing development.
    - Ramping structures
      - Loop-de-loop: like a building, and it obstructs views like a building would.
      - Run ramping along roadway: impact views for adjacent buildings, acts like a street
      - Thread between existing buildings: pick buildings with blind facades, weave through parking areas.
  - South of Jennings, wider and less developed
    - Fewer conflicts, opportunity for simpler structures, straighter runs, opportunity to contribute to urban design goals (e.g. ped pathway down from axis of Coddington?)
    - Can split difference between train station and bus transit center, going through developed area.
- Underpass?
  - Quite difficult to do
  - Freeway at about same grade as land surrounding it
    - At College Ave: Freeway is higher, so easier to do an underpass.
  - At this section of freeway, very long to get across and would require a deep tunnel.
  - Methods: cut and cover, trenchless methods.
Feasibility Study: Proposed Bicycle & Pedestrian Crossing over Hwy 101
City of Santa Rosa, Public Works Department

Second Community Meeting Notes

Date: May 7, 2009
Time: 7:00pm
Location: Odd Fellows Hall, 545 Pacific Avenue, Santa Rosa
Speakers:
Ms. Susan Gorin, Mayor of City of Santa Rosa
Mr. Otto Bertolero, City of Santa Rosa, Public Works Department
Mr. Steven Grover, Steven Grover & Associates

Presentation Format:
- Attendees were asked to sign-in at the door and were furnished with a hand-out detailing the agenda for the evening. Site maps of the project area were posted around the meeting hall.
- At 7:00pm, Ms. Gorin provided a brief introduction. She explained that the overcrossing project is personally important to her as a cyclist who had a near-accident under the Steel Lane undercrossing. She brought the issue to the City Manager and asked it to be prioritized because of the danger to cyclists. She emphasized that the issue is also critical because the SMART train has been approved, and cyclists and pedestrians will need to be able to get to the station. She explained that this meeting will ask for the audience’s input on the design of the bridge, and reiterated the importance of public input. She reminded the audience that a final decision will not be made at this meeting.
- Ms. Gorin then turned it over to Mr. Bertolero, who told the audience that the City wants input on the location and design of the bridge, and introduced Mr. Grover.
- After the introductions, Mr. Grover took the floor and began a slide show.
- After the slide show, an additional handout was distributed to the attendees. This handout was a set of worksheets that attendees were asked to fill out and return either at the completion of the presentation or to the City by mail or email. This handout included three questions to the general public that will help ascertain key community concerns and issues related to bridge alignment, bridge width, and shape.
- Mr. Grover then opened the floor for questions.
- City officials adjourned the meeting.

Discussion:
Mr. Grover briefly reviewed the triangle input sheets from the first meeting. He emphasized the clear public mandate for the project, and discussed varying opinions on aesthetics and locations in the larger planning context. He then touched on the high points of his detailed
alignment options comparison, showing that various considerations point to the southern alignments.

Mr. Grover explained that the key considerations for smooth and expedited project development are that the project have very thorough review of alternatives and a strong community process, and that a clear plan emerges from that. He stated that soft costs can be significant on a project of this kind. He also said that having clear community support for a project is critical. He emphasized the value of the audience’s participation, and distributed the community participation handout, a triangle input sheet, to solicit comments and ranking preferences regarding alignment F, G, or other.

Mr. Grover then reviewed some of the basic considerations that go into identifying the best bridge design solution, including constructability, the community’s functional and aesthetic goals, impacts on adjacent uses, and maintainability. He made a few comparisons with other similar and recent projects, and then presented the design studies he prepared, focusing on the relative merits of alignments F and G.
Exhibit A – Detailed summary of Mr. Grover’s presentation (Part 1)

- **Introduction**
  - Outline:
    - Review of results of community input from last meeting
    - Quick comparison of different alignment options
    - Where the firm is in process of project
    - Triangle input sheets for notetaking during speech
    - Audience input is critical
    - Review of prepared design studies
    - Because project is complex, it’s not obvious where bridge should go, therefore studies are massing studies, rather than detailed renderings
    - After meeting, will take next steps

- **Results from Input Sheets from First Meeting**
  - Clear need for project in the community
  - In terms of aesthetics, pretty clear mandate for visual appeal
  - Standard crossing design not seen as adequate for the community’s cycling and pedestrian needs, with need for more safety and more inviting design
  - In terms of location, spent a lot of time looking at overall transportation importance. Considering the new rail station, bus station, mall and JC. There were clusters in all areas, but more people leaning towards southern alignments.
    - In first meeting, tried to present issues from purely transportation planning point of view, because we didn’t want to look at minute details. Hopefully got a good picture of the larger planning context.
    - For connections, the SMART rail was seen as the most important
    - JC expressed preference that bridge be located at southern alignment to fall on Bear Cub Way

- **Alignment Options**
  - Important to spend time on this, to build consensus around right option
  - **Alignment A**
    - Longer span because freeway is widening for on and off-ramps
    - Comes down adjacent to Armory; many utilities and trees and front of JC District Police Station. Impact on Armory Street or trees and police station views. On west side, relatively open.
    - From larger transportation perspective, Elliot seems to be good route for cyclists.
    - Would have to work to get right ramp length.
  - **Alignment B**
    - Only real feasible option was to use loops or ramp towers of some type at the corner of the parking lot of the police station
    - Would conflict with some trees and utilities, and take some of the former Los Robles Lodge parking lot
    - Many overhead utilities would come into play, and though there are impacts for all alignments, they’re a little more difficult here
    - Also have freeway sign which probably could stay, but may need to be removed
    - Showed example of recent ramp tower, as compact as possible. This type of design would be what you’d do if there weren’t any other
alternatives, and would require design exemption from CalTrans for tight turns coming down ramp.

- Would also be dropping people off in the middle of the block, which is not ideal for cyclists

  - Alignment C
    - Another type of alignment, horseshoe-shaped
    - Requires dropping people off on freeway side, and ruled out because doesn’t improve safety enough to merit expense
    - Would drop down near Scholars and near Jennings

  - Alignment D
    - Relatively promising alternative
    - Connects right to Jennings, major east-west bicycle boulevard
    - Dropping down in paved area, not taking out trees, but at steepest ramp slopes some trouble
    - On west side, coming down between two blind facades, impacting some parking

  - Alignment E
    - Makes use of new long right-hand turn lane
    - Unfortunately comes out right at driveway for the apartments, and would impact views for residents
    - Some tree issues on the other side
    - Would have to get design exception on the radii

- All of the alignments so far have been in a part of the city where there are already a lot of buildings, so from a bridge design point of view you don’t have a lot of open space to bring in construction equipment. This probably leads more toward the type of structure where you have a center support, although there are exceptions.

- A question was asked about ramp slope. A: All of the alignments shown so far have been modeled with the maximum allowable ramp slope, which is 1:12. In other words, for every 12 feet you go horizontally, you rise one foot. And you can’t go more than 30 feet without having a flat spot.

  - Alignment F
    - Distinct advantage of being perpendicular to freeway, so it’s the shortest span
    - Comes in between two buildings, so one of the most important things to discuss tonight is the impacts on these buildings, and whether they are acceptable and how they can be mitigated.
    - The landing is on Bear Cub Way, which has been identified by the JC as their preferred location for bicycles
    - Comes in between two trees
    - Unfortunately, would require moving a freeway sign. Sign warns of exit, and the location is further south than it typically would be by CalTrans guidelines, but probably could be moved north. Haven’t received details from CalTrans yet.
      - A question was asked regarding putting the sign on the overpass. A: That has come up in other projects. It’s a concern for CalTrans because it’s harder to maintain them; it’s a concern for visibility for bicyclists and pedestrians using the overpass, and it can be an aesthetic concern. It can be a wind-loading issue, so it’s not the preferred solution. It’s done, but it’s something that we would
prefer to avoid if there’s an alternative. Perhaps more importantly, CalTrans would prefer to avoid it.

- A question was asked about the connectivity on the west end, and it was deferred until a later point.
- Connection comes between two buildings, Enterprise Rent-a-Car and a music school. It comes over a parking lot, with a support at the front and back of the parking lot.

  o **Alignment G**
    - Far enough from freeway sign that it can probably stay where it is
    - Biggest drawback to this alignment is the fact that it’s skewed with respect to the freeway. That makes it 28% longer than F. 28% longer translates into about 65 feet. At $10-25,000 per foot, we’re talking about over $500,000 difference in cost. Keep in mind you have to look at these things from the perspective of the overall budget. And you have to offset it against the fact that you probably wouldn’t have to remove the freeway sign. All of these factors have to be put into the proper perspective when we weigh our input. I wouldn’t say just because it’s longer it’s a deal-killer. If this is where the community wants to put it, this is where it should go. But it’s something to factor in. It’s longer and will be harder to build and more expensive, but it’s nice and straight, so that’s easier to build.
    - The steeper slope shown on the diagram is the maximum ramp slope for ADA accessibility. Requires a rub rail for wheelchairs, and a handrail, and makes bicycles bump going down the slope.
    - The 1:20 slope is not considered a ramp, but a pathway. You don’t need the railings, and can have a smooth pathway. This is what was used for the Berkeley bridge. It’s a question of accessibility and its importance. In this case, there are probably advantages to using the gentler slope, because you’d impact less of the parking that’s being used by these buildings.
    - A long straight line is not necessarily considered safest because you can pick up speed on a bicycle, so maybe it needs to undulate a little. That’s the kind of refinement we’d look at at a later stage.
    - I won’t go into detail, but we looked at the walking distances for the various alignments. We can come back to this.
    - A question was asked regarding the difference between 1:20 and 1:12. A: We have a slide coming up that shows the difference in cost.
    - A question was asked about the difference in cost based on ease of construction versus the length. A: Alignment F and G are similar in terms of ease of construction. F is a little more complicated because you probably don’t want to use the parking lot as a layout area for very long. But I don’t think there is a significant cost differential in terms of ease of construction. Alignment G is a much longer span, which makes it more difficult in a number of ways. You put up temporary supports in the middle of the freeway and the sides, but then you have other expenses. I don’t know if it’s a wash, but...

- **Key considerations about this type of project**
  - If project is very well-defined, and the community can build consensus around that, soft costs can be greatly reduced
In Cupertino, recent project cost $10 million in construction, $6 million in soft costs.

Clear support and funding, minimal or no environmental impact, consensus around purpose and need, make up a recipe for a more expedited review process. It’s important tonight to see if we have consensus around a clearly defined project.

A comment was made from someone who was involved in initial conception of project, which wanted to connect with the train station. G is aligned with the old railroad. CalTrans accommodated that alignment, and made adjustments on the freeway based on that. The person promised to share name of CalTrans contact.

- Mr. Grover commented that the perspective being shared was perhaps the majority perspective, but that there is also a perspective that wants connection to the bus and perhaps some other northern perspectives, so F may split that difference.

The Y property at the end of the G alignment is known to be contaminated. It’s known that anything that F lands on is environmentally clean. We don’t know about the strip between the Y property and the freeway. It could be mitigated, but it’s another consideration.

- Briefly showed process slides. If City should decide to go forward with the project, groundwork is being laid. A number of other things could be done early. It’s important to remember that if a review is not accepted later, you run some risks, which should be weighed.
- Triangle sheets were handed out for the audience to take notes.
- A question was asked about the earthquake safety of G. A: The highway is a thin crust on the top of the ground, and you can’t think of it as a stiff structure.

**Key considerations about type of structure**

- Geometry and foundation conditions are fundamental; what you’re spanning over and what you’re sitting on.
- Constructability
  - Unlike buildings, bridges go over something, and construction needs to drive design thinking
  - Recently spoke with project manager for Golden Gate Bridge, who finished Cupertino Bridge. Switching from concrete to steel made it affordable, and the process went very smoothly.
  - In this case, you’re not going to work over the freeway without closing one whole side of it, and detour that during the night.

- Community goals
  - What do you want?
  - What’s important to you?
  - Do you want it to be a landmark, or something that will just get us there?
  - Impacts on local environment (cut off here)

**Structure options**

- Pre-fab truss
- Tied Arch – Berkeley
- Arch
- Cable-Stayed – Mary
- Low-profile stressed ribbon – ATT

- Construction cost comparison
• Comments and Q & A
  o Is it possible to customize a pre-fab truss bridge?
    ▪ A: Not really
  o Are there examples of trusses here?
  o What is the cost per foot for the steel truss bridge?
  o For the bridge width, let’s go as wide as we can
    ▪ Small electric train/vehicle crossing
    ▪ Maximize the number of bridge users
    ▪ Minimize traffic
    ▪ Explore ideas for powering electric vehicle with solar energy
    ▪ Explore funding options
    ▪ Existing solar panel on JC grounds already
    ▪ Explore possibility of JC kicking in some money
  o What should the width be in order to accommodate bicycles, pedestrians, and vehicles?
  o I have a personal vehicle, called the “Zap,” which I would like to use on the bridge
  o The city is bisected by Highway 101 and we need access
  o Impacts on buildings
  o The concrete on the concrete box structure type would be a haven for graffiti artists
  o John Nemeth at SMART: because the rail is slanted westward, moving the station northward doesn’t make it closer to the mall or JC
  o Can you clarify whether both Alignments F & G can accommodate the 1:20 slope?
    ▪ A: Yes, both can do 1:20 slope. Caltrans would probably prefer Alignment F because of the shorter span. Because of that, there will need to be a compelling reason to select G. The advantage of F is that you get over the freeway quicker.
  o Because pedestrian bridges are typically narrow, it helps to have curvature because this stiffens them in the transverse direction.
# Crime Statistics

## SANTA ROSA CAMPUS

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SANTA ROSA & PETALUMA CAMPUSES and PUBLIC SAFETY TRAINING CENTER

No hate crimes were reported in 2004, 2005, or 2006.

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Public Safety Training Center

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Daily Log Access

The District Police Department maintains a daily log of officer activity and calls for police service for the most recent 60-day period. The log is open for public inspection during normal business hours of 8:00 a.m. - 5:00 p.m., Monday – Friday. Log entries older than 60 days can be obtained by request within 2 business days. Additionally, the District Police include a log on our web site at www.santarosa.edu/police with summary information about crimes and reports taken by the District Police.

Law Enforcement Authority

The District Police Department is a full-service, fully certified, police agency within the State of California staffed by sworn peace officers 24 hours a day, 7 days a week, every day of the year. The District Police Department is not a branch of any other law enforcement agency.

The Police Officers are vested with law enforcement powers pursuant to California Penal Code Section 830.32(a) and California Education Code Section 72330, have police authority throughout the state, and primary law enforcement jurisdiction for all crimes occurring on District properties. Police officers have full powers of arrest, enforce local, state and federal laws both on and off campus, and as full peace officers, their police authority includes concurrent law enforcement jurisdiction on adjacent streets and in the communities surrounding District properties. The District Police Department also complies with the Kristin Smart Campus Safety Act by maintaining formal operational agreements with law enforcement agencies sharing concurrent law enforcement jurisdiction to ensure prompt law enforcement response and collaboration in incidents requiring inter-agency cooperation.

Police Officers employed by the District meet all training requirements as mandated by the California Commission on Peace Officer Standards and Training and actually are mandated to have more training than county or municipal law enforcement officers. Each Police Officer has graduated from a regional police academy, completed a rigorous field training program, and must complete a probationary period. Additionally, each police officer is updated in training throughout the year to include firearms, defensive tactics, first aid/CPR, and legal updates.
G. Pedestrian & Bicycle Usage Statistics

Bicycle Use Survey 2003

Prepared by the City of Santa Rosa Bicycle and Pedestrian Advisory Committee, Departments of Transit and Parking in cooperation with Santa Rosa High School Math students, 2003. Recreated from original.

Tabulated answers listed in parenthesis:

My home zip code is:
95401 (33) 95403 (16) 95404 (29) 95405 (19) 95407 (23)
95409 (9) Other zip codes were: 95472, 95493, 95492, 95448, 94951, 94931

My age is:
Under 21 (1) 22-50 (103) Over 50 (40)

I am:
Female (44) Male (100)

I ride my bike:
More than 3 times per week (69) 1-2 times per week (35)
2-3 times per month (39)

Most of my trips are (one way):
Under 3 miles (42) 5-10 miles (58) Over 10 miles (39)

I ride my bike mostly for:
Commuting (18) Fitness/Recreation (41) Both (78)

I prefer to ride:
Shortest route (27) Safest route (bike paths or lanes) (107)

If I had to choose one I would prefer:
Wider, smoother, cleaner streets (30) Bike lane and off-street paths (110)

I mostly travel:
North/south (29) East/west (40) Both (70)

When I ride I feel safer on streets with:
Parallel parking (63) Diagonal parking (16) Not an issue (61)

Choose 3 routes that you use most often from the list on the back of this page. Write the numbers here that correspond to the routes. Highest count were:

Annadel (24) College (19) Joe Rodota (24) Santa Rosa Creek (24)
Stony Point (25)

Comments included:

Bars would be better than bottles at energizer stations—bottles too heavy.

I have ridden my bike to work daily for 26 ½ years, sometimes 20 miles round trip (rider, over 50, prefers shortest route but would prefer bike lanes!)

Too many cars parked on the streets where there should be bike lanes posted with “Bike Lane, Emergency Parking Only.” Both parallel and diagonal parking are bad. Thanks for encouraging bicyclists.
**Bicycle Use Survey 2002**
Prepared by the City of Santa Rosa Bicycle and Pedestrian Advisory Committee, Departments of Transit and Parking 4/02. Number of responses for each answer noted in parathesis. Recreated from original.

I consider myself a cyclist.
Yes (182) No (60)

I own and drive a car.
Yes (205) No (36)

My age is:
Under 16 years (4) 16-26 (32) 27-40 (71) Over 40 (135)

I ride my bike:
2-3 times per month (53) 1-2 times per week (50) More than 3 times per week (124)

Most trips are about how long (one way)?
1-5 mi. (109) 6-15 mi. (71) Over 15 mi. (54)

I ride my bike primarily for:
Transportation (103) Fitness (124) Concern for the environment (51) Recreation (97)
Cost (20) Other (23)

I mostly ride
On city streets (shortest route) (124) On streets with bike lanes (79)
On bike paths away from traffic (57) Off road (36) Other (30)

I mostly ride to the following places
City/county agencies (31) Shopping (54) Work (104) School (21) Other (84)

Cycling in Santa Rosa could be improved with:
Wider smoother streets (72) More bike paths and lanes (170) Other (30)

I would cycle more if:
I had a safe place to park/leave my bike (55) There was better coordination with buses (18)
I felt safe in traffic (127) Other (54)

Cycling in Santa Rosa would be safer with:
Better education of motorists (151) Better enforcement of motorist violations (88)
Better education of cyclists (78) Better enforcement of cyclist violations (43)

I would attend a workshop on safe and legal cycling practices.
Yes (116) No (97)
H. Draft PEAR
(Administrative Draft)
PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

<table>
<thead>
<tr>
<th>District</th>
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<td>101</td>
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Project Title: Santa Rosa U.S. Route 101 Bicycle and Pedestrian Bridge

<table>
<thead>
<tr>
<th>Project Manager:</th>
<th>Phone #</th>
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<tbody>
<tr>
<td>Otto Bertoloero, City of Santa Rosa</td>
<td>(707) 543-3878</td>
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<tr>
<th>Project Engineer:</th>
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<tbody>
<tr>
<td>Steven Grover</td>
<td>(510) 549-9258</td>
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<tr>
<th>Environmental Office Chief/Manager:</th>
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<tr>
<th>PEAR Preparer:</th>
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<tbody>
<tr>
<td>Michael K. Kay, PBS&amp;J</td>
<td>(415) 362-1500</td>
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2. Project Description

Purpose and Need

The US Route 101 freeway (101) has been a major transportation asset to the City of Santa Rosa since the construction of the freeway in the late 1950s. However, because the freeway bisects the City, 101 limits east/west travel options, particularly for cyclists and pedestrians in the area north of College Avenue near the Santa Rosa Junior College (SRJC) and Santa Rosa High School (SRHS) campuses. In this area there are no exclusive bicycle/pedestrian crossings of 101 and the two available roadway crossings, one at College Avenue and one at Steele Lane, present challenges to cyclists and pedestrians because the crossings are spaced one mile apart, have high traffic volumes, and have multiple intersections with freeway ramps and major north-south streets.

On the east side of 101, SRJC is the second largest employer in the City of Santa Rosa. Because the majority of staff and students arrive by automobile, SRJC generates high volumes of traffic. Despite the recent construction of a large parking garage on the SRJC campus, the streets near SRJC continue to experience traffic congestion and insufficient parking. Recent plans project that this area is expected to draw increasing numbers of pedestrians and cyclists, and specific infrastructure improvements have been proposed to accommodate them.

On the west side of 101 between College Avenue and Steele Lane, various development trends combine to increase the need for local roadway improvements and for safe alternatives for east-west bicycle and pedestrian travel across Highway 101. These include the addition of between 500 and 1,000 housing units...
within 1/4 mile of 101, an east-west bicycle boulevard at Jennings Avenue, increasingly pedestrian oriented retail at the Coddingtown Mall, a north-south bicycle/pedestrian pathway along the proposed Sonoma Marin Area Rail Transit (SMART) line, and a proposed SMART station near Jennings Avenue.

The purpose of the project is to close a gap in the local and regional transportation network for bicyclists and pedestrians. The project would also help improve safety for bicyclists and pedestrians, support revitalization of the area west of Highway 101, help mitigate pressures on the existing automobile infrastructure on the east side of 101 near the SRJC, provide quality of life benefits for the general Santa Rosa population in the form of a reduction in vehicle miles traveled (VMT) and new recreational opportunities; and improve travel opportunities including safer routes for commuters, students, and low income and other disadvantaged residents.

Project Purpose. The project would close a gap in the Santa Rosa transportation network through the following actions:

- Offering a safer and more enjoyable alternative for bicyclists and pedestrians crossing 101 in the vicinity of SRJC compared to existing roadway crossings.

- Offering more direct connections for bicycles and pedestrians crossing 101 to important destinations east and west of the freeway including SMART, SRJC, SRHS, the Jennings Ave east-west Bicycle Boulevard, Coddingtown Mall, the SMART bicycle/pedestrian trail pathway, and housing developments along Range Avenue.

Project Need. The needs for the project can be discerned from negative characteristics that exist in the project area and from expected changes that significantly expand existing needs:

- Highway 101 creates a barrier to east-west travel and neighborhood coherence.

- Existing east-west roadways at Steele Lane and College Avenue are insufficient because a) people are concerned for their safety when crossing the multiple existing arterial intersections and un-signaled on and off ramps near Highway 101, and b) the one mile distance between existing crossings results in trip lengths exceeding a comfortable range for pedestrians and many cyclists.

- Traffic congestion and parking shortages in the SRJC area persist despite the recent addition of a 1,100 space parking garage on the SRJC campus.

- A new light rail transit station is planned for the west side of 101 near Jennings Avenue. This station is projected to serve over 1,300 people each day. Of those 1,300, 500 are projected to arrive at the station by means other than an automobile.
• Proposed high density housing in the project area west of 101 would increase residential population in
the immediate project area. Recent housing developments in the project area are reserved for low-
income and elderly residents; populations that rely more heavily on alternative transportation modes.

• A number of alternative transportation improvements are slated for the project area including the
Jennings Bike Boulevard, the SMART light rail station, pedestrian-oriented improvements on
Mendocino Avenue, bicycle and pedestrian improvements on the SRJC campus, and a multi-use
pathway along the proposed light rail route.

Description of work

Alternatives

Two build alternatives are under consideration. Both alternatives are located at the southernmost project
location considered in a feasibility study prepared by Steven Grover Associates (SGA) for the project and are
differentiated primarily by their western approach alignments. On the east side of 101 both alternatives
connect to City of Santa Rosa right-of-way at the intersection of Pacific Avenue and Mendocino Avenue.
From that point they follow existing sidewalks and an existing Class 3 Bikeway along Bear Cub Way on the
SRJC campus with eastern ramp touchdowns on Bear Cub Way near the SRJC Call Child Development
Center. Both alternatives would not require structural supports within the Caltrans right-of-way, but would
require some relatively minor above and below ground utility relocations on each side of 101. Both
alternatives would displace approximately 10 parking spaces within the Bear Cub Way parking lot.

The project limits for the proposed bicycle and pedestrian bridge extend from the Bear Cub Way parking lot
on the SRJC campus east of 101 to an undeveloped field bounded by Jennings Avenue, Range Avenue, and
Frances Street west of 101. At this time, connections to the bicycle and pedestrian bridge from the west are
undefined. Therefore, the project limits west of 101 encompass the entire undeveloped field. Connections to
the bicycle and pedestrian bridge from the east would be constructed in the Bear Cub Way parking lot.

Both of the build alternatives are further described below:

Alternative 1. Alternative 1 would cross 101 from Bear Cub Way on the east to just north of Foley Street on
the west (see Figure #). The eastern approach ramp would pass just south of Lounibos Center on the SRJC
campus and span the Bear Cub Way roadway connection to Armory Drive. Structural supports on the east
side for the bridge and ramps would be located largely within existing parking lot medians and would avoid
impacting existing mature trees at the intersection of Armory Drive and Bear Cub Way. Alternative 1 would
then cross both frontage roads (Armory Drive and Cleveland Avenue) and the Caltrans right-of-way with a
235-foot main span perpendicular to the 101 centerline. Alternative 1 would require relocating an existing
freeway sign. The west main span structural support would be on the west edge of Cleveland Avenue between
a one-story building on the north (currently used as an Enterprise Rent-a-Car), and a two-story building center
on the south (currently used as a music therapy center). The west side span and ramp structure would span the existing rental car parking lot, retaining all existing parking, and then return to grade in the Finali family property which is currently an open field, but is zoned for high density housing. Alternative 1 would then follow a currently unspecified alignment to join either Jennings Avenue or Frances Avenue.

Alternative 2. Alternative 2 would also cross 101 from Bear Cub Way on the east but would follow a former railroad right-of-way to a point south of Foley Street on the west (see Figure #). The eastern approach ramp would cross the diagonal central axis of Bear Cub Way. Structural supports on the east side for the bridge and ramp would be located within the existing Bear Cub Way parking lot and would avoid impacting existing mature trees at the intersection of Armory Drive and Bear Cub Way. Alternative 2 would then cross both frontage roads (Armory Drive and Cleveland Avenue) and the Caltrans right-of-way with a 290-foot main span skewed with respect to the 101 centerline. The west main span structural support would be on the west edge of Cleveland Avenue between a one-story building on the north (currently used and owned by a restaurant supply wholesale business), and an industrial yard on the south (currently used by a specialty gas company). The west side span and ramp structure would span the existing restaurant supply business parking lot, retaining all existing parking, and then return to grade in a narrow lot which is currently an open field, but is zoned for ___. Alternative 2 would then continue straight along the former railroad right-of-way to join Frances Avenue at its intersection with Briggs Avenue in front of the proposed SMART light rail station.

3. Anticipated Environmental Approval

<table>
<thead>
<tr>
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<tr>
<td><strong>Environmental Determination</strong></td>
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<td>Initial Study or Focused Initial Study with Negative Declaration or Mitigated ND</td>
<td>❌ Environmental Assessment with Finding of No Significant Impact</td>
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<tr>
<td>Environmental Impact Report</td>
<td>❌ Environmental Impact Statement</td>
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<tr>
<td>CEQA Lead Agency (if determined):</td>
<td>City of Santa Rosa</td>
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Estimated length of time (months) to obtain environmental approval: 12

Estimated person hours to complete identified tasks:
4. Special Environmental Considerations

Based on available information regarding the build alternatives and the environmental resources in the project area, neither of the build alternatives would involve special considerations beyond typical compliance with environmental regulations.

5. Anticipated Environmental Commitments

Mitigation for temporary impacts to biological resources would be required during construction of the proposed project. An Initial Site Assessment (ISA) will be prepared for the project during the Project Approval/Environmental Document (PA/ED) phase of the project. Construction noise and vibration would need to be mitigated appropriately (i.e., restrictions on construction hours, use of low-impact pile drivers [if needed], etc.) to avoid impacts on nearby residences and students at the SRJC. Construction stormwater pollution prevention permits must be granted prior to construction activities, and a post-construction stormwater management plan would be required to meet State NPDES standards for stormwater quality. The effects of construction air pollutant emissions, especially PM$_{10}$ from construction activity and equipment, would need to be mitigated appropriately (e.g., dust controls, low-emission construction equipment, etc.) to avoid impacts on nearby residences and daycare center. Surveys for white-tailed kite, other raptors and migratory birds would be required prior to the issuance of a grading permit.

6. Permits and Approvals

No wetlands or waters of the U.S. would be affected by the project, so there would be no need for Clean Water Act (CWA) 404 Wetland Fill Permit, or CWA 401 Water Quality Certification required. No streams, rivers or lakes occur in or near the project area, so no CDFG Section 1600-1616 Streambed Alteration Agreements would be required. It is unlikely that any federally listed threatened or endangered species occur in the project area, so no Section 7 or 10 Incidental Take permits would be required. Depending on the results of surveys for special-status plants, raptors and migratory birds, demonstration of avoidance or approval from CDFG for take of these species, should they be found there, may be required.

7. Level of Effort: Risks and Assumptions

The study area is sensitive for prehistoric and historic-era archaeological resources. As with prehistoric archaeological resources, historic archaeological resources may be located below the current ground surface. However, studies conducted for other projects in the vicinity of the proposed project failed to locate archaeological resources. Therefore, the risk is low.

A query of the CNDDB, and the USFWS Online Species Database identified occurrences of 18 special-status plant and animal species which would potentially be present in the project area. However, based on the degree
of historic disturbance in the project area, it is unlikely that any of these species are present. Therefore, the risk associated with impacts to special-status plant and animal species is low.

8. **PEAR Technical Summaries**

8.1 **Land Use:** The proposed project would span 101 and return to grade within a SRJC parking area on the east side of 101 and an open field on the west side of 101. The area on the west side of 101 is sparsely developed and is zoned for high, medium, and low density residential. Adjacent to the eastern touchdown area within the SRJC parking lot is the campus daycare center. SRJC recreation areas exist within the campus, but are not immediately adjacent to the touchdown area and would not be affected by the project. The project would be compatible with existing and proposed development by providing a bicycle-pedestrian link between residential areas west of 101 and institutional and commercial areas east of 101. No Section 4(f) resources would be affected by the project and the preparation of a Section 4(f) Resources Evaluation for the project would not be required.

8.2 **Growth:** The project would not induce population growth in the area because it does not include major infrastructure improvements (such as utilities or roadways) in an undeveloped area. No formal review of growth-inducing impacts would be required.

8.3 **Farmlands/Timberlands:** The project would be constructed in an urban area; there are no farmlands or timberlands within the project limits or the project vicinity.

8.4 **Community Impacts:** Under the proposed alternatives, no residences would be impacted and the relocation of area residents would not be necessary. The project has the potential to relocate utilities within the project area and may affect the parking lots of businesses west of 101. Although no businesses or homes would be relocated, the project may affect existing rights-of-way. The project would not affect the economic structure of the community. A Community Impact Assessment (CIA) would not be required to analyze socio-economic issues.

8.5 **Visual/Aesthetics:** The project area within and along Highway 101 is not within a State-designated scenic highway. Therefore, the project would not obstruct views of State importance. However, the Santa Rosa General Plan has designated 101 a scenic road. Views from travelers on Highway 101 could be affected by the construction of the proposed bridge. A Visual Impact Assessment would likely be required to analyze visual impacts of the proposed bridge. This assessment would include a discussion of potential project effects, visual simulations, and appropriate mitigation.

8.6 **Cultural Resources:** This discussion of Cultural Resource is based on a review of the Final Environmental Assessment/Environmental Impact Report (EA/EIR) prepared for the Route 101 HOV
Widening Project. The proposed Santa Rosa U.S. Route 101 Bicycle and Pedestrian Bridge project would be constructed within the limits of the Route 101 HOV Widening project.

Archaeological Resources. Archaeological research conducted in support of Route 101 Widening project did not identify any prehistoric archaeological sites within the study area; however one site (CA-SON-860/H) is located nearby. In addition, the EA/EIR notes that prehistoric cultural materials were identified during construction monitoring of the 3rd Street underpass under Santa Rosa Plaza in the late 1970s. Finally, the ethnographic Pomo Village site of Hukabetawi was reported inside the study area. Prehistoric archaeological resources may be located beneath the current ground surface.

European settlers came to the area in the early1800s and studies conducted during the Route 101 HOV widening project indicate that the area south of the Santa Rosa U.S. Route 101 Bicycle and Pedestrian Bridge project study area is sensitive for historic-era archaeological resources. As with prehistoric archaeological resources, historic archaeological resources may be located below the current ground surface.

Archaeological resources may be encountered during the excavation related to span supports for the proposed project. Alternative 1 may impact archaeological resources near the intersections of Armory Drive and Bear Cub Way to the east, and Cleveland Avenue and north of Foley Street to the west. Alternative 2 may impact archaeological resources near the intersection of Armory Drive and Bear Cub Way to the east, and Cleveland Avenue and south of Foley Street to the west. In addition, Alternative 2 would impact the former railroad right-of-way, which may be an historic archaeological site. The railroad right-of-way may require an evaluation for its eligibility for listing on the National Register of Historic Places.

Architectural Resources. No buildings were identified during the Route 101 HOV Widening EA/EIR as eligible for the National Register of Historic Places (NRHP) in the Santa Rosa U.S. Route 101 Bicycle and Pedestrian Bridge project study area; however, the Area of Potential Effect (APE) for the Route 101 project did not include the entire project area for the proposed pedestrian overcrossing. Under the proposed project alternatives no buildings would be demolished; however, the setting of the area would change with the construction of the pedestrian overcrossing in either of the proposed locations.

A cultural resources study, which includes archaeological and architectural history, would be required to analyze these issues. The cultural resources investigation would be conducted in accordance with the procedures identified in the Caltrans Environmental Handbook, Volume 2: Cultural Resources and would include a confidential records search of files on record at the Northwest Information

2 Ibid.
Center; research at the Sonoma County Assessor’s Office to determine both history and age of any buildings in the APE; consultation with Native Americans, historical societies, and other interested parties; intensive archaeological and architectural history surveys of the APE; and technical reports which document the findings.

8.7 Hydrology and Floodplain: The project site is in the Santa Rosa Plain groundwater subbasin, which contains numerous complex and discontinuous water-bearing formations. The site is partly built environment and partly grassland. It is nearly flat, sloping down very gently to the south and southwest with an average gradient of less than one percent. Runoff flows to the City’s storm-drainage system through existing ditches and sub-surface drain pipes, discharging to the Santa Rosa River. Recharge is limited by the relatively high clay content of the soils. The project site is not in a 100 year flood zone.

Because construction would involve grading of an area that is larger than one acre, the project would be subject to the conditions of the General Construction Activity Nation Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), which requires the development of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to identify the sources of sediment and other pollutants on-site, and to ensure the reduction of sediment and other pollutants in discharged stormwater. A monitoring program is required to aid the implementation of, and assure compliance with, the SWPPP. The permit requirements of the RWQCB must be satisfied prior to project construction. Policies of the City of Santa Rosa and the Sonoma County Water Agency require the project to maintain pre-development runoff rates. To reduce the possibility that construction activities would create a risk of contaminating groundwater or surface water, or cause exposure of pre-existing contaminated groundwater, the RWQCB would require preparation and implementation of a Construction Hazardous Materials Management Plan that would include procedures for the handling of chemical releases, fuel spills, and the potential spread of contaminant plumes.

8.8 Water Quality and Storm Water Runoff: There are no known constraints to the project alternatives regarding water quality that would severely limit or preclude the project. However, some considerations for construction and operation of the project alternative sites need to be addressed. In particular, construction stormwater pollution prevention permits must be granted prior to construction activities, and a post-construction stormwater management plan would be required to meet State NPDES standards for stormwater quality.

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The only agency coordination required for the project would be through the North Coast Regional Water Quality Control Board (RWQCB) and its approval of the existing Caltrans National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation (Order No. 99-06-DWQ, NPDES No. CAS000003) and the NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity in (Order No.99-08-DWQ, NPDES No. CAS000002).

8.9 Geology, Soils, Seismicity, and Topography: A Preliminary Geotechnical Investigation was prepared in 2007 for a multifamily residential development at 1020-1060 Jennings Avenue. The project site is on the Santa Rosa alluvial plain in the Coast Ranges geomorphic province. The ranges and intervening valleys trend northwest, more or less parallel to the offshore segment of the San Andreas fault, about 25 miles southwest. The sediments at the project site consist of two units of older Quaternary alluvium. The upper unit is a 2- to 3-foot-thick layer of loose, soft to stiff, organic clayey silt and silty clay. The lower unit is at least 8 to 13 feet of predominantly stiff to very stiff silty clay and clay containing 2- to 3-foot-thick discontinuous layers of medium dense gravel. Groundwater is between 9 and 12 feet below the ground surface.

The geologic units are expansive, compressible, and susceptible to liquefaction below the water table. The nearest known active fault (in an Alquist-Priolo Earthquake Fault Zone) is the Rodgers Creek fault about 2.2 miles northeast, which is considered capable of generating a M 7.0 earthquake.

The project would be subject to such regulations as the Caltrans Bridge Design Specifications, Bridge Memo to Designers, Bridge Design Practice Manual, and Bridge Design Aids Manual, which provide state-of-the-art information to address geo-seismic issues that would affect the design of the POC. The performance criteria include functional and safety evaluations of ground motion.
level of service to be attained following a major earthquake, and the level of damage the structure must be designed to withstand. Adherence to the standards of protection is mandatory and would reduce the risk of injury or death from geologic forces to the maximum extent technically practicable.

8.10 Paleontology: The sediments at the project site consist of two units of older Quaternary alluvium. The upper unit is a two- to three-foot-thick layer of loose, soft to stiff, organic clayey silt and silty clay. The lower unit is at least eight to 13 feet of predominantly stiff to very stiff silty clay and clay containing two- to three-foot-thick discontinuous layers of medium dense gravel. At least the upper unit has been disturbed by rural and urban activity. Fossils have been found in Quaternary alluvium in excavations for roads and housing developments in Santa Rosa, including remains of Rancholabrean age (middle to late Pleistocene) vertebrates.

Older Quaternary alluvial deposits throughout Sonoma County are Low to Moderately Sensitive paleontologically. Because fossils in the alluvium often are the result of re-deposition of sediment derived from upstream rock formations containing animal and/or plant remains and may have traveled great distances prior to deposition, their value as paleontological resources may be limited. Given the extent and intensity of urban development in the vicinity of the project, it is reasonable to assume the near-subsurface materials have been altered to varying degrees and unknown depths.

Pre-construction paleontological subsurface surveys probably are not warranted, but the construction site manager should be alerted to the possibility of such resources being discovered. In the event fossils are discovered, professional standards for assessment and mitigation of adverse impacts on paleontological resources have been established by Caltrans incorporating the Society of Vertebrate Paleontology guidelines, which afford protection of the resources in accordance with federal, state, and local laws and regulations.

8.11 Hazardous Waste/Materials: An Initial Site Assessment (ISA) will be prepared for the project during the Project Approval/Environmental Document (PA/ED) phase of the project. Current and past industrial uses adjacent to the western portions of the project area may contain underground storage tanks. The ISA will determine what hazardous materials, if any, are present in the project vicinity.

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14 Society of Vertebrate Paleontologists, Conformable Impact Mitigation Guidelines Committee, Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines, 2007
Further hazardous waste investigation, including a Preliminary Site Investigation (PSI), may be required prior to the start of construction.

8.12 Air Quality: Sensitive receptors are present in the form of residences along Cleveland Avenue and Jennings Avenue, and children at the adjacent daycare center on the SRJC campus. The effects of construction air pollutant emissions, especially PM$_{10}$ from construction activity and equipment, would need to be mitigated appropriately (e.g., dust controls, low-emission construction equipment, etc.) to avoid impacts on nearby residences and daycare center.

8.13 Noise and Vibration: Existing ambient noise in the project site vicinity is predominantly due to motor vehicle traffic. Vehicles traveling on 101 have the largest influence on noise levels in the area. Noise would be generated during project construction. Construction noise and vibration would need to be mitigated appropriately (i.e., restrictions on construction hours, use of low-impact pile drivers [if needed], etc.) to avoid impacts on nearby residences and students at the SRJC.

8.14 Energy and Climate Change: Due to the type and scale of the project, an energy technical report would not be required. The project would result in a minor increase in greenhouse gas emissions during construction. Operation of the project would not increase vehicle-miles traveled (VMTs) in the region because the project would only be opened for non-motorized use. A qualitative analysis would be required during the PA/ED phase.

8.15 Biological Environment: The evaluation of biological resources in the project area was conducted through examination of high quality aerial photographs, on ground photos, and review of previous environmental documentation that included a wetland delineation and Biological Assessment$^{16}$ for the undeveloped property west of Highway 101. No biological site visit was conducted for the preparation of this PEAR. Lists of special-status species was obtained from the California Department of Fish and Game’s (CDFG) Natural Diversity Database (CNDDB)$^{17}$ and the U.S. Fish and Wildlife Service’s (USFWS) Online Species Database$^{18}$ (http://sacramento.fws.gov/es/spp_lists/auto_list_form.cfm.) Neither the USFWS, nor the CDFG has been contacted directly regarding this project.

The project area consists of a combination of urban development, and agricultural land. Areas east of 101 are occupied entirely by urban development, including roadways and commercial development. No biological resources occur in this area. Areas west of 101 are primarily occupied by inactive agricultural land with some urban development adjacent to the freeway. Agricultural land includes a

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$^{16}$ Biological Assessment Parcel Nos 041-161-004 & -021, Santa Rosa, Sonoma County, California, LSA Associates, January 2007, Prepared for the Finali Family Partnership I, LLP. Much of the western portion of the project area is covered under this biological assessment.

$^{17}$ California Natural Diversity Database, Biogeographic Data Branch, Department of Fish and Game, Version Date August 01, 2009.

former walnut orchard and horse pasture. Grassland vegetation in this area consists of non-native annual grasses and forbs, which appears to be mowed on a periodic basis. A series of seasonal wetlands totaling approximately 0.13 acre occur in the western portion of the project area, approximately 200 feet from the proposed alternative alignments along the edge of the horse pasture. No wetlands occur within or immediately adjacent to the proposed pedestrian path alignments.

A query of the CNDDB, and the USFWS Online Species Database identified occurrences of 18 special-status plants, three special-status invertebrates, three special-status fish, three special status amphibians, one special-status reptile, and two special-status birds, which would potentially be present in the project area. An evaluation of the likelihood of these species occurring in the project area identified that there is potential habitat for eight of the identified special status plants; however, based on the degree of historic disturbance in the project area, it is unlikely that any of these species are present. None of these species were observed during botanical surveys conducted for the Finali property in 2004 and 2006.

The small shallow seasonal pools on the western portion of the Finali property could provide suitable habitat for one of the special-status invertebrates, California linderiella, but no surveys have been conducted for this species to date. The location of these pools is more than 200 feet away from where any of the proposed alternative pedestrian paths occur. Therefore, even if the species is present; it is unlikely to be affected by the project.

Trees present in the project area could provide suitable nesting sites for white-tailed kite (and other raptors and migratory birds), and adjacent grassland could provide suitable foraging habitat for this species. White-tailed kite is known to occur in areas of suitable habitat in the region, but has not been observed in the project area to date. Removal of trees during construction of the proposed pedestrian path connecting the western end of the POC to existing surface streets could result in the loss of nesting habitat for white-tailed kite or other raptors and migratory birds. Removal of adjacent grassland could result in the loss of foraging habitat for these species.

No wetlands or waters of the U.S. would be affected by the project, so there would be no need for Clean Water Act (CWA) 404 Wetland Fill Permit, or CWA 401 Water Quality Certification required. No streams, rivers or lakes occur in or near the project area, so no CDFG Section 1600-1616 Streambed Alteration Agreements would be required. It is unlikely that any federally listed threatened or endangered species occur in the project area, so no Section 7 or 10 Incidental Take permits would be required. Depending on the results of surveys for special-status plants, raptors and migratory birds, demonstration of avoidance, or approval from CDFG for take of these species, should they be found there, may be required.

A Natural Environment Study – Minimal Impact would be prepared for this project. Botanical surveys were conducted in 2004 and 2006 that covered the majority of the undeveloped land in the
project area. However, the CDFG and USFWS consider such surveys to be good for two years. These surveys would therefore need to be updated prior to the issuance of grading permits, and the survey area needs to be expanded to include all undeveloped property in the project area. Surveys need to be conducted during the blooming period for the target plant species, and multiple visits may be required to cover the bloom periods of all the target species.

Surveys for white-tailed kite, other raptors and migratory birds would be required prior to the issuance of a grading permit. Surveys need to be conducted during the nesting season (generally mid-March through early August). If nesting white-tailed kites, other raptors or migratory birds are found in the project area, an avoidance plan must be developed which would include monitoring of nest sites by qualified biologists to ensure that all young have fledged and left the nest prior to disturbance within 250 feet.

8.16 Cumulative Impacts: As described above, the proposed alternatives would have minimal impacts on resources in the project area. Compliance with regulations and standard mitigation measures would avoid and minimize all potential impacts. Cumulative impacts related to the alternatives are not anticipated.

8.17 Context Sensitive Solutions: Two special meetings of the City Council, Bicycle and Pedestrian Advisory Board, and Planning Commission were held where Santa Rosa residents were invited to share their thoughts relating to a proposed Highway 101 crossing. These meetings were noticed on the city public works website, newspaper, and approximately 2,000 invitations were mailed out to project area residents.

The Santa Rosa community has expressed a strong desire to complete a project expeditiously, but without compromising safety features or the ability of the project to accommodate and encourage bicycling and walking for many years to come. An overwhelming majority of attendees at the two public meetings felt that a "crossing is a key investment for health safety and economic vitality of the community."

A total of seven location and alignment alternatives were presented at the public meetings. Based on the attendees' feedback and on careful analysis of geometric feasibility and constraints, consideration was narrowed to the two southern alignments which are the build alternatives described in Section 2.

9. Summary Statement for PSR or PSR-PDS

For both alternatives key environmental issues are limited to potential construction-related impacts to biological resources, air quality, noise, water quality, and hazardous materials. In addition, the alternatives may affect unknown cultural resources. Potential constraints are limited to seasonal work restrictions to avoid potential biological impacts and limits on nighttime construction to avoid impacts to noise sensitive receptors.
10. Disclaimer

This Preliminary Environmental Analysis Report (PEAR) provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.
### 11. List of Preparers

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Resources specialist</td>
<td>Amber Grady, PBS&amp;J</td>
<td>08/10/09</td>
</tr>
<tr>
<td>Biologist</td>
<td>Sam Bacchini, Senior Scientist – Herpetologist, PBS&amp;J</td>
<td>08/10/09</td>
</tr>
<tr>
<td>Community Impacts specialist</td>
<td>Rachel Galaraga, PBS&amp;J</td>
<td>08/10/09</td>
</tr>
<tr>
<td>Noise and Vibration specialist</td>
<td>Natalie Irwin, PBS&amp;J</td>
<td>10/2/09</td>
</tr>
<tr>
<td>Air Quality specialist</td>
<td>Natalie Irwin, PBS&amp;J</td>
<td>10/2/09</td>
</tr>
<tr>
<td>Paleontology specialist/liaison</td>
<td>George Burwasser, PBS&amp;J</td>
<td>10/21/09</td>
</tr>
<tr>
<td>Water Quality specialist</td>
<td>George Burwasser, PBS&amp;J</td>
<td>10/21/09</td>
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<tr>
<td>Hydrology and Floodplain specialist</td>
<td>George Burwasser, PBS&amp;J</td>
<td>10/21/09</td>
</tr>
<tr>
<td>Hazardous Waste/Materials specialist</td>
<td>Natalie Irwin, PBS&amp;J</td>
<td>08/10/09</td>
</tr>
<tr>
<td>Visual/Aesthetics specialist</td>
<td>Rachel Galaraga, PBS&amp;J</td>
<td>08/10/09</td>
</tr>
<tr>
<td>Energy and Climate Change specialist</td>
<td>Natalie Irwin, PBS&amp;J</td>
<td>10/2/09</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>10/21/09</td>
</tr>
<tr>
<td>PEAR Preparer (Name and Title)</td>
<td>Michael Kay, Project Manager, PBS&amp;J</td>
<td>10/21/09</td>
</tr>
</tbody>
</table>
12. **Review and Approval**

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as an EA or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.

_________________________________________________________  Date: _____________
Environmental Branch Chief

_________________________________________________________  Date: _____________
Project Manager

**REQUIRED ATTACHMENTS:**

- Attachment A: PEAR Environmental Studies Checklist
- Attachment B: Estimated Resources by WBS Code
- Attachment C: Schedule (Gantt Chart)
- Attachment D: PEAR Environmental Commitments Cost Estimate (Standard PSR)
I. Sample Cooperative Agreement

COOPERATIVE AGREEMENT

THIS AGREEMENT, ENTERED INTO EFFECTIVE ON __________ , 2006, is between the STATE OF CALIFORNIA, acting by and through its Department of Transportation, referred to herein as "STATE", and the

CITY OF CUPERTINO, a body politic and a municipal corporation of the State of California, referred to herein as "CITY".

RECITALS

1. STATE and CITY, pursuant to Streets and Highways Code sections 114 and 130, are authorized to enter into a Cooperative Agreement for improvements to State Highways within CITY’s jurisdiction.

2. CITY intends to construct a Pedestrian Overcrossing (Bicycle Bridge) on Route 280 at 0.46 km east of Route 85 and 280 Separation in the City of Cupertino, referred to herein as "PROJECT".

3. CITY is willing to fund one hundred percent (100%) of all capital outlay and support costs, except that the costs of STATE’s quality assurance will be borne by STATE. The PROJECT cost estimate is shown on Exhibit A, attached hereto and made a part of this Agreement.

4. The parties agree that CITY will prepare the contract documents and advertise, award, and administer the construction contract for PROJECT.

5. Project development responsibilities for PROJECT were covered in a prior Cooperative Agreement executed by STATE and CITY on December 23, 2005, (District Agreement No. 4-2007)

6. The parties now define hereinbelow the terms and conditions under which PROJECT is to be owned, constructed, financed, operated, and maintained.

SECTION I

CITY AGREES:

1. To pay one hundred percent (100%) of the actual construction capital and support costs required for satisfactory completion of PROJECT, including, but not limited to, State-furnished material.

2. To not use STATE’s funds for any PROJECT capital and support costs.
3. To submit a written request for any "State-furnished material" identified in the PROJECT plans, specifications, and estimates (PS&E) a minimum of forty-five (45) days in advance of the need for such materials. To then pay STATE, within fifteen (15) days of receipt of STATE’s billing, the actual cost invoiced for the requested "State-furnished material." CITY may take delivery of the "State-furnished material" after STATE’s receipt of CITY’s payment and at the location directed by STATE.

4. To advertise, award, and administer the construction contract for PROJECT in accordance with requirements of the Local Agency Public Construction Act and the California Labor Code, including its prevailing wage provisions. Workers employed in the performance of work contracted for by CITY, and/or performed under encroachment permit, are covered by provisions of the Labor Code in the same manner as are workers employed by STATE’s contractors.

5. Construction by CITY of those portions of PROJECT which lie within the State Highway right of way shall not commence until CITY’s contract plans involving such work, the utility relocation plans, and the right of way certification have been reviewed and accepted by STATE and encroachment permits have been issued to CITY and CITY’s contractor.

6. CITY’s construction contractor shall maintain in force, until completion and acceptance of the PROJECT construction contract, a policy of Contractual Liability Insurance, including coverage of Bodily Injury Liability and Property Damage Liability, that complies with all coverage requirements with Section 7-1.12 of STATE’s then effective Standard Specifications. Such policy shall contain an additional insured endorsement naming STATE and its officers, agents, and employees as additional insureds. This insurance coverage shall be evidenced by a Certificate of Insurance in a form satisfactory to STATE which shall be delivered to STATE before the issuance of an encroachment permit to CITY’s construction contractor.

7. To require the construction contractor to furnish both a payment and a performance bond naming CITY as obligee with both bonds complying with the requirements set forth in Section 3-1.02 of STATE’s current Standard Specifications prior to performing any PROJECT construction work. CITY shall defend, indemnify, and hold harmless STATE and its officers, agents, and employees from all claims by stop notice claimants related to the construction of PROJECT.

8. To have PROJECT constructed by contract to the satisfaction of and subject to STATE’s acceptance in accordance with the STATE accepted PROJECT PS&E (contract plans).

9. Contract administration procedures shall conform to STATE’s Construction Manual, Local Assistance Procedures Manual (if Federal funds are used), and the PROJECT encroachment permits.

10. Construction within the existing or ultimate State Highway right of way shall comply with STATE’s Standard Specifications, the PROJECT Special Provisions, and STATE’s Construction Manual.

11. If any existing public and/or private utility facilities conflict with the construction of PROJECT or violate STATE’s encroachment policy, CITY shall make all necessary arrangements with the owners of such facilities for their protection, relocation, or removal in accordance with STATE’s policy and procedure for those facilities located within the limits of the State Highway and in accordance with CITY’s policy for those facilities located outside the State Highway. The cost of protection, relocation, or removal inside STATE’s right of way shall be apportioned between the utility owners and CITY in accordance with STATE’s policy and procedure. CITY shall require any utility owner performing relocation
work in the State Highway right of way to obtain an encroachment permit from STATE prior to the performance of said relocation work. The requirements of the most current version of STATE’s “Policy on High and Low Risk Underground Facilities within Highway Rights of Way” shall be fully complied with. Any relocated or new facilities shall be correctly shown and identified with any unmodified facilities on the “As-Built” plans.

12. All survey work shall conform to the methods, procedures, and requirements of STATE’s Surveys Manual and STATE’s Staking Information Booklet.

13. PROJECT material testing and quality control shall conform to STATE’s Construction Manual and STATE’s California Test Methods, and shall be performed, at CITY’s expense, by a material-tester certified by STATE.

14. PROJECT specialty testing, asphalt and concrete plant certifications shall be performed by STATE as part of quality assurance. STATE shall perform source inspection and testing as outlined in the Construction Manual. CITY shall reimburse STATE for support costs incurred for source inspection and testing performed by STATE.

15. To deposit with STATE within twenty-five (25) days of issuance of encroachment permit for PROJECT construction, the amount of $10,000, which amount represents the estimated cost of source inspection and testing as referred to in Article 14 of this Section I. To pay STATE upon completion of all work on PROJECT and within twenty-five (25) days of receipt of a detailed statement made upon final accounting of costs therefore, any amount over and above the aforesaid deposit for source inspection and testing required to complete CITY’s financial obligation assumed pursuant to this Agreement. STATE will refund any unused balance of the deposit within (no. of days) days of issuance of a Notice of Completion.

16. To furnish, at CITY’s expense and subject to the approval of STATE, a field site representative who is a licensed civil engineer in the State of California, to perform the functions of a Resident Engineer. The Resident Engineer shall not be an employee or subcontractor of the company, if any, that prepared the PROJECT PS&E or of the construction contractor.

17. At CITY’s expense, to furnish sufficient qualified support staff, subject to the approval of STATE, to assist the Resident Engineer in, but not limited to, construction surveys, soils and foundation tests, measurement and computation of quantities, testing of construction materials, checking shop drawings, preparation of estimates and reports, preparation of “As-Built” drawings, and other inspection and staff services necessary to assure that the construction is being performed in accordance with PROJECT PS&E. Said qualified support staff shall be independent of the design engineering company and construction contractor, except that the PROJECT designer may check the shop drawings, do soils foundation tests, test construction materials, and do construction surveys.

18. Within one hundred eighty (180) days following the completion and acceptance of the PROJECT construction contract, to furnish STATE with a complete set of “As-Built” plans in accordance with STATE’s then current CADD Users Manual, Plans Preparation Manual, and STATE practice. The submittal must also include all contract records, including survey documents and Records of Surveys (to include monument perpetuation per the Land Surveyor Act, section 8771). CITY shall also submit corrected full-sized hardcopy structure plans.

19. To retain or cause to be retained for audit by STATE or other government auditors for a period of four (4) years from the date of final payment under the contract, or for local Federal-aid projects for a period of three (3) years from STATE payment of the final...
voucher, whichever is longer, all records and accounts relating to PROJECT construction. CITY shall retain records and accounts longer if required in writing by STATE.

20. Upon completion of PROJECT construction, CITY will operate and maintain at CITY's cost any part of PROJECT located outside of the existing State Highway right of way (but including CITY underpasses and overcrossings of then existing State right of way) until any subsequent acceptance of any part of PROJECT into the State Highway System by STATE, approval by FHWA, if required, and conveyance of acceptable title to STATE.

21. If CITY cannot complete PROJECT as originally scoped, scheduled, and estimated, CITY will, only with STATE's prior written consent, amend the PROJECT contract plans and specifications for suitable resolution to ensure a form of modified PROJECT that will at all times provide a safe and operable State Highway System.

22. If CITY terminates PROJECT prior to completion of the State Highway construction contract for PROJECT, STATE shall require CITY, at CITY's expense, to return the State Highway right of way to its original condition or to a safe and operable condition. If CITY fails to do so, STATE reserves the right to finish PROJECT or place PROJECT in a safe and operable condition. STATE will bill CITY for all actual expenses incurred and CITY agrees to pay said bill within thirty (30) days.

23. If cultural, archaeological, paleontological, or other protected materials are encountered during PROJECT construction, CITY shall stop work in that area until a qualified professional can evaluate the nature and significance of the find and a plan is approved for the removal or protection of that material. The costs for any removal or protection of that material shall be covered as a PROJECT cost contemplated by this Agreement.

24. All PROJECT support services are to be performed by CITY, except as noted in Article 14 of this Section I. Should CITY request that STATE perform any portion of those support services, CITY shall first agree to reimburse STATE for such work pursuant to a separate executed agreement.

25. To provide a Construction Zone Enhancement Enforcement Program (COZEPP) by contracting directly with the California Highway Patrol (CHP) for all traffic restrictions as outlined in the STATE's Construction Manual.

SECTION II

STATE AGREES:

1. At no cost to CITY, to provide quality assurance to assure that CITY's PROJECT work is performed in full compliance with the approved PROJECT FS&E (contract plans and specifications) and in accordance with STATE's then effective policies, procedures, standards, and practices. This quality assurance oversight function includes both the obligation and the authority to reject noncompliant PROJECT work and materials accepted by CITY, to order any actions needed for public safety or the preservation of property, and to assure compliance with all provisions of the encroachment permit(s) issued to CITY and CITY's contractor.

2. Upon proper application by CITY and by CITY's contractor, to issue, at no cost to CITY and CITY's contractor, the necessary encroachment permits for required work within the State Highway right of way, as more specifically defined elsewhere in this Agreement.
3. To provide, at CITY’s cost, any "State-furnished material" as shown on the PROJECT PS&E or as determined during construction of PROJECT. Upon receipt of CITY’s request for any such "State-furnished materials," STATE will order those materials and STATE’s Project Manager will have a bill submitted to CITY for the costs of those materials. Upon receipt of those materials and CITY’s payment, STATE will make those "State-furnished materials" available to CITY at a STATE designated site.

SECTION III

IT IS MUTUALLY AGREED:

1. STATE’s contractual obligations are subject to State Budget Act authority, the appropriation of resources by the Legislature, and the allocation of funds by the California Transportation Commission.

2. During PROJECT construction, representatives of CITY and STATE will cooperate and consult with each other to assure that all PROJECT work is accomplished according to the PROJECT PS&E (contract plans and specifications) and STATE’s applicable policies, procedures, standards, and practices. Satisfaction of these requirements shall be verified by STATE’s quality assurance representatives who are authorized to enter CITY’s property during construction for the purpose of monitoring and coordinating construction activities.

3. PROJECT PS&E (contract plans and specifications) changes shall be implemented by contract change orders that have been reviewed and concurred with by STATE’s representative. All changes affecting public safety or public convenience, all design and specification changes, and all major changes as defined in STATE’s Construction Manual shall be approved by STATE in advance of performing the work. Unless otherwise directed by STATE’s representative, change orders authorized as provided herein will not require an encroachment permit rider. All changes shall be shown on the “As-Built” plans.

4. CITY shall provide a construction contract claims process acceptable to STATE and shall process any and all claims through CITY’s claims process. STATE’s representative will be made available to CITY to provide advice and technical input in any claims process.

5. In the event that STATE proposes and/or requires a change in design standards, implementation of new or revised design standards shall be done in accordance with STATE’s Highway Design Manual Section 82.5, “Effective Date for Implementing Revisions to Design Standards.” STATE shall consult with CITY in a timely manner regarding effect of proposed and/or required change on PROJECT.

6. Any hazardous material or contamination of an HM-1 category found within the existing State Highway right of way during construction requiring remedy or remedial action (as defined in Division 20, Chapter 6.8 et seq. of the Health and Safety Code) shall be the responsibility of STATE. Any hazardous material or contamination of an HM-1 category found within the local road right of way during construction requiring the same defined remedy or remedial action shall be the responsibility of CITY. For the purpose of this Agreement, hazardous material of HM-1 category is defined as that level or type of contamination which State or Federal regulatory control agencies having jurisdiction have determined must be remediated by reason of its mere discovery regardless of whether it is disturbed by PROJECT or not. STATE shall sign the HM-1 manifest and pay all costs for remedy or remedial action within the existing State Highway right of way, except that if STATE determines, in its sole judgment, that STATE’s cost for remedy or remedial action is increased as a result of proceeding with construction of PROJECT, that additional cost identified by STATE shall be borne by CITY. As between CITY and STATE, CITY shall sign the HM-1 manifest and pay all costs for required remedy or remedial action within a local...
road or other property. While STATE will exert every reasonable effort to fund the remedy or remedial action for which STATE is responsible, in the event STATE is unable to provide funding, CITY will have the option to either delay further construction of PROJECT until STATE is able to provide funding or CITY may proceed with the remedy or remedial action as a PROJECT expense without any subsequent reimbursement by STATE.

7. Any remedy or remedial action with respect to any hazardous material or contamination of an HM-2 category found both within and outside the existing State Highway right of way during construction shall be the responsibility of CITY, at CITY’s expense, as a consequence of proceeding with PROJECT construction. For the purpose of this Agreement any hazardous material or contamination of HM-2 category is defined as that level or type of contamination which said regulatory control agencies would have allowed to remain in place if undisturbed or otherwise protected in place had PROJECT not proceeded. CITY shall sign any HM-2 manifest if construction of PROJECT proceeds and HM-2 material is removed in lieu of being treated in place.

8. If hazardous material or contamination of either HM-1 or HM-2 category is found during construction on new right of way acquired by or on account of CITY for PROJECT, CITY shall be responsible, at CITY’s expense, for all required remedy or remedial action and/or protection in the absence of a generator or prior property owner willing and prepared to perform that corrective work.

9. The party responsible for funding any hazardous material cleanup shall be responsible for the development of the necessary remedy and/or remedial action plans and designs. Remedial actions proposed by CITY on the State Highway right of way shall be pre-approved by STATE and shall be performed in accordance with STATE’s standards and practices and those standards and practices mandated by those Federal and State regulatory agencies.

10. STATE, in exercising its authority under section 591 of the Vehicle Code, has included any and all of the requirements set forth in Divisions 11, 12, 13, 14, and 15 of the Vehicle Code to the PROJECT areas open to public traffic. CITY shall take all necessary precautions for safe operation of CITY’s vehicles, the construction contractor’s equipment and vehicles and/or vehicles of personnel retained by CITY, and for the protection of the traveling public from injury and damage from such vehicles or equipment.

11. Upon PROJECT completion and acceptance, subject to the approval of STATE, CITY will operate and maintain PROJECT facilities at its own cost until a Maintenance Agreement is executed or an existing agreement, if any, is amended to incorporate these new PROJECT facilities located on the State Highway.

12. Upon satisfactory completion of all PROJECT work under this Agreement, as determined by STATE, actual ownership and title to materials, equipment, and appurtenances installed within the State Highway right of way will automatically be vested in STATE, and materials, equipment, and appurtenances installed outside of the State Highway right of way will automatically be deemed to be under the control of CITY or an appropriate third party as determined by CITY. No further agreement will be necessary to transfer ownership as hereinbefore stated.

13. Nothing within the provisions of this Agreement is intended to create duties or obligations to or rights in third parties not a party to this Agreement or to affect the legal liability of either party to the Agreement by imposing any standard of care with respect to the development, design, construction, operation, or maintenance of State Highways and public facilities different from the standard of care imposed by law.
14. Neither STATE nor any officer or employee thereof is responsible for any damage or liability occurring by reason of anything done or omitted to be done by CITY under or in connection with any work, authority or jurisdiction arising under this Agreement. It is understood and agreed that CITY shall fully defend, indemnify and save harmless STATE and all its officers and employees from all claims, costs, suits or actions of every name, kind and description brought forth under, including, but not limited to, tortious, contractual, inverse condemnation or other theories or assertions of liability occurring by reason of anything done or omitted to be done by CITY under this Agreement.

15. Neither CITY nor any officer or employee thereof is responsible for any damage or liability occurring by reason of anything done or omitted to be done by STATE under or in connection with any work, authority or jurisdiction arising under this Agreement. It is understood and agreed that STATE shall fully defend, indemnify and save harmless CITY from any and all claims, costs, suits or actions of every name, kind and description brought forth under, including, but not limited to, tortious, contractual, inverse condemnation or other theories or assertions of liability occurring by reason of anything done or omitted to be done under this Agreement.

16. Prior to the commencement of any construction activity within the State Highway right of way, either STATE or CITY may terminate this Agreement by written notice to the other party.

17. No alteration or variation of the terms of this Agreement shall be valid unless made by a formal amendment executed by the parties hereto and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto.
18. Those portions of this Agreement pertaining to the completion of PROJECT shall terminate upon completion and acceptance of the construction contract for PROJECT by CITY, the satisfactory completion of all post-construction obligations of CITY, and delivery of required PROJECT construction documents, with concurrence of STATE, or on December 31, 2009, whichever is earlier in time. However, the ownership, operation, maintenance, indemnification, and claims clauses shall remain in effect until terminated or modified, in writing, by mutual agreement. Should any construction-related or other claims arising out of PROJECT be asserted against one of the parties, the parties agree to extend the termination date of this Agreement.

STATE OF CALIFORNIA
Department of Transportation

WILL KEMPTON
Director

By: ___________________________
Deputy District Director

CITY OF CUPERTINO

By: ___________________________
City Manager

Approved as to form and procedure:

______________________________
Attorney
Department of Transportation

______________________________
City Clerk

Certified as to available funds:

______________________________
District Budget Manager

Approved as to form and procedure:

______________________________
City Attorney

Certified as to financial terms and policies:

______________________________
Accounting Administrator