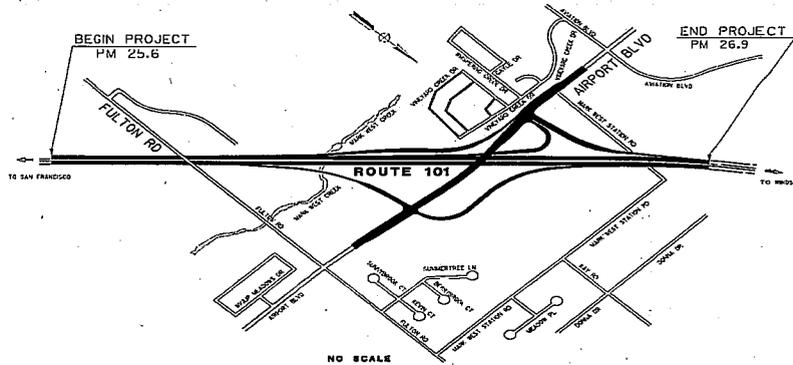


04-Son-101-PM 25.6/26.9  
04 276-3A2300  
04 258-0A1000  
HB5 Major Program

## SUPPLEMENTAL PROJECT REPORT



On Route: 101  
From: 0.3 Miles South of Fulton Road Overcrossing  
To: 0.5 Miles North of Airport Boulevard Overcrossing

*I have reviewed the right of way information contained in this Supplemental Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:*

R. A. MACPHERSON  
DEPUTY DISTRICT DIRECTOR-RIGHT OF WAY

APPROVAL RECOMMENDED:

REY CENTENO  
PROJECT MANAGER

APPROVAL RECOMMENDED:

FOR ZIAD ABUBEKR  
DISTRICT OFFICE CHIEF, DESIGN NORTH

APPROVED:

HELENA "LENKA" CULIK-CARO  
DEPUTY DISTRICT DIRECTOR-DESIGN

6/15/2010  
DATE

This Supplemental Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



REGISTERED CIVIL ENGINEER

6/10/2010

DATE



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## **SUPPLEMENTAL PROJECT REPORT (SPR)**

### **1. INTRODUCTION**

This Supplemental Project Report (SPR) proposes modifying a freeway interchange modification project on Route 101 in Sonoma County from south of Fulton Road (PM 25.6) to north of Airport Boulevard (PM 26.9), commonly referred to as "The Airport Boulevard/Fulton Road Interchange Complex." It will convert the two existing partial interchanges at Fulton Road and at Airport Boulevard into a single complete interchange by modifying the off ramps and on ramps at Airport Boulevard, making it a complete interchange, and eliminating the off ramps and on ramps at Fulton Road. Additionally, the project will replace the existing two-lane Airport Boulevard Overcrossing at Route 101 with a new overcrossing bridge structure with five 12-foot lanes. (See Attachment B for a project Location Map.)

This project is a "child" project related to a "parent" project, under EA 04-0A1000, to widen State Route 101 from 4 to 6 lanes (mostly in the median) for High Occupancy Vehicle (HOV) lanes in Sonoma County from Steele Lane in Santa Rosa to Windsor River Road in Windsor. The "parent" project was split into several, including a project, currently in construction, to perform the HOV widening, and this project, to modify the Airport/Fulton Complex.

The cost estimate for this project is \$ 36,063,000 (escalated to year 2012), which includes \$ 4,588,000 for right of way acquisition. Currently, the planning and design phases are funded for \$ 4,440,000. The Sonoma County Transportation Authority (SCTA) committed Tax Measure M funds, \$ 790,000 for PA&ED and \$ 3,650,000 for PS&E support. A Cooperative Agreement with SCTA covering this funding was signed on January 11, 2010. It is expected that construction capital and support and right of way capital and support will also be 100 % locally funded by Sonoma County through their general transportation funds or through Measure M. This project has been assigned the Project Development Processing Category 3 because it is an interchange modification project that will require a revised Freeway Agreement for changes in access between the freeway and the local roads.

### **2. RECOMMENDATION**

It is recommended that this Supplemental Project Report be approved and that authorization be granted to proceed with the design phase of the project development process using the preferred alternative. The County of Sonoma and

SCTA have worked closely with the Department during the development of this project. Their views have been considered, and they are in agreement with the project as it is presented herein.

### **3. BACKGROUND**

- **Project History**

On December 20, 2001, a Project Study Report (Project Development Support) was approved for EA 04-0A100K to widen Route 101 from 4 to 6 lanes for HOV from Steele Lane in Santa Rosa to Windsor River Road in Windsor. A Project Report was approved for this project under EA 04-0A1000 on October 24, 2007. In addition to the HOV widening, project EA 04-0A1000 included ramp modifications, construction of soundwalls and an extensive modification to the Airport Boulevard/Fulton Road Interchange Complex. Around the same time period, the Department was undertaking separate design studies to modify the Airport/Fulton interchange complex and improve local circulation, which included a possible replacement of the Airport Boulevard Overcrossing.

Shortly after the approval of the Project Report, project EA 04-0A1000 was split into several separate projects. Project EA 04-0A10U1 would construct the HOV widening and some of the ramp modifications, not including those at the Airport/Fulton Complex. This project is currently under construction. Separate projects were also split from the "parent" project to construct soundwalls and to perform follow up landscaping. The project covered by this report, EA 04-3A2300, includes the Airport/Fulton Complex modifications plus the replacement of the Airport Boulevard Overcrossing and widening of Airport Boulevard from 2 to 4 lanes, plus turning lanes, in the vicinity of the interchange. This project eliminates weaving between Airport Boulevard and Fulton Road ramps, thereby completing the operational improvements for this segment of Route 101, approved in the original Project Report.

- **Community Interaction**

The original project had substantial support from the local community and Sonoma County officials. The Sonoma County Transportation Authority has actively supported the current project to continue in the effort to reduce congestion on Route 101 throughout the corridor. A Public Informational Meeting was held on January 20, 2010 to present the current "build" alternative to the public.

- **Existing Facility**

Route 101 is the primary north-south transportation corridor for local and inter-regional traffic. It serves commuter, commercial and recreational traffic. This segment of Route 101 freeway was constructed in 1962 and is currently being widened from 4 to 6 lanes.

This segment of Route 101 is on the National Highway System (NHS) as designated by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. It is also on the Interregional Road System (IRRS), identified in the State Statutes, as an "IRRS Focus Route."

Within the project limits at the time this project will be constructed, the existing condition for Route 101 will be a six lane, divided freeway with three 12-foot lanes in each direction. The appropriate design speed for this freeway is 70 mph. The existing posted speed limit is 65 mph. Although the surrounding environment appears rural, Route 101 within the project limits is classified as an urban freeway that falls entirely outside any city limits. Airport Boulevard is a two lane county road with 12-foot lanes and 8-foot shoulders (4-foot over freeway), that crosses over Route 101 on a bridge structure that has a less than standard vertical clearance of 15.3 feet.

"The Airport Boulevard/Fulton Road Interchange Complex," which currently serves the rural, residential and commercial properties in this area and provides access to Charles Schultz Sonoma County Airport from Route 101, is a series of two partial interchanges. The partial interchange at Fulton Road provides four movements, NB 101 off to NB Fulton, SB 101 off to SB Fulton, SB Fulton on to SB 101, and NB Fulton on to NB 101. The partial interchange at Airport Boulevard provides five movements, NB 101 off to WB Airport, EB Airport on to SB 101, EB Airport on to NB 101, WB Airport on to NB 101, and SB 101 off to either direction of Airport.

#### 4. **NEED AND PURPOSE**

##### A. **Problem, Deficiencies, Justification**

The purpose of this project is to (1) address existing and future traffic capacity constraints and increasing travel demand, (2) improve Route 101 and local street traffic operations and on and off movements at the Airport and Fulton interchanges, (3) reduce travel times on Route 101 and local streets in this area, and (4) make traffic movements at this location less confusing and more efficient. Meeting the need for this project will involve addressing the existing capacity of the local streets at this location

and the operational inefficiencies of the existing Airport/Fulton Interchange Complex. The existing capacity of local streets currently is sufficient to handle the rural/farming industries that historically had occupied this area. As rapid commercial and residential development continue at and around this location, increasing the capacity of the streets and improving the efficiency of access to Route 101 is essential. Also, since this interchange complex is located along the busy Route 101 corridor, addressing the interchange operational inefficiencies, such as non-standard ramp weaving distances and confusing entrance and exit movements, is vital to Sonoma County, as growth continues throughout the region.

## B. Regional and System Planning

- Identify Systems

State Route 101 is a freeway included in the State Statutes as a part of the California Freeway and Expressway System within the limits of this project. This segment of Route 101 is a part of the National Highway System (NHS), listed as a "Non-interstate STRAHNET Route." It is also on the Interregional Road System (IRRS), identified in the State Statutes, as an "IRRS Focus Route." At this location, it is also designated as being on the National Network for truck travel and is classified as a Terminal Access Route in the Surface Transportation Assistance Act (STAA).

- State Planning

The originally approved "parent" project was stated to be consistent with the 2001 Caltrans Transportation Corridor Concept Report for Highway 101 North, which called for a six-lane freeway including two lanes for HOV from Steele Lane in Santa Rosa to Windsor River Road in Windsor. The "parent" project called for widening Route 101 between those limits from 4 to 6 lanes for HOV. The scope of the current project was included in the originally approved "parent" project, and is therefore consistent with the current route concept for Route 101.

- Regional Planning

This project is consistent with the T2035 Plan prepared by the Metropolitan Transportation Commission (MTC), adopted April 22, 2009. The project is listed as Project Reference #22191 for a total cost of \$ 46.7 million, including \$ 35.6 million for capital. Previously, the

earlier T2030 Plan listed the “parent” project as Project Reference #98183, which included the scope of the current project.

- Local Planning

Improvements on Route 101 have been identified in local plans and studies for many years. The improvements on this project are consistent with local planning goals as contained in the Sonoma County General Plan (1989), the SCTA Countywide Comprehensive Transportation Plan (2004), the Sonoma County Airport Industrial Area Specific Plan, and the Town of Windsor General Plan. This project is included in the Draft 2009 Countywide Transportation Plan of Sonoma County for \$ 30 million.

- Transit Operator Planning

The project area is currently served by Sonoma County Transit, Mendocino Transit Authority and the Sonoma County Airport Express, which provide bus service mostly to and from the Sonoma County Airport. Two bus lines of Sonoma County Transit provide local bus service. This project should enhance these services by improving operation of the interchange at Airport Boulevard.

The Sonoma-Marin Area Rail Transit (SMART) is a passenger rail service that will run on the former Northwestern Pacific Railroad tracks between Cloverdale and the Larkspur Ferry Terminal. The Northwestern Pacific Railroad right of way runs north-south and passes within a mile of this project. Passenger service is set to begin in 2014, however, no rail station or stop in the vicinity of Airport Boulevard or Fulton Road is currently planned by SMART. The nearest station would be in Windsor.

### C. Traffic

#### Route 101 Mainline:

Present ADT: (2008)	83,000	20-Year ADT: (2030)	99,000
DHV:	6700	% Trucks:	5.9%
T.I. (10 Year):	13.5		

Latest 3-Year Accident Data:

The accident rate for Route 101 within the project limits for the three year period from September 1, 2005 to August 31, 2008 is as follows:

Mainline	<u>Actual</u>			<u>Average</u>		
	<u>FAT</u>	<u>F+I</u>	<u>TOTAL</u>	<u>FAT</u>	<u>F+I</u>	<u>TOTAL</u>
PM 25.8/26.5	<b>.015</b>	0.22	<b>0.89</b>	.009	0.26	0.79

Locations of Accident Concentration:

The total accident rate for this section of Route 101 of 0.89 is higher than the statewide average for this type of facility of 0.79. There were a total of 61 accidents in the three-year period with one fatal and 14 injury accidents, for a 0.75 mile highway segment. In the northbound direction, the types of collision include 63.6% "rear end" type collisions, 13.6% of vehicles "hit object", 9.1% "sideswipe" type collisions, 9.1% of vehicles overturned, and 4.6% due to other causes. Speeding (59.1%) was indicated as the leading cause of the accidents. The majority of the collisions occurred under clear weather (59.1%), cloudy (31.8%), daylight (81.8%) and dry roadway (77.3%) conditions. Of the 14 northbound "rear end" accidents, 11 were associated with stop and go traffic conditions prior to the collision.

In the southbound direction, the types of collision include 69.2% "rear end" type collisions, 5.1% of vehicles "hit object", 23.1% "sideswipe" type collisions, and 2.6% due to other causes. Speeding (61.5%) was indicated as the leading cause of the accidents. The majority of the collisions occurred under clear weather (61.5%), cloudy (35.9%), daylight (82.1%) and dry roadway (82.1%) conditions. Of the 27 "rear end" accidents, 24 were associated with stop and go traffic conditions prior to the collision.

Ramps	<u>Actual</u>			<u>Average</u>		
	<u>FAT</u>	<u>F+I</u>	<u>TOTAL</u>	<u>FAT</u>	<u>F+I</u>	<u>TOTAL</u>
NB OffRmp to EB Fulton	.000	<b>0.72</b>	<b>2.17</b>	.004	0.26	0.85
NB OnRmp from EB Fulton	.000	0.00	0.20	.004	0.20	0.70
NB OffRmp to WB Airpt	.000	0.00	0.77	.006	0.34	1.20
NB OnRmp from WB Airport	.000	0.00	<b>0.67</b>	.003	0.20	0.65
NB OnRmp from EB Airport	.000	0.00	0.00	.004	0.20	0.70
NB OnSeg From Airport	.000	0.00	<b>0.28</b>	.002	0.06	0.20
SB OnRmp from WB Fulton	.000	0.00	0.40	.004	0.20	0.70
SB OffRmp to WB Fulton	.000	<b>0.68</b>	0.85	.004	0.26	0.85
SB OnRmp from EB Airport	.000	0.15	0.44	.003	0.20	0.65
SB OffRmp to Airport	.000	<b>0.86</b>	<b>2.86</b>	.004	0.42	1.20

The northbound off ramp to eastbound Fulton Road had a combined fatal plus injury accident rate about three times higher than the statewide average rate. There were a total of six accidents on this ramp, half of which occurred in the mid-section of the ramp. Two thirds of the accidents were "rear end" accidents. Leading causes for the accidents include speeding and improper turns.

The southbound off ramp to westbound Fulton Road had a combined fatal plus injury accident rate about three times higher than the statewide average rate. There were a total of five accidents on this ramp, the majority of which occurred in the mid-section of the ramp at nighttime where there is not safety lighting present. Most of the accidents were "hit object" accidents. Leading causes for the accidents include speeding, DUI, and improper turns.

The southbound off ramp to Airport Boulevard had a combined fatal plus injury accident rate about two times higher than the statewide average rate. There were a total of ten accidents on this ramp. The locations of accidents were fairly spread out from the ramp exit (40%), through the mid-section of the ramp (30%), to the ramp intersection with Airport Boulevard (30%). About 40% of the accidents were "rear end" accidents, and 30% were "broadside" type accidents. Leading causes for the accidents include speeding and failure to yield.

The northbound on ramp from westbound Airport Boulevard had a total accident rate slightly higher than the statewide average rate. There was just one accident on this ramp.

#### Corrective Strategy:

Most of the proposed improvements in this project are related to addressing traffic congestion by increasing capacity or improving operations. Several deficiencies are addressed by the replacement of the Airport Boulevard Overcrossing with the new bridge having a standard vertical clearance over Route 101. Also, the proposed ramp additions make the Airport Boulevard Interchange a "complete" interchange with movements covering all directions. The removal of all ramps at Fulton Interchange eliminates non-standard interchange spacing and short weaving distances between on and off ramps in both directions of Route 101, thereby eliminating conflicting moves and improving traffic safety. Furthermore, these improvements simplify access patterns between the freeway and the local street network. They also eliminate weaving conflicts on the mainline. Finally, this project provides signalization for the intersections between the ramps and the local street. These improvements should help to promote safety and to alleviate accident potential due to traffic congestion, improper turns, and failure to yield.

## 5. ALTERNATIVES

### A. Viable Alternatives

The original Project Report, which covered both HOV widening and improvements at Airport/Fulton, had considered a No Build alternative and a Build alternative for the HOV widening with two options for Airport/Fulton improvements. In the final Project Report, the No Build alternative was rejected and the Airport/Fulton improvements were narrowed down to one option.

In the time since the approval of the Project Report, further discussions and refinements have been made regarding the Airport/Fulton improvements. The key

changes from the originally approved concept are changes to the Airport Boulevard interchange ramp configurations, the elimination of existing ramps at Fulton Road, and the replacement of the existing Airport Boulevard Overcrossing with a new, wider structure.

- Proposed Engineering Features

The current “build” alternative has the following features:

- Remove existing Airport Boulevard Overcrossing and Construct new five-lane overcrossing bridge structure.
- Construct new NB off ramp to Airport Boulevard. Includes construction of two-lane bridge over Mark West Creek.
- Construct modified NB on ramp from Airport Boulevard.
- Construct modified SB on ramp from Airport Boulevard. Includes bridge widening of existing SB mainline bridge structure at Mark West Creek.
- Construct modified SB off ramp to Airport Boulevard.
- Construct new SB loop on ramp from Airport Boulevard.
- Remove all off ramps and on ramps to/from Fulton Road.
- Local street improvements including street paving for four thru lanes plus turn pockets at Airport Boulevard within the limits of the interchange.
- Construction of pedestrian and bicycle facilities on Airport Boulevard within the limits of the interchange.

Since the approval of the environmental document, the current “build” alternative for the interchange has changed from the approved “build” alternative, although remains fairly close to the original scope. Some of the key differences are as follows:

- Original scope did not include replacing Airport Boulevard Overcrossing.
- Original scope performed minimal local street improvements to Airport Boulevard, mostly “replacement in-kind” features. Current scope improves Airport Boulevard in a manner consistent with recent developments along the street.
- Original scope maintained the NB off ramp and the SB on ramp loop to/from Fulton Road. The current scope calls for complete removal of all Fulton Road ramps.
- Original scope called for a collector-distributor (C-D) road to provide access to Fulton Road from SB 101. The current scope does not include the C-D road.
- The revised SB off ramp to Airport in the original scope stayed within the existing State R/W. The revised SB off ramp to Airport requires

additional R/W in the NW quadrant of the Airport I/C due to the introduction of a SB loop on-ramp in the current scope.

- The reconfigured Airport I/C SB ramps in the original scope had a “tight diamond” configuration. In the current scope, the SB ramps maintain the configuration of the existing condition, except for minor realignment and the addition of the SB loop on ramp.
  - Although it was not built at the time, a housing development in the SW quadrant of the Airport I/C would have been impacted by the originally scoped SB on ramp from Airport Boulevard. In the current scope, the realigned SB on ramp avoids impacts to the housing development in the SW quadrant of the Airport I/C, and only requires a smaller amount of R/W from an adjacent vineyard.
  - The proposed realignment of the NB Airport Boulevard on ramp in the original scope stayed within the existing State R/W. In the current scope of work, the realigned NB on ramp requires additional right of way in the NE quadrant of the Airport Interchange in order to provide a standard skew angle at the intersection of Airport Boulevard and the NB ramps. A retaining wall will be built to minimize right of way and environmental impacts.
- Nonstandard Mandatory and Advisory Design Features

Because this project is a modification of an existing interchange, some non-standard features were incorporated in order for the improvements made by the “build” alternative to fit into the existing facility. Exceptions to both mandatory and advisory standards were needed. A Fact Sheet for Exceptions to Mandatory Standards, approved on February 2, 2010, and a Fact Sheet for Exceptions to Advisory Standards, approved on March 16, 2010, were developed to document these conditions.

- Nonstandard Mandatory Design Features

#### Shoulder Width at Bridge Column

At the new Airport Boulevard Overcrossing (PM 26.3), the median shoulder width is **7.51 feet** in order to accommodate the new bridge columns. Highway Design Manual (HDM) **Table 302.1** states that the standard paved width for any shoulder on a freeway of 6 lanes or more is **10 feet**.

#### Distance Between Ramp Intersection to Local Street Intersection

The distance between the proposed location of the intersection of the southbound off ramp from Route 101 (PM 26.9) at Airport Boulevard and

the existing location of the intersection of Mark West Station Road at Airport Boulevard is **208 feet**. Highway Design Manual (HDM) **Index 504.3(3)** states that, for new construction or major reconstruction of interchanges, the minimum distance (curb return to curb return) between a ramp intersection and a local street intersection is **400 feet**.

#### Lane and Median Shoulder Width

The lane and shoulder widths at several locations throughout the project limits do not meet current standards. Along the Route 101 freeway mainline in both directions, the lane widths of the travelled way will be **11.81 feet** and the right and median shoulder widths will be **9.84 feet**. Highway Design Manual (HDM) **Index 301.1** states that the basic width of a travelled lane is **12 feet**. Also, HDM **Table 302.1** states that the standard paved width for any shoulder on a freeway of 6 lanes or more is **10 feet**. This is due to the fact that the existing facility had been designed using Metric units, and the "build" alternative is to be designed in U.S. Customary units.

#### Superelevation Rate

At the entrance of the southbound on ramp in the gore area, the superelevation rate for a **3000-foot** horizontal curve will be **1.5%**. Highway Design Manual (HDM) **Table 202.2** shows the standard superelevation rates. On a freeway, for a horizontal curve with a radius of **3000 feet**, the superelevation rate is **4%**. This will allow a bridge widening that will take place in the gore area to maintain the existing **1.5%** cross-slope.

- Nonstandard Advisory Design Features

#### Superelevation Transition Length

The superelevation transitions for eleven curves do not meet current standards. (See table below.)

Alignment	Station Limits	Curve Radius (ft)	Super-elevation Rate	Proposed Runoff Length (ft)	Standard Runoff Length (ft)
AR1	20+56.78 to 27+35.93	2500	2%	33.33	150
	34+39.91 to 36+58.42	2000	2%	33.33	150

NE1	62+57.54 to 66+90.23	300	12%	<b>200</b>	<b>300</b>
	69+16.69 to 75+51.96	850	10%	<b>166.67</b>	<b>240</b>
NL1	77+32.35 to 73+63.90	150	12%	<b>200</b>	<b>300</b>
NT1	75+87.14 to 80+97.64	1000	10%	<b>195.939</b>	<b>240</b>
	82+54.39 to 85+25.81	7546.281	2%	<b>39.187</b>	<b>150</b>
ST1	59+63.52 to 63+77.13	5000	2%	<b>127.55</b>	<b>150</b>
	59+63.52 to 63+77.13	5000	2%	<b>51.835</b>	<b>150</b>
	69+98.67 to 71+90.07	688	11%	<b>215.55</b>	<b>270</b>
SE2	52+87.42 to 64+63.25	2200	5%	<b>85.8</b>	<b>150</b>

#### Superelevation Rates Along Transition

The superelevation runoff lengths for seven curves do not meet current standards. These curves have proposed runoff lengths that do not provide two thirds of the transition in the tangent section.

Alignment	Station Limits	Curve Radius (ft)	Super-elevation Rate	Standard Incremental Rate at EC and BC	Proposed Incremental Rate at BC	Proposed Incremental Rate at EC
NE1	62+57.54 to 66+90.23	300	12%	8%	4.26%	7.41%
	69+16.69 to 75+51.96	850	10%	6.67%	6.17%	6.67%
	76+02.32 to 77+69.43	3000	4%	2.67%	4.57%	2.67%
NT1	82+54.93 to 85+25.81	7546	2%	1.33%	1.36%	2%

NL1	73+63.90 to 77+32.35	150	12%	8%	8%	2.56%
ST1	69+98.67 to 71+90.07	688	11%	7.33%	11%	7.33%
	66+01.75 to 68+78.67	700	11%	7.33%	7.33%	11%

### Reversing Curves

Reversing curves are proposed at three locations. (See table below.)

Alignment	Curve	Station Limits	Curve Radius (ft)	Super-elevation Rate	Proposed Tangent Length between Curves (ft)	Standard Tangent Length between Curves (ft)
NE1	1 <sup>st</sup> Curve	62+57.54 to 66+90.23	300	12%	226.45	360
	2 <sup>nd</sup> Curve	69+16.69 to 75+51.96	850	10%		
NT1	1 <sup>st</sup> Curve	75+87.14 to 80+97.64	1000	10%	156.75	260
	2 <sup>nd</sup> Curve	82+54.39 to 85+25.81	7546.28	2%		
ST1	1 <sup>st</sup> Curve	59+63.52 to 63+77.13	5000	2%	224.62	280
	2 <sup>nd</sup> Curve	66+01.75 to 68+78.67	700	11%		

### Grade

The grades of four profile tangent sections do not meet current standards. (See table below.) These proposed vertical alignment sections have grades flatter than the minimum grade of **0.3%**.

Alignment	Station Limits	Grade
AR1	35+47.16 to 36+24.91	<b>0.0859</b>
ST1	52+95.37 to 54+24.93	<b>0.2786</b>
	54+24.93 to 58+15.11	<b>-0.1259</b>

### Vertical Curve Length

The curve lengths for two vertical curves do not meet current standards. (See table below.) The proposed curves have vertical curve lengths that are less than the minimum required.

Alignment	Station Limits	Alg. Grade Diff.	Design Speed (> or < 40 mph)	Proposed Vertical Curve Length (ft)	Standard Vertical Curve Length (ft)
AR1	13+62.17 to 16+78.17	3.56%	> 40 mph	<b>316</b>	<b>450</b>
SE2	63+56.6 to 64+56.6	2.64%	< 40 mph	<b>100</b>	<b>200</b>
NT1	72+42.12	1.92%	< 40 mph	<b>0</b>	<b>200</b>

Highway Design Manual (HDM) **Index 204.4** states that, when the algebraic difference in grades is 2% and greater and the design speed is **40 mph and greater**, the standard vertical curve length (in feet) should be a number equal to ten times the speed, and that, when the design speed is **less than 40 mph**, the standard vertical curve length is **200 feet**.

### Side Slopes

The fill side slopes used throughout the project do not meet current standards. The proposed fill side slope used is a **2:1 slope or flatter**, which is less than the standard **4:1 slope or flatter**.

- Interim Features

No interim features are proposed for this project.

- High Occupancy Vehicle (HOV) (Bus and Carpool) Lanes

The “parent” project that widened Route 101 from Bicentennial Way in Santa Rosa to Windsor River Road in Windsor constructed HOV lanes in both directions. This project is compatible with this improvement.

- Ramp Metering

Both on-ramps to be modified and the one new ramp to be constructed by the “build” alternative will have ramp metering facilities provided at the Airport Boulevard Interchange. Existing on-ramps from Fulton Road will be closed permanently.

- CHP Enforcement Areas

CHP enforcement areas will be provided in conjunction with the provisions for ramp metering at the three on-ramps.

- Park and Ride Facilities

There are no Park and Ride Facilities existing or planned within the project limits.

- Utility and Other Owner Involvement

Utilities will be impacted by the “build” alternative design elements. Relocation of utilities will be required for this project at a cost of \$ 897,000. Specifics about the utility impacts are discussed in Section 6, Part D of this report.

- Railroad Involvement

There will be no railroad involvement on this project. Specifics about railroad involvement are discussed in Section 6, Part D of this report.

- Highway Planting

Highway Planting is warranted on freeways in areas impacted by new construction or major modifications to the existing highway where adjacent properties are developed (or permitted) at the time of highway construction contract acceptance. Highway Planting is also warranted to mitigate for environmental impacts in compliance with environmental commitments agreed to as part of a project development, such as to replace vegetation

installed by the Department or others, that has been damaged or removed due to transportation project construction. Highway Planting Revegetation provides planting as mitigation for native vegetation damaged or removed due to a roadway construction project. Highway Planting or Highway Planting Revegetation with an estimated cost of \$200,000 or more, in conjunction with or resulting from a roadway construction project, must be accomplished by a separate contract and must include three years of plant establishment.

Due to the extent of construction activity at the project site, extensive highway replanting will be needed. The replacement planting covering the project limits, including the Airport and Fulton Interchanges, is expected to be accomplished under a separate Landscape project to be initiated immediately after the completion of this project. This Landscape project, under EA 04-0A1031, will cover the limits of both this project and the "parent" HOV widening project and will include a three-year plant establishment period.

- Erosion Control

Erosion Control will be addressed at the PS&E stage for this project. Typical erosion control measures that may be included in this project are permanent vegetation in the form of erosion control seeding, erosion control netting and fiber rolls.

- Water Pollution Control

To comply with the conditions of the Department Statewide National Pollutant Discharge Elimination System (NPDES) Permit, and to address any possible temporary water quality impacts resulting from construction activities, an Standard Special Provision (SSP) which will address the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) shall be included as part of the Plans, Specifications and Estimates (PS&E) package. According to the Department Statewide NPDES and Construction General Permits, Best Management Practices (BMPs) will be incorporated into this project to reduce the discharge of pollutants during and after construction to the Maximum Extent Practicable (MEP). The three categories of BMPs are temporary Construction Site, permanent Design Pollution Prevention, and permanent Treatment. As part of compliance with the Department Statewide NPDES Permit, a Storm Water Data Report (SWDR) has been prepared. A copy of the signature sheet from the approved SWDR is attached (Attachment I).

- Noise Barriers

Soundwalls are not recommended for this project. (See Section 6, Part H – Noise Abatement Decision Report, below, for more details.)

- Non-Motorized and Pedestrian features

The “build” alternative includes as part of the replacement of the Airport Boulevard Overcrossing one sidewalk on the north side of the new structure and sufficient width for Class II bicycle lanes in both directions of Airport Boulevard. Additionally, the widening of Airport Boulevard from two to four lanes plus turning lanes will also provide sufficient width for Class II bicycle lanes in both directions as well as sidewalks on both sides of Airport Boulevard. Pedestrian crossings at signalized intersections will be provided to allow pedestrians on the south side of Airport Boulevard to cross over at the bridge. These bicycle and pedestrian improvements help to address the needs of all travelers at this location, in accordance with the Department's "Complete Streets" policy.

- Needed Roadway Rehabilitation and Upgrading

Pavement rehabilitation of the existing Route 101 mainline was covered by the “parent” project.

- Needed Structure Rehabilitation and Upgrading

The existing Airport Boulevard Overcrossing is to be replaced by the “build” alternative.

Rehabilitation of the existing Mark West Creek Bridge was covered already by the “parent” HOV project.

Since minimal work will be performed on Fulton Road by this project, any bridge rehabilitation of the existing Fulton Road Overcrossing is considered to be beyond the scope of this project.

- Cost Estimates

Project construction cost is projected to be \$ **36.1 million** (2012 \$). The estimate includes 15% contingencies for roadway and 20% for structures items. The following table shows a summary of the preliminary estimated cost of the project (current year dollars):

<b>2009 Estimate</b>	
Roadway Items:	\$ 20,434,000
Structures Items:	\$ 8,370,000
<b>Construction Subtotal:</b>	<b>\$ 28,804,000</b>

The following table shows a summary of the preliminary estimated cost of the project (escalated at 3% to 2012):

<b>2012 Estimate</b>	
Roadway Items:	\$ 22,329,000
Structures Items:	\$ 9,146,000
<b>Construction Subtotal:</b>	<b>\$ 31,475,000</b>
Right of Way:	\$ 4,588,000
<b>Total:</b>	<b>\$ 36,063,000</b>

A detailed construction cost estimate is shown in Attachment E. A copy of the Right of Way Data Sheet showing an estimate of Right of Way costs is shown in Attachment F.

- Right of Way Data

(See attached Right of Way Data Sheet, Attachment F.) Specifics about Right of Way acquisition are discussed in Section 6, Part D of this report.

## B. Rejected Alternatives

Since this SPR is to approve a change in scope to a "build" alternative that was previously approved under the "parent" project, there were no other alternatives considered for this project.

## 6. CONSIDERATIONS REQUIRING DISCUSSION

### A. Hazardous Waste

In December 2007, a Site Investigation Report (SIR) was prepared for the "parent" project. It noted that the top one foot of excavated soil would be

classified as hazardous waste due to Aerially Deposited Lead (ADL) content. However, if three and a half feet or more of excavation were to take place at any given location, the soil would not be classified as contaminated with ADL because the top one foot would be "diluted" with non-contaminated soil from below.

A supplemental SIR is expected to be prepared during the Design phase of the project to (1) verify the preliminary finding that no leaking underground storage tanks and no permitted hazardous waste facilities exist within the project limits, (2) test groundwater adjacent to Mark West Creek since the SIR for the "parent" project did not evaluate possible contamination in groundwater, (3) evaluate the existing Mark West Creek Bridge and Airport Boulevard Overcrossing for asbestos and lead-based paint, and (4) determine if areas used for re-use of ADL contaminated fill material from the "parent" HOV project placed within the limits of this project are still classified as hazardous waste.

## **B. Value Analysis**

A Value Analysis (VA) study was conducted for the "parent" project October 2002. The study did include the Airport Boulevard/Fulton Road Interchange Complex. One VA alternative that was conditionally accepted was VA Alternative 9.2, which suggested elimination of the Fulton Road ramps and making Airport Boulevard Interchange a complete interchange, as a Tight Diamond. The original "build" alternative made Airport Interchange a complete interchange as a Tight Diamond type, but maintained the existing Fulton Road ramps. This SPR uses a different alternative from the original "build" alternative, but continues to support the concept to make Airport Interchange a complete interchange. The current "build" alternative now considers a Partial Cloverleaf type interchange, in order to address some issues that subsequently came up with the original alternative, such as noise and visual impacts on an adjacent residential property and updated traffic levels indicated by the latest traffic forecast. The current alternative also now accepts the VA suggestion to eliminate the Fulton ramps entirely.

## **C. Resource Conservation**

Aside from the typical efforts to salvage signs, light standards, guardrailings and other salvageable hardware performed on all state highway projects, no special resource conservation efforts are planned for this project.

#### D. Right of Way Issues

- **General** - Right of Way will be required for this project at a cost of \$ 4.588 million (including the Utility costs). A Right of Way Data Sheet has been prepared based on and on the preliminary design for the scope of work described. (Estimated cost information is contained in the Right of Way Data Sheet in Attachment F of this report.) For this project, a total of 13 parcels will be impacted, requiring 8.756 acres of land from these parcels.
- **Railroad** - The former Northwestern Pacific Railroad tracks that parallel Route 101 throughout this section of Sonoma County are just outside the project limits. Therefore, there will be no railroad involvement on this project.
- **Utilities** - The project anticipates significant utility impacts. (See Right of Way Data Sheet, Attachment F.) Positive identification and potholing will be required. It is already known that the new overcrossing will require relocation of electric power poles, telephone poles, and underground fiber-optic telephone lines. Also, a sewer line, in a separate utility easement, currently runs parallel to the existing northbound on-ramp, to be relocated. Utility relocation is anticipated to cost \$ 897,000. All longitudinal encroachments will be relocated outside the access controlled areas. Utility owners within the project limits are PG&E (gas and electric), AT&T (telephone, both copper cable and fiber-optic), Santa Rosa Sanitary District, Town of Windsor Water, and Comcast.

#### E. Environmental Issues

An Environmental Assessment/Final Environmental Impact Report (EA/FEIR) was approved on October 24, 2007, for the "parent" project. In addition, a Finding of No Significant Impact (FONSI) was approved on October 24, 2007, for the "parent" project. The current "build" alternative, which is an update to a portion of the previously approved scope of work, was certified with an Environmental Re-validation of these documents. This project was re-validated on May 20, 2010.

#### F. Air Quality Conformity

This project is fully compatible with the design concept and scope described in a current Regional Transportation Plan (RTP), as well as a current Federal

Regional Transportation Improvement Program (FRTIP), which the regional agency has determined to conform to the State Implementation Plan (SIP) for air quality.

### **G. Title VI Considerations**

This project currently proposes in-kind replacement of pedestrian facilities on the new Airport Boulevard Overcrossing. Also, the project will install new sidewalks on both sides of Airport Boulevard between the interchange and existing sidewalk facilities on Airport Boulevard, thereby tying together pedestrian facilities on either side of Route 101. In addition, Class II bicycle lanes will be constructed along Airport Boulevard. These facilities, including sidewalks, will be installed in compliance with the requirements of the Federal Americans with Disabilities Act (ADA) of 1990. The project will result in no disproportionate impacts upon minority and low-income populations.

### **H. Noise Abatement Decision Report**

A Noise Abatement Decision Report (NADR) was prepared for this project to evaluate the need for noise barriers within the project limits. The NADR was approved on January 14, 2010. (See Attachment G.) Based on the results of a Noise Study and a calculation of reasonable costs following the State's current guidelines, the report concluded that soundwalls were feasible but not reasonable. Therefore, no soundwalls are recommended for this project.

## **7. OTHER CONSIDERATIONS**

- **Public Hearing Process**

Since the environmental approval for the current project is merely a re-validation of the earlier approved EA/FEIR and FONSI, no public hearing is required. However, a Public Informational Meeting was held on January 20, 2010 to present the current "build" alternative to the public.

- **Route Matters**

The existing Freeway Agreement with Sonoma County that covers the project limits was executed on March 15, 1976. This agreement covers postmiles 23.2 to 27.1 (0.4 miles north of Mendocino Avenue/Industrial Drive to 0.5 miles south of Shiloh Road). Because the "build" alternative changes access to Route 101, which is a access controlled freeway throughout the project limits, by adding access to and from Airport Boulevard while removing all ramps to and from Fulton Road, a revised Freeway Agreement will be needed.

- Permits

Permits expected for this project include:

1. Clean Water Act Section 404 Permit from the US Army Corp of Engineers. (Individual Permit) for impacts to jurisdictional wetlands and other waters of the U.S.
2. Clean Water Act 401 Water Quality Certification from the Regional Water Quality Control Board.
3. California Department of Fish and Game Section 1602 Lake and Streambed Alteration Agreement for new and widened bridges at Mark West Creek.

Other regulations that may apply include the Federal Endangered Species Act Section 7 and the California Endangered Species Act (both for California Tiger Salamander and the steelhead and salmon fish species), the California Department of Toxic Substances control (for aerially deposited lead variance and approval for disposal of materials from bridges to be demolished), and the California Public Utilities Commission (for relocation of power lines).

- Cooperative Agreements

A Cooperative Agreement with Sonoma County Transportation Authority (SCTA) covering project funding was signed on January 11, 2010. The SCTA committed Tax Measure M funds, \$ 790,000 for PA&ED and \$ 3,650,000 for PS&E support. It is expected that construction capital and support and right of way capital and support will also be 100 % locally funded by Sonoma County through their general transportation funds or through Measure M. A construction Cooperative Agreement will be needed once the county makes these funds available.

- Other Agreements

Updated Maintenance Agreements with Sonoma County will be needed for maintenance of new traffic signals to be placed at the modified Airport Boulevard Interchange and for maintenance of the new Airport Boulevard Overcrossing structure. While the State typically maintains all traffic signals within State Right of Way, some type of coordination with the county will be necessary since there are county maintained traffic signals just outside the project limits along Airport Boulevard. Existing Maintenance Agreements with Sonoma County are (1) an agreement which includes the existing Airport

Boulevard Overcrossing, approved September 24, 1962, and (2) an agreement for street lighting along Route 101, approved March 11, 1974, that includes lighting for the Airport Boulevard ramp intersections.

- Involvement with a Navigable Waterway

There are no waterways that are classified as navigable within the project limits.

- Transportation Management Plan for Use During Construction

A Transportation Management Plan (TMP) may be required for this project. The TMP is a special program that is implemented during construction to minimize and prevent delay and inconvenience to the traveling public. The proposed construction and improvements can include temporary roadwork, which require lane closures or detouring.

The need for a TMP for this project will be determined during the PS&E phase of the project. Should it be determined necessary, it will be developed and refined during the PS&E and final design phases, supported by detailed traffic studies to evaluate traffic operations. The need for necessary lane closures during off-peak hours or at night, or short-term detour routes for ramp closures, will be identified, as required. The TMP typically can include press releases to notify and inform motorists, business, community groups, local entities, emergency services, and elected officials of incoming closures or detours. Various TMP elements, such as portable Changeable Message Signs and California Highway Patrol Construction Zone Enhanced Enforcement Program (COZEEP) are typically utilized to alleviate and minimize delay to the traveling public.

- Stage Construction

For the project construction, it is expected that the project will be built in stages. A total of six stages will be needed to construct the project over two construction seasons. Stages 1A through 1C will focus on constructing the new northbound off ramp to Airport Boulevard, the bridge columns for the new Airport Boulevard Overcrossing, and part of the embankment necessary for the new Airport Boulevard Overcrossing. Stage 2 will close the entire northern half of the Airport Boulevard Interchange, detouring traffic to Fulton Road interchange, and will construct the new Airport Boulevard Overcrossing, the realigned northbound on ramp, the realigned southbound off ramp, and the new southbound loop on ramp. During bridge construction for the Airport Boulevard Overcrossing replacement, full freeway closures (overnight) will be needed to erect and remove falsework. Stage 3 will close the entire southern

half of the Airport Boulevard Interchange, detouring traffic to Fulton Road interchange and shifting Airport Boulevard traffic to the new overcrossing. Stage 3 will then construct the realigned southbound on ramp from Airport Boulevard, demolish the existing Airport Boulevard Overcrossing structure, and remove the existing northbound loop on ramp from Airport Boulevard. The bridge demolition will require full freeway closures (overnight). Stage 4 will permanently remove all ramps at Fulton Road. It is anticipated that all six lanes of Route 101 will be open during construction, and any ramp that is closed for the duration of a construction stage will have a detour provided.

- Risk Assessment

A Risk Management Plan (RMP) has been developed for this project and will be refined and maintained throughout the project through project construction. A copy of the Risk Register can be found in Attachment J.

- Materials Recommendation

A Pavement Selection Review Committee was held on March 8, 2007 and a Life Cycle Cost Analysis was prepared on September 11, 2007 for the "parent" project. A 20-year pavement design life was selected and justified in those documents. The current project continues to utilize the 20-year pavement criterion. (See Attachment M for current Pavement Strategy Checklist.)

For the limits of this project, pavement rehabilitation of the mainline Route 101 was handled by the "parent" project. The only paving work that will be needed is involved in the construction of the new and relocated freeway ramps and the realignment and widening of Airport Boulevard. For the mainline, the only paving involved will be associated with the gore areas of the new or reconfigured ramps.

The Materials Recommendation used a 20-year Traffic Index (TI) value of 11.5 (Equivalent Single-Axle Load (ESAL) Total of 8,132,439) for the realigned/widened Airport Boulevard and a TI of 10.0 (ESAL Total of 873,934) for the new/reconfigured ramps. To match the mainline, the new/reconfigured ramps had a TI of 13.5 in the gore areas. For the specific recommendations used for this project, please refer to the Typical Cross Sections (Attachment D) and the copy of the Materials Report (Attachment H).

**8. PROGRAMMING**

At this time, this project is 100% locally funded. Thus far, SCTA has committed Tax Measure M funds, \$ 790,000 for PA&ED and \$ 3,650,000 for PS&E, through the aforementioned Co-op Agreement between Caltrans and SCTA, approved January 11, 2010. The remaining funds are expected to be covered by additional Tax Measure funds and Sonoma County transportation funds, and by Corridor Mobility Improvement Account (CMIA) funds. (See Table below.)

**Proposed Project Budget (in thousands):**

Phase	Total	Measure M 101	Measure M LSP	County	Proposed CMIA
PAED	\$ 790	\$ 790	\$ -	\$ -	\$ -
PS&E	\$ 3,650	\$ 3,650	\$ -	\$ -	\$ -
ROW SUP	\$ 750	\$ 280	\$ 235	\$ 235	\$ -
CON SUP	\$ 4,400	\$ -	\$ -	\$ -	\$ 4,400
ROW CAP	\$ 5,638	\$ 5,638	\$ -	\$ -	\$ -
CON CAP	\$ 30,000	\$ 2,100	\$ 500	\$ 7,800	\$ 19,600
<b>TOTAL</b>	<b>\$ 45,228</b>	<b>\$ 12,458</b>	<b>\$ 735</b>	<b>\$ 8,035</b>	<b>\$ 24,000</b>

**9. REVIEWS**

This SPR was reviewed and the proposed project concurred with by Larry Moore, Caltrans Design Reviewer, on November 18, 2009.

This project is determined to fall within the delegated authority for the State, authorized under the current FHWA/Caltrans Stewardship Agreements.

**10. PROJECT PERSONNEL**

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**11. LIST OF ATTACHMENTS**

- A. Draft Environmental Re-validation Form
- B. Location Map
- C. Preliminary Mapping
- D. Typical Sections
- E. Cost Estimate
- F. Right of Way Data Sheet
- G. Noise Abatement Decision Report
- H. Materials Recommendation
- I. Storm Water Data Report Cover Sheet
- J. Risk Management Plan – Risk Register
- K. Traffic Management Plan
- L. Cooperative Agreement for Funding for PA&ED and Design Phases
- M. Pavement Strategy Checklist