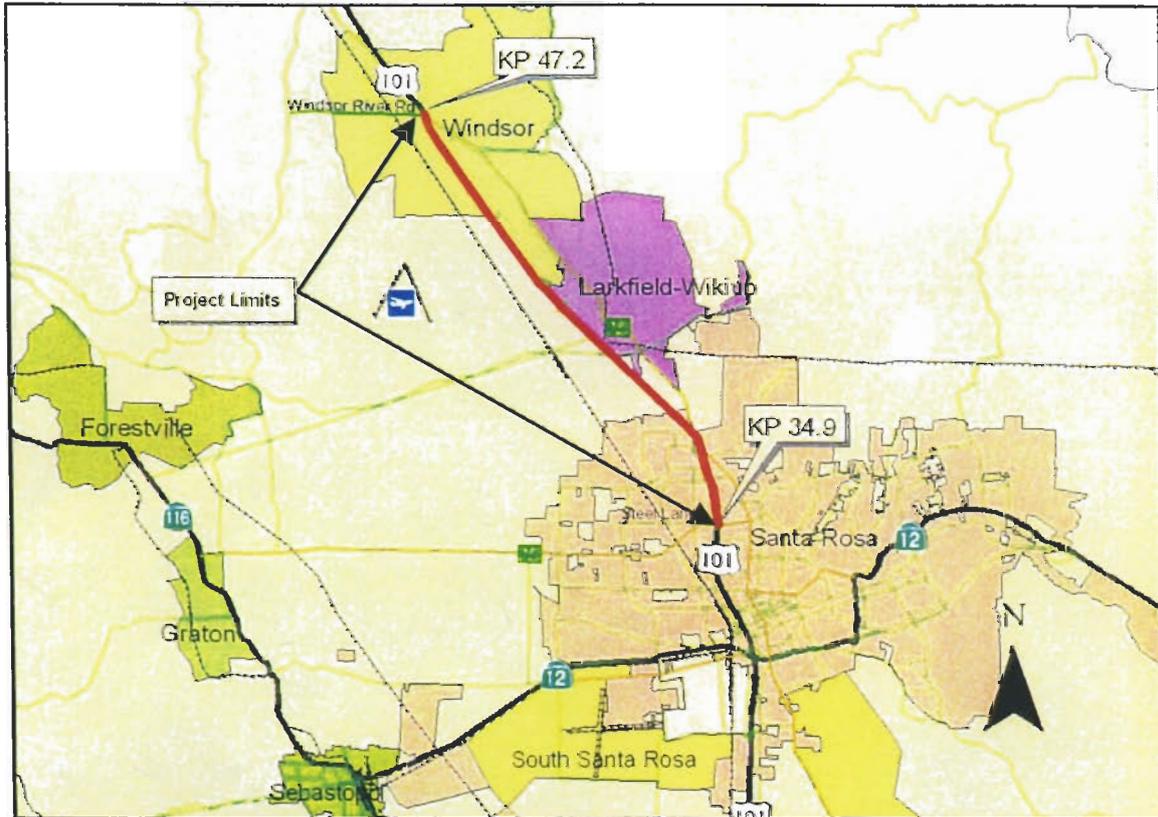




04-SON-101 KP 34.9/47.2 (PM 21.7/29.3)  
 04-218-0A100K  
 Highway 101 Widening and Improvements  
 Program Code: 20.XX.075.651

## PROJECT STUDY REPORT (Project Development Support)



On Route 101 in Sonoma County  
 From Steele Lane in the City of Santa Rosa  
 To Windsor River Road in the Town of Windsor

SUBMITTED BY:

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 H.P. (PAUL) HENSLEY, CHIEF DEPUTY DISTRICT DIRECTOR

12/20/01  
 DATE

## **FORWARD**

This Project Study Report (Project Development Support) for the Highway 101 Widening and Improvements Project has been prepared to program funding for the Project Approval and Environmental Document and the Plans, Specifications, and Estimates support component costs. This in accordance with Senate Bill 45 which allows project components to be programmed individually. That is, a project may be programmed for Environmental and Design without being programmed for Right of Way or Construction.

Alternatives will be developed and evaluated as required by the National Environmental Policy Act and the California Environmental Quality Act. The alternative that best balances the stakeholders' needs and requirements will be determined and approved after the completion of the environmental document.

This Project Study Report (Project Development Support) 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.

    *Saed Hasan*      
SAED HASAN, REGISTERED CIVIL ENGINEER

    12/20/2001      
DATE



## TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
2. BACKGROUND	1
3. NEED AND PURPOSE	3
4. ALTERNATIVES	7
5. SYSTEM AND REGIONAL PLANNING	10
6. ENVIRONMENTAL DETERMINATION AND ISSUES	11
7. RIGHT OF WAY	16
8. FUNDING/SCHEDULING	17
9. OTHER ISSUES	17
10. PROGRAMMING RECOMMENDATION	18
10. DISTRICT CONTACTS	18
11. ATTACHMENTS	18

## PROJECT STUDY REPORT (PROJECT DEVELOPMENT SUPPORT ONLY)

### 1. INTRODUCTION

This Project Study Report (Project Development Support) (PSR/PDS) proposes a project to widen Route 101 from four to six lanes to provide High Occupancy Vehicle (HOV) lanes in Sonoma County from Steele Lane in the City of Santa Rosa (KP 34.9) to Windsor River Road in the Town of Windsor (KP 47.2). This PSR/PDS is being developed to program the Project Approval and Environmental Document (PA/ED) and the Plans, Specifications, & Estimates (PS&E) support component costs. The estimated support costs for the PA/ED and PS&E components are \$4.8 million and \$7.6 million, respectively. The Sonoma County Transportation Authority has requested to program \$4.0 million for the PA/ED and \$6.0 for the PS&E in the 2002 State Transportation Improvement Program (STIP). It is anticipated that the PA/ED to be completed in fiscal year (FY) 2006/2007 and the PS&E to be completed in FY 2007/2008. The preliminary estimated capital costs including construction and right of way for this project range from \$90 million to \$100 million. The capital cost is an order of magnitude and is not intended for programming purposes.

This PSR/PDS will analyze a no-build alternative and one build alternative. The proposed build alternative will add HOV lanes on northbound and southbound Route 101 from approximately 0.8 km north of Steele Lane to Windsor River Road. Auxiliary lanes will be provided between Steele Lane and Shiloh Road as determined during the PA/ED phase of the project. The project will also provide ramp metering facilities to all on-ramps within the project limits, provide traffic operation system (TOS) components, and improve weaving and merging operations at the Airport Boulevard Interchange.

The proposed project is a component of the larger goal to reduce recurring congestion, reduce delay, and increase system capacity on Route 101. Construction of HOV lanes will increase the operational capacity of this facility and promote the use of carpool and express buses and therefore improve mobility through serving higher number of people-trips. This project will also connect Sonoma County with the ongoing Marin 101 HOV Gap Closure and Marin-Sonoma Narrows projects. The Region's goal is to provide a useable and continuous HOV lane system through the counties of Marin and Sonoma. The construction of HOV lanes is consistent with State, Regional and Local transportation plans. This project is designated a Track 1 project in the Metropolitan Transportation Commission's (MTC) 2001 Regional Transportation Plan (RTP). The project has the support of the Sonoma County Transportation Authority, the City of Santa Rosa, and the Town of Windsor.

### 2. BACKGROUND

Route 101 in Sonoma County was constructed between 1954 and 1962. The existing

facility consists of four mix-flow lanes, two in each direction. Route 101 is the most heavily traveled route in the Northern Bay Area linking the counties of Marin and Sonoma with San Francisco County to the south and to the Oregon border to the north. Within the project limits, the traffic demand exceeds the design capacity for Route 101 and the local arterial roads that feed into the highway. This condition creates bottleneck conditions resulting in excessive delays. Currently, non-automobile modes of travel are limited.

In 1990, the California Department of Transportation (the Department) initiated several Project Study Reports (PSRs) proposing to widen Route 101 from four to six-lanes. At that time, the Department recognized that traffic volumes on the Route 101 corridor impacted the efficiency of the existing freeway and local arterial system. These PSRs were prepared for a proposed sales tax measure that would provide local funding for these projects in Sonoma County. However, this sales tax measure was defeated in the November 1991 election and these projects did not receive funding.

The Sonoma County Transportation Authority (SCTA) acts as Sonoma County's planning and programming agency for transportation projects. In partnership with the Department and the Metropolitan Transportation Commission (MTC), the SCTA has sponsored a series of projects to improve traffic on the Route 101 corridor through Sonoma County. In July 2001, the Department agreed to develop the PSR/PDS for this project and to perform oversight for PSR/PDS for the highway widening project from Old Redwood Highway to the Rohnert Park Expressway. The programming for these two projects is a high priority with the SCTA and has received the support of the MTC. The Project Development Team (PDT) for this project included representatives from the SCTA, Sonoma County Public Works, City of Santa Rosa, Town of Windsor, and the Department. The following is a summary of programmed and planned projects:

The following are the major programmed Route 101 projects in Sonoma County:

- EA 264000, Marin-Sonoma Narrows project, widen from four to six-lanes for HOV from Atherton Avenue in the city of Novato to Route 116 East in the City of Petaluma. This project is not fully funded.
- EA 130211, construct a Park and Ride lot and the southbound loop on-ramp to Route 101 in the City of Rohnert Park.
- EA 129650, modify interchange and widen Route 101 from four to six-lanes for HOV from the Rohnert Park Expressway O/C to the Santa Rosa Avenue O/C in the City of Rohnert Park.
- EA 2724U1 and 272421, widen Route 101 from four to six-lanes for HOV, auxiliary lanes and soundwalls from Wilfred Avenue in the City of Rohnert Park to Route 12 in the City of Santa Rosa.
- EA 245400, widen freeway to six lanes for HOV, construct auxiliary lanes and modify interchanges on Route 101 from Route 12 to Steele Lane U/C in the City of Santa Rosa.
- EA 263900, modify the interchange at Steele Lane and widen the freeway to six lanes for HOV from Steele Lane to south of Bicentennial Way in the City of Santa Rosa.

- EA219921, construct new interchange at Arata Lane U/C in the Town of Windsor.
- EA 281110, construct southbound auxiliary lane from Lakeville Highway (Route 116) to East Washington Street in the City of Petaluma.
- EA 28112K, widen Route 101 from 4 to 6 lanes for HOV lanes from Lakeville Highway (Route 116 East) to Old Redwood Highway in the City of Petaluma.
- EA 276001, replace structure and improve on-ramp at Route 101/116 Separation and OH in the City of Petaluma.

Other major planned highway projects (Project Initiation Documents for these projects are either being prepared or have been completed but have not been programmed):

- EA 0A180K, widen and improve Route 101 for HOV lanes from Old Redwood Highway to the Rohnert Park Expressway.

### 3. NEED AND PURPOSE

Route 101 is a major link in the region's interregional road system and the most important north-south route within Sonoma County. Route 101 is also a "Focus Route". A "Focus Route" is one that has the highest priority for completion to minimum facility standards. This corridor is the traveled route for local and interregional traffic serving commuter, commercial, and recreational traffic. The highway was completed in the early 1960's. No major freeway widening or ramp improvements have been made since then, except for minor realignment/improvements to the southbound on-ramp at the Windsor River Road/Downtown Windsor Interchange. Within the vicinity of the project, operational deficiencies and traffic delays are prevalent on Route 101 due to existing bottlenecks at different locations. Traffic forecasts indicate that existing congestion on Route 101 in Sonoma County will substantially worsen in the future. Preliminary traffic projections show that peak hour traffic is anticipated to increase by about thirty to one hundred percent through the year 2029 between the Steele Lane Interchange and Windsor River Road Interchange. Inasmuch as various parts of Sonoma 101 are already operating at capacity, this additional traffic will worsen traffic queues. Currently, local agencies observe traffic heading to the freeway backs onto city streets at Airport Boulevard and River Road during AM and PM commute hours. Further, current weaving and merging problems mainly in the northbound direction at the Airport Boulevard Interchange constrain the interchange traffic flow. The City of Santa Rosa expects an increase in traffic due to projected growth and development in the area, including plans for an airport expansion. Future developments will exacerbate deficiencies around the Airport Boulevard and River Road Interchanges and thus reducing the efficiency of the corridor.

The main purpose of this project is to increase system capacity on Route 101 in Sonoma County and to reduce future congestion. The proposed HOV lanes will contribute to the goal of a continuous HOV lane system between southern Marin County and the Town of Windsor in Sonoma County that will enable high occupancy vehicles to bypass traffic congestion in most areas along this corridor. HOV lanes will encourage carpooling and the

use of express buses. Also, this project proposes to optimize traffic flow by improving weaving sections and the merge of traffic, improving safety, and improving air quality.

### Traffic Volumes

The following two tables were developed by the Department's District 4 Office of Modeling/GIS for the Route 101. The year 2000 traffic volumes are based on the Department's Census Count data. The year 2029 traffic forecasts were derived from the Year 2020 MTC BAYCAST travel Demand Model system, and then extrapolated to year 2029.

#### **Route 101 Northbound Direction Traffic Forecasts (Vehicle/Hour)**

<b>LOCATION</b>	<b>Year 2000 AM</b>	<b>Year 2000 PM</b>	<b>Year 2029 AM No Build</b>	<b>Year 2029 PM No Build</b>	<b>Year 2029 AM Build</b>	<b>Year 2029 PM Build</b>
JCT Route 12	3,847	3,963	5,436	7,450	5,924	7,681
NB On Fifth St	5,037	4,815	6,491	7,590	7,074	7,984
NB Off Steele Ln	5,511	5,423	7,321	8,331	7,978	8,749
NB Off Bicentennial Way	5,069	5,252	6,657	7,737	7,255	8,445
NB Off Mendocino Ave	4,016	4,573	5,474	6,777	5,965	7,485
NB On Mendocino Ave	3,863	5,054	5,681	7,172	6,189	7,945
NB Off River Rd	3,863	5,054	5,681	7,172	6,189	7,945
NB Off Fulton Rd	3,667	4,504	5,525	6,437	6,019	7,211
NB Off Airport Blvd	3,881	4,637	5,960	6,678	6,493	7,452
NB Off Shiloh Rd	3,416	4,567	5,346	6,649	5,823	7,378
NB Off Windsor River Rd	3,116	3,829	4,782	5,892	5,209	6,558
NB Off Grant Ave	2,824	2,703	4,234	4,743	4,613	5,315

**Route 101 Southbound Direction Traffic Forecasts (Vehicle/Hour)**

LOCATION	Year 2000 AM	Year 2000 PM	Year 2029 AM No Build	Year 2029 PM No Build	Year 2029 AM Build	Year 2029 PM Build
JCT Route 12	4,113	3,739	8,907	7,391	9,693	7,440
SB On Third St	5,058	4,952	9,975	8,407	10,857	8,456
SB Off College Ave	5,361	5,100	10,151	8,585	11,050	8,716
SB Off Steele Ln	5,319	4,970	9,699	8,275	10,559	8,387
SB On Bicentennial Way	4,702	4,125	8,921	7,298	9,711	7,353
SB On Mendocino Ave	4,547	3,864	8,726	6,987	9,499	7,033
SB Off Hopper Ave	5,140	4,345	9,645	8,093	10,499	8,209
SB Off River Rd	3,928	3,957	7,367	7,476	8,020	7,549
SB Off Fulton Rd	4,053	4,263	7,641	8,050	8,318	8,123
SB Off Airport Blvd	3,992	3,692	7,562	7,319	8,232	7,392
SB Off Shiloh Rd	3,462	3,321	6,888	6,560	7,497	6,632
SB Off Windsor River Rd	2,343	2,964	5,472	5,830	5,954	5,903

On northbound Route 101, peak hour traffic volumes are expected to increase through the year 2029 by around 30% to 50% during the AM peak hour, and by about 40% to 60% during the PM peak hour. The southbound traffic growth is even higher, with demand peak hour traffic increasing by 80% to 100% during the AM peak hour and by about 70% to 100% during the PM peak hour. The year 2000 average daily traffic (ADT) is between 24,500 (at Grant Avenue in Windsor Town) and 112,500 (at Route 12 Junction in Santa Rosa City). The year 2029 ADT for the no build alternative between 35,000 (at Grant Avenue in Windsor Town) and 173,700 (at Route 12 in Santa Rosa City) and for the build alternative is and between 36,700 and 176,300.

**Operational Analysis**

A preliminary qualitative operational analysis was prepared for the project to construct HOV lanes on Route 101 between Steele Lane and Windsor River Road and between Old Redwood Highway and the Rohnert Park Expressway. The results of this study are considered rough estimates and need to be verified during the PA/ED phase of the project

before developing the project scope. The complete report of this study is shown in Attachment H of this report. This study assumes that the proposed widening projects for HOV lanes from Novato to Petaluma and from Wilfred Avenue to Steele Lane have been completed. The following paragraph is a summary of the findings of the study:

Currently, there are several existing traffic bottlenecks at different locations on Route 101. These traffic bottlenecks constrain traffic flow in the vicinity of this project in both the AM and the PM peak hour traffic. Projected traffic growth will exacerbate the existing traffic bottlenecks and may cause additional traffic bottlenecks to develop through the year 2029. In general, the existing roadway system cannot accommodate the projected increases in traffic volumes, and this additional traffic will be added to the existing traffic queues. In the year 2029, the proposed HOV lane traffic traveling southbound from Windsor River Road to Steele Lane during the AM peak hour commute would save approximately thirty minutes. The time saving in the northbound direction during the PM peak commute hour is approximately five minutes. Overall time savings for HOV lane users on the corridor will be higher due to the construction of other HOV lanes on the route. However, the combination of the proposed HOV lanes and auxiliary lanes from Steele Lane to Shiloh Road will eliminate the projected congestion and probably eliminate any time savings for the northbound HOV lane users in the vicinity of this project. In the southbound direction, these auxiliary lanes would not have a positive impact on traffic congestion, as the congestion would mainly be determined by conditions at downstream bottleneck. The proposed southbound auxiliary lanes would benefit traffic on the congested on-ramps, but negatively impact the freeway traffic.

### Accident Data

The following accident data is based upon the Department's Traffic Accident Surveillance and Analysis System (TASAS) data between April 1, 1998 and March 31, 2001. This accident data is for Route 101 including ramps in the vicinity of this project

LOCATION	NO OF ACCIDENTS			ACTUAL RATES (per million vehicle miles)			AVERAGE RATES (per million vehicle miles)		
	Total	Fatal	F+I*	Total	Fatal	F+I	Total	Fatal	F+I
Route 101 PM 21.7/29.5	535	1	207	.89	.002	.35	.86	.011	.32

\*Fatalities + Injuries

During this period, there were 535 accidents occurring in both directions between Steele Lane and Windsor River Road. The data indicate that the actual rates of accidents were slightly higher than the statewide average. The following two tables show the accident types with the highest frequency were rear end and hit object. The primary collisions factors were speeding and following to close. A majority of all accidents occurred during daylight hours under clear and dry weather conditions:

**Types and Number of Accidents**

<b>TYPES OF COLLISIONS</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Rear End	334	62.4
Hit Object	116	21.6
Sideswipe	43	8
Overturn	15	2.8
Other	22	4.1
Broadside	4	0.7
Auto-Pedestrian	1	0.1

**Primary Collision Factor**

<b>FACTOR</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Speeding	201	37.7
Follow to close	137	25.6
Other violation	82	15.3
Improper turn	49	9.1
Influence Alcohol	34	6.3
Other than Driver	14	2.4
Unknown	8	1.4
Fell asleep	7	1.3
Failure to yield	3	.5

**4. ALTERNATIVES**

The Project Development Team that included representatives from the SCTA, the Sonoma County Public Works, the City of Santa Rosa, the Town of Windsor, and the Department, concurred that the following two alternatives will be analyzed:

- I) No-Build Alternative: This alternative is the baseline for comparison with the build alternative. If the "No Build" alternative is chosen, no improvements to Route 101 within the project limits would be made while congestion and traffic delays are expected to worsen through the year 2029.
- II) Build Alternative: This alternative will consist of the following four elements:
  - Provide HOV lanes in the northbound and southbound directions of Route 101 from approximately 0.8 km north of Steele Lane to Windsor River Road. The proposed HOV lanes will conform to the Steele Lane interchange modification project EA 263900 which is currently in the PA/ED phase.
  - Provide Auxiliary lanes in the northbound direction between Mendocino Avenue and Shiloh Road and in the southbound direction between Shiloh Road and Bicentennial Way as determined during the PA/ED phase of the project.
  - Provide ramp metering facilities to all existing seventeen on-ramps within the project limits. In addition, HOV preferential (by-pass) lanes will be added to those on-ramps depending on feasibility and traffic demand.

- Provide TOS elements within the project limits.

Additional element to be studied:

Improve weaving and merging at the northbound Airport Boulevard on- and off- ramps. This element was proposed because the SCTA and the Sonoma County Public Works expressed desire to improve circulation at the Airport Boulevard Interchange. Preliminary analysis indicates that this improvement would require the closure of the northbound on-ramp from the eastbound Fulton Road. Although this element has the support of the Sonoma County, the feasibility of this improvement needs to be analyzed further during the PA/ED phase of this project. This means that other alternatives deemed appropriate to address Airport Boulevard Interchange deficiencies could be analyzed.

**Analysis of Proposal**

The proposed HOV lanes will increase the system capacity and encourage the use of carpools and buses. This will meet Sonoma County's goal of encouraging other modes of transportation in an environmentally sensitive way. The HOV lanes will reduce the projected congestion on Route 101 and provide continuous HOV lanes system from southern Marin County to the Town of Windsor. Preliminary studies indicate that auxiliary lanes from Steele Lane to Shiloh Road in the northbound direction of Route 101 along with the HOV lanes would fully mitigate the congestion but at the same time HOV lane user time savings would diminish. The proposed southbound auxiliary lanes would benefit traffic on the congested on-ramps but not traffic on the mainline. During the environmental stage of this project, the proposed auxiliary lanes will be analyzed in detail to determine their need and exact locations.

Metering the existing seventeen on-ramps on southbound and northbound Route 101 within the project limits and activating them would help in reducing congestion and reducing the length of peak period. Ramp meters would improve the efficiency of the freeway, regulate traffic flow into the mainline making it less likely to slowdown traffic, and achieve safer merges onto the freeway. Activating the proposed ramp metering will be discussed during the coming phases of the project. The proposed TOS elements include a southbound changeable message sign (CMS) near Bicentennial Way. Also, included in the project is the installation of highway advisory radio (HAR) system components with extinguishable message signs (EMS), full coverage by closed television cameras (CCTV), and traffic monitoring stations at half a mile intervals. The TOS elements would optimize traffic flow through faster response to incidents and informing the commuters and the public about incidents and roadway condition.

The proposed 3.6 m HOV lanes and 3.0 m inside shoulders would replace the existing unpaved median. A Type 60 concrete barrier is proposed to separate the northbound lanes from the southbound lanes. Mainline pavement widening including shoulders will be

constructed using Asphalt Cement (AC). Existing pavement will be rehabilitated using Crack and Seat -AC overlay. Unbonded Concrete Overlay could be used instead of the AC overlay for longer life pavement. If this rehabilitation strategy is used then the proposed widening will be performed using PCC pavement but vertical clearances under existing structures will become a major issue. However, the overlay type will be determined during the next phase of the project. Trees and vegetation within the proposed clear recovery zone will be cleared, mitigated, or replaced at other locations. Minor realignments of Cleveland Avenue at two locations, Conde Lane, Coffey Lane, and Lavell Road might be needed to accommodate the proposed freeway widening. The proposed combined widening for the HOV lanes and auxiliary lanes in the southbound direction require the replacement of the existing Mendocino Avenue Overcrossing (OC). The Mark West Creek, Pool Creek, and Pruitt Creek structures will be widened and their median gap will be closed. The vertical clearance under the River Road OC, Fulton Road OC, Airport Boulevard OC, and Shiloh Road OC will be lower than existing clearances and below minimum required. Possible means to improve the proposed vertical clearance will be analyzed in detail during the PA/ED phase of the project and may include lowering the existing profile, grinding existing pavement, or other means. Mandatory design exceptions as outlined in the attached Design Checklist (Attachment E) will be required. Noise barriers might be warranted for this project and a maintenance agreement will be required if those barriers are placed along the right of way line. As required by the Ramp Meter design guidelines, California Highway Patrol (CHP) enforcement areas will be added to all existing on-ramps. The Southbound River Road on-ramps from eastbound and westbound River Road, the southbound Bicentennial Way on-ramp, and the southbound on-ramp from eastbound Airport Boulevard will be widened to add HOV lane bypasses. The Northbound on-ramp from eastbound Fulton Road and the southbound on-ramp from westbound Shiloh Road will not be widened for HOV lane bypass due to physical constraint of the existing bridge support. The northbound Mendocino Avenue on-ramp may not be widened to add an extra lane and HOV bypass lane due to physical limitations. Due to the impact of this project during construction on the state and local facilities, a Transportation Management Plan (TMP) summary will be required during the PA/ED stage of this project. The final TMP will be prepared during the design phase of this project. TMP is a specialized program tailored to prevent or mitigate the impacts of a project construction by applying a variety of techniques including system management, demand management, construction strategies, and public awareness measures. All existing survey monuments that might be disturbed or destroyed must be replaced or restored per Section 8771 of the Land Survey Act and the 1979 state's surveys manual.

Improvements identified at this stage to mitigate for the deficiencies around the Airport Boulevard Interchange include providing a new diagonal off-ramp to Airport Boulevard from northbound 101 just south of the existing loop on-ramp from eastbound Airport Blvd. This would require closing the existing northbound loop on-ramp from eastbound (northbound) Fulton Road due to its close proximity to the proposed off-ramp. The proposed off-ramp would direct traffic to either eastbound or westbound Airport Boulevard and would require signaling the ramp terminus. The existing collector-distributor road

connecting the northbound Airport Boulevard on- and off-ramps would be eliminated. This proposal would improve ingress and egress to the Airport Boulevard Interchange. However, the impact of this improvement on local traffic circulation needs to be analyzed during the PA/ED phase of the project and other alternatives could be explored.

### **Rejected Alternatives**

The PDT members removed the mixed flow lanes (MFL) alternative from further considerations. The MFL alternative will not achieve the purpose and need of this project as it will not encourage the use of other modes of transportation including carpooling and express buses. Additionally, the mixed MFL would not provide route continuity for the HOV lane users.

## **5. SYSTEM AND REGIONAL PLANNING**

### **Statewide**

Highway 101 or US 101 was initially commissioned in 1926. It was one of the original US highways and originally went from the US border with Mexico to the southern part of the State of Washington. In the 1950's, US 101 was upgraded from a two-lane road to a four-lane freeway/expressway. Route 101 was upgraded in the North Bay in the mid-1950s and has not had any significant modifications or capacity increases since.

The Transportation Corridor Concept Report (TCCR), formerly known as the Route Concept Report, establishes a twenty-year planning concept for a given state transportation corridor. Outside the twenty-year frame, it also provides estimate of the corridor needs. However, since most adopted analytical methodologies conform to a twenty-year period, any concepts developed beyond this period are speculative.

The proposed project lies within the Route 101 North corridor. This is the north/south corridor route that spans from the southern end of the Golden Gate Bridge to the Sonoma/Mendocino County line in the north.

Currently, the TCCR is being updated to further develop the concept for the Route 101 North corridor. Preliminary work has so far included collection and compilation of relevant system planning strategies and policies from recent state, regional, and local planning and programming documents. The output is an "implied concept"<sup>1</sup> for the Year 2020 highway scenario, which should only be viewed as a preliminary draft plan, since final approval by the District Director has not been obtained yet. This would require further co-ordination between the agencies to finalize and complete the concept plan.

1 Project Study Report-Project Development Support, 04-SON-101 KP 6.1-12.1 (PM 3.8-7.5) 04-219-28112K, Caltrans, August 3, 2001.

**Local**

The Sonoma County Transportation Authority has prepared a draft of their "2001 Countywide Transportation Plan for Sonoma County". This plan is the latest planning document for Sonoma County that updates past planning efforts in order to prioritize transportation needs throughout Sonoma County. This plan found that Route 101 was crucial for the local circulation, regional commuting, tourism and the movement of goods. The proposed project is consistent with the plan's recommended strategies to reduce congestion of Route 101:

- Increase highway capacity by adding HOV lanes, widening the facility from four to six lanes.
- Improve traffic flow through construction of auxiliary lanes, interchange improvements and ramp metering where appropriate.

To mitigate for the Route 101 traffic overflow onto local arterials, the draft plan recommended improving local roads by maintaining existing system, adding capacity, improving channelization, adding signalization, and building new roads.

**Regional**

The Metropolitan Transportation Commission's draft "2001 Regional Transportation Plan" (RTP) has included Route 101 in Sonoma County as a part of the Golden Gate Corridor. This project is consistent with the RTP management objectives since it will:

- Maximize travel time benefits for HOV and transit users for the entire corridor
- Develop ramp metering for Route 101
- Support improved transit services

**6. ENVIRONMENTAL DETERMINATION AND ENVIRONMENTAL ISSUES**

Environmental evaluations for this project will be prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Federal Highway Administration (FHWA) will be the lead agency for this project under NEPA and Caltrans will be the lead agency for this project under CEQA. Based on preliminary reviews, a determination has been made that this project qualifies for an Environmental Impact Statement / Environmental Impact Report (EIS/EIR) documentation. The Department has estimated that the environmental lead-time for this project during the PA/ED phase is expected to be five years. However, the schedule as proposed in Section 8 assumes that consultants will prepare the PA/ED in 4 years.

**Community Resources**

Based on the scope of this project, there should not be any social-economic impacts.

Furthermore, the proposed work should not have any "disproportionately adverse" effects on minority and low-income populations and, therefore, should not raise any Environmental Justice issues. However, due to the proposed right-of-way takes at various locations throughout the project, a Community Impact Study is expected to be conducted during PA/ED.

### **Visual Resources**

A preliminary review has indicated a need for a visual impact study for this project. The route is not part of the State Scenic Highway System, however it is identified as a scenic corridor in the Sonoma County General Plan.

### **Biological Resources**

A preliminary review of the project area and the California Natural Diversity Database (CNDDDB) revealed several sensitive species that occur near or adjacent to the proposed project location. The project area is located adjacent to the Santa Rosa Plains. Historically, this area contained vernal pools utilized by several sensitive plant and animal species. The project area also crosses over several bodies of water (listed in order from north to south) Windsor Creek (crossing under the highway twice), Pool Creek (crossing twice), Mark West Creek, and the Santa Rosa Flood Control Channel (crossing three times).

A windshield survey was conducted on 11/02/01. The survey revealed several ditches that may be determined by the ACOE to be jurisdictional wetlands or "waters of the US" within the project right-of-way. Impacts to wetlands deemed jurisdictional by ACOE requires a 404 permit (Individual Permits are required for any wetland impacts greater than three acres, wetland impacts greater than 5 acres will require NEPA/404 Integration Process) under the Clean Water Act and requires that the wetland area be mitigated for due to the "no net loss" status of wetlands. Trees within the right-of-way primarily consist of redwoods, however there were a few oak trees that, if removed, would have to be mitigated for depending on the project's impact on trees within the right-of-way.

Near the East Shiloh Road Exit there were areas that historically contained vernal pools and sensitive plants. These areas are now either developed, are cultivated farmland, or are irrigated lawns. There are still a few potential areas within the right-of-way that may support those sensitive plant species. Studies will have to be conducted during the spring when these plants flower to accurately identify the plants. If vernal pools are discovered, a survey for California tiger salamanders is needed since they have been known to occur in vernal pools of the Santa Rosa Plains region. If vernal pools and sensitive species utilizing vernal pools are discovered during a spring survey, a two year biological survey of these areas are required by CDFG.

Many of the creeks in the area have been shown to support sensitive species including steelhead and coho salmon, northwestern pond turtles, California freshwater shrimp,

foothill yellow-legged frogs, and California Red-legged frogs. Working within the creek beds would require a CDFG 1601 Agreement. The presence of any sensitive species requires consultation with CDFG, NMFS, and/or USFWS regarding potential impact to the listed species. During the windshield survey, several small fish were observed in Pool Creek, but a species ID was not made.

On the southbound side of 101 just south of East Shiloh Road exit there is the potential for sensitive plants just off of the roadway where historical vernal pools may have occurred or continue to occur. A sensitive plant survey should probably be conducted in the spring when the plants are in flower to verify their occurrence. Oak trees, wetland ditches, and stream crossings probably are the primary impacts on the southbound portion of the project.

### **Historic Property Resources**

The following sources have been checked for possible properties in the vicinity of the project: National Register of Historic Places (through 2001), California Historical Landmarks (through 2001), and the City of Santa Rosa Historic Properties Inventory (Department of Community Development, 1990), and the Caltrans Historic Bridge Survey. Outstanding inventories still to be received include an updated Sonoma County Landmarks list from the Sonoma County Permit and Resource Management Department, and the "Directory of Properties in the Historic Property Data File" to be sent by the Northwest Information Center at Sonoma State University.

The only property listed on the National Register of Historic Places in the vicinity of the project limits is the James and Frances Laughlin House on Lone Redwood Road, added in 1979. There are no California Historical Landmarks in the vicinity of the project limits.

There are approximately 18-20 properties noted with the windshield survey (10/16/01) adjacent to the highway between the project limits that appear to have been constructed before 1957. Of these, about 6-8 of them are in the vicinity of proposed right-of-way take, and would therefore likely need to be formally evaluated. A Historic Architecture Survey Report for the entire project will be conducted, after updated detailed project plans and descriptions have been submitted (including existing and proposed right-of-way).

All 13 bridges/highway structures within the project postmiles date from 1962 to 1979, and all have been rated 5, or ineligible for the National Register of Historic Places.

### **Archeological Resources**

A limited cultural resources literature review for this project was completed from district cultural resources files. A prehistoric archaeological site was recorded within the project right of way in 1978. The associated archaeological survey report indicates that the site may in fact be a village site known historically and through Native American oral tradition as *Cutawani*. In 1980 an archaeological field investigation was conducted at the recorded

location and determined that the site was erroneously assigned a designation, and was not a cultural site at all. Given the age of the reports in question and the contradictory information in the district files, a complete literature review should be conducted at the California Historical Resources Information System (CHRIS) to determine if additional work in the area has been conducted. Limited field investigation within the project's Area of Potential Effect (APE) may also be necessary. If such work is necessary, all measures will be taken to meet Federal and State Regulations.

### **Air Quality**

The project is located within the San Francisco Bay Area Air Basin. The air basin is currently designated as a non-attainment area for ozone on the federal level and for ozone and particulate matter (PM<sub>10</sub>) on the state level. In addition, the basin is a carbon monoxide maintenance area on both the state and federal level. As a result, the project must be evaluated to determine if it would cause or contribute to new violations of air quality standards, worsen existing violations, or interfere with timely attainment of standards. This evaluation will be based on reviewing the project's traffic analysis as well as local transportation plans and the Bay Area's component of the State Implementation Plan during the PA/ED phase.

### **Noise Analysis**

This project meets the criteria of a Type 1 Project as defined by FHWA 23 CFR 772. Approximately 3,354 meters of new noise barriers may be considered at various locations where receptors exist, on both the northbound and southbound side of Route 101. Depending on when the environmental documentation for this project is completed, additional noise barriers may be considered for adjacent undeveloped land where the County of Sonoma, City of Santa Rosa, and the Town of Windsor have jurisdiction for approving residential building permits. Within the project area, approximately 250 meters of adjacent land along the highway has the potential for residential development. A Traffic Noise Impact Report will be conducted during the PA/ED phase. A final decision on the location for all noise barriers will be made during PA/ED.

### **Floodplain Evaluation**

No floodplain evaluation was done. A floodplain analysis must be done during the PA/ED phase.

### **Water Quality**

Since this project would involve work in environmentally sensitive areas, the Standard Special provision 07-345 shall be included in the Plans, Specifications and Estimates (PS&E) to address water pollution control and Storm Water Pollution Prevention Plan (SWPPP) requirements. This project must also adhere to the conditions of the Department

Statewide National Pollution Discharge Elimination System (NPDES) Permit CAS #000003, Order #99-06-DWQ, issued by the State Water Resources Control Board (SWRCB); and the NPDES General Permit CAS #000002, Order #99-08-DWQ, for General Construction Activities.

Incorporation of Permanent Control Measures (PCM) or drainage improvements for water quality benefit shall be considered for all highway improvement projects, as required by Section F.4 of the Department's statewide NPDES permit. The consideration of these measures will be discussed and documented.

Incorporation of Treatment best management practices (BMPs) into the design and operations of all highway projects is also required under Section 4.4 of the Storm Water Management Plan, which implements the Caltrans statewide NPDES permit. This consideration process will be documented by the Department in the Annual Report to the State Water Resources Control Board.

Special care is required when handling and storing contaminated soil, including soil contaminated with aerially deposited lead (ADL), to maintain water quality standards. See Hazardous Waste text for more details.

### **Hazardous Waste**

Based on the Initial Site Assessment, the project area has potential soil and groundwater contamination due to leaking underground storage tank (LUST), hazardous waste material release adjacent to state highway, and aerial deposition of lead from motor vehicles exhaust. A Preliminary Site Investigation would be conducted during the early PS&E stage.

There is probable aerially deposited lead (ADL) contamination in the unpaved areas adjacent to the existing roadway. In many instances the California regulatory threshold for lead is exceeded, thus excavated soils would require special management and handling prior/during construction activities. ADL is a result of past exhaust emissions from vehicles using leaded gasoline. Generally, ADL has been found at the top two feet of existing unpaved surfaces next to traveled areas; consequently, any surface potentially disturbed by construction activities should be tested for lead. If test results reveal soils with lead levels exceeding regulatory thresholds within the project work areas, the materials must be handled according to regulatory requirements. The special handling may include implementing a health and safety plan to protect construction workers, the public, and the environment, and reusing the material according to the variance granted to Department by the Department of Toxic Substance Control, or requiring off-site disposal of the materials.

Contaminated soil raises several storm water pollution concerns. Issues such as the quantity of the contaminated soil; its level of contamination, where it will be stored, and when this activity will take place (winter/summer season) should be described in detail in the appropriate section of Special Provisions. These issues should also be addressed in the

SWPPP. Section H.9 of the Department Statewide NPDES permit requires notification of the appropriate RWQCB(s) if the project involves reuse of ADL contaminated soil, 30 days prior to advertisement for bids. This is to allow the RWQCB(s) to determine any need for the development of Waste Discharge Requirements (WDR). If a hazardous waste investigation is done, and if it is determined that ADL contaminated soil is present, the Department of Toxic and Substance Control (DTSC) Variance for reuse of the soil could be invoked. The RWQCB will be notified promptly if a decision is made to invoke the variance.

The project description also indicates modification, reconstruction, and demolition of concrete structures at various points along the length of the project. Air quality regulations require the structures be surveyed for asbestos containing material prior to the start of any renovation or demolition. Proper testing, handling, and disposal must be complied with prior to and during construction. Structure as-built plans showing the joints and drainage details on the structure and abutments will be reviewed during the PA/ED phase.

Any proposed work involving removal of yellow traffic stripes and pavement markings shall be considered to have potential hazardous waste issues. Yellow traffic paint, yellow thermoplastic paint/tape or markings (over 3 years on the pavement) contain lead chromate as the pigment which after removal produces debris that could exceed heavy metals thresholds established by Title 22 California Code of Regulations. During PS&E, the appropriate special provisions for the handling and disposal of the yellow striping debris should be added.

### Permits

The following is list of potential required permits for this project:

- 404 Clean Water Act Permit issued by the U.S. Army Corps of Engineers.
- 1601 Streambed Alteration Permit issued by the U.S Fish and Wildlife Service.
- 401 Permit from the Regional Water Quality Control Board.
- Caltrans statewide NPDES Permit CAS #000003, Order #99-06-DWQ issued by the State Water Resources Control Board (SWRCB).
- NPDES General Permit CAS #000002, Order #99-08-DWQ for general construction activities.

## **7. RIGHT OF WAY**

Preliminary analyses indicate that this project would impact approximately 16 parcels. The majority of those parcels are on the western side of the freeway. Additionally, utilities would be impacted and relocated. Depending on the final locations of any proposed noise barriers, temporary constriction easements might be required. The estimated right of way cost for this project is between \$3.0 million and \$4.0 million. This cost does not include any environmental mitigation sites if required.

**8. FUNDING/SCHEDULING**

It is proposed to program the support cost for this project in the 2002 STIP. The SCTA anticipates that the right of way and construction phases of the project to be funded with GARVEE bonds. Estimated capital outlay cost for the project is between \$90 million and \$100 million. In order to fund and construct this project and two other projects on Route 101, the SCTA has developed a "2010 Construction Strategy" (see Attachment I). The 2010 Construction Strategy anticipates project construction to be completed by 2010 on all of the segments on Highway 101 in Sonoma County. The schedule shown below was developed in coordination with the SCTA to meet the 2010 Construction Strategy. In order to meet this schedule, the Department needs to contract out the PA/ED phase of the project. The schedule also assumes that risk design for PS&E will begin in early 2004.

<b>PROJECT SUPPORT COMPONENT COST</b>	<b>Department's Estimate</b>	<b>Funds from 2002 STIP</b>
Environmental Support	\$4,800,000	\$4,000,000
Design Support	\$7,600,000	\$6,000,000
R/W Support	\$1,00,000	0
Construction Support	\$5,700,000	0
<b>TOTAL</b>	<b>\$19,100,000</b>	<b>10,000,000</b>

The Department's total estimates for the PA/ED and PS&E support components are approximately \$2.4 million higher than funds that the SCTA has requested to be programmed in the 2002 STIP. This \$2.4 million will be programmed at a later stage.

<b>MILESTONE</b>	<b>Tentative Schedule</b>
Begin Environmental Studies	July 2002
Approve PA/ED	FY 2006/2007
PS&E	FY 2007/2008
R/W Certification	FY 2007/2008
Ready to List	2008
End Construction	2010

Programming commitments are made only for the "PA/ED" and the "PS&E" milestones. All other milestones are used to indicate relative time frames for planning purposes.

**9. OTHER ISSUES**

A Value Analysis (VA) is mandated for this project and should be performed at an early stage of the PA/ED phase.

In the event that the SCTA will take the lead to perform the next phase(s) of this project, then a cooperative agreement is required.

## 10. PROGRAMMING RECOMMENDATION

It is recommended that this Project Study Report (Project Development Support) be approved and that the amount of \$10.0 million be programmed in the 2002 STIP for the project's PA/ED and PS&E support costs. It is further recommended that the Project Approval and Environmental Document phase be initiated.

## 11. DISTRICT CONTACTS

Name	Title	Office	Phone
Nino Cerruti	Project Manager	Program Management	(510) 286-5129
Sandy Wong	Office Chief	Advance Planning	(510) 286-5576
Rey Centeno	Senior Transportation Engineer	Advance Planning	(510) 286-5566
Michael Church	Senior Transportation Engineer	Highway Operation	(510) 286-4642
Mike Kerns	Senior Transportation Engineer	Highway Operation	(510) 622-5430
John Yeakel	Senior Environmental Planner	Env. Planning North	(510) 286-5606
Howell Chan	Senior Environmental Planner	Advance Planning	(510) 286-6350
Wingate Lew	Associate Environmental Planner	Advance Planning	(510) 286-5584
Mike Lefaiivre	Associate Transportation Planner	Advance Planning	(510) 286-5679
Saed Hasan	Project Engineer	Advance Planning	(510) 286-7208

## 12. ATTACHMENTS

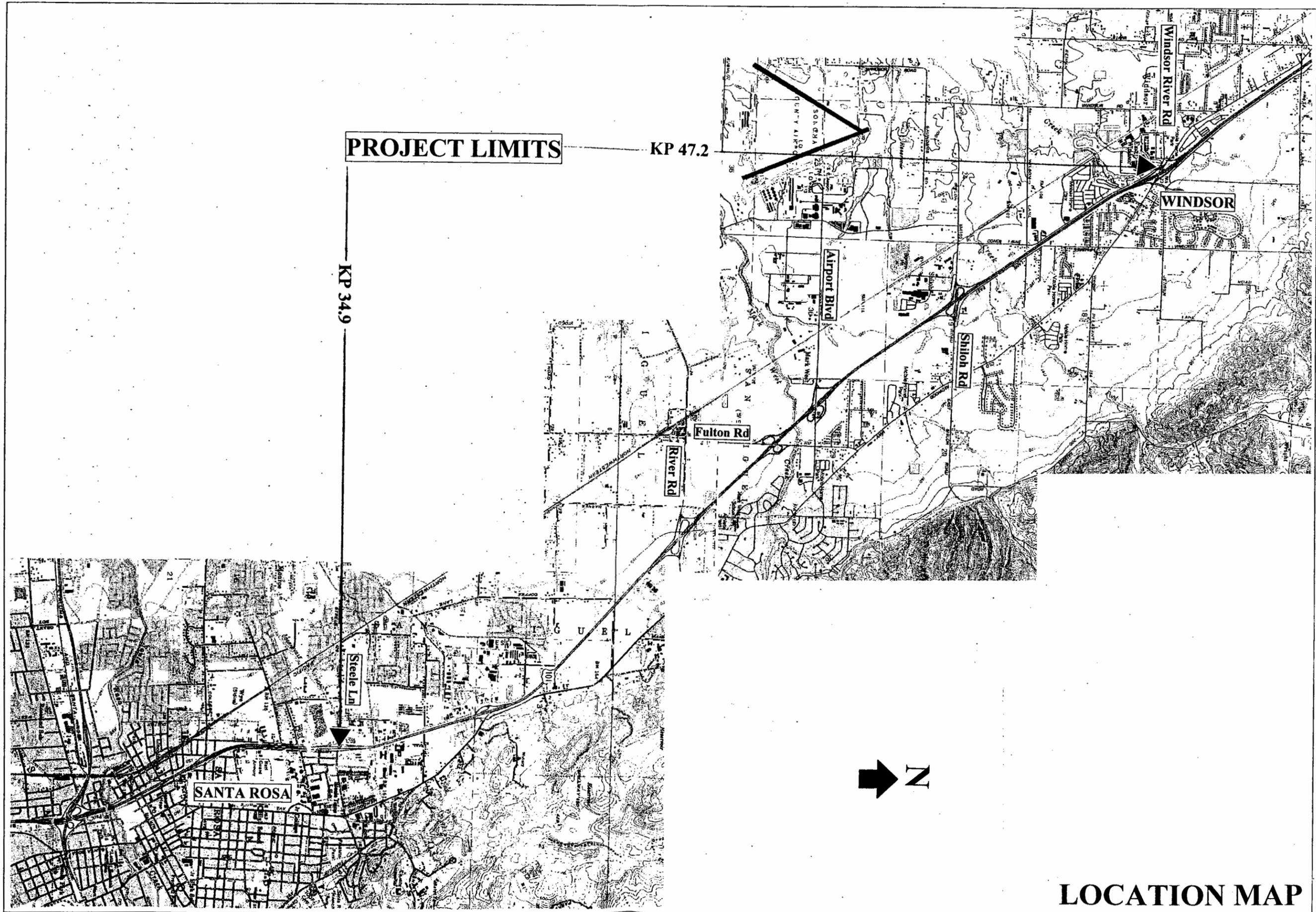
- A. Location Map
- B. Typical Cross Sections
- C. Preliminary Layout Sheets
- D. PSR/PDS Outline Cost Estimates
- E. Design Checklist
- F. Environmental Checklist
- G. Right of Way Data Sheet
- H. Preliminary Operational Analysis
- I. SCTA Letter to the Director of the Department

# **ATTACHMENT A**

## **LOCATION MAP**

# **ATTACHMENT C**

## **PRELIMINARY LAYOUT SHEETS**



PROJECT LIMITS

KP 47.2

KP 34.9

SANTA ROSA

WINDSOR

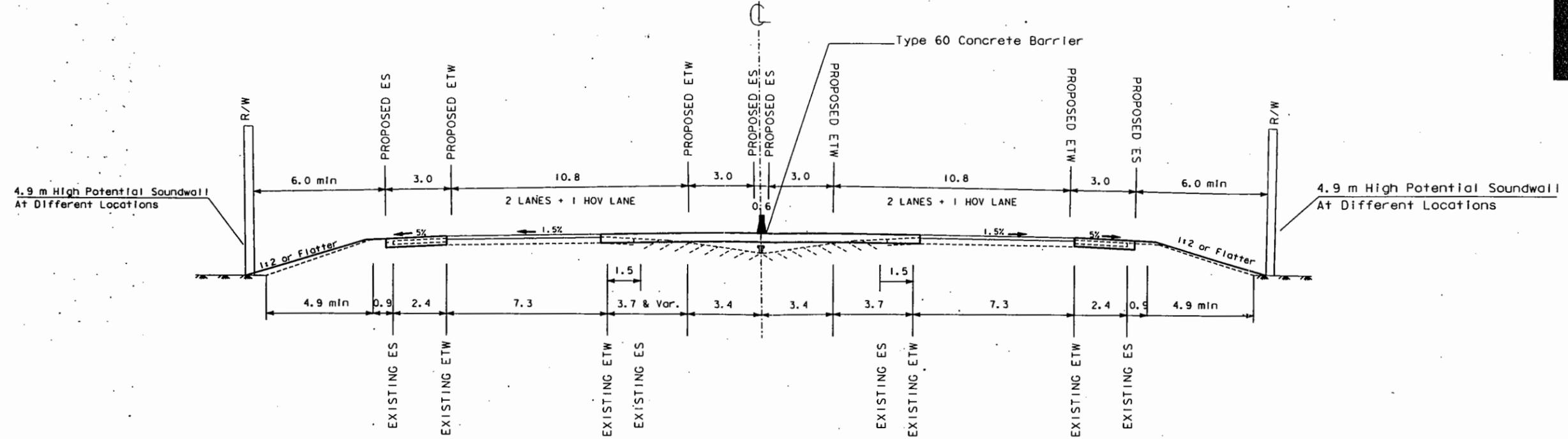


LOCATION MAP

# **ATTACHMENT B**

## **TYPICAL CROSS-SECTIONS**

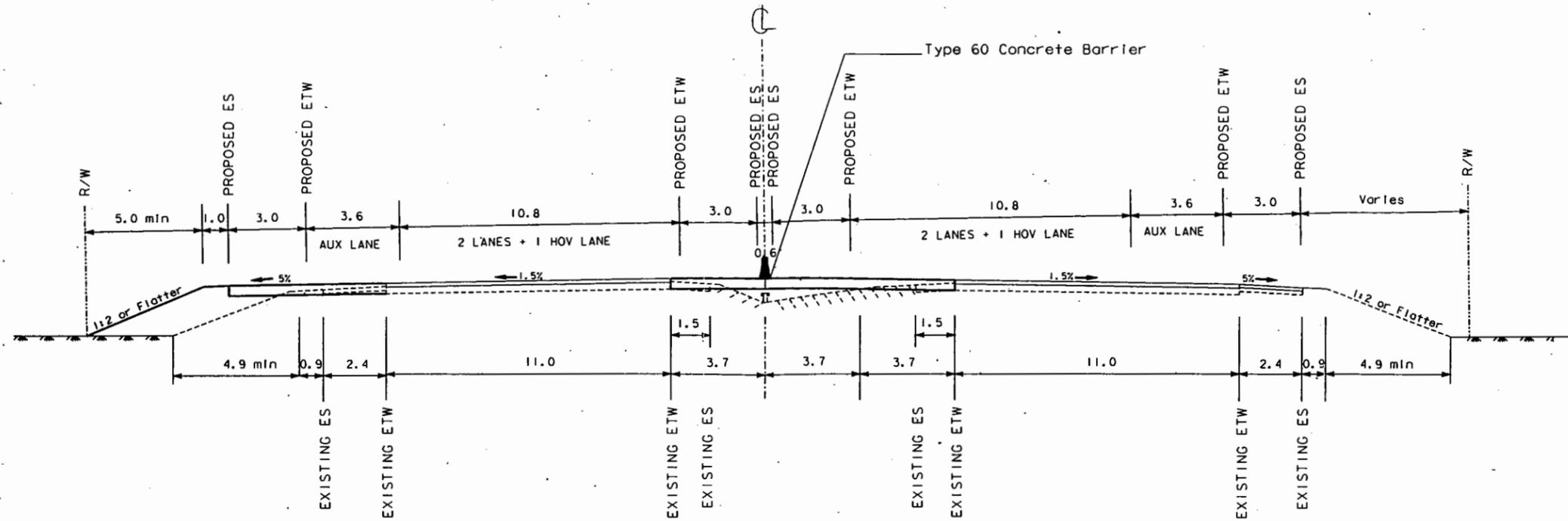
# TYPICAL CROSS-SECTIONS



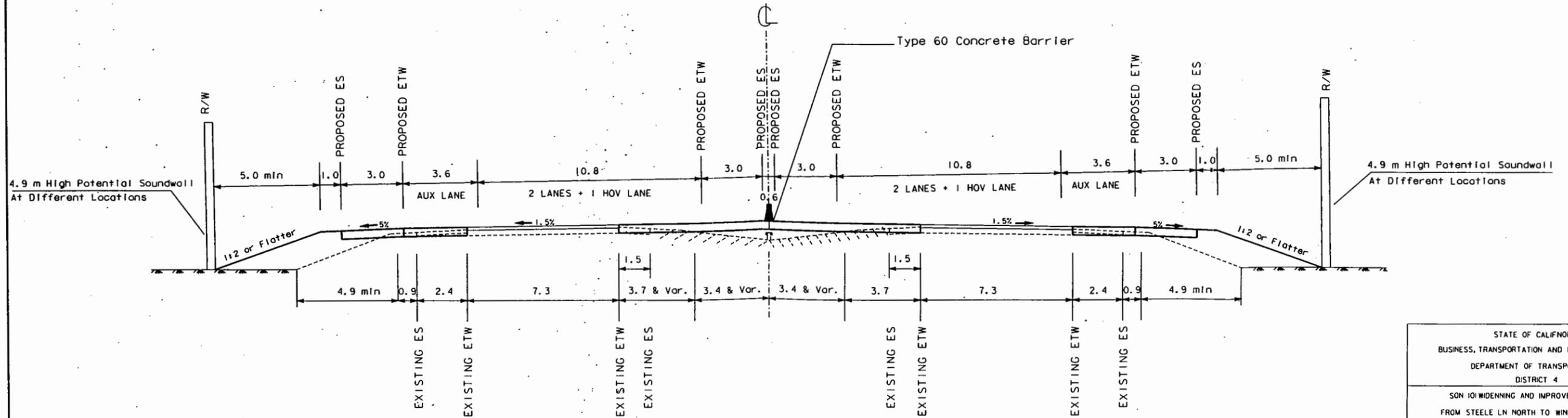
Between Shiloh Rd (KP 44.4) and Windsor River Rd (KP 47.2)

STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LN NORTH TO WINDSOR RIVER ROAD			
CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K
PREPARED BY:	SAED HASAN		
SCALE:	No Scale	DATE:	NOV. 2001
SHEET NO.	2 OF 2		

# TYPICAL CROSS-SECTIONS



Between N. of Steele Ln (KP 35.7) and Bicentennial Way (KP 36.2)

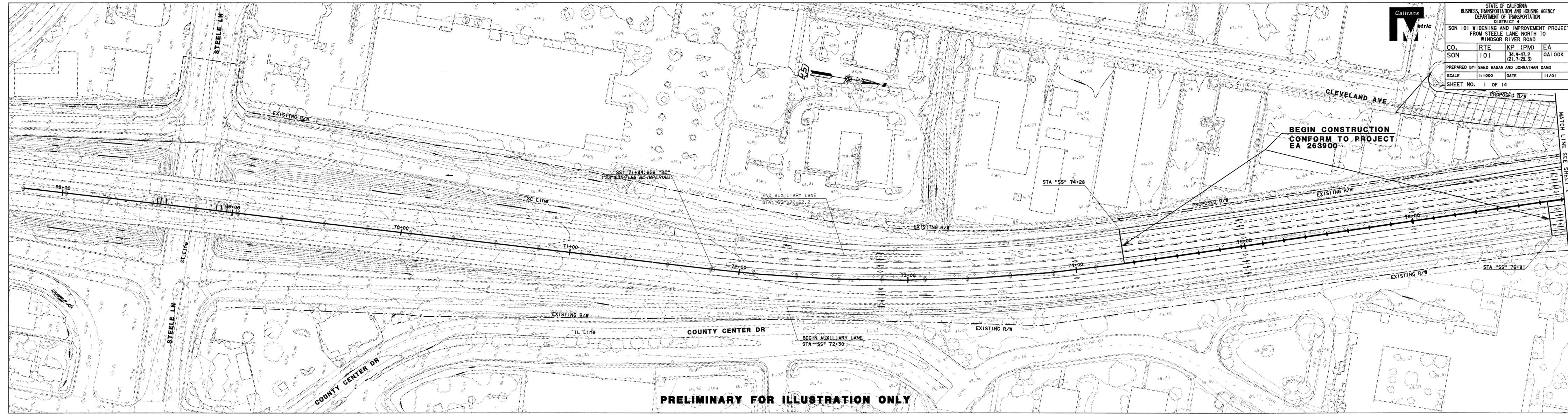


Between Bicentennial Way (KP 36.2) and Shiloh Rd (KP 44.4)

STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LN NORTH TO WINDSOR RIVER ROAD			
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SON	101	34.9-47.2 (21.7-29.3)	0A100K
PREPARED BY:	SAED HASAN	DATE:	NOV. 2001
SCALE:	No Scale	DATE:	NOV. 2001
SHEET NO.	1 OF 2		



STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LANE NORTH TO WINDSOR RIVER ROAD			
CO.	RTE	KP (PM)	EA
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PREPARED BY: SAED HASAN AND JOHNATHAN DANG			
SCALE	11/1000	DATE	11/01
SHEET NO. 1 OF 14			



**BEGIN CONSTRUCTION  
CONFORM TO PROJECT  
EA 263900**

**PRELIMINARY FOR ILLUSTRATION ONLY**

MATCH LINE SEE SHEET 2





STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

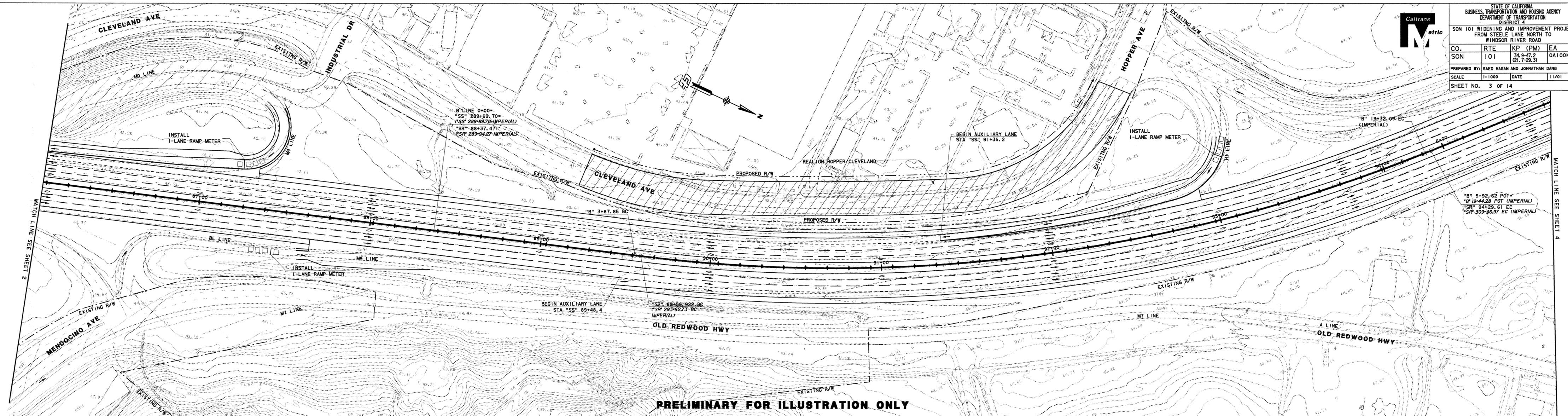
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FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K

PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE	DATE
1:1000	11/01

SHEET NO. 3 OF 14



**PRELIMINARY FOR ILLUSTRATION ONLY**



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BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

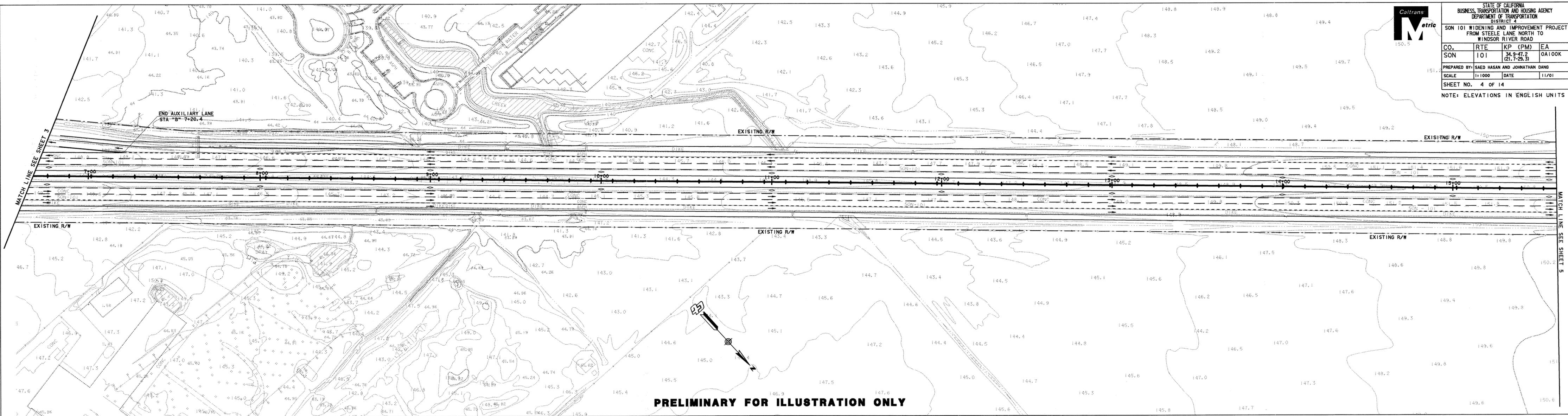
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SON	101	34.9-47.2 (21.7-29.3)	0A100K

PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE	DATE
1"=1000'	11/01

SHEET NO. 4 OF 14

NOTE: ELEVATIONS IN ENGLISH UNITS



**PRELIMINARY FOR ILLUSTRATION ONLY**



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BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

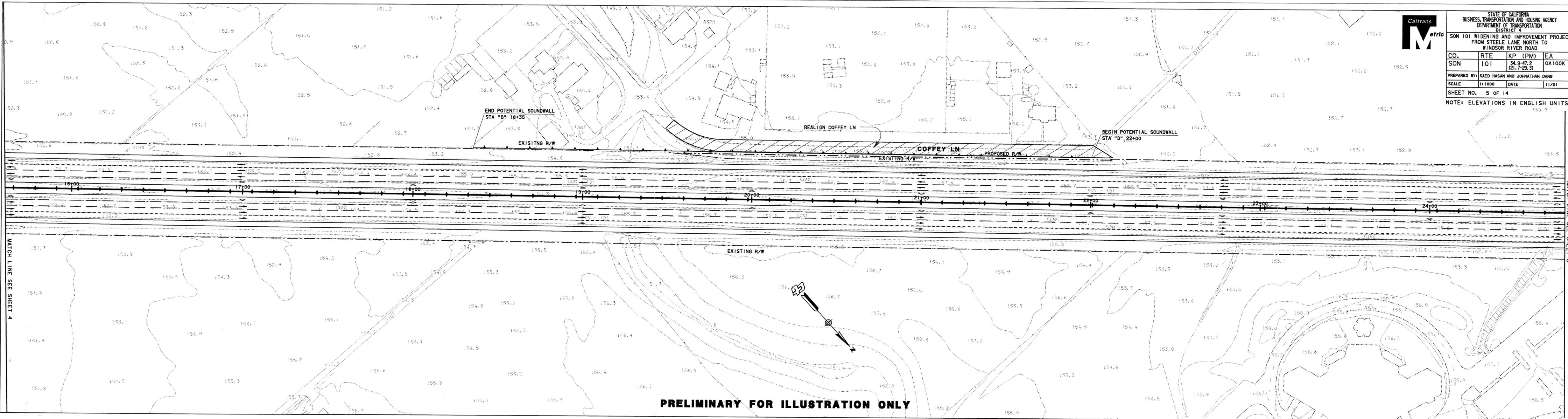
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PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE: 1"=1000' DATE: 11/01

SHEET NO. 5 OF 14

NOTE: ELEVATIONS IN ENGLISH UNITS



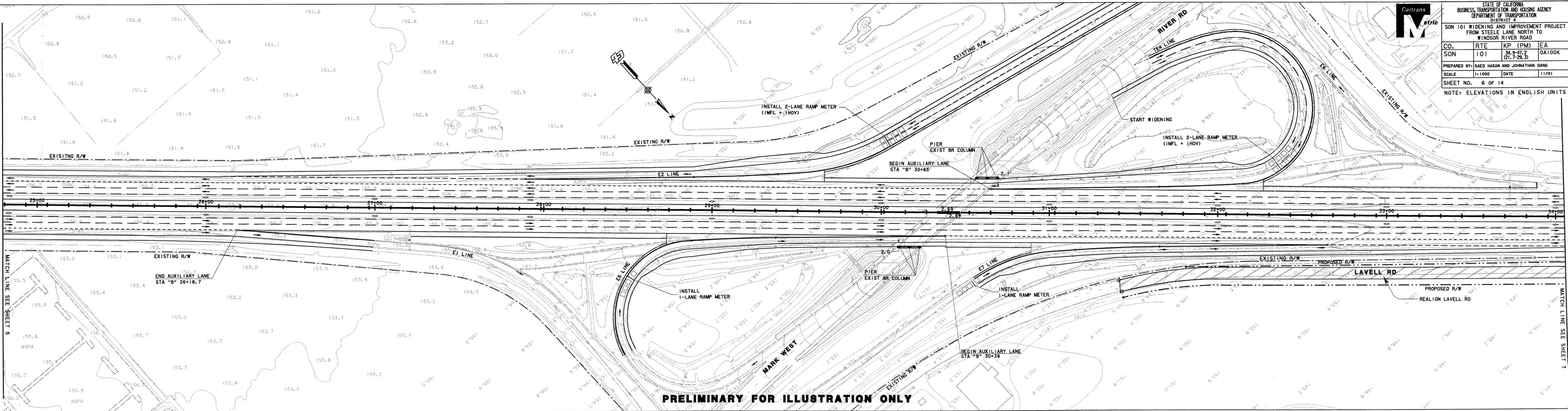
**PRELIMINARY FOR ILLUSTRATION ONLY**

MATCH LINE SEE SHEET 4

MATCH LINE SEE SHEET 6



STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LANE NORTH TO WINDSOR RIVER ROAD			
CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K
PREPARED BY: SAED HASAN AND JOHNATHAN DANG			
SCALE	1" = 1000'	DATE	11/01
SHEET NO. 6 OF 14			
NOTE: ELEVATIONS IN ENGLISH UNITS			



**PRELIMINARY FOR ILLUSTRATION ONLY**

MATCH LINE SEE SHEET 5

MATCH LINE SEE SHEET 7



STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

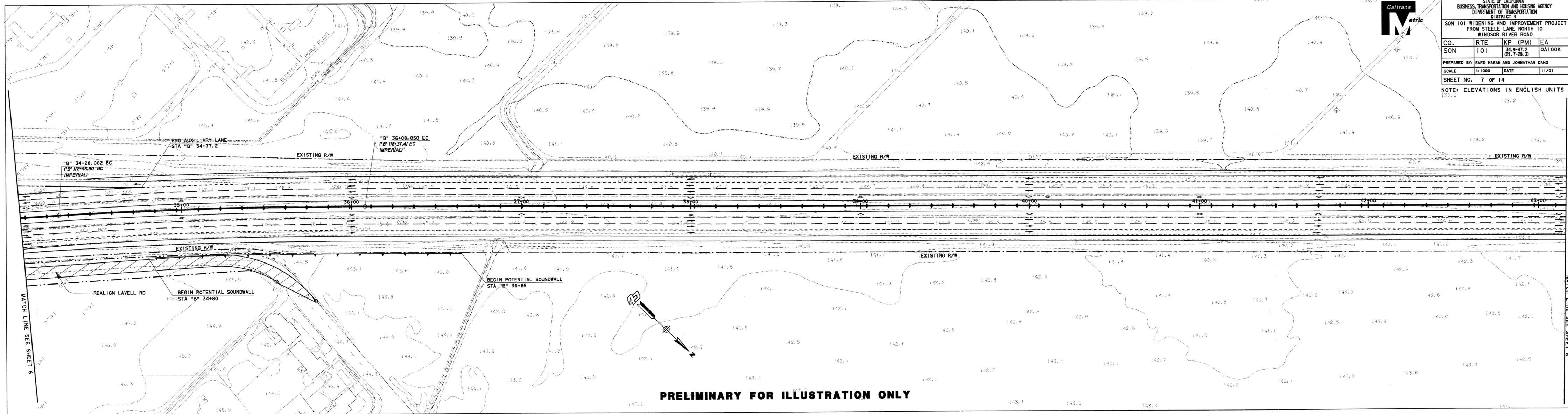
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SON	101	34.9-47.2 (21.7-29.3)	0A100K

PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE	DATE
1" = 100'	11/01

SHEET NO. 7 OF 14

NOTE: ELEVATIONS IN ENGLISH UNITS



**PRELIMINARY FOR ILLUSTRATION ONLY**

MATCH LINE SEE SHEET 6

MATCH LINE SEE SHEET 8



STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

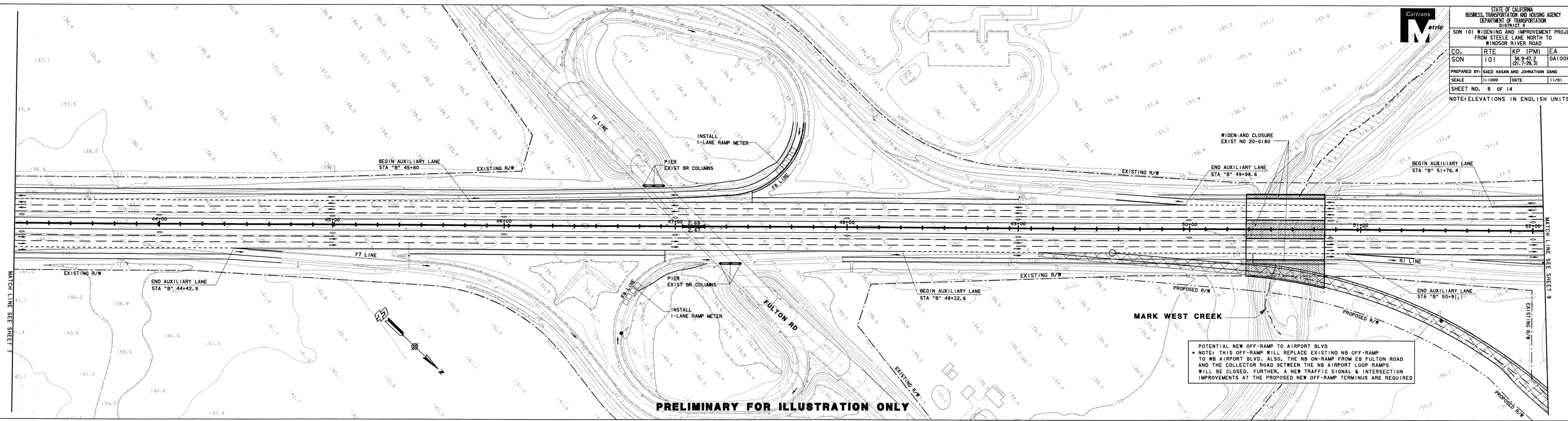
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PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE: 1"=1000' DATE: 11/01

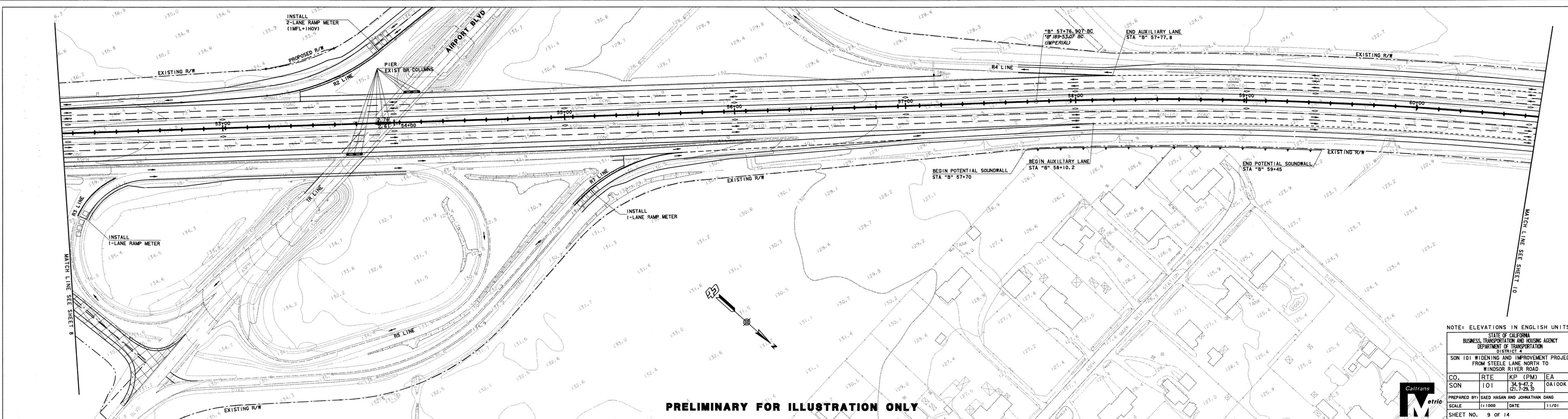
SHEET NO. 8 OF 14

NOTE: ELEVATIONS IN ENGLISH UNITS



MATCH LINE SEE SHEET 7

MATCH LINE SEE SHEET 9



**PRELIMINARY FOR ILLUSTRATION ONLY**

NOTE: ELEVATIONS IN ENGLISH UNITS

STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LANE NORTH TO WINDSOR RIVER ROAD			
CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K
PREPARED BY:	SAED HASAN AND JOHNATHAN DANG		
SCALE	1"=1000	DATE	11/01
SHEET NO.	9 OF 14		





STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

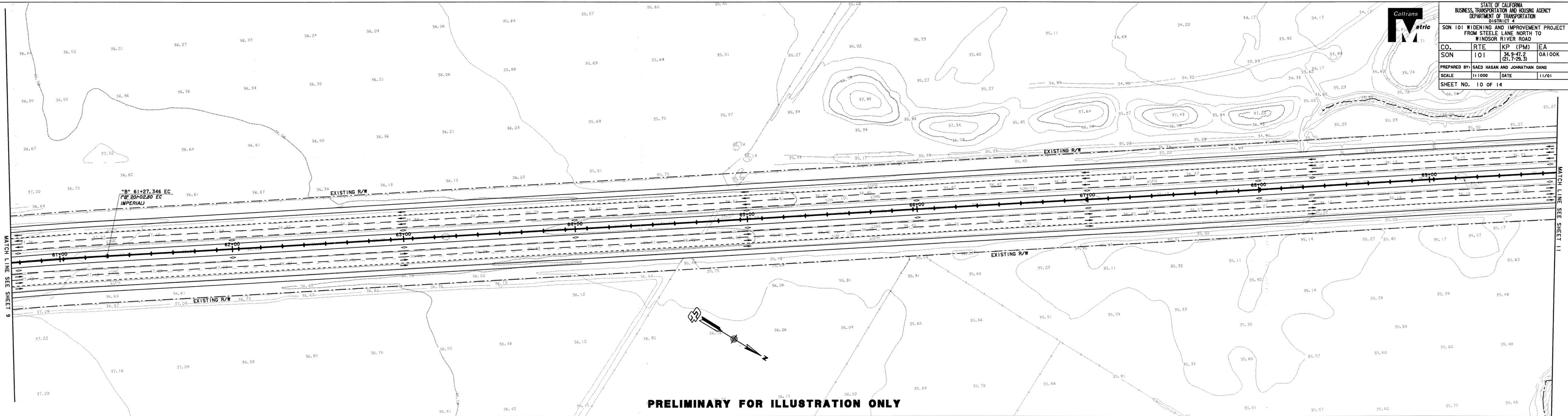
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WINDSOR RIVER ROAD

CO.	RTE	KP (PM)	EA
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PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE	DATE
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SHEET NO. 10 OF 14



"B" 61+27.346 EC  
("B" 20+02.80 EC  
IMPERIAL)

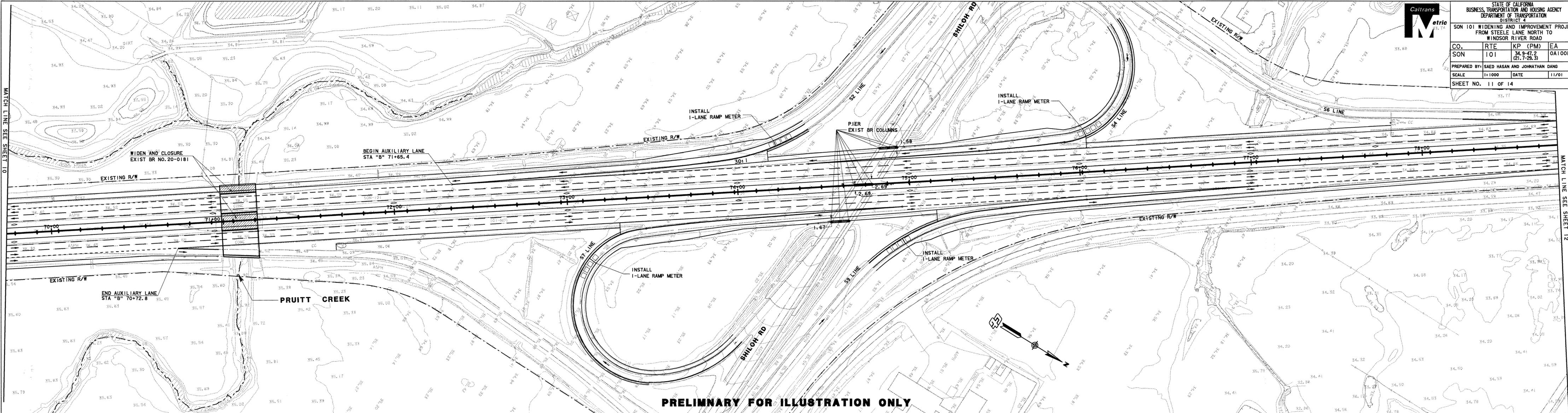
MATCH LINE SEE SHEET 9

MATCH LINE SEE SHEET 11

**PRELIMINARY FOR ILLUSTRATION ONLY**



STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 4			
SON 101 WIDENING AND IMPROVEMENT PROJECT FROM STEELE LANE NORTH TO WINDSOR RIVER ROAD			
CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K
PREPARED BY: SAED HASAN AND JOHNATHAN DANG		DATE	11/01
SCALE	1"=1000	DATE	11/01
SHEET NO. 11 OF 14			



**PRELIMINARY FOR ILLUSTRATION ONLY**

MATCH LINE SEE SHEET 10

MATCH LINE SEE SHEET 12



STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K

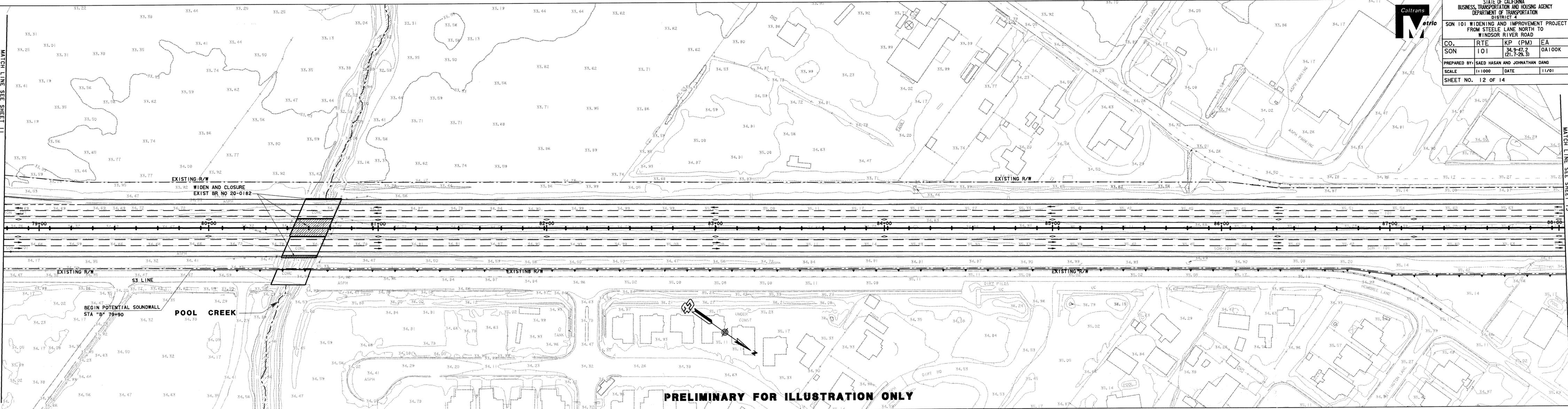
PREPARED BY: SAED HASAN AND JOHNATHAN DANG

SCALE	DATE
1"=1000'	11/01

SHEET NO. 12 OF 14

MATCH LINE SEE SHEET 11

MATCH LINE SEE SHEET 13



**PRELIMINARY FOR ILLUSTRATION ONLY**



STATE OF CALIFORNIA  
BUSINESS, TRANSPORTATION AND HOUSING AGENCY  
DEPARTMENT OF TRANSPORTATION  
DISTRICT 4

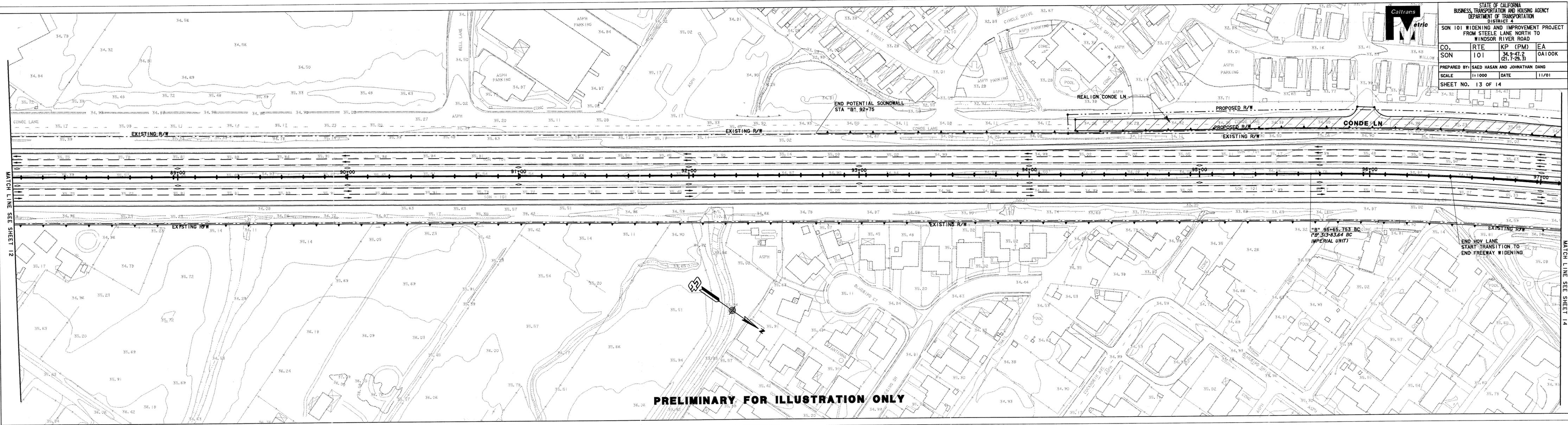
SON 101 WIDENING AND IMPROVEMENT PROJECT  
FROM STEELE LANE NORTH TO  
WINDSOR RIVER ROAD

CO.	RTE	KP (PM)	EA
SON	101	34.9-47.2 (21.7-29.3)	0A100K

PREPARED BY: SAEED HASAN AND JOHANNATHAN DANG

SCALE	DATE
1:1000	11/01

SHEET NO. 13 OF 14



**PRELIMINARY FOR ILLUSTRATION ONLY**



# **ATTACHMENT D**

## **PSR/PDS COST ESTIMATE**



## Project Study Report – Project Development Support Cost Estimate

District-County-Route: 04-SON-101

KP(PM): 34.9-47.2 (21.7-29.3)

EA: 0A100K

Program Code: 20.XX.075.651

### PROJECT DESCRIPTION:

Limits: On Route 101 in Sonoma County from Steele Lane in Santa Rosa City (KP 34.9) to Windsor River Road in Windsor Town (KP 47.2).

Proposed Improvement (Scope): Widen Route 101 from four to six lanes to provide HOV lanes, provide auxiliary lanes, and provide ramp metering and TOS.

Alternate: Build.

### SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS	\$ <u>62,900,000</u>
TOTAL STRUCTURE ITEMS	\$ <u>4,800,000</u>
TOTAL ENVIRONMENTAL MITIGATION ITEMS	\$ <u>23,100,000</u>
SUBTOTAL CONSTRUCTION COSTS	\$ <u>90,800,000</u>
TOTAL RIGHT OF WAY ITEMS	\$ <u>3,500,000</u>
TOTAL PROJECT CAPITAL OUTLAY COSTS	\$ <u>94,300,000</u>

I. ROADWAY ITEMS

<u>Average Cost per Lane KM</u>	<u>Number of KMs</u>	<u>Cost</u>	<u>Total</u>
Total Cost of Lane KMs	<u>12.23</u>	<u>5,143,000</u>	<u>\$62,900,000</u>

Roadway Items included earthwork, barriers, PCC pavement for mainline widening including shoulders, unbonded PCC overlay, asphalt pavement for ramp and local street widening and work, traffic signage, sign illumination, lighting, traffic signals, TOS elements, ramp metering equipment, erosion control, SWPPP, permanent control measure (PMC), drainage, retaining walls, TMP (5% of project cost), miscellaneous/minor items, and 25% contingencies.

Estimates Prepared by: Saed Hasan (510) 286-7208

II. STRUCTURES ITEMS

	Structure (1)	Structure (2)	Structure (3)	Structure (4)
Bridge Name	Mendocino Ave OC 20-0179	Mark west Creek bridge 20- 0180	Pruitt Creek Bridge 20- 0181	Pool Creek Bridge 20- 0182
Total Cost for Structure	\$1,875,000	\$1,831,000	\$650,000	\$463,000

TOTAL STRUCTURES ITEMS \$4,819,000  
 (Sum of Total Cost for Structures)

Mendocino Ave OC needs to be demolished and replaced. Mark West Creek Bridge, Pruitt Creek Bridge and Pool Creek Bridge require outside and median widening. Additionally, a potential noise barrier might be placed on the edge of Pool Creek structure.

Estimates Prepared by: John Bither (916) 227-8605

III. ENVIRONMENTAL MITIGATION

	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>
Environmental Mitigation	<u>1</u>	<u>LS</u>	<u>23,100,000</u>	<u>23,100,000</u>

Environmental mitigation included mitigation for potential contaminated soil disposal, mitigation for biology, potential noise barriers, cultural resources, replace/mitigate for highway planting, miscellaneous/minor items , and 25% contingencies.

Estimates Prepared by: Saed Hasan (510) 286-7208

IV. RIGHT OF WAY ITEMS

ESCALATED VALUE

A. Acquisition, including excess lands, damages to remainder(s), Goodwill, relocation assistant, and Title and Escrow fees	<u>\$3,416,000</u>
B. Utility Relocation (State share)	<u>\$60,000</u>

TOTAL RIGHT OF WAY ITEMS \$3,476,000  
 (Escalated Value)

Anticipated Date of Right of Way Certification N/A  
 (Date to which values are escalated)

Right of Way items included impacts to 16 parcels mostly on the West Side of the freeway. It does not include R/W for environmental mitigation sites if required.

Estimates Prepared by: Lynn White (510) 286-5444

**ATTACHMENT E**

**DESIGN SCOPING CHECKLIST**



# PDS Design Scoping Checklist

## Project Information

District 04 County SON Route 101 Kilometer Post (Post Mile) 34.9-47.2 (21.7-29.3) EA 0A100K

Description Widen Route 101 from 4 to 6 lanes to construct HOV lanes in northbound and southbound from Steele Lane in the City of Santa Rosa to Windsor River Road in the Town of Windsor. Also, this project would provide auxiliary lanes in both directions from Steele Lane to Shiloh Road. Further, this project would provide TOS components and ramp metering for all on-ramps within the project limit.

Project Manager	<u>Nino Cerruti</u>	Phone # <u>(510) 286-5129</u>
Project Engineer	<u>Saed Hasan</u>	Phone # <u>(510) 286-7208</u>
Design Functional Manager	<u>Saaid Fakharzadeh</u>	Phone # <u>(510) 286-6011</u>
Project Development Coordinator	<u>Mike Thomas</u>	Phone # <u>(510) 286-4687</u>

## Project Screening

1. Project Description as Noted in Regional Transportation Plan: Sonoma Route 101 – Widen for HOV lanes - Steele Lane to Windsor River.
2. Project Setting flat terrain  
Rural or Urban urban  
Current land uses undeveloped, vineyards, residential, and businesses  
Adjacent land uses commercial, agricultural, and residential  
(industrial, light industry, commercial, agricultural, residential, etc.)  
Existing landscaping/planting trees and small vegetation

3. Route Adoption Date: 1944 & 1955 Type of Facility ( Freeway, Controlled Access Highway, or Conventional Highway), Freeway

Freeway Agreement Date: 1976, 1979 & 1996

## Description of the Transportation Problem

Route 101 is a major link in the region's interregional road system and the most important north-south route within Sonoma County. Route 101 is also a "Focus Route". A "Focus Route" is one that has the highest priority for completion to minimum facility standards. This corridor is the

traveled route for local and interregional traffic serving commuter, commercial, and recreational traffic. The highway was completed in the early 1960's. No major freeway widening or ramp improvements have been made since then, except for minor realignment/improvements to the southbound on-ramp at the Windsor River Road/Downtown Windsor Interchange. Within the vicinity of the project, operational deficiencies and traffic delays are prevalent on Route 101 due to existing bottlenecks at different locations. Traffic forecasts indicate that existing congestion on Route 101 in Sonoma County will substantially worsen in the future. Preliminary traffic projections show that peak hour traffic is anticipated to increase by about thirty to one hundred percent through the year 2029 between the Steele Lane Interchange and Windsor River Road Interchange. Inasmuch as various parts of Sonoma 101 are already operating at capacity, this additional traffic will worsen traffic queues. Currently, local agencies observe traffic heading to the freeway backs onto city streets at Airport Boulevard and River Road during AM and PM commute hours. Further, current weaving and merging problems mainly in the northbound direction at the Airport Boulevard Interchange constrain the interchange traffic flow. The City of Santa Rosa expects an increase in traffic due to projected growth and development in the area, including plans for an airport expansion. Future developments will exacerbate deficiencies around the Airport Boulevard and River Road Interchanges and thus reducing the efficiency of the corridor.

### **Proposed Scope of Work**

The main purpose of this project is to increase system capacity on Route 101 in Sonoma County and will reduce part of the future congestion. The proposed HOV lanes will contribute to the goal of a continuous HOV lane system between southern Marin County and the Town of Windsor in Sonoma County that will enable high occupancy vehicles to bypass traffic congestion in most areas along this corridor. HOV lanes will encourage carpooling and the use of express buses. Additionally, this project proposes to optimize traffic flow by improving weaving sections and the merge of traffic, improving safety, and improving air quality.

This project will analyze these two alternatives:

- I) No Build: This alternative is the baseline for comparison with the build alternative. If this alternative is chosen, no improvements to the freeway would be made and traffic congestion and traffic delays will worsen through the year 2029. The existing Route 101 in the vicinity of this project consists of two 3.6 m (12-foot) lanes in each direction, 2.4 m (8-foot) outside paved shoulders, 1.5 m (5-foot) partially paved shoulders, and 11 to 14 m (36 to 46 feet) unpaved median with Thrie beam barrier in the middle of the median. Within the project limits, the spacing between the following interchanges is less than the minimum required standard of 1.5 km: between Steele Lane I/C and Bicentennial Way I/C is approximately 1.2 km; between Bicentennial Way I/C and Mendocino I/C is approximately 0.5 km, between Mendocino Ave I/C and Hopper Ave I/C is approximately 0.7 km, between Fulton Rd I/C and Airport Boulevard I/C is approximately 0.7 km. The no-build alternative will not correct existing weaving problems particularly between the northbound Fulton Rd on-ramp to northbound Airport Blvd off-ramp where the weaving length is approximately 260 m. Currently, there are trees and vegetation in close vicinity of the outside shoulders.
- II) Build Alternative: This alternative will consist of the following elements: build HOV lanes in both northbound and southbound direction from Steele Lane to Windsor River Road; build

auxiliary lanes in the northbound from Mendocino Ave to Shiloh Road; build auxiliary lanes in the southbound from Shiloh Road to Bicentennial Way; provide ramp-metering equipment to all existing 17 on-ramps within the project limits; provide TOS elements; and improve weaving and merging at the northbound Airport Boulevard on- and off-ramps. In addition, HOV preferential (by-pass) lanes will be added to those on-ramps depending on feasibility and traffic demand.

Mendocino Ave OC will be demolished and replaced to accommodate the proposed combined widening for HOV and auxiliary lanes. Mark West Creek structure, Pool Creek structure, and Pruitt Creek structure need to be widened. The Sonoma County Transportation Authority proposed analyzing improvements to the Airport Blvd I/C to include, but not limited to, eliminating the existing NB loop off-ramp to WB Airport Blvd. This loop off-ramp will be replaced by a new diagonal off-ramp just south of the existing loop on-ramp from EB Airport Blvd. This would require closing the existing NB loop on-ramp from EB Fulton Road due to its close proximity to the proposed off-ramp. The proposed new off-ramp will direct traffic to either EB or WB Airport Blvd and would require signaling the ramp termini.

Geometrically, the proposed HOV lanes, mixed flow lanes, and auxiliary lanes will have a 3.6 m lane width and 3.0 m inside and outside shoulder width. A Type 60 concrete median barrier is proposed. Under bridges appropriate type of barrier to protect existing columns will be determined in the coming phase of the project. To accommodate the proposed widening, right of way will be acquired and trees and vegetation will be removed to obtain a minimum of 9.0 m clear recovery zone. A minimum outer separation of 8.0 m will be provided between the mainline and frontage roads. Because, Caltrans field maintenance does not have any record of flooding problems and depending on further analysis during the PA/ED phase, the existing cross slopes of 1.5% might be maintained. As required by the Ramp Meter Design Guidelines, CHP enforcement areas are proposed for all on-ramps. The proposed widening will be on fill slopes of 1:2 or flatter. Potential soundwalls are proposed to be placed next to right of way line. Mainline pavement widening including shoulders will be constructed using Asphalt Cement (AC). Existing pavement will be rehabilitated using Crack and Seat -AC overlay. Unbonded Concrete Overlay could be used instead of the AC overlay for longer life pavement. If this rehabilitation strategy is used then the proposed widening will be performed using PCC pavement and vertical clearances under existing structure will become a major issue. However, the overlay type will be determined during the coming phase of the project. The following is a preliminary list of potential mandatory design exceptions for this project:

- 1) Inside mainline shoulder widths of 2.1-2.7 m are proposed (3.0 m required) only under existing five bridge structures overcrossing. This is due to existing columns support in the middle of existing median. These exceptions are proposed to save existing structures.
- 2) A 2.0 m outside shoulder (2.4 m required) for the NB on-ramp from EB Mark West River Rd and SB on-ramp from WB Mark West River Rd. This exception is proposed only under the bridge structure. This is required to save the Mark West structure by avoiding existing columns support for the structure.

- 3) A 1.6 m outside shoulder (2.4 m required) for the NB on-ramp from EB Shiloh and SB on-ramp from WB Shiloh. This exception is proposed only under the bridge structure to avoid existing columns support for the structure.
- 4) The vertical clearance to existing bridges may be reduced approximately from 4.7 m (at the edge of existing inside shoulder) to 4.6 m (at the edge of the proposed concrete barrier) under River Rd OC and Fulton Rd OC; approximately from 4.7 m (at the edge of existing inside shoulder) to 4.56 m (at the edge of the proposed concrete barrier) under Airport Blvd OC; and approximately from 4.6 m (at the edge of existing inside shoulder) to 4.5 m (at the edge of the proposed concrete barrier) under Shiloh Rd OC. The proposed exception (4.9-5.1 m required) is necessary to save existing structure. Possible means to improve the proposed vertical clearance will be analyzed in detail during the PA/ED phase of the project and may include lowering the existing profile, grinding existing pavement, or other means. SON 101 is not part of the Interstate System and therefore not part of the FHWA "Single Routing Interstates". Accident data for the past three years indicate that there is no record of accidents that involved hitting the bottom of these structures.
- 5) The existing single lane NB Mendocino Ave on-ramp may not be widened to include the recommended two mixed flow lanes plus one HOV lane. This exception is required due to the close proximity of the on-ramp to the Old Redwood Highway and Mendocino intersection. Ramp widening would not be achieved without disturbing and realigning the intersection and the Old Redwood Highway.
- 6) This project would not widen the existing NB on-ramp from EB Fulton Road and the SB on-ramp from WB Shiloh to include HOV lane bypass due to existing column support for the OC structures. The projected traffic volume for the on-ramp from EB Fulton is 643 vph and it is 745 vph from WB Shiloh. It is proposed to keep those existing single lane ramps to handle projected traffic.

### Design Criteria

Type of facility to be considered? (more than one may apply)

Freeway  Expressway  Conventional Highway  Urban Street

Other (specify) \_\_\_\_\_

Design Speed for highway facilities within the project limit? 90-130 km/hr

Design Period: Construction Year is? End 2010 Design Year is? 2030

Design Capacity: Level of Service to be maintained over the design period is?

Mainline N/A Ramp N/A Local Street \_\_\_\_\_ Weaving Sections \_\_\_\_\_

Design Vehicle Selection?

STAA  California \_\_\_\_\_ Bus \_\_\_\_\_

**Proposed Roadbed and Structure Widths**

Forecasted Average Daily Traffic Volumes (year 2029) 169,000 (max.)  
Percent Truck Volume: 7.7% & Varies

	Roadbed Width			Structure Width		
	Existing	Proposed	Standard	Existing	Proposed	Standard
<b>State highway</b>						
Lane Widths	<u>3.6</u>	<u>3.6</u>	<u>3.6</u>	<u>3.6</u>	<u>3.6</u>	<u>3.6</u>
Left Shoulder	<u>1.5</u>	<u>3.0</u>	<u>3.0</u> <sup>1</sup>	<u>(1.2/1.5)</u> <sup>3</sup>	<u>(2.4/3.0)</u> <sup>4</sup>	<u>(2.4/3.0)</u> <sup>4</sup>
Right Shoulder	<u>2.4</u>	<u>3.0</u>	<u>3.0</u>	<u>(1.2/2.4)</u> <sup>5</sup>	<u>(2.4/3.0)</u> <sup>4</sup>	<u>(2.4/3.0)</u> <sup>4</sup>
Median Width	<u>11-14</u>	<u>6.6</u>	<u>6.6</u>			
Bicycle Lane	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>			
<b>Local Street<sup>2</sup></b>						
Lane Widths	<u>Varies</u>	<u>3.6</u>	<u>3.6</u>			
Left Shoulder	<u>Varies</u>	<u>1.2</u>	<u>1.2</u>			
Right Shoulder	<u>Varies</u>	<u>1.2</u>	<u>1.2</u>			
Median Width	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>			
Bicycle Lane	<u>Varies</u>	<u>1.5</u>	<u>1.5</u>			

Median Barrier Existing Thrie Beam  
Proposed (Concrete Barrier / Thrie Beam / Other) Concrete Barrier type 60

1. 2.1-2.7 m only under existing bridge structure overcrossings
2. Local roads are frontage roads that need realignment due to the proposed freeway widening. Mendocino Ave OC listed under structures is considered local road.
3. 1.2 m for the Mendocino Ave OC and 1.5m for the Mark West Creek bridge, Pool Creek bridge and Pruitt Creek bridge.
4. 2.4 m for the Mendocino Ave OC and 3.0m for the Mark West Creek Bridge, Pool Creek bridge and Pruitt Creek bridge.
5. 1.2 m for the Mendocino Ave OC and 2.4m for the Mark West Creek bridge, Pool Creek bridge and Pruitt Creek bridge.

**Roadway Design Scoping**

**Mainline Operations**

**Mainline Highway Widening**

Existing pavement to be rehabilitated with Asphalt Concrete / Rubberized AC / PCC.

Widen existing 4 lane facility to 6 lanes. R/W acquisition for 1 HOV Lane (from Steele Ln to Windsor River Rd) + 1 Auxiliary lane (form Steele Ln to Shiloh Rd) in each direction.

Local street structures to span 0 lanes of highway (for future requirements).

Upgrade existing facility to:

- Expressway Standards
- Freeway Standards
- Controlled Access Highway
- Traversable Highway

- Improve Vertical Clearance       Adequate Falsework Clearance

### Ramp / Street Intersection Improvements

- New Signals
- Right Turn Lanes
- Merging Lanes
- Left Turn Lanes
- Interchange Spacing
- Intersection Spacing
- Single Lane Ramps Exceeding 300 M Widened To Two Lanes
- Other: Ramp metering
- Modify Signals
- Widening For Localized Through Lanes
- Deceleration / Acceleration Lanes
- > 300 VPH Left Turn (Requires Double Left Turn)
- Ramps Intersect Local Street < 4 % Grade
- Exit Ramps > 1,500 VPH Designed As Two Lane Exit

### Operational Improvements

#### Truck Climbing Lane

- Sustained Grade Exceeding 2% And Total Rise Exceeds 15 M.
- Other \_\_\_\_\_

#### Auxiliary Lanes

- When 600 M Between Successive On-Ramps.
- Two Lane Exit Ramps Have 400 M Auxiliary Lane.
- Weaving < 500 M between Off-Ramp and On-Ramp.
- Other: Add Auxiliary Lanes as needed at different locations, ramp metering, TOS: CMS, CCTV, HAR, EMS, TMS

### Right of Way Access Control

- Existing access control extends at least 15 m beyond end of curb return, radius or taper.
- New construction access control extends at least 30 m (urban areas) or 100 m (rural areas) beyond end of curb returns, radius or taper.
- Other \_\_\_\_\_

### Highway Planting

- Replacement
- Median
- Mitigation

### Safety

- Off-Freeway Access
- Maintenance Vehicle Pull-Out

### Roadside Management

- Slope paving
- Gore paving

✓ Roadside paving

**Stormwater**

- ✓ Erosion control
- ✓ Drainage
- Slope design

**Structures**

- ✓ New Bridge
- Bridge Rehab
- ✓ Retaining Wall
- ✓ Other : Widen existing three creek bridge structures
- On STRAIN list for \_\_\_\_\_

**Additional Studies**

The proposed auxiliary lanes for this project need to be further analyzed to determine their need and exact locations. Current, preliminary operational analyses indicate that the proposed southbound auxiliary lanes may not have a positive impact on traffic congestion. Further, in the northbound, the proposed auxiliary lanes may cause the reduction of timesaving to insignificance for HOV lane users. Additional alternatives need to be analyzed to mitigate for Airport Boulevard interchange deficiencies.

Preliminary Evaluation provided by:

Project Engineer: Saed Hasan Date 12/19/2001  
Saed Hasan

Design Manager: Saaid Fakhrazadeh Date 12/19/01  
Saaid Fakhrazadeh

Design Concept approved by:

Project Development Coordinator: Michael Thomas Date 12/19/01  
Michael Thomas

*Conceptual approval in no way implies that any non-standard features currently identified or identified in the future will be approved. Non-standard features will need to be identified, fully analyzed and justified prior to approval (via a design exception fact sheet) of the selected alternative.*

Reviewed by:

Project Manager: Nino Cerruti Date 12-19-01  
Nino Cerruti

Project Study Report (Project Development Support)  
SON 101 Widening and Improvements

# **ATTACHMENT F**

## **ENVIRONMENTAL CHECKLIST**



# Environmental Scoping Checklist

## Project Information

District 4 County SON Route 101 Kilometer Post (Post Mile) 34.9-47.2 (21.7-29.3)  
EA 0A100K

Description: Widen Route 101 from 4 to 6 lanes to construct HOV lanes in northbound and southbound from Steele Lane in the City of Santa Rosa to Windsor River Road in the Town of Windsor. Also, this project would provide auxiliary lanes in both directions from Steele Lane to Shiloh Road. Further, this project would provide TOS components and ramp metering for all on-ramps within the project limit.

Project Manager	<u>Nino Cerruti</u>	Phone #	<u>286-5129</u>
Project Engineer	<u>Saed Hasan</u>	Phone #	<u>286-7208</u>
Environmental Functional Manager	<u>Susan Simpson</u>	Phone #	<u>286-5619</u>

## Environmental Determination

Environmental evaluations for this project will be prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Federal Highway Administration (FHWA) will be the lead agency for this project under NEPA and Caltrans will be the lead agency for this project under CEQA. Based on preliminary reviews, a determination has been made that this project qualifies for an Environmental Impact Statement / Environmental Impact Report (EIS/EIR) documentation. The environmental lead-time estimate for this project during the PA/ED phase is expected to be five years. To meet the Sonoma County Transportation Authority's "2010 Construction Strategy", the Department would contract out the preparation of the EIS/EIR in order to reduce the lead-time for the PA/ED phase to four years.

## Community Resources

Based on the scope of this project, there should not be any social-economic impacts. Furthermore, the proposed work should not have any "disproportionately adverse" effects on minority and low-income populations and, therefore, should not raise any Environmental Justice issues. However, due to the proposed right-of-way takes at various locations throughout the project, a Community Impact Study is expected to be conducted during PA/ED.

### **Visual Resources**

A preliminary review has indicated a need for a visual impact study for this project. The route is not part of the State Scenic Highway System, however it is identified as a scenic corridor in the Sonoma County General Plan.

### **Biological Resources**

A preliminary review of the project area and the California Natural Diversity Database (CNDDDB) revealed several sensitive species that occur near or adjacent to the proposed project location. The project area is located adjacent to the Santa Rosa Plains. Historically, this area contained vernal pools utilized by several sensitive plant and animal species. The project area also crosses over several bodies of water (listed in order from north to south) Windsor Creek (crossing under the highway twice), Pool Creek (crossing twice), Mark West Creek, and the Santa Rosa Flood Control Channel (crossing three times).

A windshield survey was conducted on 11/02/01. The survey revealed several ditches that may be determined by the ACOE to be jurisdictional wetlands or "waters of the US" within the project right-of-way. Impacts to wetlands deemed jurisdictional by ACOE requires a 404 permit (Individual Permits are required for any wetland impacts greater than three acres, wetland impacts greater than 5 acres will require NEPA/404 Integration Process) under the Clean Water Act and requires that the wetland area be mitigated for due to the "no net loss" status of wetlands. Trees within the right-of-way primarily consist of redwoods, however there were a few oak trees that, if removed, would have to be mitigated for depending on the project's impact on trees within the right-of-way.

Near the East Shiloh Road Exit there were areas that historically contained vernal pools and sensitive plants. These areas are now either developed, are cultivated farmland, or are irrigated lawns. There are still a few potential areas within the right-of-way that may support those sensitive plant species. Studies will have to be conducted during the spring when these plants flower to accurately identify the plants. If vernal pools are discovered, a survey for California tiger salamanders is needed since they have been known to occur in vernal pools of the Santa Rosa Plains region. If vernal pools and sensitive species utilizing vernal pools are discovered during a spring survey, a two year biological survey of these areas are required by CDFG.

Many of the creeks in the area have been shown to support sensitive species including steelhead and coho salmon, northwestern pond turtles, California freshwater shrimp, foothill yellow-legged frogs, and California Red-legged frogs. Working within the creek beds would require a CDFG 1601 Agreement. The presence of any sensitive species requires consultation with CDFG, NMFS, and/or USFWS regarding potential impact to the listed species. During the windshield survey, several small fish were observed in Pool Creek, but a species ID was not made.

On the southbound side of 101 just south of East Shiloh Road exit there is the potential

for sensitive plants just off of the roadway where historical vernal pools may have occurred or continue to occur. A sensitive plant survey should probably be conducted in the spring when the plants are in flower to verify their occurrence. Oak trees, wetland ditches, and stream crossings probably are the primary impacts on the southbound portion of the project.

### **Historic Property Resources**

The following sources have been checked for possible properties in the vicinity of the project: National Register of Historic Places (through 2001), California Historical Landmarks (through 2001), and the City of Santa Rosa Historic Properties Inventory (Department of Community Development, 1990), and the Caltrans Historic Bridge Survey. Outstanding inventories still to be received include an updated Sonoma County Landmarks list from the Sonoma county Permit and Resource Management Department, and the "Directory of Properties in the Historic Property Data File" to be sent by the Northwest Information Center at Sonoma State University.

The only property listed on the National Register of Historic Places in the vicinity of the project limits is the James and Frances Laughlin House on Lone Redwood Road, added in 1979. There are no California Historical Landmarks in the vicinity of the project limits.

There are approximately 18-20 properties noted with the windshield survey (10/16/01) adjacent to the highway between the project limits that appear to have been constructed before 1957. Of these, about 6-8 of them are in the vicinity of proposed right-of-way take, and would therefore likely need to be formally evaluated. A Historic Architecture Survey Report for the entire project will be conducted, after updated detailed project plans and descriptions have been submitted (including existing and proposed right-of-way).

All 13 bridges/highway structures within the project postmiles date from 1962 to 1979, and all have been rated 5, or ineligible for the National Register of Historic Places.

### **Archeological Resources**

A limited cultural resources literature review for this project was completed of district cultural resources files. A prehistoric archaeological site was recorded within the project right of way in 1978. The associated archaeological survey report indicates that the site may in fact be a village site known historically and through Native American oral tradition as *Cutawani*. In 1980 an archaeological field investigation was conducted at the recorded location and determined that the site was erroneously assigned a designation, and was not a cultural site at all. Given the age of the reports in question and the contradictory information in the district files, a complete literature review should be conducted at the California Historical Resources Information System (CHRIS) to determine if additional work in the area has been conducted. Limited field investigation within the project's Area of Potential Effect (APE) may also be necessary. If such work is necessary, all measures will be taken to meet Federal and State Regulations.

### **Air Quality**

The project is located within the San Francisco Bay Area Air Basin. The air basin is currently designated as a non-attainment area for ozone on the federal level and for ozone and particulate matter (PM<sub>10</sub>) on the state level. In addition, the basin is a carbon monoxide maintenance area on both the state and federal level. As a result, the project must be evaluated to determine if it would cause or contribute to new violations of air quality standards, worsen existing violations, or interfere with timely attainment of standards. This evaluation will be based on reviewing the project's traffic analysis as well as local transportation plans and the Bay Area's component of the State Implementation Plan during the PA/ED phase.

### **Noise Analysis**

This project meets the criteria of a Type 1 Project as defined by FHWA 23 CFR 772. Approximately 3,354 meters of new noise barriers may be considered at various locations where receptors exist, on both the northbound and southbound side of Route 101. Depending on when the environmental documentation for this project is completed, additional noise barriers may be considered for adjacent undeveloped land where the County of Sonoma, City of Santa Rosa, and the Town of Windsor have jurisdiction for approving residential building permits. Within the project area, approximately 250 meters of adjacent land along the highway has the potential for residential development. A Traffic Noise Impact Report will be conducted during the PA/ED phase. A final decision on the location for all noise barriers will be made during PA/ED.

### **Floodplain Evaluation**

No floodplain evaluation was done. A floodplain analysis must be done during the PA/ED phase.

### **Water Quality**

Since this project would involve work in environmentally sensitive areas, the Standard Special provision 07-345 shall be included in the Plans, Specifications and Estimates (PS&E) to address water pollution control and Storm Water Pollution Prevention Plan (SWPPP) requirements. This project must also adhere to the conditions of the Department Statewide National Pollution Discharge Elimination System (NPDES) Permit CAS #000003, Order #99-06-DWQ, issued by the State Water Resources Control Board (SWRCB); and the NPDES General Permit CAS #000002, Order #99-08-DWQ, for General Construction Activities.

Incorporation of Permanent Control Measures (PCM) or drainage improvements for water quality benefit shall be considered for all highway improvement projects, as required by section F.4 of the Department statewide NPDES permit. The consideration of these measures will be discussed and documented.

Incorporation of treatment best management practices (BMPs) into the design and operations of all highway projects is also required under Section 4.4 of the Storm Water

Management Plan, which implements the Caltrans statewide NPDES permit. This consideration process will be documented by the Department in the Annual Report to the State Water Resources Control Board.

Special care is required when handling and storing contaminated soil, including soil contaminated with aerially deposited lead (ADL), to maintain water quality standards. See Hazardous Waste text for more details.

### **Hazardous Waste**

Based on the Initial Site Assessment, the project area has potential soil and groundwater contamination due to leaking underground storage tank (LUST), hazardous waste material release adjacent to state highway, and aerial deposition of lead from motor vehicles exhaust. A Preliminary Site Investigation would be conducted during the early PS&E stage.

There is probable aerially deposited lead (ADL) contamination in the unpaved areas adjacent to the existing roadway. In many instances the California regulatory threshold for lead is exceeded, thus excavated soils would require special management and handling prior/during construction activities. ADL is a result of past exhaust emissions from vehicles using leaded gasoline. Generally, ADL has been found at the top two feet of existing unpaved surfaces next to traveled areas; consequently, any surface potentially disturbed by construction activities should be tested for lead. If test results reveal soils with lead levels exceeding regulatory thresholds within the project work areas, the materials must be handled according to regulatory requirements. The special handling may include implementing a health and safety plan to protect construction workers, the public, and the environment, and reusing the material according to the variance granted to Department by the Department of Toxic Substance Control, or requiring off-site disposal of the materials.

Contaminated soil raises several storm water pollution concerns. Issues such as the quantity of the contaminated soil, its level of contamination, where it will be stored, and when this activity will take place (winter/summer season) should be described in detail in the appropriate section of Special Provisions. These issues should also be addressed in the SWPPP. Section H.9 of the Department Statewide NPDES permit requires notification of the appropriate RWQCB(s) if the project involves reuse of ADL contaminated soil, 30 days prior to advertisement for bids. This is to allow the RWQCB(s) to determine any need for the development of Waste Discharge Requirements (WDR). If a hazardous waste investigation is done, and if it is determined that ADL contaminated soil is present, the Department of Toxic and Substance Control (DTSC) Variance for reuse of the soil could be invoked. The RWQCB will be notified promptly if a decision is made to invoke the variance.

The project description also indicates modification, reconstruction, and demolition of concrete structures at various points along the length of the project. Air quality

regulations require the structures be surveyed for asbestos containing material prior to the start of any renovation or demolition. Proper testing, handling, and disposal must be complied with prior to and during construction. Structure as-built plans showing the joints and drainage details on the structure and abutments will be reviewed during the PA/ED phase.

Any proposed work involving removal of yellow traffic stripes and pavement markings shall be considered to have potential hazardous waste issues. Yellow traffic paint, yellow thermoplastic paint/tape or markings (over 3 years on the pavement) contain lead chromate as the pigment which after removal produces debris that could exceed heavy metals thresholds established by Title 22 California Code of Regulations. During PS&E, the appropriate special provisions for the handling and disposal of the yellow striping debris should be added.

### **Anticipated Environmental Approval**

#### **CEQA**

- Categorical Exemption
- Negative Declaration
- Environmental Impact Report

#### **NEPA**

- Categorical Exclusion
- Finding of No Significant Impact
- Environmental Impact Statement

Why? There may be potential affects to environmental resources and a full study must be conducted to CEQA and NEPA regulations.

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### **Project Screening**

Attach the project location map to this checklist to show location of all known and/or potential hazardous waste, cultural (not archaeological) and biological sites identified. (Include any work with drainage and/or waterways).

1. Project Features: New R/W? Yes Excavation? Yes Railroad Involvement? No  
Structure demolition/modification? Yes Subsurface utility relocation? Yes
2. Project Setting Route 101 Corridor from Steele Ln to Windsor River Rd  
Rural or Urban Urban  
Current land uses Freeway  
Adjacent land uses Commercial/Residential

(Industrial, light industry, commercial, agricultural, residential, etc.)

Existing landscaping/planting Highway Landscaping

### **Cultural Resources Screening**

1. Check federal, State, and local environmental records and databases as necessary, to see if any known cultural resources site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project. (Do NOT show location of archaeological sites on the map.)
2. Conduct Field Inspection. Date Oct 16, 2001
3. Other comments and/or observations: see Environmental Scoping for comments on archeological and historical property resources

### **Hazardous Waste Screening**

Is the project on the HW Study Minimal-Risk Projects List (HW1)? No

1. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.
2. Conduct Field Inspection. Date Oct 18, 2001 Use the attached map to locate potential or known HW sites.

#### STORAGE STRUCTURES / PIPELINES:

Underground tanks	<u>Yes</u>	Surface tanks	<u>No</u>
Sumps	<u>No</u>	Ponds	<u>No</u>
Drums	<u>No</u>	Basins	<u>No</u>
Transformers	<u>No</u>	Landfill	<u>No</u>
Other	<u>No</u>		

#### CONTAMINATION: (spills, leaks, illegal dumping, etc.)

Surface staining	<u>No</u>	Oil sheen	<u>No</u>
Odors	<u>No</u>	Vegetation damage	<u>No</u>
Aerial lead	<u>Yes</u>	Other	<u>No</u>

#### HAZARDOUS MATERIALS: (asbestos, lead, etc.)

Structures	<u>No</u>	Spray-on fireproofing	<u>No</u>
Pipe wrap/Asbestos Cement Pipe	<u>Yes</u>	Friable tile	<u>No</u>

Yellow thermoplastic paint Yes Serpentine No  
Lead paint No Other No

3. Additional record search, as necessary, of subsequent land uses that could have resulted in a hazardous waste site. Use the attached map to show the location of potential hazardous waste sites.
4. Other comments and/or observations: There are potential petroleum hydrocarbon contamination in the soil and groundwater due to four leaking underground storage tank sites adjacent to the project limits. See Environmental Scoping section for additional Hazardous Waste comments.

**Determination:** Does the project have potential hazardous waste involvement? Yes If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Preliminary Site Investigation? No If "YES", then give an estimate of additional time required:

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### **Biological Resources Screening**

1. Check federal, State, and local environmental records as necessary, to see if any known sensitive biological habitat or wetlands site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.
  2. Conduct Field Inspection. Date 11/02/01 Due to the sensitive nature of the documented sites of listed species, location maps will not be provided in this document. However, this information from the California Natural Diversity Data Base can be shared upon request.
  3. Other comments and/or observations: Based on the California Natural Diversity Database, several sensitive species occur near or adjacent to the proposed project location. However, they are not likely to be adversely affected by the proposed project.
-

**Environmental Technical Reports or Studies Required Anticipated**

	Study/ Report	Document Text Only	Not Anticipated
<b>Community Impact Study</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Farmland</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Visual Resources</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Water Quality</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Floodplain Evaluation</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Noise Study</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Air Quality Study</b>	✓	<input type="checkbox"/>	<input type="checkbox"/>
<b>Other</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Cultural</b>			
Archaeological Survey Report (ASR)	✓	<input type="checkbox"/>	<input type="checkbox"/>
Historic Survey Report (HSR)	✓	<input type="checkbox"/>	<input type="checkbox"/>
Historic Architecture Survey Report (HASR)	✓	<input type="checkbox"/>	<input type="checkbox"/>
Historic Property Survey Report (HPSR)	✓	<input type="checkbox"/>	<input type="checkbox"/>
Section 106 / SHPO	✓	<input type="checkbox"/>	<input type="checkbox"/>
Section 4(f) Evaluation	✓	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Hazardous Waste</b>			
ISA (Additional)	<input type="checkbox"/>	<input type="checkbox"/>	✓
PSI	✓	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Biological</b>	No. Of		
Endangered Species (Federal)	<u>2+</u>	✓	<input type="checkbox"/>
Endangered Species (State)	<u>2+</u>	✓	<input type="checkbox"/>
Biological Opinion / USFWS		✓	<input type="checkbox"/>
Wetlands		✓	<input type="checkbox"/>
401 Permit Coordination		✓	<input type="checkbox"/>
404 Permit Coordination	<u>1P</u>	✓	<input type="checkbox"/>
1601 Permit Coordination		✓	<input type="checkbox"/>
NPDES Coordination		✓	<input type="checkbox"/>
Natural Environment Study		✓	<input type="checkbox"/>
Biological Assessment		✓	<input type="checkbox"/>

	Study/ Report	Document Text Only	Not Anticipated
NEPA 404 Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other			
<u>Biological Opinion/NMFS</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Anticipated Project Mitigation

Discuss any known likely mitigation requirements and coordination based on similar projects and experience with resource agencies within the project vicinity: All of the wetland impacts require mitigation at a minimum 1:1 rate to comply with the USACOE "No Net Loss" policy. Impacts to sensitive species will be avoided and/or minimized. Native Tree (Oak) impacts will be replaced in-kind at an off-site location contiguous to an ecologically important community.

ADL mitigation, for an estimate of 52,000/m3 of excavation, can cost up to \$250/m3 for handling and disposing contaminated soil. The worst case scenario will be to dispose all of the excavation. However, incorporating appropriate soil reuse techniques may reduce hazardous waste mitigation cost.

Also, if yellow striping (paint and thermoplastic) and markings are removed in a separate operation, then the Hazardous Waste Branch will need to provide the appropriate SSPs during PS&E. The additional cost for handling and disposing yellow striping debris is estimated to be \$1.30 per meter above the standard bid item price.

For this project Mitigation Estimates\*:

Biology	\$ 1M
Hazardous Waste	\$ 10.5M
Cultural Resources	\$ 400K
Soundwalls	\$ 2.4M
Water pollution Control (Landscape)	\$ 80K
SWPPP (Storm Water Pollution Prevention Plan)	\$ 5K
Landscaping	\$ 2.5 M

\*Estimates do not include contingencies or minor items.

Hazardous Waste Scoping by Celia McCann Date 12/18/01

Biological Scoping by [Signature] Date 12/18/01

Cultural Scoping by [Signature] Date 12/18/01

Reviewed by [Signature] Date 12/19/01

**Environmental Planning Office Chief**

Project Study Report (Project Development Support)  
SON 101 Widening and Improvements

# **ATTACHMENT G**

## **RIGHT OF WAY DATA SHEET**

TO: Ray Centeno  
 Attention: Saad Hassan

Date 11-26-01  
 Dist 4 Co. 101 Rte 101 KP 349/475  
 E.A. CHICK  
 Project Description San Joaquin  
widening & improvement

From: FRANK C. SCHOBER  
 Right of Way Resource Manager

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on maps we received from you on \_\_\_\_\_, and the following assumptions and limiting conditions.

- 1. The mapping did not provide sufficient detail to determine the limits of the right of way required.
- 2. The transportation facilities have not been sufficiently designed so our estimator could determine the damages to any of the remainder parcels affected by the project.
- 3. Additional right of way requirements are anticipated, but are not defined due to the preliminary nature of the early design requirements.
- 4. This estimate does not include \$ \_\_\_\_\_ right of way costs previously incurred on the project, which may affect the total project right of way costs for programming purposes.
- 5. We have determined there are no right of way functional involvement in the proposed project at this time, as designed.

Right of Way Lead Time will require a minimum of 24 months after we begin receiving final right of way requirements (PYPSCAN node No. 224), necessary environmental clearance has been obtained, and freeway agreements have been approved. From the date of receipt of final right of way requirements (PYPSCAN node No. 265), we will require a minimum of 22 months prior to the date of certification of the project. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.

Frank C. Schober  
 Right of Way Resource Manager

Attachments:

- Right of Way Data Sheet – Page One (always required)
- Right of Way Data Sheet – All Pages (required when interest in real property is being acquired)
- Utility Information Sheet
- Railroad Information Sheet

**RIGHT OF WAY DATA SHEET**

TO: Advance Planning Date 11/12/01 #4451  
 Dist 04 Co Son Rte 101 KP 34.9/47.5  
 ATTN: Rey Centeno EA 0A100K  
 Project Description: Road widening and Improvement.

SUBJECT: Right of Way Data – Alternate No. \_\_\_\_\_

1. Right of Way Cost Estimate:

	Current Value (Future Use)	Escalation Rate	Escalated Value
A. Acquisition, including Excess Lands and Damages	\$ <u>3,224,000.00</u>	%	\$ <u>3,244,000.00</u>
B. Loss of Goodwill	\$ <u>100,000.00</u>	%	\$ <u>100,000.00</u>
C. Utility Relocation (State Share)	\$ <u>50,000.00</u>	%	\$ <u>50,000.00</u>
D. Relocation Assistance	\$ <u>60,000.00</u>	%	\$ <u>60,000.00</u>
E. Clearance/Demolition	\$ <u>00.00</u>	%	\$ <u>00.00</u>
F. Title and Escrow Fees	\$ <u>22,000.00</u>	%	\$ <u>22,000.00</u>
G. Current Value (Future Use)	\$ <u>00.00</u>	%	\$ <u>00.00</u>
H. <u>TOTAL ESCALATED VALUE</u>			\$ <u>3,476,000.00</u>
I. Construction Contract Work	\$ <u>00.00</u>		

2. Anticipated Date of Right of Way Certification \_\_\_\_\_

3. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements	
X		U4-1	None	X
A <u>1</u>		-2	C&M Agrmt	
B <u>14</u>		-3	Svc Contract	
C <u>1</u>	<u>1</u>	-4 <u>4</u>	Lic/RE/Clauses	
D		U5-7 <u>2</u>	Misc R/W Work	
E <u>XXXX</u>		-8 <u>6</u>	RAP Displ	<u>3.00</u>
F <u>XXXX</u>		-9 <u>4</u>	Clear Demo	<u>2.00</u>
Total <u>16</u>			Const. Permits	<u>0</u>
			Condemnation	<u>2</u>

Areas: Right of Way \_\_\_\_\_ No. Excess Parcels \_\_\_\_\_ Excess \_\_\_\_\_  
 Enter PMCS Screens 1 / 19 / 01 by BTM  
 Enter AGRE Screen (Railroad data only) \_\_\_\_\_ / \_\_\_\_\_ by \_\_\_\_\_

4. Are there any major items of construction contract work?  
Yes  No  (If yes, explain)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.)

There are 16 parcels required for this project. Ten parcels are part takes from commercial properties, three are part takes from vineyards, one is a part take from a mobile home park, one parcel is a full take of a vacant commercial property and one parcel is a full take with two commercial buildings.

6. Is there an effect on assessed valuation?  
Yes  Not Significant  No  (If yes, explain)

7. Are utility facilities or rights of way affected? Yes  No   
(If yes, attach Utility Information Sheet Exhibit 01-01-05)

Utility verification required.

8. Are railroad facilities or rights of way affected? Yes  No   
(If yes, attach Railroad Information Sheet Exhibit 01-01-06)

9. Were any previously unidentified sites with hazardous waste and/or material found?  
Yes  None evident  (If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)

10. Are RAP displacements required? Yes  No   
(If yes, provide the following information)

No. of single family \_\_\_\_\_ No. of business/non profit 3

No. of multi-family \_\_\_\_\_ No. of farms \_\_\_\_\_

Based on Draft/Final Relocation Impact Statement/Study dated \_\_\_\_\_, it is Anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there material borrow and/or disposal sites required? Yes  No   
(If yes, explain)

12. Are there potential relinquishments and/or abandonments? Yes  No   
(If yes, explain)

13. Are there any existing and/or potential Airspace sites? Yes  No   
(If yes, explain)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if District proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

PYPSCAN lead time (from Regular R/W to project certification) 24 months

15. Is it anticipated that all Right of Way work be performed by CALTRANS staff?  
Yes  No  (If no, discuss)

**Assumptions and Limiting Conditions**

1. The right of way requirements estimated were determined from maps and information supplied by Project Design (Rey Centeno dated September 2001) and valued based on data available on the date of request.
2. This report was completed without the benefit of a hazardous waste permit.

Evaluation Prepared By: LYNN WHITE

Right of Way: Name *Lynn White*

Date 11/13/01

Railroad: Name *Harbor*

Date 11-14-01

Utilities: Name *Cristina Halliday*

Date 11/13/01

Recommended for Approval:

*Frank C. Schuler*

Right of Way Capital Cost Coordinator

I have personally reviewed this Right of Way Data Sheet and all supporting information. It is my opinion that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and find this Data Sheet complete and current.

*[Signature]*

Chief, R/W Appraisal Services

11/26/01

Date

cc: Program Manager  
Project Manager

**UTILITY INFORMATION SHEET**

**1. Name of utility companies involved in project:**

PG&E – Gas/electric  
Pac Bell  
Sonoma County Water District

**2. Types of facilities and agreements required:**

Notice to Owner for potholing.  
Gas, water and sewer

**3. Additional information concerning utility involvements on this project:**

No conflicts identified at this time. Verifications may show underground conflicts.

**4. PMCS Input Information**

Utility Involvements			
U-4-1	_____	5-7	2
-2	_____	-8	6
-3	_____	-9	4
-4	4		

Prepared by:

Cristin Hallissy  
Right of Way Utility Estimator

11/12/01  
Date

Project Study Report (Project Development Support)  
SON 101 Widening and Improvements

# **ATTACHMENT H**

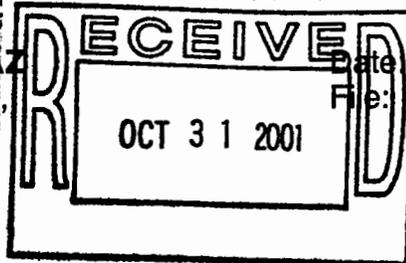
## **PRELIMINARY OPERATIONAL ANALYSIS**

SW / RBC / SH (FILE)  
SW / RBC

## Memorandum

To: **CRISTINA FERRAZ**  
District Branch Chief,  
PSR I Branch

**REY CENTENO**  
District Branch Chief,  
PSR III Branch



Date: October 30, 2001  
File: EA 0A180K  
03-SON-101  
KP 12.1/22.4 (PM 7.5/13.9)  
EA 0A100K  
04-SON-101  
KP 34.9/47.5 (PM 21.7/29.5)

From: **DEPARTMENT OF TRANSPORTATION**  
4 - Highway Operations Branch

Subject: Operational Analysis for SON 101 HOV Lane PSR (PDS) Projects

PSRs are being prepared for two projects on Route 101 in Sonoma County. These projects propose to provide HOV lanes in both directions between:

- a) The Old Redwood Highway (Pengrove) interchange in Petaluma and the Rohnert Park expressway interchange in Rohnert Park, and
- b) The Steele Lane interchange in Santa Rosa and the Windsor River Road interchange in Windsor.

These projects, plus other projects either under study or under construction, will provide continuous HOV lanes in both directions on Route 101 from central Marin County to the City of Windsor. The Office of Highway Operations has been asked to prepare "Narrative Operational Descriptions" for these two projects, and has also been asked to consider (as an alternative) the impacts of auxiliary lanes from Steele Lane to Airport Blvd. (E-mail from Saed Hasan to Michael Church).

The Office of Highway Operations has completed a preliminary operational analysis of these proposed projects, based on three sets of projected peak hour traffic volumes. The study area for this analysis extends from Old Redwood Highway in Petaluma to Windsor River Road in Windsor. Please note that the results of this study should be considered to be ONLY ROUGH ESTIMATES, due to the limited time provided for the operational analysis, and due to the necessary use of traffic projections obtained from three different sources (listed in the attached operational report). These traffic projections do not agree with each other, and some projected peak hour traffic volumes at the "match" points of these three documents are substantially different. Therefore, it is vital that any conclusions made in this operational report be verified during the Project Report/ Environmental Document phase before any final decisions are made. A brief summary of the attached operational report is as follows:

Ms. Cristina Ferraz  
Mr. Rey Centeno  
October 29, 2001  
Page 2

Existing traffic congestion on Route 101 in Sonoma County will substantially worsen in the future, if traffic growth occurs as projected. Traffic projections show that peak hour traffic is anticipated to increase by about forty to fifty percent in 2030, between the Old Redwood Highway (Pengrove) interchange in Petaluma and the Rohnert Park Expressway interchange in Rohnert Park, and by between thirty and one hundred percent in 2029 between the Steele Lane interchange in Santa Rosa and the Windsor River Road interchange in Windsor. Inasmuch as various parts of Sonoma 101 are already operating at capacity, this additional traffic will all be caught in growing traffic queues.

The proposed HOV lane projects, plus other projects under way will result in the establishment of a continuous HOV lane in each direction, will increase system capacity on Route 101 in Sonoma County, and will partially mitigate anticipated traffic congestion. However, even with the proposed improvements, traffic congestion will still occur on Route 101 in Sonoma County. On southbound Route 101 traffic bottlenecks will occur north of Petaluma and north of Rohnert Park, causing heavy traffic backups. The proposed southbound HOV lane will allow high-occupancy vehicles to bypass this congestion, saving these vehicles several minutes of travel time. On northbound route 101, traffic bottlenecks will occur in north Petaluma and north of Santa Rosa. The proposed HOV lanes will allow high-occupancy traffic to bypass traffic congestion in Petaluma and Santa Rosa, and will provide needed capacity for constrained traffic volumes between Petaluma and Santa Rosa.

The attached Highway Operational Report discusses the results of our operational study in more detail. If you have any questions concerning this memo or the attached report, please call either Mike Church at 286-4642 (Calnet 541-4642) or Mike Kerns at 622-5430 (Calnet 542-5430).



**Michael W. Church**  
Senior Transportation Engineer,  
Office of Highway Operations

Attach: 1

cc: AY/MEK, MWC, S.Wong (Adv. Plan.), N.Cerruti (Design, Contra Costa), R.Donovan (Adv. Plan.), S.Hasan (Adv. Plan.), Hwy Ops File.

## HIGHWAY OPERATIONAL REPORT

### **Analysis of Proposed High-Occupancy Vehicle (HOV) Lanes in Both Directions on Route 101 in Sonoma County, Between; (a) Old Redwood Highway (Pengrove) and Rohnert Park Expressway interchanges and (b) between the Steele Lane and Windsor River Road interchanges.**

PSRs are being prepared for two projects on Route 101 in Sonoma County. These projects propose to provide an HOV lane in both directions between:

- a) The Old Redwood Highway (Pengrove) interchange in Petaluma and the Rohnert Park expressway interchange in Rohnert Park, and
- b) The Steele Lane interchange in Santa Rosa and the Windsor River Road interchange in Windsor.
- c) The Office of Highway Operations has also been requested to consider auxiliary lanes from Steele Lane to Airport blvd. (E-mail from Saed Hasan to Michael Church). This alternative will be briefly discussed in this report.

These projects, plus other projects either under study or under construction, will provide continuous HOV lanes in both directions on Route 101 from central Marin County to the City of Windsor. The Office of Highway Operations has made a preliminary operational analysis of these proposed projects, based on three sets of projected peak hour traffic volumes. The study area for this analysis extends from Old Redwood Highway in Petaluma to Windsor River Road in Windsor.

Please note that the results of this study should be considered to be ONLY ROUGH ESTIMATES, due to the limited time provided for the operational analysis, and due to the necessary use of traffic projections obtained from three different sources (listed below). These traffic projections do not agree with each other, and some projected peak hour traffic volumes at the "match" points of these three documents are substantially different. Therefore, it is vital that any conclusions made in this operational report be verified during the Project Report/ Environmental Document phase before any final decisions are made.

Our analysis is based on the following data and assumptions:

1. Three sets of traffic projections;
  - a) Year 2030 A.M. (southbound only) and P.M. (northbound only) traffic projections for the proposed widening of Route 101 between Petaluma and Rohnert Park; prepared by "PB," and forwarded to Caltrans by E-mail on October 16, 2001.
  - b) Year 2030 A.M. and P.M. peak hour traffic volumes prepared by Caltrans; Division of Operations for the "SON-101 Widening Project."
  - c) Year 2029 A.M. and P.M. peak hour traffic projections prepared by Caltrans, Division of Planning for the proposed widening of Route 101 north of Route 12.

2. Figure 3.3; "Queue Discharge and Congested Flow;" Highway Capacity Manual, Third edition (1997).
3. It is assumed that proposed widening projects in the "Marin - Sonoma " (from Novato to Petaluma), in Petaluma, and from Wilfred Avenue to Steele Lane have been completed.
4. No geometrics have been provided for this operational analysis, so the following geometric assumptions have been made:
  - (a) The two proposed projects are basically the addition of HOV lanes to complete and extend the continuous HOV facility on northbound and southbound Route 101, from central Marin County to Windsor in Sonoma County.
  - (b) A climbing lane will be built on northbound Route 101 in the "Petaluma-Cotati Grade," which begins about a mile north of the Old Redwood Highway interchange in Petaluma.
  - (c) All on-ramps have HOV bypass lanes.
  - (d) The geometrics shown in the "SON - 101 Widening Project" operational report (June 2001) are assumed to be either in place or part of one of the two proposed projects.

## **I. EXISTING TRAFFIC OPERATIONS**

Caltrans inventories existing traffic conditions on State Freeways twice a year, using tachometer-equipped vehicles to record speeds, times, and locations. This data is used to prepare annual Highway Congestion reports that are available to the public. The following discussion of existing traffic conditions is based on the congestion monitoring studies made in 2000, with additions based on new traffic problems that may have been noted in the raw data sheets obtained from the Spring 2001 traffic studies.

### **A. A. M. Peak Period; Southbound Route 101**

A vehicle travelling southbound on Route 101 during the A.M. peak period would encounter traffic congestion at several locations. Proceeding from north to south, the following traffic bottlenecks occur:

1. The first traffic bottleneck occurs north of Santa Rosa, at the River Road interchange southbound on-ramp merge. In 2000, this bottleneck backed-up traffic to as far as the Shiloh Road interchange. Traffic congestion occurred for about two hours, with individual vehicle delays of as much as seven minutes.

2. A second traffic bottleneck occurs between the Route 12 and Baker Avenue interchanges, or between the Baker Avenue and Hearn Avenue interchanges in the City of Santa Rosa. In 2000, this bottleneck backed-up traffic to the vicinity of Third Street. Traffic congestion occurred for more than three hours, with individual vehicle delays as high as six or seven minutes.
3. A minor traffic bottleneck in the vicinity of the Pepper Rd. on-ramp (north of Petaluma) causes some traffic congestion; with as much as two minutes of delay to southbound freeway traffic in 2000. This bottleneck appears to be caused by slow trucks entering the freeway at Pepper Rd.
4. Another traffic bottleneck occurs on southbound Route 101 at the beginning of the "Marin - Sonoma Narrows" expressway downstream of the South Petaluma Boulevard interchange. Congestion monitoring studies made in 2000 indicate that this bottleneck backed-up traffic on southbound Route 101 to about midway between the east Washington Street and Old Redwood Highway (Pengrove) interchanges. Southbound Route 101 experienced about three hours of traffic congestion, with maximum individual vehicle delays of about eighteen minutes.

#### **B. A. M. Peak Period; Northbound Route 101**

At present, northbound Route 101 traffic at the south end of Sonoma County does not experience traffic congestion. However, further north, in Santa Rosa, there is a significant traffic bottleneck on northbound Route 101 between the Baker Avenue and Route 12 interchanges, and between the College Avenue and Steele Lane interchanges. In 2000 these bottlenecks backed-up traffic to the vicinity of the Santa Rosa Avenue interchange. Traffic congestion lasted for more than two hours, with individual vehicle delays of as much as ten to eleven minutes.

#### **C. P. M. Peak Period; Southbound Route 101**

During the P.M. peak period traffic on southbound Route 101 is heavily congested in the City of Santa Rosa. The primary bottleneck appears to be between the College Avenue and Route 12 interchanges, or between the Route 12 and Baker Avenue interchanges (both of these locations will be the primary bottleneck at different times during the peak period). In 2000 these bottlenecks backed-up traffic to the vicinity of the Hopper Avenue interchange. They caused about four hours of traffic congestion. Individual vehicle delays were as much as about eleven minutes.

#### **D. P. M. Peak Period; Northbound Route 101**

At present, traffic on northbound Route 101 is constrained by the capacity of the four-lane expressway known as the "Marin - Sonoma Narrows." This traffic bottleneck has a capacity of about 3600 vehicles per hour, lower than the estimated

capacity of the Route 101 freeway in Petaluma (about 4000 - 4200 vehicles per hour).

Northbound Route 101 traffic is backed-up in Novato, Marin County during the P.M. peak period because of this constraint. However, there are two bottleneck locations on northbound Route 101 in Sonoma County during the P.M. peak period. Travelling from south to north, they are:

1. Recent congestion monitoring studies (April and November, 2000) on northbound Route 101 in Petaluma show an intermittent traffic problem at the Pengrove (Old Redwood Highway) interchange. This appears to be due to slow trucks entering and exiting the freeway at Pengrove. These slow trucks briefly back-up traffic in the outside lane until they are able to accelerate to freeway speeds (entering trucks) or exits the freeway. It also appears that the up-hill grade, one mile downstream, causes some slowing of large trucks and/or prevents them from reaching freeway speeds.
2. The primary P.M. peak period traffic bottleneck on northbound Route 101 in Sonoma county is located in Santa Rosa, between the Baker Avenue and Route 12 interchanges. In addition to this, there appear to be secondary bottlenecks between the Hearn Ave. and Baker Ave. interchanges, and between the Baker Ave. and Todd Rd. interchanges. All three of these bottlenecks operate together as what might be called a "bottleneck complex." In 2000 this bottleneck complex backed-up traffic to the vicinity of the Santa Rosa Avenue interchange. Congestion occurred for at least 4+1/2 hours with maximum vehicle delays of as much as about eight minutes.

There also appear to be more secondary traffic bottlenecks between the College Avenue and Steele Lane interchanges and (probably) between the Third Street and College Avenue interchanges. The impact of these secondary bottlenecks is limited by the primary upstream bottleneck at Rte. 12, but in 2000 they did cause about two hours of traffic congestion and an additional three minutes or so of delay.

3. There also appears to be an incipient bottleneck between the Mendocino Avenue and River Road interchanges. In 2000 traffic briefly slowed down at the Mendocino Avenue on-ramp, then resumed speed.

## **II. FUTURE TRAFFIC OPERATIONS - YEAR 2029/2030**

### **A. General Characteristics of Traffic Growth**

1. Southern Project Area; Old Redwood Highway Interchange to Wilfred Avenue interchange.

Traffic projections prepared by PB show that peak hour traffic is anticipated to increase by about 40% on southbound Route 101 in the 'southern project area,' and by about 49% on northbound Route 101 in the same area, between 2001 and 2030. These projections also show that HOV usage will increase from about 14.5% of total traffic to 19% of total traffic if the proposed HOV lanes are provided.

2. Northern Project Area; Route 12 to North of Windsor River Road.

A review of the traffic projections prepared by the Caltrans Division of Planning indicates that substantial peak hour traffic growth is anticipated on Route 101 north of Route 12 (in Santa Rosa) between 2000 and 2029. On northbound Route 101, peak hour traffic volumes are projected to increase by about 30% to 50% during the A.M. peak hour, and by about 40% to almost 60% during the P.M. peak hour. Traffic growth on southbound Route 101 is even higher, with demand peak hour traffic increasing by about 80% to 100% during the A.M. peak hour and by about 70% to 100% during the P.M. peak hour. Note that traffic growth on southbound Route 101 is about double the growth on northbound Route 101.

A comparison of year 2029 peak hour traffic for the "No Build" and "Build" alternatives indicates that the proposed HOV lanes will result in an increase in the demand peak hour volumes on both northbound and southbound Route 101. During the A.M. peak hour(s), traffic in both directions of Route 101 will increase by about 9% if the proposed HOV lanes are installed. During the P.M. peak hour(s), northbound traffic will increase by about 5% to 12% if HOV lanes are available. However, southbound traffic will only increase by about 1% if the HOV lanes are built.

### **B. "No Build" Alternative Traffic Operations; Year 2029/2030**

Projected traffic growth will worsen the existing traffic bottlenecks (discussed in Section I above) and may cause additional traffic bottlenecks to develop. In general, the existing roadway system cannot accommodate the projected increases in traffic volumes, and this additional traffic will be added to the existing traffic queues. The extent and duration of traffic congestion will substantially increase, and vehicle delays will be much longer than those that presently occur will.

### **C. "Build" Alternative Traffic Operations; Year 2029/2030**

The proposed widening projects on Route 101 in Sonoma County will partially mitigate anticipated future traffic congestion, but will not eliminate it. The primary proposal of these widening projects is to provide HOV lanes in both directions on Route 101, to enable high-occupancy vehicles to bypass traffic congestion in the "mixed-flow" lanes. These HOV lanes have two benefits: (a) they enable the roadway to handle more vehicles by supplying new lane-kilometers or lane-miles, and (b) they encourage the use of carpools and busses, with the goal of serving a higher number of people-trips than traditional mixed-flow lanes. Details are as follows:

#### **1. Southbound Route 101 - A.M. Peak Hour**

Projected traffic growth on southbound Route 101 will exceed the capacity of the freeway during the A.M. peak period, even with the proposed improvements. Between the Old Redwood Highway and Route 12 interchanges, A. M. peak hour demand traffic volumes in the mixed flow lanes generally range from ten to thirty percent above the lanes' capacities (except for the sections in which three lanes are proposed). Between the Route 12 and Windsor River interchanges, A.M. peak hour demand traffic volumes in the mixed flow lanes generally range from thirty-five to more than one hundred percent above the lanes' capacities (including those sections in which three mixed-flow lanes are projected). If traffic growth occurs as projected, year 2029/2030 traffic congestion will be substantially worse than existing congestion, even if the proposed HOV lanes are in service.

A brief analysis indicates that two primary traffic bottlenecks will develop on southbound Route 101, most likely located downstream of the Pepper Rd. and Todd Rd. on-ramps. The Todd Rd. bottleneck will constrain downstream traffic; so the (constrained) demand peak hour traffic volume at the Pepper Rd. bottleneck will be only about twelve to sixteen percent above the capacity of the mixed flow lanes. The excess peak hour demand will increase the average mixed-flow traffic delay by about five to ten minutes, and will back-up traffic for about six miles (past the Rohnert Park interchange). There will also be additional traffic delays generated by over-capacity traffic demand during other hours of the A.M. peak period.

At the Todd Rd. bottleneck, the demand mixed-flow peak hour traffic volume is about twenty to thirty percent above the capacity of the mixed-flow lanes. This means that, during the peak hour alone, delays to the mixed-flow traffic will increase by about twelve to eighteen minutes (total peak period mixed-flow traffic delays will be significantly greater). Some traffic, notably on-ramp traffic, will experience less delay while freeway traffic will likely experience greater delays. It is anticipated that, if traffic growth occurs as projected, the southbound mixed-flow lanes will be congested from south of the Todd Rd. on-ramp to some distance north of the Windsor River Rd. interchange. We would also anticipate significant on-ramp backups at Route 12, College Ave., Steele Lane, Bicentennial Way, Hopper Ave., River Rd., Fulton Rd.,

Airport Blvd., Shiloh Rd., and Windsor River Rd. Heavy on-ramp traffic will have a severe adverse impact on freeway traffic, particularly north of downtown Santa Rosa, and only a fraction of the freeway demand volume would be able to proceed south towards Santa Rosa during the A.M. peak period.

HOV traffic will be able to save a substantial amount of time, particularly north of Route 12. Rough estimates indicate that southbound HOV traffic travelling the length of the two proposed HOV lanes will be able to save about six minutes in the southern project area (Old Redwood Highway to Rohnert Park expressway). In the northern project area (Steele Lane to Windsor River Road), theoretical traffic congestion is so heavy that traffic using the HOV lane could theoretically save thirty minutes or more.

## 2. Southbound Route 101 - P.M. Peak Hour

Traffic projections were not provided in the southern project area for southbound Route 101 during the P.M. peak hour. Available traffic volumes between the two project areas and for the northern project area indicate that heavy traffic congestion can be expected during the P.M. peak period also, although delays may not be as high as would occur during the A.M. peak period. It is anticipated that the proposed HOV lanes will allow high occupancy vehicles to bypass much of the anticipated mixed-flow lane traffic congestion.

## 3. Northbound Route 101 - P.M. Peak Hour

Projected P.M. peak hour demand traffic on northbound Route 101 will increase by between 40% and 60% between 2000/2001 and 2029/2030. The proposed roadway improvements will mitigate some of the adverse impacts of this growth, but will not be sufficient to eliminate traffic congestion.

A brief traffic analysis indicates that traffic bottlenecks will develop in two locations. One traffic bottleneck will occur on northbound Route 101 between the Old Redwood Highway interchange in Petaluma and the beginning of the climbing lane on the Petaluma-Cotati Grade. Demand mixed-flow traffic at this location is about sixty-five to seventy-five percent above the capacity of the two mixed-flow lanes. Theoretically, this excess peak hour demand would increase the average mixed-flow traffic delay by about thirty-five to forty-five minutes during the peak hour, and would back-up traffic for several miles. (There would also be additional traffic delays generated by over-capacity traffic demand during other hours of the A.M. peak period.)

The Petaluma bottleneck described above will constrain northbound freeway traffic; in spite of the high demand traffic projections, northbound route 101 would be able to accommodate constrained peak hour traffic in a three lane section, with the auxiliary lanes shown in the traffic report titled; "SON - 101 Widening Project" operational report (June 2001) from this bottleneck to north of Santa Rosa. Although

the third northbound lane would be needed in this area, it could be either a mixed-flow lane or an HOV lane; there would be no benefit to northbound HOV traffic until the end of queue caused by another bottleneck (described below) was reached.

The second P.M. peak period traffic bottleneck on northbound Route 101 will occur in the Fulton area north of Santa Rosa. This bottleneck will most-likely develop either between the Fulton Rd. and Airport Blvd. interchanges, or between the Airport Blvd. and Shiloh Rd. interchanges, where demand P.M. peak hour traffic (already partially constrained by the Petaluma bottleneck) would be about eight to twelve percent above the roadway's capacity. This excess peak hour demand would increase the average mixed-flow traffic delay by about five to seven minutes during the peak hour. (As was noted earlier, maximum peak period delays will be higher than the peak hour increase in delay.) Some traffic, notably on-ramp traffic, will experience less or no delay while freeway traffic will experience greater delays. It is estimated that the traffic backup caused by this bottleneck would extend back to the vicinity of Route 12.

A third lane is needed on northbound Route 101 between Old Redwood Highway and Rohnert Park Expressway (the southern project area) to accommodate constrained traffic coming north from Petaluma. Theoretically, there would be no traffic congestion in this project area, if a third lane is provided, so the third lane could be either HOV or mixed-flow. However, since the third northbound lane at the north and south ends of this project will be HOV lanes, the third lane in the southern project area should be an HOV lane to provide continuity.

In the northern project area, HOV traffic would be able to bypass mixed-flow lane traffic congestion extending from the bottleneck in the Fulton area. It is estimated that HOV traffic would save about five minutes in bypassing the mixed-flow lanes congestion (plus additional delay savings outside of the northern project area).

#### 4. Northbound Route 101 - A.M. Peak Hour

Traffic projections were not provided in the southern project area for northbound Route 101 during the A.M. peak hour. Available traffic projections between the two project areas and for the northern project area indicate that demand traffic is lower than the P.M. peak hour volumes but still above the capacity of Route 101. In the absence of P.M. peak hour volumes for the southern project area we are unable to determine the location(s) of bottlenecks. However, it is anticipated that the primary traffic bottleneck will probably be between the Old Redwood Highway interchange in Petaluma and the beginning of the climbing lane on the Petaluma-Cotati Grade. This bottleneck will constrain traffic on northbound Route 101 north of Petaluma; at this time we cannot determine whether any additional bottlenecks will develop on northbound Route 101 northerly of this bottleneck.

### **III. PROPOSED AUXILIARY LANES NORTH OF STEELE LANE.**

There is a proposal to provide auxiliary lanes on northbound and southbound Route 101 from Steele Lane to Airport Blvd. Our comments regarding this proposal are as follows:

- a) Northbound Route 101: Previous studies for this area assumed that there were auxiliary lanes between the Fifth St. on-ramp and the Bicentennial Way off-ramp. Based on our brief analysis, it is anticipated that the constrained traffic volumes on all freeway sections between the River Rd., Fulton Rd., Airport Blvd. and Shiloh Rd. interchanges would be above the capacities of the two mixed flow lanes. In addition, the constrained traffic volume between the Shiloh Rd. and Windsor River Rd. interchanges would be at or near the capacity of the mixed flow lanes. However, the total constrained traffic volumes would not be above the capacity of three mixed flow lanes. This suggests two alternatives for this part of the northern project:
  - (1) Provide three mixed flow lanes (no HOV lane) on northbound Route 101 north of Steele Lane.
  - (2) Provide two mixed flow lanes, one HOV lane and auxiliary lanes on northbound Route 101 north of Steele Lane.

Either of these two alternatives would theoretically provide sufficient capacity for constrained P.M. peak hour traffic, if traffic growth occurred as projected.

- b) Southbound Route 101: If traffic growth occurs as projected, it is anticipated that southbound Route 101 will experience heavy traffic congestion north of Steele Lane during the A.M. peak period, and that traffic backups could be expected on several on-ramps in this area. In this situation auxiliary lanes would not have a positive impact on traffic congestion, as the congestion would mainly be determined by conditions at the downstream bottleneck. All these lanes would do would be to benefit traffic on the congested on-ramps and negatively impact the traffic already on the freeway.

### **IV. SUMMARY**

Existing traffic congestion on Route 101 in Sonoma County will substantially worsen in the future, if traffic growth occurs as projected. Traffic projections show that peak hour traffic is anticipated to increase by about forty to fifty percent in 2030, between the Old Redwood Highway (Pengrove) interchange in Petaluma and the Rohnert Park expressway interchange in Rohnert Park, and by between thirty and one hundred percent in 2029 between the Steele Lane interchange in Santa Rosa and the Windsor River Road interchange in Windsor. Inasmuch as various parts of

Sonoma 101 are already operating at capacity, this additional traffic will all be caught in growing traffic queues.

The proposed HOV lane projects, plus other projects under way will result in the establishment of a continuous HOV lane in each direction. They will increase system capacity on Route 101 in Sonoma County, reducing part of the traffic congestion that is expected to develop in the future, and will provide a way for high occupancy vehicles to bypass the rest of the traffic congestion.

This completes our analysis of the traffic impacts of providing HOV lanes; (a) between the Old Redwood Highway (Pengrove) interchange in Petaluma and the Rohnert Park expressway interchange in Rohnert Park, and (b) between the Steele Lane interchange in Santa Rosa and the Windsor River Road interchange in Windsor. If you have any questions concerning this memo, please call either Mike Church at 286-4642 (Calnet 541-4642) or Mike Kerns at 622-5430 (Calnet 542-5430).



**Michael Church**  
Senior Transportation Engineer,  
Office of Highway Operations

Project Study Report (Project Development Support)  
SON 101 Widening and Improvements

# **ATTACHMENT I**

**SCTA LETTER TO THE DIRECTOR OF THE DEPARTMENT**

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# SCTA

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## SONOMA COUNTY TRANSPORTATION AUTHORITY

October 26, 2001

### Directors

Mike Kerns, Chair  
SONOMA COUNTY

Robert Jehn, V. Chair  
CLOVERDALE

Joe Costello  
SONOMA

Geoffrey Fox  
COTATI

Mark Gleason  
HEALDSBURG

Mike Healy  
PETALUMA

Paul Kelley  
SONOMA COUNTY

Jake Mackenzie  
ROHNERT PARK

Larry Robinson  
SEASIDE

Sam Salmon  
WINDSOR

Tim Smith  
SONOMA COUNTY

Sharon Wright  
SANTA ROSA

Jeff Morales, Director  
Department of Transportation, MS-49  
1120 N Street  
Sacramento, CA 95814

**RE: Highway 101 – Sonoma County: The 2010 Construction Strategy**

Dear Mr. Morales:

Sonoma County is in the process of implementing a ten-year strategy that will enable us to provide much needed improvements to Highway 101 from Windsor to the Marin County line. As members of the Sonoma County Transportation Authority (SCTA) we would like to take this opportunity to provide you a brief background of the project, describe our approach to resolving the congestion on Highway 101 and ask for your help and support in delivering this critical infrastructure project.

### BACKGROUND:

Seven of the nine cities in Sonoma County are located along Highway 101. This major North-South route serves regional through traffic, inter-county commute traffic and local traffic. Highway 101 was built in the 1950's as a four-lane freeway and planners at the time envisioned a third lane in each direction by 1970 to accommodate anticipated growth.

Unfortunately it was not until April of this year that the first Highway 101 widening project began construction.

Today traffic along Highway 101 has increased nearly ten times – from 15,000 cars per day in 1958 to over 120,000 in 2000. Congestion in the corridor has impacts beyond the frustration of sitting in traffic. The movement of goods is impaired, air quality suffers and safety is compromised.

The SCTA has divided Highway 101 into six contiguous segments that will be widened to three lanes in each direction (please see Exhibit One attached). To date three of these six segments of have been funded and are in various stages of development. These projects cover the stretch of freeway from Rohnert Park through Santa Rosa and will cost \$150 million before they are completed. The funding for these projects comes from the Regional Transportation Improvement Program (RTIP), the Interregional Transportation Improvement Program (ITIP) and the Traffic Congestion Relief Program (TCRP). The remaining three segments of freeway have been *partially* funded through the RTIP, the ITIP, the TCRP and federal earmarks in TEA-21.

As the SCTA has progressed in funding the Highway 101 projects we have also sought to provide alternative modes of transportation to the traveling public. Just recently, we adopted the ~~2001 Countywide Transportation Plan for Sonoma County~~, a 25-year

### SCTA Staff

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EXECUTIVE DIRECTOR

Janet Spilman  
TRANSPORTATION PLANNER

Jeanette Wood  
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SANTA ROSA, CA 95401  
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planning document that sets forth a vision for a "seamless" transportation system in Sonoma County. The Plan also calls for a multi-modal approach to resolve our transportation problems. Widening Highway 101 is a key component of the Plan, yet the SCTA is also looking to utilize express bus service, initiate commuter rail service on the existing Northwestern Pacific railroad and enhance local bus service to provide alternatives to the automobile.

#### APPROACH:

While some progress has been made to fund segments of Highway 101 widening, we are only half way there. In order to fund and construct the remaining three segments, the SCTA has developed the *2010 Construction Strategy*.

The *2010 Construction Strategy* is a schedule and funding plan that focuses attention and resources on the delivery of the widening project (please see Exhibit Two). *The SCTA is keenly aware of the difficulty in funding major infrastructure projects, however with innovative financing opportunities, state and federal funding sources and your help we will be able to deliver a less congested, safer Highway 101.*

The *2010 Construction Strategy* anticipates project construction to be completed by 2010 on all of the segments of Highway 101 in Sonoma County. Such a schedule will require the SCTA and Caltrans to form a unique partnership. Using SCTA staff, Caltrans staff and private consultants we hope to complete environmental and design work by 2006. Once environmental and design work is certified, the projects will be put out to bid for construction.

The funding plan will utilize state and federal gas taxes that are allocated through the 2002 STIP to fully fund the environmental and design phases of the remaining three segments of Highway 101. Specifically, the SCTA is proposing to use \$20 million in RTIP funds and is requesting \$25 million in ITIP funds for the three projects.

Once this preliminary work is completed, construction funds for two of the projects will be obtained through Grant Anticipation Revenue Vehicle (GARVEE) bonds. Congress created GARVEE bonds in 1995. These bonds enable agencies like the SCTA to borrow against future federal gas tax revenues. The state issues the bonds upon California Transportation Commission (CTC) approval.

Construction funds for the Marin/Sonoma Narrows project may be more difficult to obtain given the magnitude of the project, but the SCTA is optimistic that funding from federal and state discretionary sources as well as STIP funds can be pulled together to complete this interregional route. The Marin/Sonoma Narrows serves as a critical link between northern California and the Bay Area. In fact, Caltrans has identified the project as a "High Emphasis" route in recognition of its importance to moving people and goods. Safety is also a key element of the project as it is the only segment of Highway 101 in Sonoma and Marin Counties that does not meet freeway standards. Safety issues, commute congestion and economic need make this gap in the freeway a prime candidate for state and federal funds.

#### REQUEST FOR SUPPORT:

The *2010 Construction Strategy* consists of three projects, each with three component parts. The first component of each project is the development of an environmental document. This requires meeting the tests of both NEPA and CEQA, as the projects will use both state and federal funds. The second component of each project is engineering and design. Last is the construction phase.

There are several key milestones that must be reached in a timely fashion in order for the ten-year strategy to work. Several of these milestones need to occur before the end of the year. The SCTA is requesting your assistance with the following:

- Ensure the completion of two Project Study Report / Project Development Support (PSR/PDS) documents by December 21, 2001. When the SCTA and Caltrans meet this deadline, we ask that MTC and the CTC accept the documents in order to program funds from the 2002 STIP.

- Support the SCTA's request for funding from the 2002 Interregional Transportation Improvement Program (ITIP). The SCTA has requested \$10 million in ITIP funds for environmental and design of the two GARVEE bond projects and will provide a \$10 million match. Additionally the SCTA has requested \$15 million in ITIP funds for the Marin/Sonoma Narrows project and will match it with \$10 million.
- Assign the necessary resources to complete the environmental and design work for the two GARVEE projects in an expedited manner. The SCTA wants to work with Caltrans as soon as possible to determine what work can be handled internally and what may need to be contracted out. Early identification of needs will enable the projects to move forward smoothly and without interruption.
- Expedite the environmental and design phases of the Marin/Sonoma Narrows project. The complexity of the project will require many local, regional, state and federal agencies to be involved. Early participation in the environmental process by these entities will ensure a comprehensive document in a timely fashion.
- Support future efforts to obtain construction funds for the Marin/Sonoma Narrows project from state and federal discretionary sources.

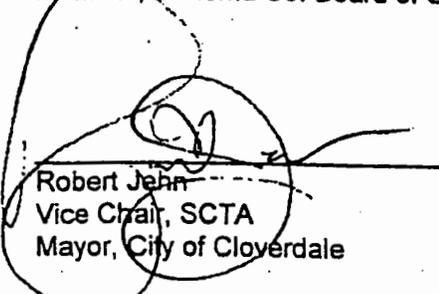
While much of what has been discussed above is focused on Highway 101, we do want to reiterate that the SCTA is committed to a multi-modal approach to relieving our congestion problems. Utilizing our local STIP share, GARVEE bonds and discretionary funds from the state and federal governments we hope to complete one element of our vision for transportation in Sonoma County. To implement the other key components, such as commuter rail, enhanced bus transit, improved bike & pedestrian paths and much needed local streets and roads maintenance we will need to look to more local sources of funding such as a sales tax measure. At this time, the SCTA is in discussions about the development of an expenditure plan and tax measure for the November 2002 election. Your support for that future effort is also greatly appreciated.

Thank you for your time and consideration. We look forward to working with you to make the 2010 Construction Strategy a success.

Sincerely,



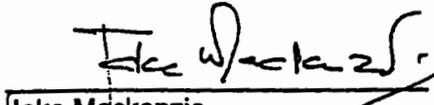
Mike Kerns,  
Chair, SCTA  
Member, Sonoma Co. Board of Supervisors



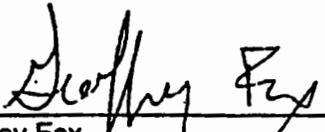
Robert Jehn  
Vice Chair, SCTA  
Mayor, City of Cloverdale



Joe Costello  
Council Member, City of Sonoma



Jake Mackenzie  
Mayor, City of Rohnert Park



Geoffrey Fox  
Council Member, City of Cotati

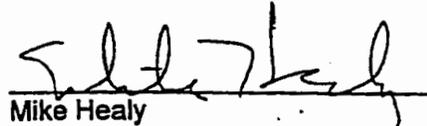


Larry Robinson  
Mayor, City of Sebastopol

Mark Gleason  
Council Member, City of Healdsburg



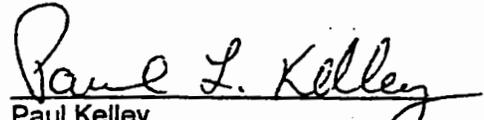
Sam Salmon  
Council Member, Town of Windsor



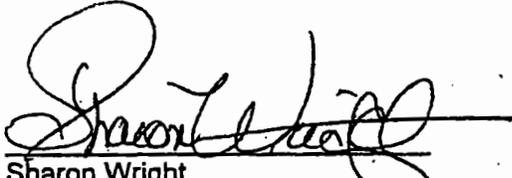
Mike Healy  
Council Member, City of Petaluma



Tim Smith  
Chair, Sonoma Co. Board of Supervisors



Paul Kelley  
Member, Sonoma Co. Board of Supervisors

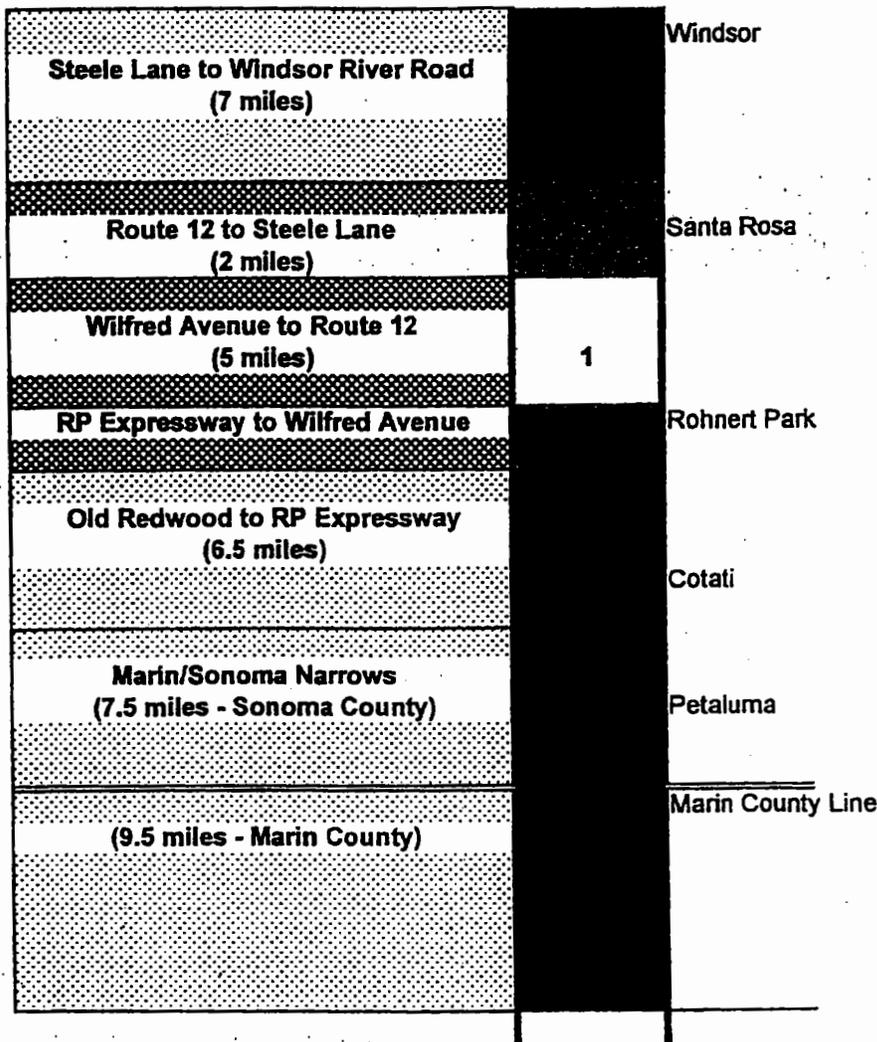


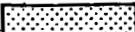
Sharon Wright  
Council Member, City of Santa Rosa

Enclosures

# Highway 101 - Sonoma County

## The 2010 Construction Strategy



 Partially Funded  
 Funded

(Amounts are 2001 dollars in millions)

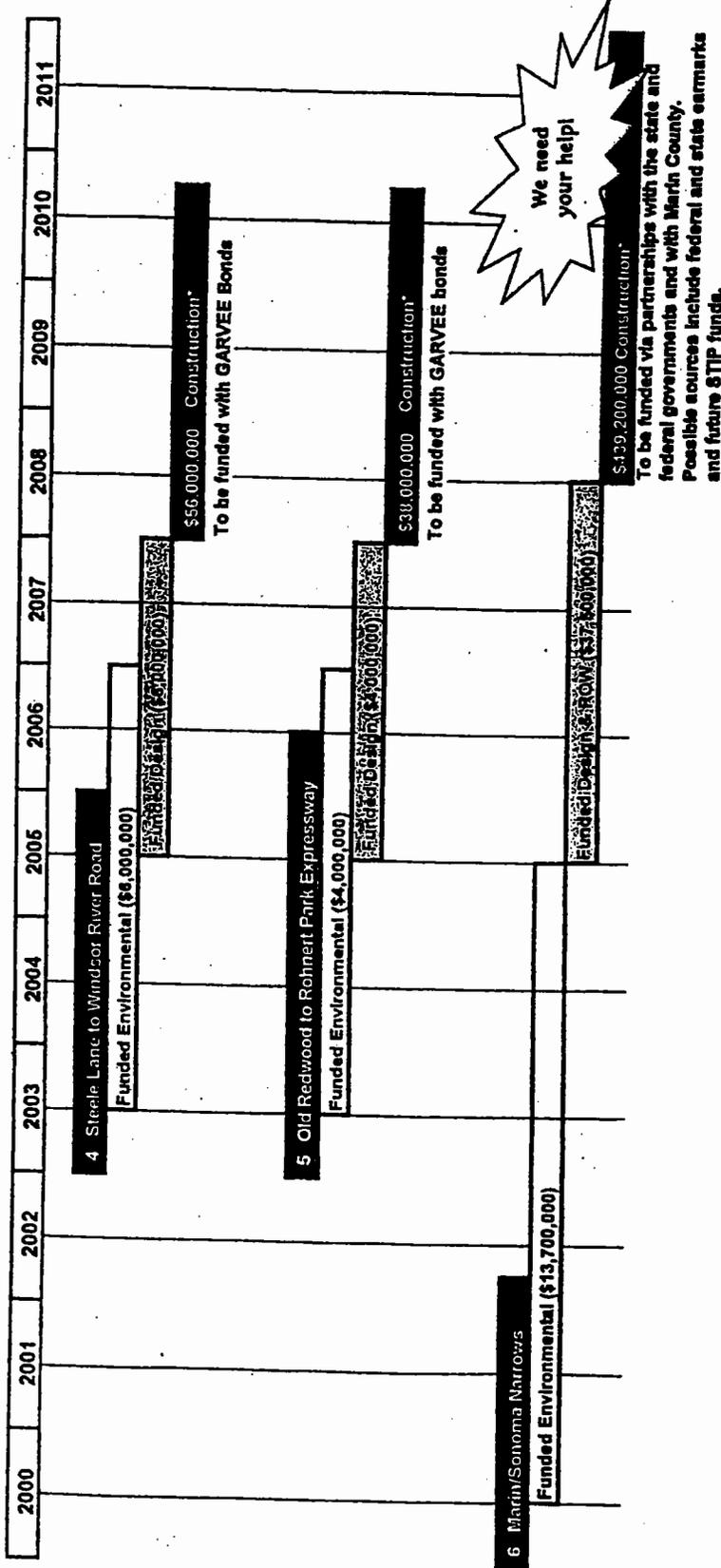
Priority	Project Segment	Status	Amount Funded	2002 STIP*	Funding Required
1	Wilfred to Highway 12	Funded	\$ 28.7	\$ -	\$ -
	Highway 12 to Steele Lane	Funded	77.5	-	-
	RP Expressway to Wilfred Avenue	Funded	8.4	39.4	-
	Steele Lane to Windsor River Road	Need Const.	-	12.0	45.0
	Old Redwood to RP Expressway	Need Const.	-	8.0	29.0
	Marin/Sonoma Narrows **	Need Const.	34.8	25.0	300.0
<b>TOTALS</b>			<b>\$ 149.4</b>	<b>\$ 84.4</b>	<b>\$ 374.0</b>

\* 2002 STIP amounts assume \$25 million in ITIP funds and \$59.4 million in RTIP funds

\*\* Includes costs for both counties

# Highway 101 - Sonoma County

## The 2010 Construction Strategy



\* Construction costs have been escalated. Current year (2007) costs are listed below.  
 4) \$46,000,000    5) \$23,000,000    6) \$295,000,000