

**PROJECT SCOPE SUMMARY REPORT
(ROADWAY RESURFACING, RESTORATION AND
REHABILITATION)
To Request Programming in the 2010 SHOPP**



**In Mendocino County near Laytonville from 5.3 miles north of
Branscomb Road to Rattlesnake Creek Bridge #10-27.**

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

LINDY K. LEE

DISTRICT DIVISION CHIEF RIGHT OF WAY

APPROVAL RECOMMENDED:

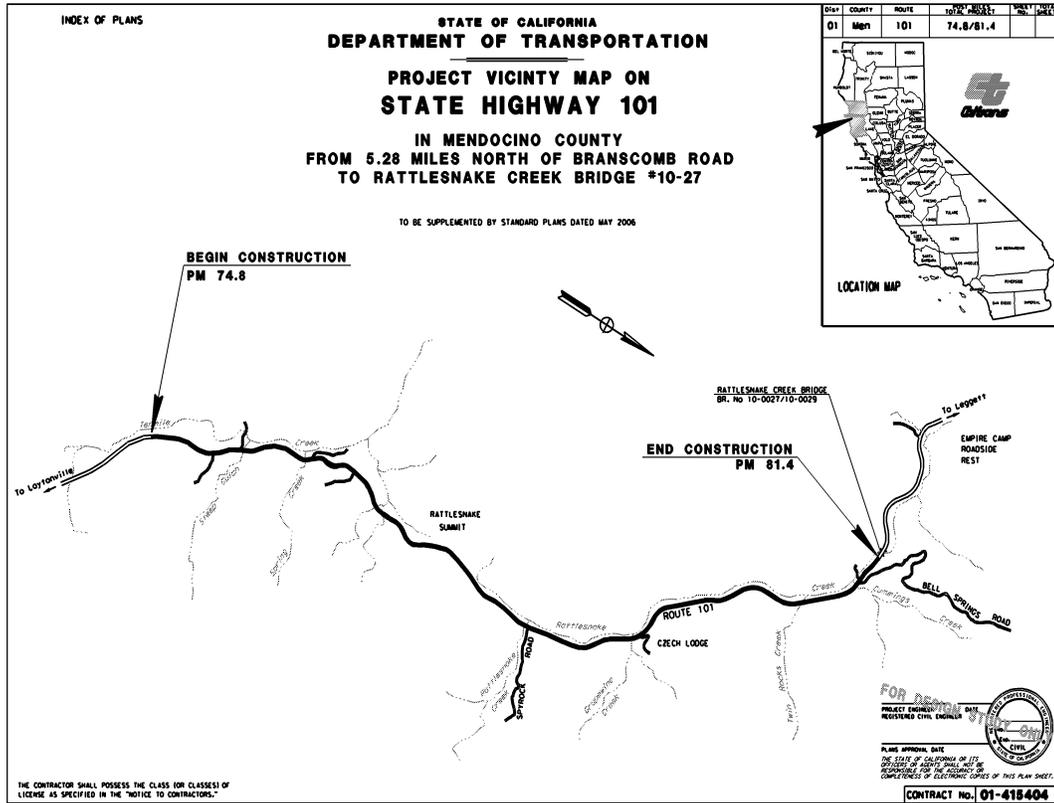
STEVEN D. BLAIR
PROJECT MANAGER

APPROVED:

CHARLES C. FIELDER
DISTRICT DIRECTOR

April 20, 2009
DATE

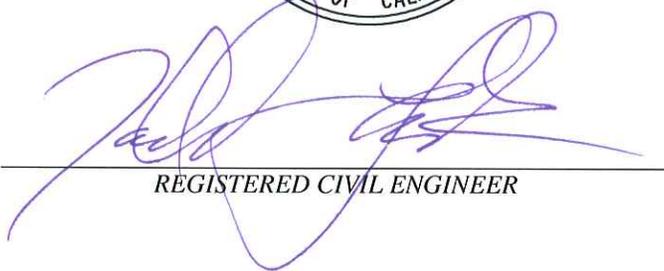
Project Location Map



In Mendocino County on Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge 10-27.

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




REGISTERED CIVIL ENGINEER

4/16/09
DATE

Table of Contents

1. INTRODUCTION AND BACKGROUND.....	5
2. RECOMMENDATION.....	6
3. PURPOSE AND NEED STATEMENT.....	6
4. EXISTING FACILITY, DEFICIENCIES AND TRAFFIC DATA.....	6
5. CORRIDOR AND SYSTEM COORDINATION.....	11
6. ALTERNATIVES.....	11
7. TRANSPORTATION MANAGEMENT.....	15
8. PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT.....	15
9. FUNDING/SCHEDULING.....	15
10. FEDERAL COORDINATION.....	16
11. SCOPING TEAM FIELD REVIEW ATTENDANCE ROSTER:.....	16
12. PROJECT REVIEWED BY:.....	16
13. LIST OF ATTACHMENTS:.....	16

1. INTRODUCTION AND BACKGROUND

This project proposes to rehabilitate 6.6 miles of asphalt surfacing of Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County.

This Resurfacing, Restoration and Rehabilitation (3R) project includes shoulder widening to maintain a minimum shoulder width, installing two retaining walls on the southbound shoulder from PM 77.85 to PM 78.05 and at PM 78.16 for 400 feet, embankment reconstruction, placing rock slope protection (RSP), rehabilitating or replacing drainage systems, fish passage improvements at selected culverts, reconstructing Metal Beam Guard Railing (MBGR), replacing MBGR terminal sections, striping, new recessed pavement markers, rumble strip placement, and adding signs to improve safety.

Prior to repaving, localized pavement failures and pavement cracks will be repaired. This work will include asphalt concrete (AC) digouts to a depth of 0.33 feet; seal all cracks wider than 0.25 inches by route and seal method.

Based on the Life Cycle Cost Analysis (LCCA), the recommended pavement strategy consists of 0.20 feet of Hot Mix Asphalt (HMA) Type-A, followed by 0.20 feet of Rubberized Hot Mix Asphalt Type-G (RHMA-G) and finally 0.15 feet of Rubberized Hot Mix Asphalt Type-O (RHMA-O).

See the Cost estimate for specific work items included in this project.

Project Limits [Dist., Co., Rte., PM]	01, Men., 101, PM 74.8/81.4
Capital Costs:	\$20.33 million
Right of way Costs:	\$50,000
Funding Source:	SHOPP 20.10.201.120
Number of Alternatives:	2
Recommended Alternative (for programming and scheduling):	1
Type of Facility (conventional, expressway, freeway):	Conventional Highway
Number of Structures:	2
Anticipated Environmental Determination/Document:	EIR, EA
Legal Description	In Mendocino County near Laytonville from 5.3 miles north of Branscomb Road to Rattlesnake Creek BR#10-27

2. RECOMMENDATION

This project is recommended to be programmed for construction in 2012 to rehabilitate Route 101 from PM 74.8 to PM 81.4 under the roadway rehabilitation program. The recommended project alternative is discussed in the Alternative section.

3. PURPOSE AND NEED STATEMENT

Need:

This segment of Route 101 will reach the end of its serviceable life in the next 5 to 10 years. This project is needed to increase service life, preserve the highway investment, and to prevent further deterioration of the roadway structural section.

Purpose:

The purpose is to preserve and extend the design life of the existing highway for a minimum of twenty years and enhance highway safety.

4. EXISTING FACILITY, DEFICIENCIES AND TRAFFIC DATA

4A. EXISTING ROADWAY GEOMETRIC INFORMATION

Existing geometric information was obtained from the California State Highway Log, District Safety Analysis Report, and field verification.

Table-1. Existing and Proposed Paved Shoulder Widths

Location PM to PM (1)	Existing Curve Radius (2)	Number of Lanes (3)	Existing Paved Shoulder Width (4)		Proposed Paved Shoulder Width (5)		Median Width (6)
			Left	Right	Left	Right	
PM 74.73/75.30	1900	2	4 ft	4 ft	4 ft	4 ft	None
PM 75.30/75.55	1100	4	4 ft	4 ft	4 ft	4 ft	None
PM 75.55/75.71	1100	3	4 ft	4 ft	4 ft	4 ft	None
PM 75.71/75.85	1000	2	4 ft	4 ft	4 ft	4 ft	None
PM 75.85/76.10	900	2	4 ft	4 ft	4 ft	4 ft	None

Location PM to PM (1)	Existing Curve Radius (2)	Number of Lanes (3)	Existing Paved Shoulder Width (4)		Proposed Paved Shoulder Width (5)		Median Width (6)
			Left	Right	Left	Right	
PM 76.10/76.13	600	2	4 ft	4 ft	4 ft	4 ft	10 ft
PM 76.13/76.25	500	2	4 ft	4 ft	4 ft	4 ft	10 ft
PM 76.25/76.39	500	2	4 ft	4 ft	4 ft	4 ft	10 ft
PM 76.39/76.50	600	3	4 ft	4 ft	4 ft	4 ft	10 ft
PM 76.50/76.74	700	3	4 ft	4 ft	4 ft	4 ft	None
PM 76.74/76.89	1000	3	4 ft	4 ft	4 ft	4 ft	None
PM 76.89/77.12	900	3	4 ft	4 ft	4 ft	4 ft	None
PM 77.12/77.26	500	3	4 ft	4 ft	4 ft	4 ft	None
PM 77.26/77.40	500	3	4 ft	4 ft	4 ft	4 ft	None
PM 77.40/77.55	1000	3	7 ft	3 ft	7 ft	4 ft	None
PM 77.55/77.81	1000	3	7 ft	3 ft	7 ft	4 ft	None
PM 77.81/77.93	2000	3	3 ft	3 ft	8 ft	4 ft	None
PM 77.93/78.12	1200	3	0 ft	0-3 ft	8 ft	4 ft	None
PM 78.12/78.31	2500	3	3 ft	3 ft	8 ft	4 ft	None
PM 78.31/78.56	2000	2	3 ft	3 ft	4 ft	4 ft	None
PM 78.56/78.65	2000	2	3 ft	3 ft	4 ft	4 ft	None
PM 78.65/78.83	5000	2	2 ft	3 ft	4 ft	4 ft	None
PM 78.83/79.01	1000	2	1 ft	2 ft	4 ft	4 ft	None
PM 79.01/79.24	1500	2	0 ft	2 ft	4 ft	4 ft	None
PM 79.24/79.50	1100	2	3 ft	4 ft	4 ft	4 ft	None
PM 79.50/79.94	1000	2	1 ft	2 ft	4 ft	4 ft	None
PM 79.94/80.01	900	2	2 ft	2 ft	4 ft	4 ft	None
PM 80.01/80.10	900	2	2 ft	2 ft	4 ft	4 ft	None
PM 80.10/80.25	800	2	3 ft	2 ft	4 ft	4 ft	None
PM 80.25/80.37	1200	2	2 ft	2 ft	4 ft	4 ft	None
PM 80.37/80.48	800	2	2 ft	4 ft	4 ft	4 ft	None
PM 80.48/80.59	1200	2	4 ft	4 ft	4 ft	4 ft	None
PM 80.59/80.77	1000	2	4 ft	4 ft	4 ft	4 ft	None

Location PM to PM (1)	Existing Curve Radius (2)	Number of Lanes (3)	Existing Paved Shoulder Width (4)		Proposed Paved Shoulder Width (5)		Median Width (6)
			Left	Right	Left	Right	
PM 80.77/80.83	1200	2	3 ft	3 ft	4 ft	4 ft	None
PM 80.83/81.01	1200	2	3 ft	3 ft	4 ft	4 ft	None
PM 81.01/81.11	550	2	3 ft	2 ft	4 ft	4 ft	None
PM 81.11/81.20	1000	2	2 ft	3 ft	4 ft	4 ft	None
PM 81.20/81.27	600	2	4 ft	4 ft	4 ft	4 ft	None
PM 81.27/81.35	1800	2	4 ft	4 ft	4 ft	4 ft	None

4B. CONDITION OF EXISTING FACILITY

(1) Traveled Way Data

Table-2. 2007 Pavement Condition Survey

From	To	Left/Right L1 or L2	Pavement Surface Type	Alligator Cracking %			Patch %	Rutt Y/N	Bleed Y/N	Priority	IRI Score
				A	B	C					
74.80	75.5	L1	Flexible-OG	0	17	0	0	N	N	9	96
74.80	75.5	L2	Flexible-DG	0	0	0	0	N	N	99	176
74.80	75.5	R1	Flexible-OG	0	0	0	0	N	N	32	91
74.80	75.5	R2	Flexible-DG	0	0	0	0	N	N	98	103
75.50	77.0	L1	Flexible-OG	0	0	0	0	N	N	99	105
75.50	77.0	L2	Flexible-DG	0	0	0	0	N	N	98	126
75.50	77.0	R1	Flexible-OG	0	0	0	0	N	N	99	103
75.50	77.0	R2	Flexible-DG	0	0	0	0	N	N	98	95
77.00	78.50	L1	Flexible-OG	0	0	0	0	N	N	99	99
77.00	78.50	L2	Flexible-DG	0	0	0	0	N	N	98	80
77.00	78.50	R1	Flexible-OG	0	0	0	0	N	N	99	102
77.00	78.50	R2	Flexible-DG	0	0	0	0	N	N	98	94
78.50	80.00	L1	Flexible-OG	0	0	0	0	N	N	99	96
78.50	80.00	L2	Flexible-DG	0	0	0	0	N	N	98	86
78.50	80.00	R1	Flexible-OG	0	0	0	0	N	N	99	93
80.00	80.50	L1	Flexible-OG	0	0	0	0	N	N	99	102
80.00	80.50	L2	Flexible-OG	0	0	0	0	N	N	99	119
80.50	81.40	L1	Flexible-OG	0	0	0	0	N	N	99	100
80.50	81.40	R1	Flexible-OG	0	0	0	0	N	N	99	110

Table 2 summarizes the 2007 Pavement Condition Survey Inventory. The data shows that the majority of the facility is in good condition since construction of the bonded wearing course in 2006 on this segment of highway.

All signs will be evaluated for replacement or upgrading in the design phase.

Deflection Study Results:

A deflection study was not completed for the PSSR.

(2) Shoulder Data

Shoulders vary from 0 feet to 8 feet within project limits but are typically 4 feet wide. The shoulders will receive the same recommended overlay as the main traffic lanes. Shoulder will be maintained or widened providing 4-foot minimum width, and widened to 8 feet at proposed retaining walls.

(3) Pedestrian Facility Data

No pedestrian facilities are present within the project limits; however, this section of Route 101 provides access to several private road approaches and a number of high volume Mendocino County Roads including Bell Springs Road and Spy Rock Road. Pedestrians are permitted along the shoulder of this section of Route 101. The minimum shoulder width will be 4 feet.

(4) Bicycle Path Data

There are no separated bicycle paths within the project limits.

4C. STRUCTURES INFORMATION

A Preliminary Geotechnical Report was prepared for construction of the retaining walls in Alternative 1.

4D. VEHICLE TRAFFIC DATA

Current and Forecasted Traffic Data:

<u>Annual ADT</u>		
Base Year	2008	6,300
	2009	6,450
	2019	7,950
	2029	9,450
<u>Peak Hour</u>		
Base Year	2008	950
	2009	970
	2019	1,190
	2029	1,420
20-year Directional % 60.0		
20-year DH Truck % 10.0		
*T.I. (10-Year) 10.0		
*T.I.(20-Year) 11.0		

Collision Data:

Below is a summary of the total number of collisions that have occurred within the project limits over a 5-year period, from July 1, 2002 to June 30, 2007.

Collisions				Actual Collision Rate/MVM			Statewide Average Collision Rate/MVM		
Total	Fatal	Injuries	F+I	Fatal	F+I	Total	Fatal	F+I	Total
71	4	21	25	0.056	0.35	1.00	0.034	0.70	1.44

Locations of Collision Concentration: The District 1 Traffic Safety Office determined there was a uniform distribution of collisions throughout the project limits and no collision concentration was identified. The Traffic Safety Office performed a Safety Analysis, the recommendations from this analysis can be found in the report in Attachment L.

A safety field review was conducted on May 30, 2008 by the District 1 Traffic Safety Office.

4E. MATERIALS

A Preliminary Materials Recommendation was prepared to analyze paving strategies for this project.

5. CORRIDOR AND SYSTEM COORDINATION

This project is consistent with the 2002 Transportation Concept Report for Route 101 in Mendocino County.

6. ALTERNATIVES

Alternative 1: 20-Year Rehabilitation Strategy

This Alternative includes work to rehabilitate or replace drainage systems (see Attachment K for more information), construct fish passage improvements at selected culverts, perform asphalt concrete (AC) digouts to repair localized failures, seal all cracks wider than 0.25 inches by route and seal method.

Other rehabilitation work includes, AC dike replacement, shoulder widening where necessary, embankment reconstruction, installing a retaining wall on the southbound shoulder from PM 77.85 to PM 78.05 and placing a 400-foot retaining wall at PM 78.16, place rock slope protection (RSP), install signs, reconstruct Metal Beam Guard Railing (MBGR) and reconstruct MBGR terminal sections, striping, pavement markers and rumble strip placement.

Alternative 2: No Build.

The no build alternative does not meet the need and purpose for this project.

6A. REHABILITATION STRATEGIES EVALUATED:

Two life cycle cost time frames were analyzed to compare paving strategies for Alternative 1. Ten-year and twenty-year design lives were analyzed for both Hot Mix Asphalt (HMA) and Rubberized Asphalt Concrete (RAC) paving strategies. Both paving strategies were analyzed with and without Hot In-Place Recycling (HIPR) according to the Highway Design Manual section 110.11 (2) and Deputy Directive DD-17. The Life Cycle Cost Analysis compared all paving strategies with a 35-year analysis period using the Caltrans software RealCost version 2.2. The 20-year RAC strategy yielded the lowest equivalent uniform annual cost (EUAC) of \$ 834,000. The Present Value Agency Cost for the 20-year RAC strategy is \$15,573,000. See Attachment H for the Life Cycle Cost Analysis results.

6B. COMPARISON OF REHABILITATION STRATEGIES

A total of eight paving strategies from the Materials Recommendation were compared in the Life Cycle Cost Analysis (Table-3). The LCCA results were used for identifying the most cost effective paving strategy, which do not necessarily match the project cost estimate.

Table-3. Results of the Life Cycle Cost Analysis

Paving Strategy	Initial Construction Cost (\$1,000)	LCCA Present Value Agency Cost (\$1,000)	LCCA Equivalent Uniform Annual Cost (\$1,000)
10-Year HMA	\$11,230	\$19,772	\$1,059
20-Year HMA	\$11,820	\$16,834	\$901
10-Year RAC	\$10,550	\$18,869	\$1010
20-Year RAC	\$11,230	\$15,573	\$834
10-Year HMA, HIPR	\$11,200	\$18,792	\$1,006
20-Year HMA, HIPR	\$11,840	\$15,904	\$852
10-Year RAC, HIPR	\$10,250	\$19,742	\$1,057
20-Year RAC, HIPR	\$11,230	\$16,854	\$903

6C. DESIGN EXCEPTIONS:

A mandatory design exception standards fact sheet was prepared for curve radii less than 1000 feet, and stopping sight distance less than 500 feet. It has been determined by the HQ Design Reviewer that exceptions to Advisory Standards may be addressed in the design phase when more detailed topography and survey data is available. The mandatory standard for superelevation (HDM 202.2) will be evaluated in the design phase as well when survey data is available.

6D. ENVIRONMENTAL COMPLIANCE:

The anticipated environmental document is a EIR and EA. The estimated time to prepare the documents is 48 months.

The following permits, consultations, agreements, studies, and plans are required:

- Regional Water Quality Control Board 401 permit
- U.S. Army Corps of Engineers 404 permit
- State Department of Fish and Game 1602 agreement

- NOAA-Fisheries consultation for coho salmon
- Storm Water Pollution Prevention Plan (SWPPP)
- Water Pollution Control Plan (WPCP)
- Lead Compliance Plan

**6E. HAZARDOUS WASTE DISPOSAL SITE REQUIRED?
IF YES, WHERE ARE SITES?**

A hazardous waste disposal site is not required for this project.

**6F. OTHER AGENCIES INVOLVED
(PERMITS/APPROVALS FROM FISH & GAME,
CORPS OF ENGINEERS, COASTAL COMMISSION,
ETC.):**

Section 401 permit from the North Coast Regional Water Quality Control Board (NCWQCB), Section 404 permit from the U.S. Army Corps of Engineers, and Section 1602 permit from the California Department of Fish and Game.

**6G. MATERIALS AND OR DISPOSAL SITE NEEDS AND
AVAILABILITY?**

No disposal or borrow sites are anticipated for this project. Staging areas for the contractor's equipment and materials are available within State right of way.

6H. HIGHWAY PLANTING AND IRRIGATION:

Replacement plantings will likely be required at areas disturbed by construction activities.

6I. ROADSIDE DESIGN AND MANAGEMENT:

All Metal Beam Guard Railing not replaced will be reset to achieve standard rail heights after the pavement overlay. All terminal sections will be brought to current standards.

6J. STORMWATER COMPLIANCE:

A Storm Water Data Report (SWDR) was completed for the Project Initiation Document (PID) phase. A SWDR will also be prepared for PA&ED and Design phases of the project.

No permanent Best Management Practices (BMP) were identified for the project; however, permanent BMPs will be evaluated during project design. The following Temporary Construction BMPs were identified in the SWDR:

- Fiber Rolls
- Temporary Erosion Control
- Clear Water Diversion
- Silt Fences
- Temporary Cover
- Drainage Inlet Protection

6K. RIGHT OF WAY ISSUES: INCLUDE UTILITY ISSUES IN GUIDANCE:

All improvements are expected to stay within existing Caltrans right of way and no new right of way will be required. No utility relocation is anticipated for this project.

6L. RAILROAD INVOLVEMENT:

There is no railroad involvement with this project.

6M. SALVAGING AND RECYCLING OF HARDWARE AND OTHER NON-RENEWABLE RESOURCES:

All materials will become property of the contractor.

6N. PROLONGED TEMPORARY RAMP CLOSURES:

There are no ramps within the limits of the project.

6O. RECYCLED MATERIALS:

Rubberized HMA, which consists of recycled rubber, is recommended for this project. The use of Rubberized HMA is encouraged in the District where feasible.

6P. LOCAL AND REGIONAL INPUT:

Local schools shall be notified during construction regarding their bus schedules given that one-way traffic control will be used.

6Q. DRAINAGE IMPROVEMENTS:

A summary of drainage work is in Attachment M.

6R. WHAT ARE THE CONSEQUENCES OF NOT DOING THIS ENTIRE PROJECT?

This facility will continue to deteriorate at an increased rate causing significant pavement failures and higher maintenance costs.

6S. LIST ALL ALTERNATIVES STUDIED, COST, REASONS NOT RECOMMENDED, ETC.:

Alternative 1—This alternative was selected as the preferred alternative. The cost of constructing Alternative 1 is \$20.33 million.

No-Build Alternative—The alternative is not recommended because the No-Build Alternative does not meet the need and purpose of the project.

7. TRANSPORTATION MANAGEMENT

7A. TRANSPORTATION MANAGEMENT PLAN

A Transportation Management Plan was prepared for the project. See Attachment E.

7B. VEHICLE DETECTION SYSTEMS

There are no existing vehicle detection systems within the project limits.

8. PRELIMINARY ENVIRONMENTAL ASSESSMENT REPORT

See Attachment B for the Preliminary Environmental Assessment Report (PEAR).

9. FUNDING/SCHEDULING

9A. COST ESTIMATE

The cost to construct Alternative 1, the preferred alternative is \$20.33 million. See Attachment G for the complete cost estimate.

9B. PROJECT SUPPORT:

See Attachment I for the Programming Sheet.

9C. PROJECT SCHEDULE:

Milestones	Delivery Date (Month, Day, Year)
Begin Environmental	October 1, 2011
Circulate DED	August 1, 2012
PA & ED	October 1, 2012
Regular Right of way	October 1, 2012
Project PS&E	August 1, 2012
Right of way Certification	November 15, 2013
Ready to List	March 1, 2014
Approve Contract	October 1, 2014
Contract Acceptance	October 1, 2015
End Project	January 1, 2017

10. FEDERAL COORDINATION

No FHWA action is required for this project.

11. SCOPING TEAM FIELD REVIEW ATTENDANCE ROSTER:

Participant	Affiliation	Phone Number
Steven Blair	Project Management	707-441-5899
Todd Lark	North Region Design E-3	707-441-5882
Eric Brunton	North Region Design E-3	707-441-3968
Susan Tappan	North Region Construction	707-725-7179
Steve Bowles	District Maintenance	707-923-2702

12. PROJECT REVIEWED BY:

Field Review	PDT	Date <u>6/30/08</u>
District Maintenance	Steve Bowles	Date <u>6/30/08</u>
District Safety	Marie Brady	Date <u>4/03/08</u>
Environmental	Steve Grantham	Date <u>5/22/08</u>
Project Management	Steven Blair	Date <u>6/30/08</u>
Construction	Susan Tappan	Date <u>6/30/08</u>

13. LIST OF ATTACHMENTS:

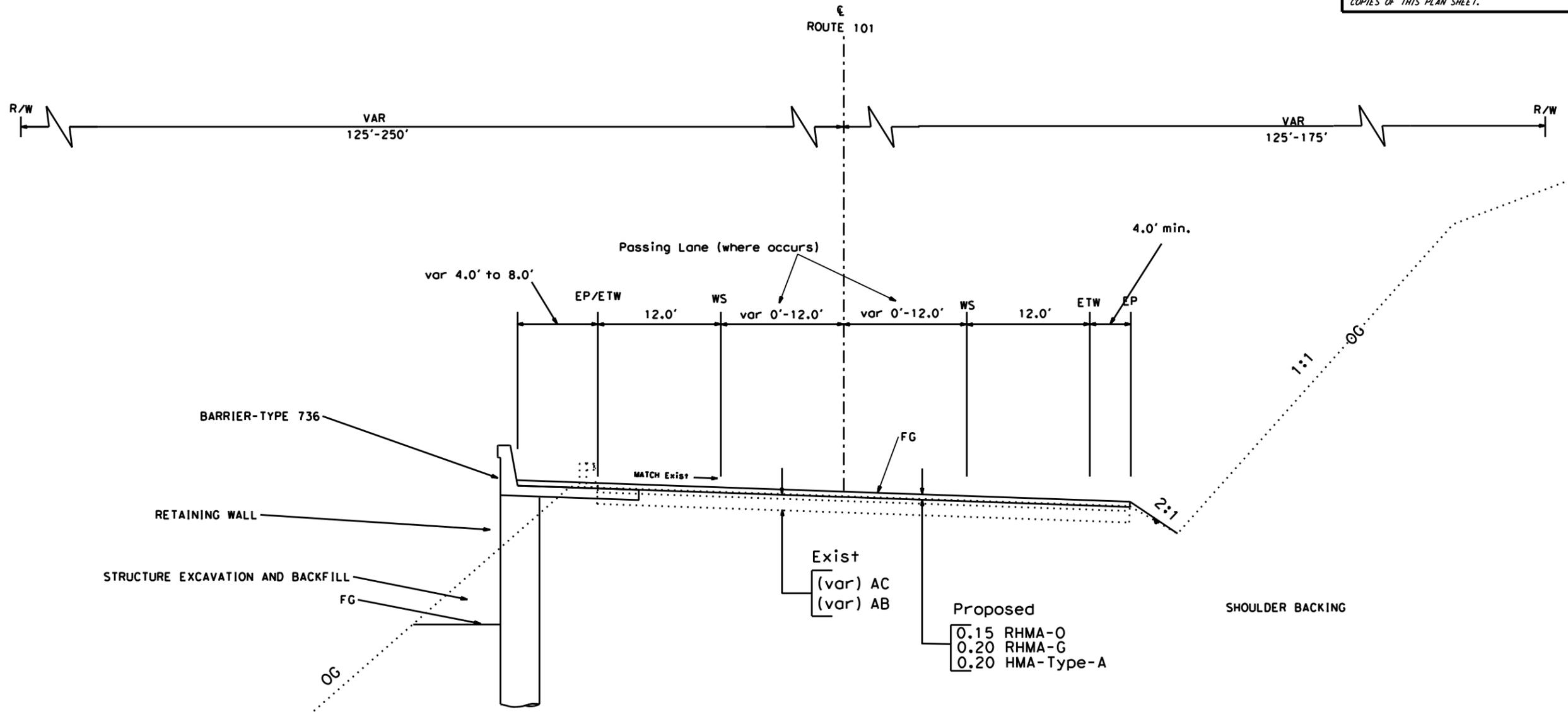
Location Map and Layouts

- A. Project Layouts
- B. Preliminary Environmental Assessment Report
- C. Initial Site Assessment
- D. Right of Way Data Sheet
- E. Transportation Management Plan
- F. Mandatory Design Exception Standards Fact Sheet
- G. Cost Estimate
- H. Life Cycle Cost Analysis
- I. Programming Sheet
- J. Storm Water Data Report
- K. Drainage Work Summary
- L. Traffic Safety Analysis

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



Typical Cross Section

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

REVISED BY
 DATE REVISED

CALCULATED-DESIGNED BY
 CHECKED BY

FUNCTIONAL SUPERVISOR

...

RELATIVE BORDER SCALE IS IN INCHES

USERNAME => \$USER
 DGN FILE => \$REQUEST
 CU 00000
 EA 00000

LAST REVISION | DATE PLOTTED => \$DATE
 00-00-00 | TIME PLOTTED => \$TIME



Preliminary Environmental Analysis Report

Project Information

District: 01 County: MEN Route: 101 Post Miles: 74.8/81.4 EA: 01-41540K

Project Title: Branscomb to Rattlesnake Roadway Rehabilitation

Project Manager: Steve Blair Phone # 707- 441-5899

Project Engineer: Todd Lark and Eric Brunton Phone # 707-441-5882

Senior Environmental Planner: Gary Berrigan Phone # 707-441-5730

Environmental Planner Generalist: Steven Grantham Phone # 707-445-7815

Project Description

This project proposes to repave 6.6 miles of asphalt surfacing on State Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County. This rehabilitation project includes: asphalt concrete (AC) digouts to repair localized failures; seal all cracks wider than 0.25 inches by route and seal method; cold plane existing open grade AC (OGAC); AC overlay; AC dike replacement; shoulder widening where feasible; install a retaining wall on the southbound shoulder from PM 77.85 to PM 78.05; install an approximately 400 foot long retaining wall on the southbound shoulder near PM 78.16; place 75 cubic yards of rock slope protection (RSP); install signs; embankment reconstruction; rehabilitate or replace approximately 40 culverts; reconstruct Metal Beam Guard Railing (MBGR); reconstruct MBGR terminal sections; striping; pavement markers; rumble strip placement and possible utility relocation.

Purpose and Need

The project is needed to increase the service life of the facility and to prevent further deterioration of the roadway structural section because this segment of Route 101 will reach the end of its serviceable life in the next five to ten years.

The purpose of the proposed project would be to rehabilitate the roadway and appurtenances including culverts and metal beam guardrails, and to make safety improvements where practicable.

Anticipated Environmental Approval

<u>CEQA</u>	<u>NEPA</u>
<input checked="" type="checkbox"/> Environmental Impact Report	<input checked="" type="checkbox"/> Environmental Assessment

Environmental evaluation of project impacts is estimated to require at least 48 months. However, if the project scope changes, additional time and resources would be required for further technical studies, interagency coordination, and environmental documentation. The project involves a broad range of improvements over an approximately seven mile segment of State Route 101. The improvements listed in the project description may be broken up into multiple projects over a period of five to ten years, and individually some of those projects may require lower level environmental documents.

PSR Summary Statement

The following key environmental challenges and corresponding studies would be anticipated:

- Cultural resources staff requires a minimum of 36 weeks to complete archaeological and historical investigations for the draft environmental document. Native American consultation and monitoring would be required.
- Water quality and temporary construction noise studies/documentation will also be required.
- Section 401, 404, and 1602 resource agency permits/agreements will be required. The project will require Storm Water Pollution Prevention and Water Pollution Control Plans. If an on-site asphalt batch plant is required, a regional Air Quality Management District permit may be required.
- Measures to minimize harm to water quality will include working within a construction window for the culvert replacement work.
- If listed plants or fish are present, then U.S. Endangered Species Section 7 consultation would be undertaken for listed species.
- Historical and current fish passage would be assessed by a qualified fisheries biologist to address Senate Bill 857 (which includes amendments to Section 156-156.4 of the California Streets and Highways Code, and Section 5901 of the Fish and Game Code).
- Hazardous Waste staff requires approximately six months to complete a Preliminary Site Investigation and final report.

Special Considerations

There are locations in the project limits that require Extended Phase I historic and prehistoric archaeological investigations to determine presence/absence of cultural resources.

Plant surveys for the proposed project would be determined once a final project description is prepared. If required, surveys for sensitive plant species would be performed during the spring growing season. Presence of special-status plants (those considered at risk) may require agency consultation and mitigation.

U.S. Endangered Species Act Section 7 consultation(s) and sensitive plant and fish surveys may be required within the project area. This requirement includes, but is not limited to disposal site(s), staging area(s), asphalt batch and crushing plants, access roads and other temporary construction areas as well as utility relocation areas.

Measures to minimize harm to and to protect water quality will include working within a seasonal construction window for the culvert replacements.

The disposal of AC grindings would require a disposal site. Pursuant to the 1993 Memorandum of Understanding with the California Department of Fish and Game, asphalt concrete grindings shall be placed 50 feet or further from a water body. Given the project's proximity to Rattlesnake Creek most locations will be within this limit, therefore, placement of AC as shoulder-backing may not be feasible.

Depending on the type of retaining walls that are built, there could be a dewatering requirement for the placement of piles. The preferred method of dewatering would be movement of water towards land.

The North Coast Regional Water Quality Control Board (NCRWQCB or Board) will require an evaluation of post-construction water treatment Best Management Practices (BMP's). The Board would likely request off site treatment were Caltrans unable to treat on site. Additionally, the Board could require that the pre-project hydrograph match the post-project hydrograph.

Under Senate Bill 857, existing law prohibits the construction or maintenance of any device or contrivance that prevents, impedes, or tends to prevent or impede the passage of fish up and down stream.

Article 3.5, Section 156.3 of the Streets and Highways Code states: For any project using state or federal transportation funds programmed after January 1, 2006, the department shall insure that, if the project affects a stream crossing on a stream where anadromous fish are, or historically were, found, an assessment of potential barriers to fish passage is done prior to commencing project design. The department shall submit the assessment to the Department of Fish and Game and add it to the CALFISH database. If any structural barrier to passage exists, remediation of the problem shall be designed into the project by the implementing agency. New projects shall be constructed so that they do not present a barrier to fish passage. When barriers to fish passage are being addressed, plans and projects shall be developed in consultation with the Department of Fish and Game.

Any fish passage improvements will need to be incorporated into the final design of the stream crossings that may be identified as passing anadromous fish, either currently or historically. Due to the constraints under Section 857, any improvements to fish passage performed during construction will not be considered as mitigation but rather would be incorporated into the function of the final design. Fisheries biologists and Hydraulic Engineers will need to work closely together to assess fish passage at each crossing and determine which crossing will need improved fish passage incorporated into the final drainage designs.

Anticipated Project Mitigation Measures to Minimize Harm

Anticipated mitigation/measures to minimize harm include:

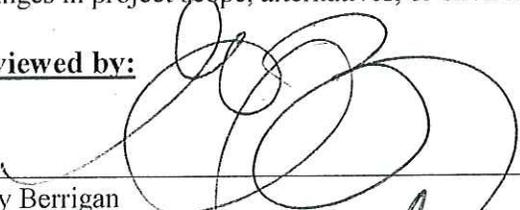
- Planting native vegetation at disturbed areas.
- BMPs to avoid/minimize erosion and sediment run-off into the affected watercourses.
- Permanent treatment BMPs may be required at roadway widening locations.
- Fish passage.
- Wetland mitigation.
- Riparian mitigation.
- Plantings to mitigate visual impacts.
- Mitigation of impacts to special status species.

Based on the April 1, 2008, Environmental Study Request, the estimated mitigation cost should be calculated to be approximately 10% of the total project costs, which does not include required improvements for fish passage. Accurate mitigation cost estimates and additional mitigation measures that may be required cannot be determined until the project's scope of work is finalized, and after coordination with resource agencies.

Disclaimer

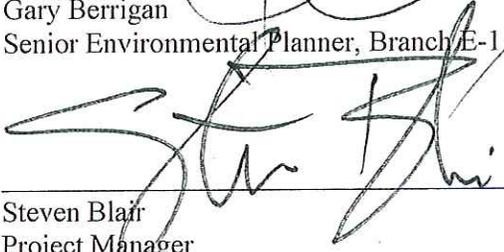
This report is not an environmental document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in this report. The estimates and conclusions provided are approximate and are based on cursory analysis of probable effects. This report is to provide a preliminary level of environmental analysis to supplement the Project Study Report. Changes in project scope, alternatives, or environmental laws will require a re-evaluation of this report.

Reviewed by:



Gary Berrigan
Senior Environmental Planner, Branch E-1

Date: 02.10.09



Steven Blair
Project Manager

Date: 2/10/09

Environmental Technical Reports or Studies Required

	<u>Study</u>	<u>Document</u>	<u>N/A</u>
Community Impact Study	o	o	X
Farmland	o	X	X
Section 4(f) Evaluation	o	o	X
Visual Resources	X	o	o
Water Quality	X	X	o
Floodplain Evaluation	o	X	o
Noise Study	X	o	o
Air Quality Study	o	X	o
Paleontology	X	o	X
Wild and Scenic River Consistency	o	o	X
Cumulative Impacts	o	X	X
Cultural			
ASR	X	o	o
HRER	X	X	o
HPSR	X	o	o
Section 106 / SHPO	X	o	o
Native American Coordination	X	o	o
Other: Extended Phase I Study	X	X	o
Finding of Effect	o	o	o
Data Recovery Plan	o	o	o
Hazardous Waste			
ISA (Additional)	X	o	o
PSI	X	o	o
Other			
NOA and ADL	X	o	o
Biological			
Endangered Species (Federal)	X	X	o
Endangered Species (State)	X	X	o
Species of Concern (CNPS, USFS, BLM, S, F)	X	X	o
Biological Assessment (USFWS, NMFS, State)	o	X	o
Wetlands	X	X	o
Invasive Species	o	X	o
Natural Environment Study	X	o	o
NEPA 404 Coordination	o	o	X
Other			
Permits			
401 Permit Coordination	X	X	o
404 Permit Coordination	X	X	o
1602 Permit Coordination	X	X	o
City/County Coastal Permit Coordination	o	o	X
State Coastal Permit Coordination	o	o	X
NPDES Coordination	o	X	X
US Coast Guard (Section 10)	o	o	X

Discussion of Technical Review

Socio-economic and Community Effects. The project is in a rural setting and the following challenges are not expected:

- Displace existing development;
- Create new, or close existing highway access points;
- Increase traffic carrying capacity;
- Remove an existing traffic bottleneck;
- The project would not affect public access for recreation activities such as hunting or fishing. Designated public trails are not in or adjacent to the project limits.

For these reasons, the project is not expected to have long-term effects on the local community and its economy.

If the project can be done under one-way traffic control during off-peak periods and without restricting access to driveway and local roads, then traffic delay is not expected to be a substantial challenge.

Farmlands/Agricultural. At this time there do not appear to be agricultural impacts from the proposed project because it will be implemented in State-owned right-of-way. Current zoning indicates that the majority of the adjacent parcels are zoned as rangeland. Further analysis of land use maps, zoning and aerial photography, and other source materials will be reviewed when the project is designed to a greater level of detail.

4(f) Impacts. There are no readily identifiable 4(f) properties within the project limits, and the project is not expected to involve any 4(f) issues.

Visual Effects. Impacts to the visual character of the highway will be moderate to very high where the retaining walls and safety barrier are proposed. Visual impacts by all other proposed activities will be moderate to low. The most visible addition to the viewshed will be the introduction of new Metal Beam Guard Rail (MBGR) and loss of roadside vegetation where removal is proposed. MBGR is a common safety device along the California state highway system; therefore, it does not add a new element that would detract from the visual experience along the highway corridor. The MBGR may slightly reduce views of the middle-ground and background for travelers farthest from the proposed retaining wall. Improved shoulders will enhance the visual quality of the roadway as it will be consistent in width with sections of the highway to the north and south. Other improvements will require the removal of roadside vegetation and riparian vegetation at culvert locations which may be noticeable to passing motorists.

Temporary impacts created during project construction will include areas used for staging of equipment and materials. Passing vehicles will observe the storage of heavy equipment, dirt, and other materials required in the construction of the viaducts, retaining walls and metal beam guardrails. During construction, pullouts will not be available for public use. These temporary visual impacts are part of the general construction landscape and do not require mitigation. Lane closure devices including cones and changeable message signage will be used to direct motorists through the construction site. Although the closure devices will not blend into the surrounding landscape, they are required for traffic safety and will not create adverse visual impacts.

Impacts to the visual quality of Highway 101 within the project will be low since removal of existing vegetation adjacent to the highway will be low to moderate. At project completion, widened shoulders will provide the driving public, pedestrians and bicyclists with improved visibility. The addition of MBGR will not adversely impact the visual quality of the highway since it is a commonly seen element along the highway system.

The following recommendation should be considered to reduce the level of visual impacts:

- Dark gray or black colored weed control mat should be placed under MBGR. The color should closely match the color of asphalt.
- Impacts to riparian areas and wetlands near culverts will need to be replanted to address permit requirements from the North Coast Regional Water Quality Control Board and U.S. Army Corps of Engineers. The final decision on whether to re-vegetate should be discussed and agreed upon by the project biologist, re-vegetation specialist and landscape architect. Actually, environmental laws and permits require this.
- Regarding the proposed retaining wall, either MBGR with safety cable or see-through barrier such as Type-80 should be considered to preserve the visual quality of the highway and blend in with existing roadside furniture.
- Further visual impacts studies will be required when the project scope is further developed during the PA&ED phase.

Water Quality and Erosion. The site should be evaluated for potential water quality impacts associated with the project. If site dewatering is required for new construction, a dewatering plan is required. Site access for construction must be included in any water quality analysis. With current proposed scope, post-construction treatment BMPs will have to be considered.

Rattlesnake Creek is named in the Eel River Total Maximum Daily Load (TMDL) for Temperature and Sediment. There is currently no implementation plan for this TMDL for Temperature and Sediment. At present, an implementation plan for TMDL does not exist. If this project were built prior to development and implementation of a plan, the North Coast Board Resolution R1-2004-0087m "Total Maximum Daily Load Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region", will apply.

Rattlesnake Creek is part of the TMDL for the South Fork Eel River for temperature and sediment. Potential sources for the temperature impairment include hydromodification, flow regulation/modification, removal of riparian vegetation, erosion/siltation and non-point source. The proposed project could be viewed as contributing to these sources through hydromodification, removal of riparian vegetation, erosion/siltation and perhaps non-point source.

Floodplain. A floodplain evaluation report will be prepared for the project.

Air and Noise. Air quality impacts from the project will need to be documented and minimized as they will likely occur at batch and crushing plants. Air quality from AC and dust from crushing will require efforts to minimize these impacts. There is the potential for construction noise to impact listed species. If work activities occur near nesting or foraging sites of listed species there could be limitations placed on dates and time of construction.

Wild and Scenic River. There are no designated Wild and Scenic Rivers in the project limits.

Cultural Resources. Archeological and historical studies will be required for the project. The proposed Area of Potential Effects (APE) must include all access roads, work areas and staging

areas beyond the existing paved highway. Any subsequent changes in project scope may require additional archaeological or historical review. The project is in an area of high prehistoric or historic archaeological sensitivity.

Native American Coordination. Consultation and coordination with local tribal representatives will be required, and tribal monitors could be required at some locations during construction.

Hazardous Waste/Materials. An Initial Site Assessment (ISA) has been prepared. Based on the ISA a Preliminary Site Investigation (PSI) is required to assess Naturally Occurring Asbestos (NOA) and Aerially Deposited Lead (ADL) presence and special handling requirements. The risk ranking for NOA and ADL is moderate. Special handling and/or disposal of NOA may be required.

Biological Resources. This project may affect sensitive biological resources. Formal consultation with National Marine Fisheries Service on the coho salmon and steelhead will be required, and the project may require improvements to allow fish passage at some locations. Formal consultation with the USFWS on the northern spotted owl may be required. The existing bridge must be inspected for the presence/absence of bats, nesting swallows and other protected species. Bird and bat surveys must be completed in the spring/summer season.

Wetlands. A delineation of jurisdictional wetlands and waters of the United States needs to be done. Executive Order 11990 requires an avoidance alternative analysis for wetland impacts unless there is no practicable alternative available. Impacts to waters of the U.S. and wetlands from the project and any temporary access roads will need to be quantified.

Invasive Pest Plant Species. Executive Order 13112 requires that any Federal action may not cause or promote the spread or introduction of invasive species.

Right-of-Way Relocation or Staging Area. New right-of-way would not be needed for this project. Material sites and disposal sites will be needed, but have not been identified. These areas, which must be identified prior to initiating environmental studies, will require complete environmental evaluation as part of this project.

Mitigation. Mitigation for temporary and permanent impacts to sensitive biological resources (wetlands, riparian vegetation, regulated plants and animals) will be required. Mitigation for impacts to waters of the United States, listed fish species and their habitats may be required, including provisions for fish passage. Construction windows between June 1 and October 15 may be required for all in-stream work. Reasonable mitigation costs are generally considered to be up to 10% of the project cost, but will be higher if fish passage work is required.

Permits. Permits from the California Department of Fish and Game (1602), U.S. Army Corps of Engineers (an individual 404 Permit will probably be required because wetland/waters impacts may exceed the threshold acreage), and the Regional Water Quality Control Board (401) will be required. The project will require consultation with NOAA-Fisheries and the U.S. Fish and Wildlife Service. Additional permits for the material site and disposal site may be required.

Coastal Zone. This project is not within the coastal zone.

List of Preparers

REVIEW	REVIEWER	DATE
Hazardous Waste	Mark Melani	1/28/09
Biological	Coady Reynolds	2/9/09
Cultural	Barry Douglas	1/20/09
Community Impact	Alicia Bloomer	1/21/09
Visual	James Hibbert	2/9/09

Attachment A - PEAR Mitigation and Compliance Cost Estimate

Dist.-Co.-Rte.-PM: 01-MEN-101 PM 74.8/81.4 EA: 01-41540K

Project Description: Branscomb to Rattlesnake Roadway Rehabilitation

Person completing form/Dist. Branch: Steven Grantham, Environmental Coordinator

Project Manager: Steven Blair Phone number: 707-441-5899

Date: 2-10-09 

	Mitigation			Compliance
	Project Feature ¹	Environmental Obligation ²	Statutory Requirements ³	Permit & Agreement ⁴
Fish & Game 1602 Agreement	0	0	0	\$19,650
Coastal Development Permit	0	0	0	0
State Lands Agreement	0	0	0	0
NPDES Permit	0	0	0	0
COE 404 Permit- Nationwide	0	0	0	0
COE 404 Permit- Individual	0	0	0	0
COE Section 10 Permit	0	0	0	0
COE Section 9 Permit	0	0	0	0
401 Certification	0	0	0	\$20,000
Other:	0	0	0	0
Noise attenuation	0	\$50,000	0	0
Special landscaping	0	\$50,000		0
Archaeological	0	\$50,000		0
Biological	0	\$50,000	\$50,000	0
Historical	0	0	0	0
Scenic resources	0	0	0	0
Wetland/riparian	0	\$50,000	0	0
Other: Fish Mitigation	0	\$200,000	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
TOTAL	0	\$450,000	\$50,000	\$539,650

- Costs are to be reported in \$1,000's.
 - Costs are to include all costs to complete the commitment including: capital outlay and staff support; cost of right-of-way or easements; long-term monitoring and reporting, and; any follow-up maintenance.
- ¹ Mitigation Caltrans usually performs, whether or not any permit or environmental agreement is required.
- ² Mitigation required by conditions of a permit or environmental agreement.
- ³ Mitigation that is required by a law that is not otherwise required by a permit or environmental agreement.
- ⁴ Other action, including permit fees, which Caltrans must take that is required by the conditions of a permit or environmental agreement.

ATTACHMENT B - Resources by WBS Code

EA: 01-41540K

Description: Laytonville Rehabilitation

WBS Task Activity Code	Senior	Coord	Biology	Cultural	Haz Waste	Socio Econ	Storm Water	Noise/ Air	Sup Svcs	Total
Assigned Unit										
Project Management										
100.10.05 – PA&ED Init. & Plng.	20	20	43	16	16		16	8	19	158
100.10.10 – PA&ED Exec. & Ctrl.	8	8	2	2						20
100.10.15 – PA&ED Closeout	16	16	16	16	8		8	8	12	100
100.10.20 – PA&ED Project Shelving										-
100.10.25 – PA&ED Project Unshelving										-
100.10.30 – PA&ED Update Admin Record	20	20	12	8	8		8	2	16	94
100.10.35 – PA&ED Cooperative Agreement										-
100.10.99 – PA&ED Other Proj. Mgmt. Products	20	20	8	2	8		8		12	78
100.15.05 – PS&E Init. & Plng.	8	12	12	8	2		2		10	54
100.15.10 – PS&E Exec. & Ctrl.	12									12
100.15.15 – PS&E Closeout	12									12
100.15.20 – PS&E Project Shelving										-
100.15.25 – PS&E Project Unshelving										-
100.15.30 – PS&E Update Admin Record	20	20	8	8	8		8	2	16	90
100.15.35 – PS&E Cooperative Agreement										-
100.15.99 – PS&E Other Proj. Mgmt. Products	10	10	8	2	8		8		8	54
100.20.05 – Const. Init. & Plng.	8	12	12	8	2		3		6	51
100.20.10 – Const. Exec. & Ctrl.							1			1
100.20.15 – Const. Closeout										-
100.20.20 – Const. Project Shelving										-
100.20.25 – Const. Project Unshelving										-
100.20.30 – Const. Update Admin Record										-
100.20.35 – Const. Cooperative Agreement										-
100.20.99 – Const. Other Proj. Mgmt. Products	20	20	20	20	8		16		12	116
100.25.05 – RW Init. & Plng.										-
100.25.10 – RW Exec. & Ctrl.										-
100.25.15 – RW Closeout										-
100.25.20 – RW Project Shelving										-
100.25.25 – RW Project Unshelving										-
100.25.30 – RW Update Admin Record										-
100.25.35 – RW Cooperative Agreement										-
100.25.50 – RW Ex. Coop. Agree. Relinquish										-
100.25.99 – RW Other Proj. Mgmt. Products										-
Total Project Management	174	158	141	90	68	-	78	20	111	840
Preliminary Engineering Studies and Draft Project Report										
160.05.05 – Approved PID Review			17				3			20
160.05.10 – Geotechnical Information Review	4	4			40					48
160.05.20 – Traffic Data & Forecasts Review										-
160.05.30 – Project Scope Review	8	16	21	8	8		8		16	85
160.05.99 – Other Updated Project Info Products										-
160.10.20 – Value Analysis										-
160.10.25 – Hydraulics/Hydrology Study			80				80		16	176
160.10.30 – Hwy Planting Design Concepts			24				24			48
160.10.40 – Updated Right of Way Data Sheets										-
160.10.99 – Other Engineering Studies										-
160.15.20 – Draft Project Report	4	10	9	10	8		4			45
160.15.25 – Draft PR Circ., Review & Approval	8	8	4	2	4		4			30
160.30.05 – Maps for ESR										-
160.30.10 – Surveys & Mapping for ESR										-
160.30.15 – Prop. Access Rights - Env/Eng Studies			9							9
160.40 – NEPA Delegation	16	40	42	18	2		4		12	134
Total Pre. Eng. Studies & Draft PR	40	78	206	38	62	-	127	-	44	595
Environmental Studies and Draft Environmental Document - Task Management Activities										
165.05.05 – Project Information Review	16	24	21	20	20		16		12	129
165.05.10 – Pub & Agency Scoping Process	16	24	41	24	16		16		10	147
165.05.15 – Alternatives for Further Study	16	20	21	20	8		16		10	111
165.05.99 – Other Env Scoping Alt ID in PID	4	4	9	2						19
165.10.15 – CIA, Land Use & Growth						40				40
165.10.20 – VIA & Scenic Resource Evaluation	16	24	10	8		8			8	74
165.10.25 – Noise Study	8	12	12					100		132
165.10.30 – Air Quality Study										-
165.10.35 – Water Quality Studies	2	8	20				80			110
165.10.40 – Energy Studies										-
165.10.45 – Summary Geotech Report	1	4	4							9

WBS Task Activity Code	Senior	Coord	Biology	Cultural	Haz Waste	Socio Econ	Storm Water	Noise/ Air	Sup Svcs	Total
165.10.50 – Hazardous Waste PSI		4			184				16	204
165.10.55 – Draft RW Relocation Impact Doc.										-
165.10.60 – Loc. Hyd. & Floodplain Stdy Rpts.		8	5							13
165.10.65 – Paleontology Study		4			16					20
165.10.70 – Wild and Scenic Rivers Coordination										-
165.10.75 – Environmental Commitments Record	4	24	4	2	2		2	2	6	46
165.10.99 – Other Environmental Studies										-
165.15.05 – Biological Assessment	4	24	300	4	8		12	8	20	380
165.15.10 – Wetlands Study		4	120				8			132
165.15.15 – Resource Agcy Permit Related Coord	24	32	120				24			200
165.15.20 – NES Report		8	200						24	232
165.15.99 – Other Biological Studies										-
165.20.05 – Archaeological Survey			38	100						138
165.20.05.05 – APE/Study Area Map(s)				40						40
165.20.05.10 – Native American Consultation				240						240
165.20.05.15 – Records & Literature Search			10	40						50
165.20.05.20 – Field Survey			163	40						203
165.20.05.25 – ASR				160						160
165.20.05.99 – Other Archy Survey Products										-
165.20.10 – Extended Phase I Archy Studies										-
165.20.10.05 – Native American Consultation										-
165.20.10.10 – Extended Phase I Proposal										-
165.20.10.15 – Extended Phase I Field Inv.										-
165.20.10.20 – Extended Phase I Mat. Analysis										-
165.20.10.25 – Extended Phase I Report										-
165.20.10.99 – Other Ext Phase I Archy Prod										-
165.20.15 – Phase II Archy Studies										-
165.20.15.05 – Native American Consultation										-
165.20.15.10 – Phase II Proposal										-
165.20.15.15 – Phase II Field Investigation										-
165.20.15.20 – Phase II Materials Analysis										-
165.20.15.25 – Phase II Report										-
165.20.15.99 – Other Ext Phase II Archy Study										-
165.20.20 – Hist & Architect Resource Studies				130						130
165.20.20.05 – Prelim APE/SAM for Arch.				40						40
165.20.20.10 – HRER - Archaeology				160						160
165.20.20.15 – HRER - Architecture										-
165.20.20.20 – Bridge Evaluation										-
165.20.20.99 – Other Hist and Arch Resource Prod				1,580						1,580
165.20.25 – Cultural Res. Comp. Cons. Docs.										-
165.20.25.05 – Final APE/Study Area Maps				40						40
165.20.25.10 – PRC 5024.5 Consultation										-
165.20.25.15 – HPSR/HRCR				200						200
165.20.25.20 – Finding of Effect (FOE)				160						160
165.20.25.25 – Archy Data Rec. Pln./Treat. Pln				100						100
165.20.25.30 – MOA										-
165.20.25.99 - Other CR Compliance Consult Prod				2,100						2,100
165.25.05 – DED Analysis										-
165.25.10 – Section 4(f) Evaluation										-
165.25.15 – CE/CE Determination							6			6
165.25.20 – Env. Quality Ctrl. & Other Reviews	16	40	40	24	16	8	16	16	16	192
165.25.25 – Approval to Circulate Resolution	20	80								100
165.25.30 – Environmental Coordination	12	24	22	16	16		16	16	12	134
165.25.99 – Other Draft ED Products		16	22	40			16		8	102
165.30 – NEPA Delegation	4	16	2	2						24
165.45 – Req Permits during PA&ED Development	24	8	283							315
165.50.05 – USACE Permit (404)	16	8	80	10						114
165.50.10 – US Forest Service Permit(s)										-
165.50.15 – US Coast Guard Permit										-
165.50.20 – DFG 1600 Agreement(s)	16	4	147							167
165.50.25 – Coastal Zone Development Permit										-
165.50.30 – Local Agency Concurrence/Permit										-
165.50.35 – Waste Discharge (NPDES) Permit(s)							8			8
165.50.40 – USFWS Approval										-
165.50.45 – RWQCB 401 Permit	16		223				40			279
165.50.50 – Environmental Commitments Record	4	18								22
165.50.55 – NEPA Delegation	16	4		4						24
165.50.95 – Other Permits										-
Total Environmental Studies & DED	255	446	1,917	5,306	286	56	276	142	142	8,826

WBS Task Activity Code	Senior	Coord	Biology	Cultural	Haz Waste	Socio Econ	Storm Water	Noise/ Air	Sup Svcs	Total
Draft Environmental Document Circulation and Preferred Project Alternative Identification - Task Management Activities										
175.05.05 – Master Dist & Inv Lists	2	8	2	2	2		2	2		20
175.05.10 – Notices Regarding Hearing & DED	8	32	4	4					24	72
175.05.15 – DED Publication & Circulation	10	40		2					16	68
175.05.20 – Federal Consistency Det. (Coastal)										-
175.05.99 – Other DED Circulation Products										-
175.10.05 – Need for Public Hearing Det.	4	8	6	2	2		2	2		26
175.10.10 – Public Hearing Logistics	4	8	6	2	2		2	2	16	42
175.10.15 – Displays for Public Hearing	10	32	12	12	8		8	8	28	118
175.10.20 – 2 nd Not. Pub. Hear. & Avail. of DED	4	24								28
175.10.25 – Map Display & Pub. Hearing Plan	8	8	2	2	2		2	2		26
175.10.30 – Display Public Hearing Maps	4	4	4	4	2		2			20
175.10.35 – Public Hearing	16	24	16	16	16		16	16	16	136
175.10.40 – Record of Public Hearing	4	12	2	2	2		2	2	4	30
175.10.99 – Other Public Hearing Products										-
175.15 – Public Comment Res. & Corr.	12	40	40	24	8					124
175.20 – Project Preferred Alternative										-
175.25 – NEPA Delegation	16	24	8	8						56
Total DED & Preferred Proj. Alt. Identification	102	264	102	80	44	-	36	34	104	766
Project Report and Final Environmental Document										
180.05.05 – Updated Draft Project Report		4	4	2	8		10			28
180.05.10 – Approved Project Report							2			2
180.05.15 – Updated Storm Water Data Report							8			8
180.05.99 – Other Final Project Report Products										-
180.10.05 – Approved FED	10	70	30	30	16		20	10	24	210
180.10.05.05 – Draft FED Review	12	16	8	8	4		8	4		60
180.10.05.10 – Revised Draft FED	2	12	4	4						22
180.10.05.15 – Section 4(f) Evaluation										-
180.10.05.20 – Findings	2	6	14	2						24
180.10.05.25 – Statement of Overriding Consid.										-
180.10.05.30 – CEQA Certification	4	8							2	14
180.10.05.35 – FHWA Approval										-
180.10.05.40 – Section 106 Cons. & MOA										-
180.10.05.45 – Section 7 Consult	24	4	77							105
180.10.05.50 – Final Section 4(f) Statement										-
180.10.05.55 – Floodplain Only PAF										-
180.10.05.60 – Wetlands Only PAF			43							43
180.10.05.65 – Section 404 Compliance	16	8	103							127
180.10.05.70 – Mitigation Measures	16	16	103							135
180.10.10 – Public Dist of FED, Resp to Comments	10	40	16	16	8		8	4	16	118
180.10.99 – Other FED Products										-
180.15.05 – ROD (NEPA)	4	16	6							26
180.15.10 – NOD (CEQA)	4	12	6							22
180.15.20 – Environmental Commitments Record	8	24	16	16						64
180.15.99 – Other Completed ED Products										-
180.20 – NEPA Delegation	8	16								24
Total PR & FED	120	252	430	78	36	-	56	18	42	1,032
Base Maps and Plan Sheets during PS&E Development										
185.05.05 – Project Concept Review										-
185.05.10 – Updated Project Information							4			4
Total Base Maps and Plan Sheets during PS&E	-	-	-	-	-	-	4	-	-	4
Right of Way Property Management and Excess Land										
195.40.25 – Prop. Maint. & Rehab (Non-Rentable)										-
195.40.35 – Transfer of Prop to Clearance Status										-
195.45.05 – Excess Lands Inventory										-
195.45.20 – Property Disposal up to 15K										-
195.45.25 – Property Disposal from 15K to 500K										-
195.45.30 – Property Disposal over 500K										-
Total Base RW Property Mgmt and Excess Land	-	-	-	-	-	-	-	-	-	-
Utility Relocation										
200.15 - Approved Utility Relocation Plan	20	40	40	40	20		40		20	220
200.20 – Utility Relocation Package										-
Total Coordinate Utilities	20	40	40	40	20	-	40	-	20	220

WBS Task Activity Code	Senior	Coord	Biology	Cultural	Haz Waste	Socio Econ	Storm Water	Noise/ Air	Sup Svcs	Total
Permits, Agreements, and Route Adoptions during PS&E Cmpnt										
205.10.05 - US Army Corps 404 Permit		8	40	10					8	66
205.10.10 - US Forest Service Permit(s)										0
205.10.15 - US Coast Guard Permit										0
205.10.20 - DFG 1600 Agreement		8	40						8	56
205.10.25 - Coastal Development Permit										0
205.10.30 - Local Agency Concurrence/Permit										0
205.10.40 - Waste Discharge (NPDES) permit										0
205.10.45 - US Fish & Wildlife Service Approval										0
205.10.50 - RWQCB 401 Permit		8	40						8	56
205.10.60 - Updated ECR	16	80	40	40	20	8	40		20	264
205.10.95 - Other Permits										0
205.20.05 - Draft Fwy Agreement										0
205.20.10 - Draft Fwy Agree Review										0
205.20.15 - Final Fwy Agree										0
205.20.20 - Executed Fwy Agreement										0
205.40.10 - New Connections & Route Adopt SbtI										0
205.55 - NEPA Delegation	40	40	40	40	40	20	40	40	40	340
Total Permits, Agreements, and Route Adoptions	56	144	200	90	60	28	80	40	84	782
Right of Way Interests										
225.55.20 - Right of Way Clearance										
Total Right of Way Interests										
Prepare Draft PS&E										
230.05.45 - Noise Barrier Plans										98
230.10.05 - Hwy Planting Plans		10	80	8						98
230.10.15 - Plant List		8	40	4						52
230.35.10 - Hwy Planting Specs		8	20	4						32
230.35.35 - Water Pollution Control Specs		10	40	8	8		80		12	158
230.35.40 - Erosion Control Specifications		8	24	10			20			62
230.60 - Update Proj Info for PS&E Package										-
230.60.05 - Updated Storm Water Data Report		40	10	10						60
230.60.10 - Other Reviews/Updates Proj. Infor		20								20
230.90 - NEPA Delegation	40	40	40	40	40		40	40	40	320
Total Draft PS&E	40	144	254	84	48		140	40	52	802
Mitigate Environmental Impacts and Clean-up Hazardous Waste										
235.05.05 - Historical Structures Mitigation										-
235.05.10 - Archaeological & Cultural Mitigation				440					8	448
235.05.15 - Biological Mitigation	40		80						8	128
235.05.20 - Environmental Mitigation R/W Work			80	100						180
235.05.25 - Paleontology Mitigation										-
235.05.99 - Other Env. Mitigation Products										-
235.10.10 - HW Sites Survey					20					20
235.10.15 - Detailed HW Site Investigation					40					40
235.15 - HW Management Plan										-
235.20 - HW PS&E										-
235.25 - HW Clean-up										-
235.30 - Certificate of Sufficiency					8					8
235.35 - Long Term Mitigation Monitoring			80				40			120
235.40 - Updated Environmental Commit. (ECR)	8		22							30
235.45 - NEPA Delegation	40	40	22	8	40	20	40	40	40	290
Total Env. Impact Mitigation & HW Clean-up	88	40	284	548	108	20	80	40	56	1,264

WBS Task Activity Code	Senior	Coord	Biology	Cultural	Haz Waste	Socio Econ	Storm Water	Noise/ Air	Sup Svcs	Total
Permits for Subsurface Geotechnical Exploration										
240.70 - Site Ready for Subsurface Exploration										-
Total Geotechnical Permit	-	-	-	-	-	-	-	-	-	-
Circulate, Review and Prepare Final District PS&E Package										
255.05 – Circ. & Rev. Draft Dist PS&E	20	40	40	40	40		40	1	20	241
255.10.25 - Updated Technical Reports										-
255.15 – Environmental Reevaluation	10	20	22	20			20		20	112
255.20.05 – Rev. Plans for Drafting Stds. Comp										-
255.40 – Resident Engineer's Pending File										-
255.45 – NEPA Delegation	20	40	40	40	40	20	40		20	260
Total Final District PS&E Package	50	100	102	100	80	20	100	1	60	613
Prepare Contract Documents										
260.75 - Env Cert at RTL	20	20	20	20	20		20		20	140
Total Prepare Contract Documents	20	20	20	20	20	-	20	-	20	140
Perform Construction Engineering and General Contract Administration										
270.20.50 – Technical Support			78							78
270.30.10 - Inspection of Const. Work for Comp.	20	80	860	1,000	250		400	80	40	2,730
270.70 – Updated Environmental Commitments	20	20	20	20	20		20		20	140
270.75 – Resource Agency Permit Ren. & Ext.		20	77							97
270.80 – Long Term Env Mit/Mont during Const		60	400	400	180		400		40	1,480
Total Const Engineering & Gen. Contract Admin.	40	180	1,435	1,420	450	-	820	80	100	4,525
Prepare and Administer Contract Change Orders										
285.05.05 - Determine Need for CCO			43							43
285.10.15 – "Other" Functional Support										-
Total Construction CCOs	-	-	43	-	-	-	-	-	-	43
Resolve Contract Claims										
290.35 - Provide Technical Support			17							17
Total Construction Contract Claims	-	-	17	-	-	-	-	-	-	17
Contract Acceptance, Final Construction Estimate and Final Report										
295.35 – Certificate of Environmental Compliance	20	40	17	8	8		20		16	129
295.40 – Long Term Env Mit/Mont after Const		80	100	40	20		80		40	360
Total Final Construction	20	120	117	48	28	-	100	-	56	489
Total Project Hours	985	1,922	5,148	7,892	1,270	104	1,917	375	827	20,440

M e m o r a n d u m

To: Todd Lark
Project Engineer
1656 Union Street
Eureka CA 95501

Date: May 23, 2008

File No: 01-Men-101
PM 74.8/81.4
Roadway Rehabilitation
Project

EA: 01-41540K

From: DEPARTMENT OF TRANSPORTATION
Office of Environmental Engineering – South (OEES)

Subject: Initial Site Assessment (ISA)

Per your request, OEES has reviewed your above referenced project. The project proposes to pave 6.6 miles of highway, repair and/or replace all existing culverts and reconstruct MBGR. Soil and vegetation will be disturbed during construction. Excess material may be generated during construction. New r/w may be required. Temporary construction easements may be required. The project limits fall within an area identified by the Mendocino Air Quality Management District as “may contain naturally occurring asbestos”.

Based on this review, three potential hazardous waste/material issues, naturally occurring asbestos, aerially deposited lead, and treated wood waste were identified for the proposed project. As the project scope is defined, you will need to coordinate with OEES to determine if all or part of the issues can be addressed with NSSPs or if a Preliminary Site Investigation (PSI) will be required. It is hoped that sampling conducted by OEES in the summer of 2007 will be sufficient to cover the final defined scope of the proposed project without additional sampling. In case a PSI is required please include 160 hours under WBS 165.10.50 and \$16,000 in the project budget to cover our time and the consultants cost to complete the PSI.

If there are any significant changes to the project scope, or if new information is identified, please contact the OEES, as soon as reasonably

possible so the significance of the information and the need for additional studies can be assessed. If you have any questions or comments, please feel free to call me at (530) 741-4556.

A handwritten signature in black ink that reads "Mark Melani". The letters are cursive and somewhat stylized.

Mark Melani,
Office of Environmental Engineering – South

cc: File
Eric Brunton, Project Designer
(Electronic copy only)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET



Date: October 14, 2008

01-MEN-101- PM 74.8/81.4
 E.A. 41540K
 IN MENDOCINO COUNTY NEAR
 LAYTONVILLE FROM 5.3 MILES NORTH OF
 BRANSCOMB ROAD TO RATTLESNAKE
 CREEK BR#10-27

1. Right of Way Cost Estimate: **Alternate No. 1**

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost	\$0		\$0
B. Mitigation acquisition & credits	\$0		\$0
C. Project Development Permit Fees	\$50,000	5%	\$60,678
Subtotal	\$50,000		\$60,678
D. Utility Relocation (State Share) (Owner's share: _____)	\$0		\$0
E. Relocation Assistance (RAP)	\$0		\$0
F. Clearance/Demolition	\$0		\$0
H. Title & Escrow	\$0		\$0
I. Total Estimated Right of Way Cost	\$50,000	Rounded	\$60,700
J. Construction Contract Work	\$0		
2. Current Date of Right of Way Certification	October 1, 2012		

3. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements
X 0		U4 - 1 0	None X
A 0		- 2 0	C&M Agrmt
B 0		- 3 0	Svc Contract
C 0	0	- 4 0	Easements
D 0	0	U5 - 7 3	Rights of Entry
		- 8 0	Clauses
		- 9 0	
Total 0			
Areas:			Misc. R/W Work
R/W:	N/A		RAP Displ N/A
Excess:	N/A	No. Excess Pcls: 0	Clear/Demo N/A
Mitigation:	N/A		Const Permits N/A
			Condemnation N/A
			USA Involvement No

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

4. Are there any major items of construction contract work?
Yes _____ No X

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

No right of way required.

6. Are any properties acquired for this project expected to be rented, leased, or sold?
Yes _____ No X

7. Is there an effect on assessed valuation? Yes _____ Not Significant _____
No X

8. Are utility facilities or rights of way affected? Yes X No _____
Utility relocations are not anticipated; however, utility verifications will be required.

9. Are railroad facilities or rights of way affected? Yes _____ No X

10. Were any previously unidentified sites with hazardous waste and/or material found?
Yes _____ None Evident X

11. Are RAP displacements required? Yes _____ No X
No. of single family _____ No. of business/nonprofit _____
No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated N/A
it is anticipated that sufficient replacement housing (will/will not) be available without
Last Resort Housing.

12. Are there material borrow and/or disposal sites required?
Yes X No _____

13. Are there potential relinquishments and/or abandonments?
Yes _____ No X

14. Are there any existing and/or potential airspace sites?
Yes _____ No X

15. 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.)

Right of Way Lead Time will require a minimum of 3 months after we receive first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 3 months will be required after receiving the last appraisal map to Right of way for certification.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

16. Is it anticipated that Caltrans will perform all Right of Way work?
Yes X No _____

Evaluation Prepared By:

Right of Way: _____


JEREMIAH JOYNER

Date 10-15-08

Reviewed By:

RW Project Coordinator: _____


AUDREY OAKLEY

Date 10/17/08

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify 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 I find this Data Sheet to be complete and current.


MARK C. RICARDS,
Senior Right of Way Agent
Project Delivery Branch
EUREKA

10-15-08
Date

TRANSPORTATION MANAGEMENT PLAN

To: Eric Brunton
Project Engineer

Date: 24 September 2008
File: MEN-101 PM 74.8/81.4
EA: 01-41540K

Roadway rehabilitation.

From: Troy Arseneau, Chief
District 1 Office of Traffic Operations

Project Information

Location:

In Mendocino County near Laytonville from
5.3 miles north of Branscomb Road to
Rattlesnake Creek Br.# 10-27.

Type of Work:

Asphalt surfacing, AC digouts, crack seal, cold
plane AC, AC overlay, AC dike replacement,
shoulder widening, install retaining walls,
place RSP, install signs, embankment
reconstruction, rehabilitate approximately 40
culverts/drainage systems, reconstruct MBGR,
striping, place pavement markers and rumble
strips, place weed mat, and possible utility
relocation.

Anticipated Traffic Control:

One-way reversible traffic control.
Lane reduction.
Shoulder closure.

Estimated Maximum Delay:

10 minutes.

Peak Hour Traffic Volumes:

800 vph.

Lane Requirement Charts

Included:

No.

Number of Working Days:

TBD.

Next Major Milestone and Date:

PID – January/2009

RTL Date:

November/2012

District Traffic Manager/ TMP
Manager:

Troy Arseneau

(707) 445-6377

TMP Coordinator:

Paul Hailey

(707) 445-6419

Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

Recommendation

A request for an updated Transportation Management Plan shall be made during the design phase.

Hours of Work

- The full width of the traveled way shall be open for use by public traffic from the proceeding Friday to the following Monday for the Annual Redwood Run & Music Festival held the second weekend in June, from Thursday to the following Monday for the Annual Reggae on the River and/or Reggae Rising Festivals held the first weekend in August, and from Friday to the following Monday for the Annual Earthdance Festival held the third weekend in September. The contractor shall verify the actual dates for these Special Events.

Public Notice

- Upon receipt of notice that the roadway width (including paved shoulder) for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the District Permits Engineer.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- The Resident Engineer shall provide information to residents and businesses before and during project work that may represent a negative impact on commerce and travel surrounding the zone of construction. Funding shall be included in supplemental funds for public information.
- Include in a memo to the Resident Engineer that at least 5 days in advance of excavation work in the vicinity of possible Caltrans facilities, that Maintenance-Electrical Supervisor (825-0233) shall be contacted to locate existing Caltrans underground electrical facilities.

Traffic Control

- Work that requires a lane closure shall be in conformance with the Caltrans Standard Plan T-11, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS."
 - A minimum of 16 ft of paved roadway in each direction of travel shall be open for use by public traffic, where available.
 - The maximum lane closure length is 2,400 feet.
- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS."
 - A minimum of 16 ft of paved roadway shall be open for use by public traffic, where available.
 - The maximum length of one-way traffic control closure is 2,400 ft.
 - During one-way traffic control, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area.
 - "Watch for Bicycles" signs shall be placed, in each direction of travel, prior to the construction zone.
- One closure is permitted within the project limits.
- A shoulder closure consisting of at least one Shoulder Work Ahead advance warning sign and channelizing devices shall be used when work occurs within 6 ft of the edge of traveled way. Channelizing devices shall be placed 200 ft in advance of, and adjacent to the work zone with a maximum distance of 50 ft between channelizers.
- A minimum of one PCMS in advance of both ends of the construction site shall be required in order to notify the public of the closures related to this project.
- Access to side roads and residences shall be maintained at all times. When work or traffic queues extend through an intersection, additional traffic control will be required at the intersection.
- If traffic is to be placed on unpaved surfaces over night, advanced flashing beacons on the advance signing as shown in Standard Plan T-13 shall be required. Flashing beacons on all four advance signs shall be required where possible. When placing flashing beacons, care shall be taken to avoid impacting inhabited dwellings with the light.

01-MEN-101-74.8/81.4
01-41540K
Roadway rehabilitation.

24 September 2008
Page 4

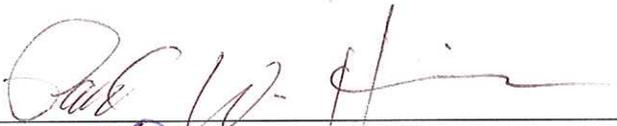
- If persons with disabilities (e.g. hearing, visual, or mobility) are found to use this facility, the temporary traffic control measures mentioned in the California MUTCD Chapter 6D shall be incorporated to accommodate disabled pedestrians through the work zone.
- COZEEP is recommended for this project based on risk factors associated with this project and the COZEEP Guidelines (CA DOT Construction Manual Section 2-215A). The associated risk factors include: lane closure with one-way traffic control, workers exposed to traffic, night construction activities, end of queue management, speed management, and significant truck volumes.

Contingency Plan

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

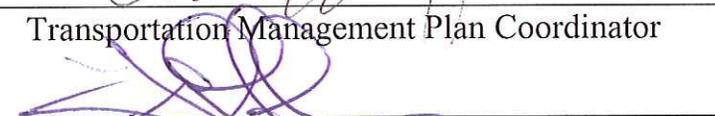
Approval

Approved by:



Transportation Management Plan Coordinator

Approved by:



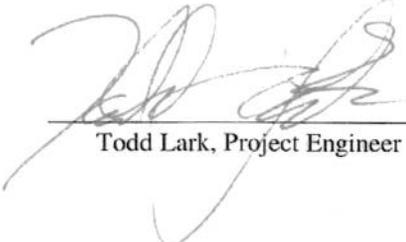
District Traffic/ TMP Manager

TAA/cwk

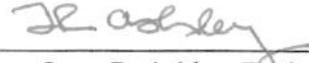
CC: 1)TAArseneau, 2)JCandalot
 1)RMMartinelli, 2) MABrady, 3)MGDavenport
 LRashley
 SBlair
 HLQuintrell
 RLingford
 AJones

Fact Sheet Exceptions to Mandatory Design Standards

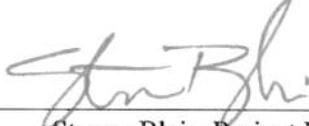
Prepared by:


Todd Lark, Project Engineer 1/28/09

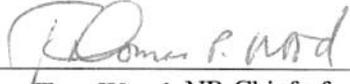


Submitted by 
Lena R. Ashley, Design Engineer

1/28/09 (707) 445-6602
Date Telephone

Recommended for Approval 
Steven Blair, Project Manager

1/28/09 (707) 441-5899
Date Telephone

Concurrence by 
Tom Wood, NR Chief of
Office of Design North

1/29/09 (530) 741-5381
Date Telephone

Approved By: 
John Steele, Design Coordinator
Division of Design

1/31/09 (916) 653-4937
Date Telephone

1. PROPOSED PROJECT AND NONSTANDARD FEATURES

A. Project Description:

This project proposes to resurface, restore and rehabilitate 6.6 miles of asphalt surfacing of Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County. This project is needed to prevent further deterioration of the roadway structural section, and to rehabilitate roadway features such as culverts and metal beam guardrails. The purpose of this project is to extend the pavement service life for a minimum of 20 years, minimize maintenance activities on the highway, improve the drainage, and to make practicable safety improvements.

The project proposes to increase paved shoulder widths to a consistent and minimum 4-feet where needed. Where structures are proposed, minimum shoulder widths will be increased to 8 feet.

B. Existing Highway:

The highway has a curvilinear alignment both vertically and horizontally, as well as paved shoulders that range from 0 feet to 8 feet in width with a typical shoulder width of 4 feet throughout the project limits; however, the existing paved shoulders are typically 4 feet wide.

Table 1 shows that most of the existing highway has 4 foot shoulders within the project limits. This project proposes overlaying existing 4 foot shoulders in place.

Table 1. Existing and Proposed Shoulder Widths.

Location PM to PM	Number of Lanes	Existing Paved Shoulder Width (From California State Highway Log)		Proposed Paved Shoulder Width	
		Left	Right	Left	Right
PM 74.73/75.30	2	4 ft	4 ft	4 ft	4 ft
PM 75.30/75.55	4	4 ft	4 ft	4 ft	4 ft
PM 75.55/75.71	3	4 ft	4 ft	4 ft	4 ft
PM 75.71/75.85	2	4 ft	4 ft	4 ft	4 ft
PM 75.85/76.10	2	4 ft	4 ft	4 ft	4 ft
PM 76.10/76.13	2	4 ft	4 ft	4 ft	4 ft
PM 76.13/76.25	2	4 ft	4 ft	4 ft	4 ft
PM 76.25/76.39	2	4 ft	4 ft	4 ft	4 ft
PM 76.39/76.50	3	4 ft	4 ft	4 ft	4 ft
PM 76.50/76.74	3	4 ft	4 ft	4 ft	4 ft
PM 76.74/76.89	3	4 ft	4 ft	4 ft	4 ft
PM 76.89/77.12	3	4 ft	4 ft	4 ft	4 ft
PM 77.12/77.26	3	4 ft	4 ft	4 ft	4 ft
PM 77.26/77.40	3	4 ft	4 ft	4 ft	4 ft
PM 77.40/77.55	3	8 ft	4 ft	8 ft	4 ft
PM 77.55/77.81	3	7 ft	4 ft	7 ft	4 ft
*PM 77.81/77.93	3	0 ft	3 ft	8 ft	4 ft
*PM 77.93/78.12	3	0 ft	0-3 ft	8 ft	4 ft
PM 78.12/78.31	3	4 ft	4 ft	8 ft	8 ft
PM 78.31/78.56	2	5 ft	5 ft	5 ft	5 ft
PM 78.56/78.65	2	5 ft	5 ft	5 ft	5 ft
PM 78.65/78.83	2	5 ft	5 ft	5 ft	5 ft

PM 78.83/79.01	2	5 ft	5 ft	5 ft	5 ft
PM 79.01/79.24	2	4 ft	4 ft	4 ft	4 ft
PM 79.24/79.50	2	4 ft	4 ft	4 ft	4 ft
PM 79.50/79.94	2	4 ft	4 ft	4 ft	4 ft
**PM 79.94/80.01	2	3 ft	4 ft	4 ft	4 ft
**PM 80.01/80.10	2	3 ft	3 ft	4 ft	4 ft
PM 80.10/80.25	2	4 ft	4 ft	4 ft	4 ft
PM 80.25/80.37	2	4 ft	4 ft	4 ft	4 ft
PM 80.37/80.48	2	4 ft	4 ft	4 ft	4 ft
PM 80.48/80.59	2	4 ft	4 ft	4 ft	4 ft
PM 80.59/80.77	2	4 ft	4 ft	4 ft	4 ft
PM 80.77/80.83	2	4 ft	4 ft	4 ft	4 ft
PM 80.83/81.01	2	4 ft	4 ft	4 ft	4 ft
PM 81.01/81.11	2	4 ft	4 ft	4 ft	4 ft
PM 81.11/81.20	2	4 ft	4 ft	4 ft	4 ft
PM 81.20/81.27	2	4 ft	4 ft	4 ft	4 ft
PM 81.27/81.35	2	4 ft	4 ft	4 ft	4 ft

*Location of proposed retaining wall.

**Width of shoulders measured to the existing AC dike.

The design speed for a rural 2-Lane Conventional Highway with mountainous terrain ranges from 40 mph to 50 mph typically. The average vehicle speed through this segment is assumed at 55 mph and a design speed of 55 mph was selected for this segment.

The level of service was determined to be LOS E currently, and is anticipated to stay at LOS E through 2020.

The speed based on comfort standards for many of the horizontal curves throughout this segment range from 38 mph to 64 mph.

Mandatory Design Standards for superelevations will be addressed in the design phase as well as Advisory Design Standards for clear recovery zone infringement, side slopes, and alignment consistency when more data is available.

C. Safety Improvements:

Paved shoulders will be widened to a minimum of 4 feet throughout the project and 8 feet where structures are proposed. Widening the shoulders will improve the recovery room for vehicles, and provide room for bicyclists.

Other safety improvements include the installation of chevron signs, the installation of speed advisory signs with flashing beacons, rumble strips, and removal of fixed objects within the clear recovery zone (CRZ). Additionally, District 1 Traffic Safety recommends restriping the SB passing lane transition prior to Rattlesnake Summit to allow vehicles to queue into one lane and reduce speeds down the grade as vehicles merge into one lane.

D. Total Project Cost:

The estimated cost for this project is \$20.3 million. Some of the major cost items are as follows:

Retaining walls: soldier pile to avoid impacts to Rattlesnake Creek \$1.7 million

Drainage Work
Roadway Work

\$1.3 million
\$17.3 million

2. FEATURES REQUIRING AN EXCEPTION TO MANDATORY DESIGN STANDARDS

A. Curve radius less than 1000 feet.

Standard for Which Exception Is Requested

Caltrans Highway Design Manual Topic 203.2 Standards for Curvature. The minimum curve radius of 1,000 feet is based on a curve for a design speed of 55 mph. The first column in Table-2 lists the curve radii that do not meet the standard.

Table 2: Nonstandard horizontal curve data.

Location	Curve Radius	m (ft)	Speed based on Comfort Standard (Table 203.2)	Stopping Sight Distance Standard (Table 201.1)	Estimated Stopping Sight Distance (Figure 201.6)	Cost to Make Standard
*PM75.08/75.29	1100 ft	24	56 mph	510 ft	520 ft	250,000
*PM 75.12/75.29	1100 ft	24	56 mph	510 ft	460 ft	250,000
PM 75.55/75.64	1100 ft	16	56 mph	510 ft	340 ft	320,000
PM 75.71/75.81	1000 ft	15	55 mph	500 ft	330 ft	520,000
PM 76.0/76.09	900 ft	15	52 mph	450 ft	330 ft	600,000
*PM 76.1/76.13	600 ft	25	42 mph	330 ft	350 ft	1,400,000
*PM 76.13/76.19	500ft	25	38 mph	275 ft	320 ft	1,800,000
PM76.25/76.36	550 ft	14	40 mph	300 ft	250 ft	1,800,000
PM 76.39/76.47	500 ft	24	38 mph	275 ft	310 ft	2,800,000
PM 76.50/76.61	700 ft	25	45 mph	360 ft	380 ft	4,400,000
PM 76.74/76.85	1000 ft	14	55 mph	500 ft	340 ft	4,000,000
PM 76.89/77.03	900 ft	18	52 mph	450 ft	360 ft	760,000
PM 77.12/77.20	500 ft	20	38 mph	275 ft	290 ft	1,360,000
**PM 77.20/77.24	500 ft	20	38 mph	275 ft	290 ft	10,000,000
PM 77.26/77.37	500 ft	18	38 mph	275 ft	270 ft	4,400,000
PM 77.4/77.45	1000	18	55 mph	500 ft	400 ft	1,360,000
PM 77.55/77.67	1000 ft	18	55 mph	500 ft	450 ft	1,360,000
PM 78.83/78.98	1000 ft	18	55 mph	500 ft	380 ft	2,680,000
PM 79.24/79.48	1100 ft	20	56 mph	510 ft	420 ft	320,000
PM 79.50/79.68	1000 ft	23	55 mph	500 ft	430 ft	1,360,000
PM 79.94/80.01	900 ft	15	52 mph	450 ft	330 ft	920,000
PM 80.03/80.12	800 ft	20	48 mph	400 ft	360 ft	1,560,000
*PM 80.18/80.28	750 ft	16	47 mph	370 ft	310 ft	1,800,000
*PM 80.37/80.46	800 ft	18	48 mph	400 ft	340 ft	500,000
PM 80.59/80.68	1000 ft	25	55 mph	500 ft	450 ft	1,520,000
PM 81.01/81.06	550 ft	26	40 mph	300 ft	340 ft	840,000
PM 81.11/81.17	800 ft	30	48 mph	400 ft	440 ft	1,800,000
PM 81.20/81.25	600 ft	25	42 mph	330 ft	350 ft	2,680,000
Standard based on Design Speed Selected for Project	1,000 ft (Table 203.2)		55 mph		500 ft	

* Compound Curve ** Estimated from as-builds

Reason for Requesting Exception

There were 71 reported collisions with relatively uniformly distributed throughout the project limits according to a 5-year TASAS Table B from July 1, 2002 to June 30, 2007. Spot widening of an individual curve will likely have minimum benefit.

Additionally, significant widening for curve improvements would impact environmental resources, such as filling or realigning portions Rattlesnake Creek. The channel would be narrowed if large fill slopes were constructed near the creek thereby increasing the potential of flooding the roadway. Lastly, the cost to improve the curves to standard would exceed the project cost. See Table 2 for a summary of cost to construct curve improvements necessary to meet standards for curvature. This type of work is beyond the need and intent of a rehabilitation project.

Added Cost To Make Standard

\$39,000,000

B. Stopping Sight Distance less than 500 feet.**Standard for Which Exception Is Requested**

Caltrans Highway Design Manual Topic 201 Sight Distance: Table 201.1 requires a minimum 500 ft stopping sight distance for a design speed of 55 mph for Rural Highways in Mountainous Terrain.

Reason for Requesting Exception

Improving horizontal and vertical curves to meet mandatory stopping sight distance within the project would require the acquisition of property, and would be prohibitively expensive to construct. Also, a significant realignment would impact environmental resources (loss of trees, loss of habitat, filling of wetlands). Additionally, right of way acquisition would be necessary to construct the curve to standards, which would delay the project and further increase cost. See Table-2 and Table-3 for a summary of stopping sight distances for horizontal curves and vertical curves respectively within the project limits.

Table 3: Nonstandard vertical curve data comparison.

Location	Grade Change	Vertical Curve Length	Stopping Sight Distance Standard (Existing)
PM 76.14/76.19	+0.76% to 5.77%=6.53%	400 ft (Sag)	250 ft
PM 76.50/76.60	+5.82% to -0.30%=6.12%	500 ft (Crest)	360 ft
PM 77.59/77.74	+6.00% to -6.00%=12.00%	800 ft (Crest)	300 ft
Standard based on Design Speed Selected for Project Section 201.1			500 ft

Added Cost To Make Standard

Construction of Walls & Earthwork \$27,000,000

3. TRAFFIC DATA

Traffic Operations at District 1 provided the following traffic forecasting data:

TRAFFIC DATA		
01-MEN-101 PM 74.8/81.4		
<u>Year</u>	<u>Peak Hour</u>	<u>AADT</u>
2009	970	6,450
2019	1,190	7,950
2029	1,420	9,450

4. ACCIDENT ANALYSIS

This 6.6-mile segment of highway experienced 71 reported collisions (4 Fatal, 21 Injury, 46 PDO). The actual total collision rate for this segment is 1.00 COL/MVM, which is less than the statewide average rate of 1.44 COL/MVM for similar roadways.

07/01/2002 to 6/30/2007						
	ACTUAL			AVERAGE for similar highway facility		
	Fatal	F+I	Total	Fatal	F+I	Total
Collisions/MVM	0.056	0.35	1.00	0.034	0.70	1.44

5. INCREMENTAL IMPROVEMENTS

The proposed project provides improvements to the roadway to address the safety concerns while keeping disturbance to environmentally sensitive areas at a minimum.

6. FUTURE CONSTRUCTION

Based on the 2002 Route Concept Report for Route 101, the 20-year route concept proposes to improve this segment of highway by constructing a four-lane freeway or expressway; called the Laytonville Bypass & North project. The project cost was estimated at \$118 million to construct the bypass from PM64.7 to PM81.4 in the year 2002.

Other future projects include:

- EA 01-46930 to reconstruct MBGR in Mendocino County at several locations on highway 101.

7. PROJECT REVIEWS, CONCURRENCE

8. ATTACHMENTS

Typical Cross Sections; Attachment A

Preliminary
4/6/2009

ATTACHMENT G
~~ATTACHMENT I~~
XXXXXXXXXXXXXXXXXXXX
01-MEN 101
PM 74.8/81.4
EA: 01-41540K

Program Code:

Project Scope Summary Report (PSSR) Cost Estimate

PROJECT DESCRIPTION:

Limits: Men-101-74.8/81.4 PM

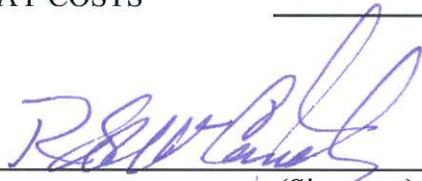
Proposed Improvement (Scope):

This project proposes to rehabilitate 6.6 miles of asphalt surfacing of Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County.

SUMMARY OF PROJECT COST ESTIMATE

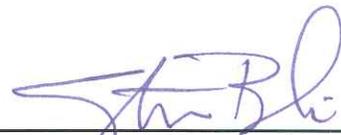
TOTAL ROADWAY ITEMS	<u>\$18,630,000</u>
TOTAL STRUCTURE ITEMS	<u>\$1,700,000</u>
SUBTOTAL CONSTRUCTION COSTS	<u>\$20,330,000</u>
TOTAL RIGHT OF WAY ITEMS	<u>\$50,000</u>
TOTAL PROJECT CAPITAL OUTLAY COSTS	<u>\$20,380,000</u>

Reviewed By District Program Manager:



(Signature)

Approved By Project Manager:



(Signature)
Phone No. 441-5899

Date: 4-16-09

20-Yr RAC

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Clearing & Grubbing	6	ACRE	\$10,000	\$60,000	
				Subtotal Earthwork:	<u>\$60,000</u>

Section 2 Pavement Structural Section

	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
HMA-A	20,000	TON	\$100	\$2,000,000	
Rubberized HMA (Type-G)	20,000	TON	\$125	\$2,500,000	
Rubberized HMA (Type-O)	15,000	TON	\$125	\$1,875,000	
Class 2 Aggregate Base	500	CY	\$90	\$45,000	
Class 2 Aggregate Subbase	500	CY	\$80	\$40,000	
Geosynthetic Pavement Interlayer	15,000	CY	\$32	\$480,000	
Paving Asphalt (Binder, GPI)	20	TON	\$1,000	\$20,000	
Tack Coat	20	TON	\$1,000	\$20,000	
Replace AC Surfacing	1,000	CY	\$275	\$275,000	
Edge Drains	500	FT	\$40	\$20,000	
<u>Centerline Rumblestrip</u>	700	STA	\$35	\$25,000	
				Subtotal Pavement Structural Section:	<u>\$7,300,000</u>

<u>Section 3 Drainage</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Drainage Facilities (X-Drains, overside, etc.)	34	LS	\$18,395	\$625,000	
<u>Fish Passage</u>	3	LS	\$225,000	\$675,000	
				Subtotal Drainage:	<u>\$1,300,000</u>

*Reference sketch showing typical pavement structural section elements of the roadway. Include (if available) T.I., R-Value and date when tests were performed.

NOTE: Extra lines are provided for items not listed, use additional lines as appropriate.

<u>Section 4 Specialty Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Highway Planting	1	LS	\$20,000	\$20,000	
Replacement Planting	1	LS	\$50,000	\$50,000	
Erosion Control	6	ACRE	\$50,000	\$300,000	
Water Pollution/Erosion Control	1	LS	\$75,000	\$75,000	
Hazardous Waste Mitigation Work	1	LS	\$30,000	\$30,000	
Environmental Mitigation (see Right of Way)					
Resident Engineer Office Space	1	LS	\$30,000	\$30,000	
<u>Barrier Terminal</u>	22	EA	\$7,000	\$154,000	

<u>Reset Metal Beam Guardrail</u>	5,800	FT	\$20	\$116,000	
<u>AC (Type B) (for weed barrier)</u>	2,600	SY	\$20	\$52,000	
<u>Incentive for QC/QA (4% HMA cost)</u>				\$255,000	
					Subtotal Specialty Items: <u>\$1,082,000</u>

<u>Section 5 Traffic Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Traffic Delineation Items	150,000	FT	\$4	\$600,000	
Roadside Signs (PCMS)	4	EA	\$6,500	\$26,000	
Traffic Control Systems	200	DAY	\$2,000	\$400,000	
Transportation Management Plan	1	LS	\$5,000	\$5,000	
Maintain Traffic	200	DAY	\$1,700	\$340,000	
<u>COZEEP</u>		DAY			
					Subtotal Specialty Items: <u>\$1,371,000</u>

TOTAL SECTIONS 1 through 5 \$11,113,000

Time Related Overhead \$333,390

NOTE: Extra lines are provided for items not listed, use additional lines as appropriate.

Section 6 Minor Items Item Cost Section Cost

Subtotal Section 1 thru 5 x 10% = \$1,166,000
(5 TO 10%)

TOTAL MINOR ITEMS: \$1,166,000

Section 7 Roadway Mobilization

Subtotal Section 1 thru 6 x 10% = \$1,288,000
(10%)

TOTAL ROADWAY MOBILIZATION: \$1,288,000
\$0

Section 8 Roadway Additions

Supplemental Work Subtotal Section 1 thru 6 x 10% = \$1,323,000
(5 TO 10%)

Contingencies Subtotal Section 1 thru 6 x 30% = \$3,744,000
(** %)

TOTAL ROADWAY ADDITIONS: \$5,067,000

TOTAL ROADWAY ITEMS (SECTION 1 through 8) \$18,634,000

Estimate Prepared By Eric Brunton Phone# : (707) 441-3968 Date: 2/1/2009
(Print Name)

Estimate Checked By: Lynn Anderson Phone# : (707) 441-5817 Date: 2/15/2009
(Print Name)

** Use appropriate percentage per Chapter 20.

II. STRUCTURES ITEMS (See Section I.4.Roadway Specialty Items for structures cost),
Retaining Walls

\$1,700,000

SUBTOTAL STRUCTURES ITEMS \$1,700,000
(Sum of Total Cost for Structures)

Railroad Related Costs:

<u>Item</u>	<u>Item</u>	<u>Cost</u>
1		
2		
3		

SUBTOTAL RAILROAD ITEMS \$0

TOTAL STRUCTURES ITEMS \$1,700,000
(Sum of Structures Items plus Railroad Items)

COMMENTS:

Estimate Prepared By Eric Brunton Phone# : (707) 441-3968 Date: 3/23/2009
(Print Name)

NOTE: If appropriate, attach additional pages and backup.

III. RIGHT OF WAY ITEMS

ESCALATED VALUE

A. Acquisition, including excess lands, damages to remainder(s) and Goodwill				
B. Utility Relocation (State share)	1	LS	\$10,000	\$10,000
C. Relocation Assistance	1	LS	\$10,000	\$10,000
D. Clearance/Demolition	1	LS	\$10,000	\$10,000
E. Environmental Mitigation, Permi	2	Acre	\$10,500	\$21,000
F. Title and Escrow Fees				

TOTAL RIGHT OF WAY ITEMS \$50,000
(Escalated Value)

Anticipated Date of Right of Way Certification 10/1/2012
(Date to which Values are Escalated)

G. Construction Contract Work

Brief Description of Work:

This project proposes to repave 6.6 miles of asphalt surfacing of Route 101 from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County.

Right of Way Branch Cost Estimate for Work * \$ _____

* This dollar amount is to be included in the Roadway and/or Structures Items of Work, as appropriate. Do not include in Right of Way Items.

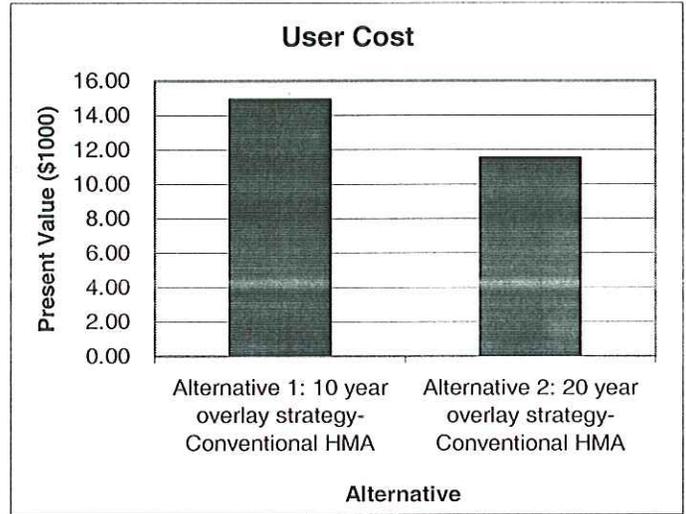
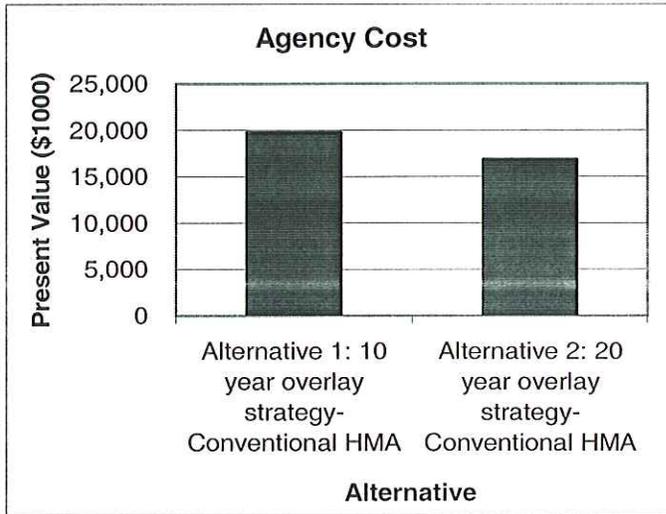
COMMENTS:

Estimate Prepared By Eric Brunton Phone# : 707-441-3968 Date: 9/3/2008
(Print Name)

NOTE: If appropriate, attach additional pages and backup.

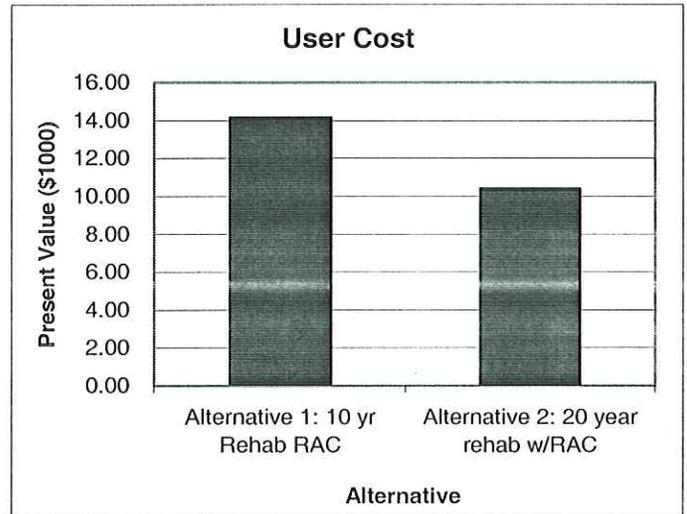
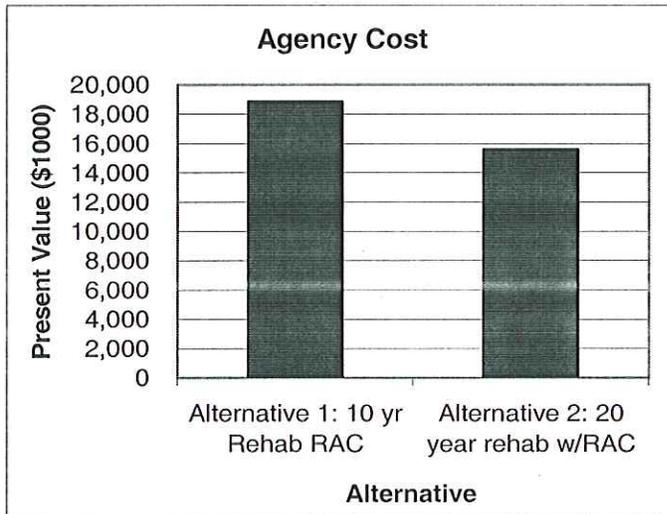
Deterministic Results

Total Cost	Alternative 1: 10 year overlay strategy-Conventional HMA		Alternative 2: 20 year overlay strategy-Conventional HMA	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$28,762.11	\$24.21	\$22,134.62	\$18.90
Present Value	\$19,772.08	\$14.92	\$16,834.97	\$11.53
EUAC	\$1,059.33	\$0.80	\$901.97	\$0.62



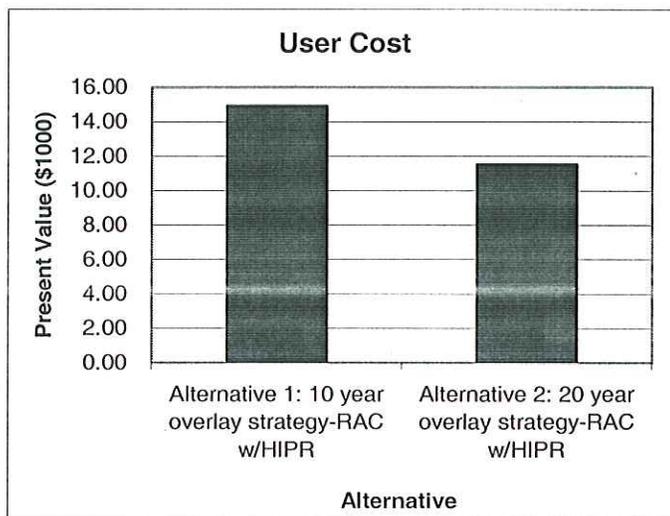
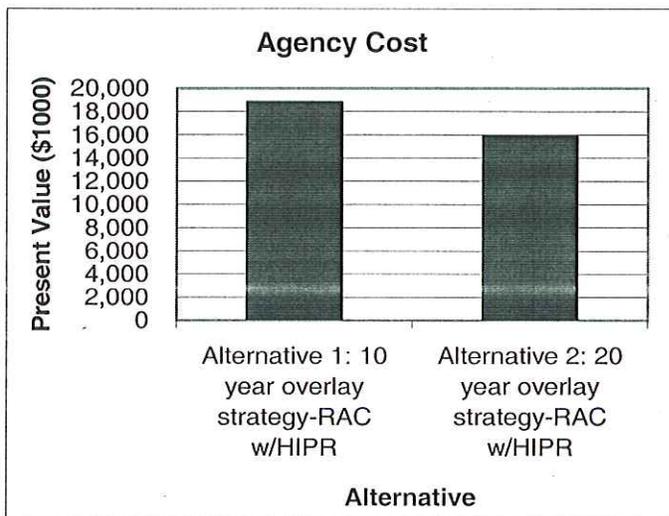
Deterministic Results

Total Cost	Alternative 1: 10 yr Rehab RAC		Alternative 2: 20 year rehab w/RAC	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$27,771.73	\$22.59	\$20,172.99	\$17.37
Present Value	\$18,869.25	\$14.14	\$15,573.95	\$10.39
EUAC	\$1,010.96	\$0.76	\$834.41	\$0.56



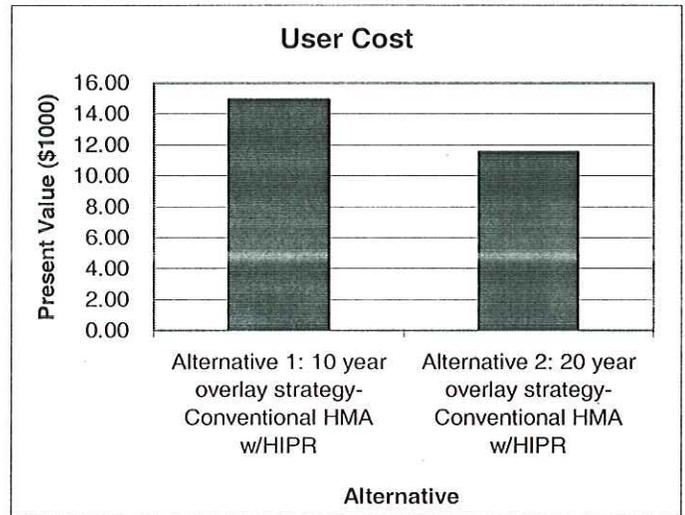
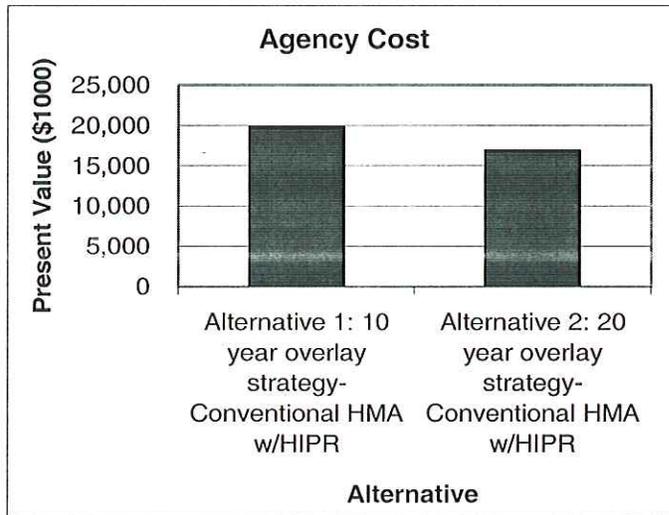
Deterministic Results

Total Cost	Alternative 1: 10 year overlay strategy-RAC w/HIPR		Alternative 2: 20 year overlay strategy-RAC w/HIPR	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$27,782.11	\$24.21	\$21,204.62	\$18.90
Present Value	\$18,792.08	\$14.92	\$15,904.97	\$11.53
EUAC	\$1,006.83	\$0.80	\$852.15	\$0.62



Deterministic Results

Total Cost	Alternative 1: 10 year overlay strategy-Conventional HMA w/HIPR		Alternative 2: 20 year overlay strategy-Conventional HMA w/HIPR	
	Agency Cost (\$1000)	User Cost (\$1000)	Agency Cost (\$1000)	User Cost (\$1000)
Undiscounted Sum	\$28,732.11	\$24.21	\$22,154.62	\$18.90
Present Value	\$19,742.08	\$14.92	\$16,854.97	\$11.53
EUAC	\$1,057.73	\$0.80	\$903.04	\$0.62



Long Form - Storm Water Data Report

Dist-County-Route: 01-MEN-101

Post Mile (Kilometer Post) Limits: PM 74.8/81.4

Project Type: 3R

EA: 01-41540K

RU: 03-232

Program Identification: Roadway Rehabilitation

Phase: PID PA/ED PS&E

Regional Water Quality Control Board(s): North Coast RWQCB

Is the project required to consider incorporating Treatment BMPs? Yes NoIf yes, can Treatment BMPs be incorporated into the project? Yes No

If No, a Technical Data Report must be submitted to the RWQCB

at least 60 days prior to PS&E Submittal. List submittal date: _____

Total Disturbed Soil Area: 2 acres

Estimated Construction Start Date: 4/1/12 Construction Completion Date: 10/15/12

Notification of Construction (NOC) Date to be submitted: TBD

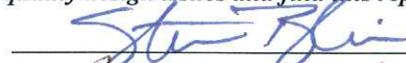
Notification of ADL reuse (if Yes, provide date) Yes Date: _____ NoSeparate Dewatering Permit (if Yes, permit number) Yes Permit #: _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

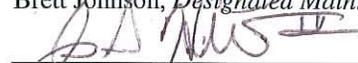


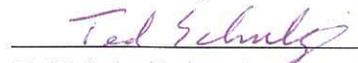
Todd Lark, Registered Project Engineer/Landscape Architect
1/27/09
Date

I have reviewed the storm water quality design issues and find this report to be complete, current, and accurate:



Steven Blair, Project Manager
1-28-09
Date


Brett Johnson, Designated Maintenance Representative
2-3-09
Date


Jim Hibbert, Designated Landscape Architect Representative
4 FEB 09
Date


Ted Schultz, District/Regional SW Coordinator or Designee
1-27-09
Date

Long Form - Storm Water Data Report

STORM WATER DATA INFORMATION

1. Project Description

This Roadway Restoration and Rehabilitation (3R) project on Route 101 is 6.6 miles long from 5.3 miles north of Branscomb Road to Rattlesnake Creek Bridge #10-27 in Mendocino County. This segment of Route 101 will be reaching the end of its serviceable life within the next 5 to 10 years. This project is needed to increase the service life of the facility and to prevent further deterioration of the roadway structural section. The purpose is to rehabilitate the roadway and appurtenances including culverts, metal beam guardrails and make safety improvements where practicable.

This rehabilitation project includes; asphalt concrete (AC) digouts to repair localized failures, seal all cracks wider than 0.25 inches by route and seal method, cold plane existing open grade AC, AC overlay, AC dike replacement, install a retaining wall on the southbound shoulder from PM 77.85 to PM 78.05, install a retaining wall on the southbound shoulder at PM 78.16 for ~400 feet, shoulder widening at two locations where retaining walls are proposed, place rock slope protection (RSP), install signs, embankment reconstruction, rehabilitate or replace approximately 40 culverts/drainage systems, reconstruct Metal Beam Guard Railing (MBGR), reconstruct MBGR terminal sections, striping, pavement markers and rumble strip placement.

The 20-year rehabilitation strategy includes a paving overlay composed of rubberized asphalt concrete (RAC). The paving strategy consists of placing RAC Type-G with RAC Type-O on top.

Equipment needed for this project includes a grinder, excavator, loader, concrete trucks, paver, backhoe, dump truck and drill.

The total DSA is approximately 2.0 acres. The DSA was calculated by estimating the amount of soil disturbed by excavation, staging, performing drainage work, and wall construction.

The construction of the retaining wall at PM 77.85 to PM 78.05 is needed to widen the existing roadway to 3R standards. The widening will increase the shoulder width thereby increasing the total impervious surface area by 0.25 acres. The total increase in impervious surface area from this project is estimated at 0.25 acres.

There are no urban MS4 areas within the project limits.

2. Define Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

This project area is within the Eel River hydrologic unit, which includes the South Fork Eel River Hydrologic Area containing the Benbow and Laytonville hydrologic sub-areas. The rainy season for this area is from October 1st through May 1st.



Long Form - Storm Water Data Report

The project is located in the Eel River HU, South Fork Eel River HA, Laytonville and Benbow HSAs. US EPA has established a TMDL for sediment and temperature for the South Fork Eel River.

The South Fork Eel River watershed covers northern Mendocino and southern Humboldt counties in northern California. The 689 square mile basin stretches approximately 58 miles from the Laytonville area in Mendocino County, along U.S. highway 101 through Humboldt Redwoods State Park. The Eel River then meets the Pacific Ocean in 40 miles, about six miles south of Humboldt Bay. The landscape is varied from gentle grassland areas and open oak woodlands to steep slopes with deep and dense forests of redwood and fir.

3. Regional Water Quality Control Board Agreements

There are no agreements with the Regional Water Quality Control Board specific to this project.

4. Describe Proposed Design Pollution Prevention BMPs to be used on the Project.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

Approximately 200 to 300 feet of asphalt concrete dike will be removed from the southbound shoulder. Removing the dike will reduce concentrated flows and downstream velocities. The dike removal will increase sheet flow across the shoulders and nearby slopes resulting in an increase of biofiltration along these areas.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

The existing cut slopes vary from 1:2 to 1:1. The existing fill slopes vary from 1:1.5 to 1:4. No major earthwork excavation is planned other than where culverts are identified for replacement or rehabilitation and where the two retaining walls are proposed for construction. Disturbed slopes will be hydroseeded with permanent erosion control that includes mulch, compost, tachifier, native grass seed and straw as designed by a licensed Landscape Architect. A supplemental revegetation project will be initiated at the conclusion of this project to plant trees and shrubs at culvert locations where existing riparian vegetation is currently established and for channel planting.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

Rock energy dissipaters will be considered for work performed at the outlet of culverts if necessary. Rock slope protection will be used at PM 80.99 and at PM 81.3 to prevent further erosion of the southbound shoulder at both locations.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

The areas of clearing and grubbing are limited to removal of trees and vegetation near the retaining wall locations. All vegetation and trees will be avoided and where necessary protected from further impacts from erosion. ESA fencing will be placed to protect existing



Long Form - Storm Water Data Report

vegetation that is not to be removed as part of the project. Rattlesnake Creek and nearby tributaries will be maintained and rock will be placed to protect the remaining trees along the stream channel.

5. Describe Proposed Permanent Treatment BMPs to be used on the Project

As stated in the project description, this project will result in a small increase in impervious surface area at the retaining wall locations. TMDLs for sediment and temperature are listed for the South Fork Eel River which Rattlesnake creek is a tributary to.

The North Coast Regional Water Quality Control Board approved Resolution R1-2004-0087, Total Maximum Daily Load Policy Statement for Sediment Impaired Waters in the North Coast Region on November 29, 2004. The Policy identifies existing permitting and enforcement tools, specifically Section 401 Water Quality Certifications, as methods to control sediment pollution.

Based on the 401 Certification need, this project is required to evaluate permanent treatment BMPs. The treatment BMP consideration strategy is to evaluate Low Impact Development (LID) type treatment BMPs such as biofiltration strips/swales, earthen type BMPs and traction sand traps as outlined in Tim Sobelman's memo dated December 16, 2008.

6. Describe Proposed Temporary Construction Site BMPs to be used on Project

Temporary Construction BMPs applicable to this project and preliminary rough estimates are:

Roadway Items

- Section 1: Soil Stabilization

The removal of existing vegetation was minimized. Slope protection BMP's are as follows:

074029	Temporary Silt Fence	LF	5000
0203021	Fiber Rolls	LF	3000

- Section 2: Sediment Control

- Perimeter Controls Run-Off and Run-On Controls

Item Code	Description	Unit	Qty
074036	Temporary Straw Bale Barrier	LF	1000
074041	Street Sweeping	LS	LS
	Fiber Rolls (see above)		

Straw bales will be used for sediment control. Straw bales work well on projects with a construction time frame that lasts less than 3 months.



Long Form - Storm Water Data Report

➤ Storm Drain Inlets

074038	Temporary Inlet Protection	EA	~40
--------	----------------------------	----	-----

• Section 3: Tracking Controls

➤ Stabilization Construction Entrance/Exit

Item Code	Description	Unit	Qty
074033	Temporary Construction Entrance	EA	2
074034	Temporary Cover	SQYD	1000

• Section 4: Waste Management & Materials Pollution Control

➤ Concrete Waste Management

Item Code	Description	Unit	Qty
074032	Temporary Concrete Washout Facility	EA	2

Additional Water Pollution Control items include the following:

Item Code	Description	Unit	Qty
074016	Construction Site Management	LS	1
074019	Prepare SWPPP	LS	1
074021A	Clear Water Diversion System	EA	40
066597	Storm Water Sampling and Analysis	LS	1

7. Maintenance BMPs (Drain Inlet Stenciling)

There are no MS4 designated areas within the project limits.

ATTACHMENTS

⇒ Evaluation Documentation Form (EDF)



	Replace Culvert	Replace DI	Line Culvert	Patch Invert	Raise DI/Inlet	Place Headwal	Replace Outlet	Comments	Cost of Work
74.96	X							Maint Eng. Recommendation	\$26,100
74.98	X							Maint Eng. Recommendation	\$30,900
75.66				X				Maint Eng. Recommendation, Fish Passage	\$300,000
75.70	X							Maint Eng. Recommendation	\$34,500
75.90	X							Maint Eng. Recommendation	\$21,600
75.93	X				X			Maint Eng Rec/DesignField Review	\$42,900
76.16				X				Maint Eng Rec	\$15,000
76.49	X		X					Maint Eng Rec/Replace if not lined	\$19,800
77.12	X							Maint Eng. Recommendation	\$30,000
77.45					X			FES	\$15,000
77.80		X			X			Raise to grade	\$5,000
78.05		X						Outlet rusted	\$15,000
78.25				X				Maint Eng. Recommendation	\$15,000
78.59	X							Maint Eng. Recommendation (50ft)	\$15,000
78.59			X					Maint Eng. Recommendation (70ft)	\$21,000
78.65	X							Maint Eng. Recommendation	\$37,500
78.77					X			Raise to grade	\$15,000
78.82								Clean inlet	\$1,000
78.83	X				X			Maint Eng. Recommendation/Design Field Review	
78.91								Raise to grade	\$24,000
79.20				X	X			Raise to grade	\$15,000
79.36					X			Maint Eng. Recommendation	\$15,000
79.63					X			Raise to grade	\$15,000
79.72								Armor outlet	\$5,000
79.76	X							Fish passage	\$70,000
80.23	X				X			Maint Eng. Recommendation/ Design Field Review- Outlet Rusted	\$16,800

PM	Replace Culvert	Replace DI	Line Culvert	Patch Invert	Raise DI/Inlet	Place Headwal	Replace Outlet	Comments	Cost of Work
80.43	X							Maint Eng. Recommendation (65 ft pipe)	\$19,500
80.49			X						\$36,500
80.64			X						\$28,000
80.90						X		Remove existing HW	\$15,000
80.99		X						Armor @ outlet	\$5,000
81.17				X				Maint Eng. Recommendation, Fish Passage	\$300,000
81.38							X	Shorten outlet	\$1,500
Total (Call)									\$1,300,000

Memorandum

*Flex your power!
Be energy efficient!*

To: ERIC BRUNTON
District 1, Project Engineer

Date: May 30, 2008

File: MEN-101-74.8/81.4
01-41540K
Roadway Rehabilitation

From: Marie Brady *MB*
District 1, Traffic Safety Office

Subject: Safety Analysis

A safety analysis was performed for US 101 in the County of Mendocino from PM 74.8 to PM 81.4. The field review for the analysis occurred on April 3, 2008. Safety Screens 1.0, 2.0, 3.0, and 4.0 as specified in DIB 79-03 were applied to this project. Upon the basis of Safety Screen 2.0, this project qualifies as a 3R project. The following is a summary of items reviewed and analyzed in the safety analysis.

Collision History

A 5-year TASAS Table B (July 1, 2002 through June 30, 2007) collision analysis is provided for inclusion in the PSSR.

MEN 101 (PM 74.8/81.4)

A review was made of the recorded collisions on the 6.6-mile segment. There were 71 reported collisions (4 Fatal, 21 Injury, 46 PDO). The actual total collision rate for this segment is 1.00 COL/MVM, which is less than the statewide average rate of 1.44 COL/MVM for similar roadways. The Primary Collision Factor listed for 27 of the collisions was "Improper Turn," followed by 14 collisions for "Speeding", followed by "Influence of Alcohol", "Other Violations," "Failure to Yield" and "Fell Asleep." District 1 Traffic Safety had implemented safety strategies at locations where fatalities occurred that include the extension of existing MBGR and signing strategies.

Fifty percent of the reported collisions occurred in the dark. District 01 Traffic Safety recommends the placement of delineators at appropriate locations.

There is a uniform distribution of collisions throughout the project limits. Thirty –seven percent of the reported collisions were "Run off Road". Forty –seven percent of the reported "type of collisions was listed as "Hit Object." The majority of reported collisions occurred at locations identified either "beyond the driver's right shoulder" or "beyond the driver's left shoulder." Existing paved shoulder widths range between 0 feet to 8 feet throughout the project limits.

District 1 Traffic Safety recommends incorporating shoulder widening within the project limits as discussed in Design Information Bulletin (DIB) 79-03. Shoulder widening can increase the driver's chance of recovering from a movement that would result in a collision beyond the roadway.

District 1 Traffic Safety has recommended safety improvements between postmiles 77.19 and 77.39. These safety improvements include the installation of chevrons (W1-8), the installation of an advisory speed sign (W1-2a) with a flashing beacon in the southbound direction, and an advisory speed sign (W13-1 and W1-4) in the northbound direction. A curve improvement project does not currently qualify for funding under the Highway Safety Improvement Program. However, District 1 Traffic Safety recommends that geometric improvements be evaluated for incorporation at this location.

Sight Distance

Corner Sight Distance

A field review of corner sight distances was completed at two public road approaches to US 101 within the project limits. Please note that no private accesses were included in this review. (Refer to Table 1: Summary of Corner Sight Distance Field Measurements) All of the locations measured adequate corner sight distance except at Bell Springs Road in the northbound direction. All corner sight distances should be checked upon the completion of surveys. There are no reported collision concentrations at either Spyrock Road (Rd-323) or Bell Springs Road.

Horizontal Alignment

A comparison of the horizontal curves within the project limits with the required minimum radius per Section 203.2 (Table 203.2 –Standards for Curve Radius) of the Highway Design Manual, 6th Edition (HDM) yielded the following observations. From the as-builts, there are two identified compound curves within the project limits. The first location is between postmiles 74.98 and 75.29 and the other location is between postmiles 76.15 and 76.36. The following segments did not meet the minimum radius that corresponds with the design speed listed in the HDM, post miles 76.10-76.13, post miles 76.15-76.36, postmiles 76.5-76.61, postmiles 76.89-77.03, and postmiles 77.12 through 77.37 inclusive. Note that the postmiles listed are approximate and should be verified. See Table 2: Horizontal Alignment (Rmin) for a summary of the horizontal alignment comparison.

Vertical Alignment

A review of the vertical alignment using available as-builts and right of way maps was compared to the stopping sight distances (SSD) of vertical crest curves and sag curves as required per Section 201 (Figure 201.4 –Stopping Sight Distance on Crest Vertical Curves and Figure 201.5 – Stopping Sight Distance on Sag Vertical Curves) of the Highway Design Manual (HDM). The segment that should be evaluated further in the design phase for any gradient improvement is between postmiles 76.14 through 76.60. Again, note the postmiles listed are approximate and should be verified. See Table 3: Vertical Alignment (SSD) for a summary of the vertical alignment comparison. District 1 Traffic Safety recommends that any geometric improvement

that may improve the stopping sight distance with respect to the change in gradient should be considered in this project.

Metal Beam Guardrail (MBGR)

A Project Study Report (EA 01- 46430K) for a reconstruct MBGR project on US 101 in Mendocino County was approved on November 18, 2005. An excerpt from this Project Study Report is included for your reference Table 4: Summary of Existing MBGR and Proposed Treatments. This excerpt is a tabulated description of existing MBGR lengths, existing MBGR conditions, existing terminal end sections, and recommended terminal end sections and upgrades within the project limits. Appended to this list are comments from District 1 Traffic Safety. For more details regarding recommendations made in 01-46430K, please refer to the Project Study Report. No additional MBGR installation locations were identified during the Safety Review. District 1 Traffic Safety concurs with the recommendations from the Project Study Report.

Note, that EA 01-46430 has a deliver year of 2009/10. This candidate project (01-41540) is projected for delivery during the 2012/13 fiscal year. The proposed asphalt concrete overlay thickness associated with this project may render the existing MBGR and proposed MBGR reconstruction substandard. Specifically, the height of the post may be outside of the allowable height tolerance. In that case, the entire length of MBGR shall be reconstructed to current standards.

Bridge Railing

There are no identified bridges listed in TASAS within the project limits. Bridge railing recommendation is not applicable.

Safety Devices

There are several locations where there are existing MBGR end treatments throughout the project limits. A Project Study Report (01-46930K) for a reconstruct MBGR project for US-101 routes within Mendocino County identified several end treatments that require upgrading. An excerpt from this Project Study Report is included for your reference Table 4: Summary of Existing MBGR and Proposed Treatments. District 1 Traffic Safety concurs with these recommendations. However, as field conditions change, District 01 Traffic Safety recommends that the proposed terminal end sections be reevaluated during the design phase.

Fixed Objects

District 1 Traffic Safety is concerned with fixed objects that protrude above a traversable embankment or an opening into which a vehicle can drop. Wherever possible, remove the fixed object, use a traversable design or shield the object. A clear recovery zone (CRZ) distance of 20 feet outside the edge of traveled way was used to determine if the fixed objects are acceptable. There are several locations identified within the project limits where there are fixed objects

within the CRZ. The fixed objects identified were trees, utility poles, and existing drainage facilities. Refer to Table 5: Summary of Safety Review Fixed Objects excluding MBGR and Cut Slopes for recommendations. Note that all measurements are approximate and should be verified. Additional drainage structures may be identified during the design phase and should be evaluated at that time.

In regards to cut slopes or embankments within the project limits, the majority of the terrain within this area along the northbound direction has cut slopes of 1:1 or steeper. The terrain along the southbound direction alternates between cut slopes of 1:1 or steeper and embankments dropping down along the creek. Traffic Safety recommends that paved shoulders be widened where feasible to increase driver recovery area.

Signing and Striping

There are signs with breakaway posts located within the CRZ. District 1 recommends that Field Maintenance periodically check that existing field conditions have not changed such that the breakaway post drilled hole heights do not coincide with Standard Plans 2006. There is a mandatory truck speed limit of 40 mph between postmiles 76.13 and 77.54 in the southbound direction. The speed zone for this area is still valid and no change is proposed.

A review of the current striping is adequate. This project will include restriping of the roadway. There are several locations where there are existing passing lanes within the project limits. A location of interest is the southbound passing lane located between postmiles 77.4 and 78.17. District 1 Traffic Safety recommends completing the passing lane transition prior to Rattlesnake Summit. This will allow vehicles to queue into one lane and reduce speeding on the down gradient as vehicles attempt to merge into one lane. Speeding in the southbound direction within this segment of highway was reported as one the primary collision factors at the adjacent horizontal curve located between postmiles 77.19 and 77.39.

Existing centerline rumble strips are located from postmile 75.5 through postmile 81.4. District 1 Traffic Safety recommends the installation of shoulder rumble strips within the project limits to alert the motorist and provide additional opportunity for recovery. Additionally, centerline rumble strips is recommended for areas within the project limits where they are not already installed.

Curve Speed

There are several curve warning sign locations within the project limits. In the northbound direction, there is a reverse curve sign (W13-1 and W1-4) with an advisory speed of 40 mph at postmile 76.08, a curve warning sign (W13-1 and W1-4) with an advisory speed of 40 mph at postmile 77.19, and a curve warning sign (W13-1 and W1-4) with an advisory speed of 50 mph at postmile 80.09. In the southbound direction, there is a reverse curve sign (W4-18) with an advisory speed of 40 mph at postmile 76.43, a curve warning sign (W1-2a) with a flashing beacon and an advisory speed of 40 mph at postmile 77.39, and a curve warning sign (W13-1 and W1-4) with an advisory speed of 50 mph at postmile 80.09. The curves were tested and

verified that the advisory speed at each location is appropriate for the existing conditions with the exception of the reverse curve sign (W4-18) with an advisory sign of 40 mph at postmile 76.43. District 1 Traffic Safety recommends that the advisory speed be lowered to 35 mph. This will be processed as a maintenance work order. No further action is required from Design.

Pavement Condition

There is evidence of deterioration of existing pavement throughout the project limits. Placement of a bonded wearing course within the project limits is scheduled to begin during the summer of 2008. We support the proposed resurfacing project to address the pavement issues at the time of the projected fiscal year of delivery.

Please contact me if you have any questions regarding the analysis. I can be reached at (707) 445-6585.

Attachments: Table 1: Summary of Corner Sight Distance Field Measurements,
Table 2: Horizontal Alignment (Rmin)
Table 3: Vertical Alignment (SSD)
Table 4: Summary of Existing MBGR and Proposed Treatments
Table 5: Summary of Safety Review Fixed Objects not including MBGR and
Cut slopes
Safety Screens 1.0 and 2.0
TASAS Table B Summary
Collision Pin Map

cc: SBlair

1)RMMcCarthy
2)CCoburn

1) MLSuchanek
2) RMMartinelli
3) MABrady
4) File

Table 1: Summary of Corner Sight Distance Field Measurements.

Public Access ID	PM	Side of Highway	Measured Sight Distance (ft)		Posted Spd	Corner Sight Dist HDM 405.1A
			SB Direciton	NB Direction		
Spyrock Rd.	78.4	NB	840	855	55	605
Bell Springs Rd.	81.17	NB	605	605	50	550

NOTES:

1) All measurements are approximate and should be verified

TABLE 2: Comparison between existing Horizontal Curvature vs. Min Radius Required

Source EA	COMMENTS	APPROXIMATED VALUES				Existing R (ft)	Posted Spd Limit (mph)	HDM Table 203.2 Req'd	OK?	Design Spd for non Rmin
		BC PM	BC STA	EC STA	EC PM					
01TC1		*74.26	501+15.00							
01TC1		74.35	506+40.57	513+76.67	74.49	3000	55	1000	Yes	
01TC1		74.73	526+76.85			1900	55	1000	Yes	
01TC1		*74.76	527+55.00							
01TC1				538+41.68	74.89					
01TC1				538+64.02	74.89					
01TC1	COMPOUND CURVE	74.98	546+84.38	555+06.20	75.08	1400	55	1000	Yes	
				573+15.74	75.29	1100	55	1000	Yes	
01TC1		75.3	574+34.94			1100		1000	Yes	
01TC1		*75.311	575+13.00							
01TC1				584+50.87	75.49					
01TC1		75.55	587+84.50	592+59.51	75.64	1100	55	1000	Yes	
01TC1		75.71	596+13.48	601+46.10	75.81	1000	55	1000	Yes	
01TC1		*75.811	601+53.00					1000		
01TC1		76	603+56.94	609+68.65	75.9	900	55	1000	No	52
				609+77.50	75.9					
41EC1		76.1	613+99.17							
41EC1		76.1	628+50.16	631+24.87	76.13	600	55	1000	No	42
41EC1	COMPOUND CURVE	76.15	633+36.63			500	55	1000	No	38
41EC1		*76.188	637+17.02							
41EC1			639+90.65						Yes	
		76.25	640+09.88	645+52.55	76.36	500		1000	No	38
41EC1		76.39	646+94.18	650+77.64	76.47	500		1000	No	38
41EC1		76.5	652+17.60	657+90.80	76.61	700		1000	No	45
41EC1		*76.688	661+64.00							
41EC1		76.74	664+49.96	670+39.44	76.85	1000		1000	Yes	
41EC1		76.89	672+02.97	679+63.89	77.03	900		1000	No	52
41EC1		77.12	684+42.96			500		1000	No	38
		*77.188	688+04.00							
				689+84.24				1000	No	
41EC1		77.26	691+59.44	697+74.89	77.37	500		1000	No	38
41EC1		77.4	699+06.11	701+73.44	77.45	1000		1000	Yes	
41EC1		77.55	707+48.21	713+71.29	77.67	1000		1000	Yes	
		*77.67	713+71.29							
		*77.67	00+00.00							
41EC1		77.81	07+71.30	1203+05.00	77.9	2000		1000	Yes	
41EC1		77.93	13+62.29	20+24.82	78.06	1200		1000	Yes	
41EC1		78.12	23+86.77	29+56.54	*78.241	2500		1000	Yes	
				29+31.33	*78.241					
41EC1		78.31	32+81.11	40+90.65	78.46	2000		1000	Yes	
41EC1		78.56	46+43.40	48+95.31	78.61	2000		1000	Yes	
41EC1		78.65	51+02.01	55+70.00	*78.74	5000		1000	Yes	
41EC1		78.83	60+16.55	68+25.80	78.98	1000		1000	Yes	
41EC1		79.01	69+94.63	78+09.04	79.17	1500		1000	Yes	
41EC1		79.24	82+06.14			1100		1000	Yes	
		*79.391	90+00.00							
				94+71.97	79.48					
41EC1		79.5	95+75.78	105+22.16	79.68	1000		1000	Yes	
41EC1		79.86	114+86.66			3000		1000	Yes	
		*79.891	116+40.00						Yes	
				117+96.46	79.92				Yes	
41EC1		79.94	119+02.48	122+45.70	80.01	900		1000	No	52
		80.03	123+69.90	128+24.50	80.12	800		1000	No	48
41EC1	COMPOUND CURVE	80.25	135+59.30	141+79.76	80.37	1200		1000	Yes	
		80.37	141+79.76	146+24.82	*80.456	800		1000	No	48
		*80.456	146+35.18						Yes	
41EC1		80.48	147+82.62	151+19.29	80.53	1200		1000	Yes	
41EC1		80.59	154+55.24	160+53.74	8.68	1000		1000	Yes	
41EC1		80.77	165+67.07	168+48.58	80.844	1200		1000	Yes	
41EC1		80.83	169+74.81			1200		1000	Yes	
41EC1		*80.835	170+00.00						Yes	
				170+73.25	80.85					
		81.01	179+46.25	182+11.67	81.06	550		1000	No	40
		81.11	184+57.12	187+75.93	81.17	800		1000	No	48
59-ITC1		81.20	189+09.63	191+77.32	81.25	600		100	Yes	42
59-ITC1	UNCLEAR ALIGNMENT	81.27	192+89.50	197+27.23	81.35	1800		100	Yes	
		*81.43	201+58.00						Yes	

NOTES:

- 1) Horizontal Curve Data were taken from available Asbuilts and compared to available right of way maps
- 2) Postmiles were interpolated between known Postmiles and Station Equations provided by available right of way maps which are indicated in blue.

TABLE 3: Comparison between existing Vertical Curve Data and Required SSD

Source EA	COMMENTS	APPROXIMATED VALUES				Crest or Sag?	LC	G1	G2	DG	Posted Spd Limit	Is Design Spd w/in 10 mph of Posted Spd. Limit
		BEG PM	BEG STA	END STA	END PM							
01TC1		*74.26	501+15.00									
01TC1		74.48	511+50.00	517+50.00	74.57	C	600	0.85	-0.1395	1	55	Y
01TC1		*74.76	527+55.00									
01TC1		74.77	528+50.00	535+50.00	74.85	S	700	-0.1395	4	5	55	
01TC1		75.01	549+49.00	555+49.54	75.08	C	600	4	-1.03	6	55	Y
01TC1		*75.311	575+13.00									
01TC1		75.40	579+80.00	586+00.00	75.52	C	800	-1.03	-4.5	4	55	Y
01TC1		75.54	587+00.00	591+00.00	75.61	C	400	-4.5	-6.15	2	55	Y
01TC1			596+50.00			S	1100	-6.15	1.92	9	55	Y
01TC1		*75.811	601+53.00									
01TC1				607+50.00	75.87					0		
41EC1		75.91	610+83.00	613+99.17	75.94	C	400	1.92	0.76	2	55	Y
41EC1		76.14	632+97.78	636+97.78	76.19	S	400	0.76	5.776	6	55	N
41EC1		*76.188	637+17.02									
41EC1		76.50	652+30.00	657+30.00	76.60	C	500	5.82	-0.3	7	55	N
41EC1		*76.688	661+64.00									
41EC1		76.92	673+75.00	679+75.00	77.03	S	600	-0.3	6	7	55	Y
41EC1		*77.188	688+04.00									
41EC1		77.59	709+30.00			C	800	6	-6	12	55	N
41EC1		*77.67	713+71.29									
41EC1		*77.67	00+00.00									
41EC1				03+58.71	77.74							
41EC1				29+56.54	*78.241							
41EC1				29+31.33	*78.241							
41EC1		78.33	33+80.00	39+80.00	78.44	S	600	-6	-0.39	6	55	Y
41EC1		78.72	54+50.00	57+50.00	78.77	C	300	-0.39	-1.895	2	55	Y
41EC1				55+70.00	*78.74							
41EC1		79.10	74+50.00	76+50.00	79.13	S	200	-1.895	-2.15	1	55	Y
41EC1		*79.391	90+00.00									
41EC1		79.43	92+00.00	95+00.00	79.49	S	300	-2.15	-1.3	1	55	Y
41EC1		79.84	113+90.00			S	400	-1.3	-0.3	1	55	Y
41EC1		*79.891	116+40.00									
41EC1				117+90.00	79.92							
41EC1		80.11	128+00.00	130+00.00	80.15	C	200	-0.3	-0.62	1	55	Y
41EC1		80.24	135+00.00	137+00.00	80.28	C	200	-0.62	-1.44	1	55	Y
41EC1		80.39	143+00.00	145+00.00	80.43	S	200	-1.44	-1.05	1	55	
41EC1		*80.456	146+35.18									
41EC1		80.76	165+00.00	169+00.00	80.82	S	400	-1.05	-0.4	1	55	Y
41EC1		*80.835	170+00.00									
41EC1		81.01	179+50.00	181+50.00	81.05	C	200	-0.4	-1.13	1	55	Y
41EC1		81.30	194+50.00	197+50.00	81.35	S	300	-1.13	-0.28	1	55	Y
41EC1		*81.43	201+58.00									

NOTES:

- 1) Vertical Curve Data were taken from available As-builts
- 2) Postmiles were interpolated between known Postmiles and Station Equations provided by available right of way maps which are indicated in blue.
- 3) Stations not explicitly called on the asbuilts were assumed to be at half station increments
- 4) Acceptable Speed Design Speeds are based upon a 10mph tolerance within the posted speed limit

Table 4: Summary of Existing MBGR and Proposed Treatments

Excerpts from Project Study Report 01-46430K									Comments from Safety Review
Begin PM	End PM	Direction	Existing Length	Existing Leader	Existing Trailer	Reconstruct MBGR (ft)	Proposed Leader	Proposed Trailer	
74.7	74.85	S	775	Type A Breakaway Terminal	Type A Breakaway Terminal	150	SRT	SRT	Ex. MBGR is below std. Consider extending MBGR around pull out.
75.07	75.15	S	338	Buried Post Anchor	Buried Post Anchor	350	Buried Post Anchor	SFT	Blocks must be flush with top of rail
75.82	75.93	S	575	Type A Breakaway Terminal	SRT	0	Type A Breakaway Terminal	SRT	Ex. MBGR meets std.
76.26	76.33	S	275	Type A Breakaway Terminal	Type A Breakaway Terminal	275	SRT	SRT	Ex. MBGR low, extend to PM 76.34 to shield tree
76.89	77.02	N	700	Buried Post Anchor	Buried Post Anchor	150	Buried Post Anchor	Buried Post Anchor	Reconstruct ex. MBGR
77.86	78.06	S	1100	ET2000	Type A Breakaway Terminal	1100	ET2000	SFT	Existing MBGR has slant posts and below std.
77.91	77.95	N	200	Buried Post Anchor	Type A Breakaway Terminal	200	Buried Post Anchor	SRT	Exist MBGR has slant posts
78.23	78.4	N	263	Type A Breakaway Terminal	Type A Breakaway Terminal	263	SRT	SFT	Exist. MBGR is below std . Has radial rail treatment around utility pole
78.93	79.07	S	650	Type A Breakaway Terminal	Type A Breakaway Terminal	650	SRT	SRT	Ex. MBGR below std.
79.22	79.24	N	113	Type A Breakaway Terminal	Type A Breakaway Terminal	0	SRT	SRT	Ex. MBGR meets std.
80.22	80.32	S	575	Type A Breakaway Terminal	Type A Breakaway Terminal	0	SRT	SRT	Ex. MBGR meets std.
80.33	80.38	S	250	Type A Breakaway Terminal	Type A Breakaway Terminal	0	SRT	SRT	Ex. MBGR meets std.

Table 5: Summary of Safety Review Fixed Objects not including MBGR and Cut slopes

Postmile	NB Direction	SB Direction	Description	Recommendation
75.26	X		culvert	
75.32	X		OMP riser	Replace/Modify
75.41	X		culvert	
75.45	X		OMP riser	Replace/Modify
75.66	X		culvert	
75.77	X		culvert	
75.9	X		culvert	
76.2/76.38	X		tree/bush on cutslope	Remove
76.73			OMP riser	Replace/Modify
77.5/77.68	X		unidentified drainage structure	Replace/Modify
78.55	X		Existing DI	Replace/Modify
78.6	X		trees	Remove
78.68	X		utility pole	Relocate
80.41		X	utility pole	Relocate

NOTES:

- 1) All measurements are approximate and should be verified
- 2) This is not a comprehensive list of drainage structures. CRZ distances should be verified upon completion of surveys

DIB 79-03 SAFETY SCREEN TEST**INPUT:**

From TABLE B Summary				From TABLE B Detail or TSAR	
Actual F+I =	0.35	ADT ¹ =	5900	# Headon =	3
Statewide Avg F+I =	0.70	Statewide total =	1.44	# Sideswipe =	9
Table B Time period (yrs)	5	Segment Length (mi) =	6.6	# ROR Rt Shoulder =	33

Type of Highway = Conv (Conv,Expwy/Fwy)

Taken from "Safety Screening Procedures for 2R Projects"

Highway Group	HW F+I Collision Percentages	Hwy Group % (decimal)
1 or 2 -2 C, Rural, Flat	18%	0.28
3 or 4 -2C, Rural, Rolling	22%	
5 or 6 - 2C, Rural Mount	28%	
8 or 9 -2C Suburban > 45 mph	25%	
12 or 13 - 3C Rural + Suburban	22%	

1.0 Fatal plus Injury (F+I) Accident Rate screen

	Pass (Y or N)
1.1 Fwy & Expwy(< 4lanes)	FALSE
1.2 Other Hwy types	Y
Does this pass Screen 2.0?	Y

2.0 Highway Width F+I screen

Calculated Statewide HW F+I :	0.41	acc/mvm
Actual HW F+I:	0.64	acc/mvm
Does this pass Screen 2.0?	N	

3.0 Safety Analysis

Need to Do Field Review.

4.0 Pedestrian and Bicyclist Needs in or near Communities

Not Applicable. In rural area outside of a community.

RECOMMENDATION: **This Project qualifies as a 3R project**

Location Description	Rate Group (RUS)	No. of Accidents / Significance	No. of Accidents / Significance			ADT Main X-St	Total MV+ or MVM	Actual		Accident Rates Average		Tot					
			Tot	Fat	Inj			F+I	Fat	F+I							
01 MEN 101 074.800 - 01 MEN 101 081.399	6.600 MI H	71	4	21	25	18	16	35	5	5.9	71.09	0.056	.35	1.00	0.034	.70	1.44
0001-0001 2002-07-01 2007-06-30	60 mo. R								31								

Accident Rates expressed as: # of accidents / Million vehicle miles

+ denotes that Million Vehicles (MV) used in accident rates instead (for intersections and ramps).

For Ramps RUS only considers R(Rural) U(Urban)