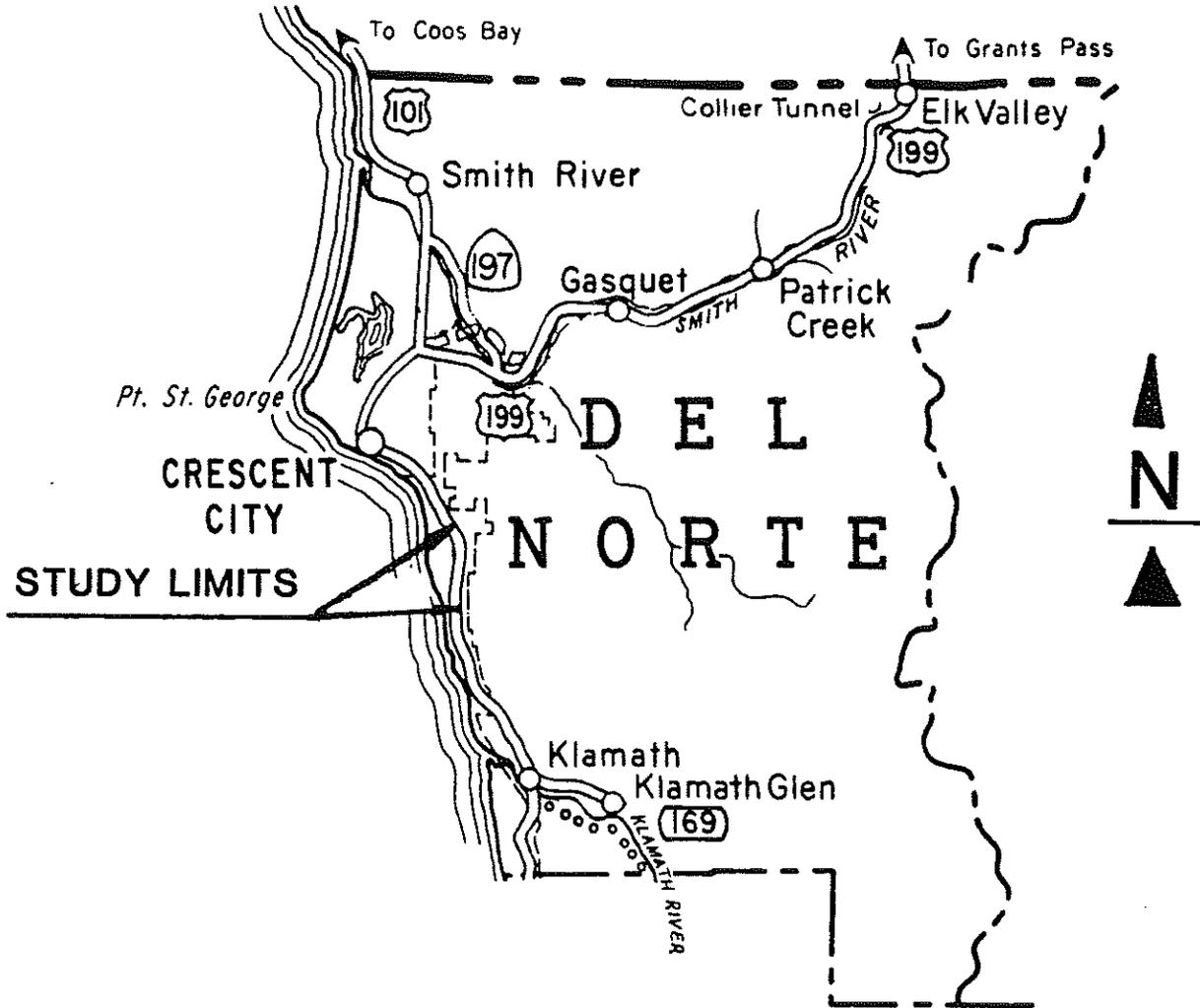


PROJECT STUDY REPORT



ON ROUTE 101 BETWEEN .1 MILE SOUTH OF
WILSON CREEK BRIDGE 1 5 AND
6.4 MILES SOUTH OF HAMILTON ROAD

A.M. WRENN
DISTRICT DIRECTOR



October 5, 1987

1-DN-101-12.5/16.3

01101 910075

Wilson Creek Bluffs Bypass

PROJECT STUDY REPORT

INTRODUCTION

It is proposed to realign a portion of Route 1-DN-101 from 0.2 mile south to 3.7 miles north of the Wilson Creek Bridge #01-05 to bypass an unstable area that has been a continual maintenance problem and has a high potential for a lengthy road closure. The alternates evaluated range from a two-lane conventional highway to a four-lane expressway; costs vary between \$36,500,000 and \$45,000,000. The source of the study request is the Del Norte County Transportation Commission. This project would be funded from the HE14 program, New Highway Facility.

BACKGROUND

This area has a long history of continual maintenance and construction upkeep. The costs for maintenance and construction reflect the unstable condition of the roadway in this area. Over the last seven years, maintenance and reconstruction costs for this section of roadway have been as follows:

<u>FY</u>	<u>MAINTENANCE</u>	<u>CONSTRUCTION</u>	<u>TOTAL</u>
81/82	\$240,000		\$ 240,000
82/83	222,000	\$ 861,000	\$1,083,000
83/84	120,000		120,000
84/85	30,000	536,000	566,000
85/86	85,000		85,000
86/87	Not Available	1,007,000	<u>1,007,000+</u>
			\$3,101,000

This project is the number one priority on the Del Norte County Local Transportation Commission, and is the number two priority for the North Coastal Counties Supervisors Association (NCCSA) list of improvement projects to be added to the State Transportation Improvement Plan (STIP). The project also has the support of Crescent City and Del Norte County.

PROBLEM DEFINITION

Within the project limits, Highway 101 begins as a four-lane expressway that narrows to a two-lane, curvilinear road. Here the highway is situated on a sheer cliff to the west that has the ocean at the toe. The easterly side of the highway is a steep, slide-prone cut. The toe of the cliff is gradually being undermined by the constant wave action of the ocean, resulting in massive soil creep.

In the event the highway should be lost in the future, no local detour would be available. The reconstruction would be expensive and time consuming. During

reconstruction, the northern portion of Del Norte County would be virtually isolated from the remainder of California, with access only from the north (via Routes 101 and 199).

The stability problems with the roadway reach beyond the capability of remedial repair. After repairs are made, the roadway soon reverts back to a retrogressive state due to the continual undermining of the toe of the slope by the ocean and unstable nature of the surroundings adjacent to the existing highway. Also, repairing the existing facility can only serve to continue the existing two-lane facility, which does not address the problem of future capacity or the long-term route concept to upgrade Highway 101 to a four-lane facility.

The District Materials Engineer has identified five locations where the roadway is showing distress. These locations have the potential to close Highway 101 within the next few winters, resulting in lengthy road closures. The estimated cost to stabilize these locations is \$3,000,000.

The District has determined that the solution to eliminating the maintenance problem and the possibility of a road closure is to bypass this bluff area.

ALTERNATIVES

Alternative A: This alternative has a 75 MPH horizontal alignment with a 50 MPH vertical alignment (7% maximum grade). The roadway section consists of four 12-foot lanes with 10-foot shoulders and a four-foot paved median. The alignment crosses Wilson Creek approximately 200 feet east of the existing structure, stays easterly of hills forming a generalized ridge line parallel to the existing alignment, and joins the existing route well inland from the bluffs area. The estimated cost of this alternative is: District \$43,500,000; Structures \$5,000,000, and right of way \$1,441,000.

Alternative B: This alternative alignment is the same as Alternative A except the roadway is a two-lane facility with alternating truck passing lanes the entire length of the project. The roadway section consists of three 12-foot lanes with 10-foot shoulders (no median). The estimated cost of this alternative is: District \$40,000,000; Structures \$2,000,000; and right of way \$1,441,000.

Alternative C: This alternate is the "no-build" alternate. However, in reality there isn't a "no-build" alternative. The numerous unstable locations on the existing highway, noted in the "Problem Definition" section of the report, will have to be stabilized eventually. The estimated cost for this work is \$3,000,000. It simply becomes a question of which project we will build. We can invest \$3,000,000 in the existing highway with little potential to accommodate future traffic demands, or construct one of the bypass alternates. At present, we can expect the very high maintenance costs to continue, if not increase.

Alternative D: This alternative is similar to Alternative A except the horizontal alignment shifts slightly further east. The alternative has a 70 MPH horizontal design speed and a 65 MPH vertical alignment. The roadway section is the same as Alternative A. The estimated cost for Alternative D is: District \$36,500,000; Structures \$3,000,000; and right of way \$1,466,000.

Alternative E: This alternative is identical to Alternative D except it is a two-lane facility. The typical section is two 12-foot lanes with eight-foot shoulders. The cost of this alternative is: District \$34,300,000; Structures \$1,700,000; and right of way \$1,316,000.

SYSTEM PLANNING

The Route Concept Report identifies the need for a four-lane expressway bypassing the existing route. Alternatives A and D fulfill this objective. Alternatives B and E do not utilize a four-lane expressway, and would be considered interim projects; however, they would eliminate the possibility of losing the roadway into the ocean. Alternatives A and D could then be upgraded to a four-lane facility some time in the future as funds permit.

HAZARDOUS WASTES

There are no known hazardous waste sites within the project limits.

ENVIRONMENTAL CLEARANCE

The appropriate environmental document is likely to be an EIS/EIR. All alternatives impact Del Norte Coast Redwood State Park at the north end where the proposed alignment adjoins the existing alignment; therefore, Section 4(f) of the Federal Transportation Act would apply.

Erosion control and the reduction of the amount of sediments entering Wilson Creek or tributaries to Wilson Creek will be a high priority of the Department of Fish and Game, the Regional Water Quality Control Board, U.S. Fish and Wildlife Service and the Environmental Protection Agency. Wilson Creek provides habitat for sensitive anadromous salmonids. Pre-construction and post-construction studies, may need to be done to evaluate any possible impacts and/or mitigation to fish and sensitive plant species.

There are known archaeological sites in close proximity to all alternatives. A survey would be necessary to determine if this or any other archaeological sites will be impacted.

Revegetation to replace wetland/riparian habitat lost due to stream crossings, Wilson Creek being the most significant, will most likely be necessary.

PROGRAMMING

The project would be funded by the HE14, New Highway Facility program. Copies of the PYPSCAN "SCAN" and "PYR" screens are attached.

BASIC STUDY TEAM

Jerry Haynes	Project Studies Engineer
Joe Thorne	Chief, Environmental Branch
Don Comstock	District Traffic Engineer
Drew Irwin	Project Coordinator
Rick Knapp	Deputy District Director, Planning and Programming

DISTRICT CONTACT

Jerry Haynes
Project Studies Engineer
ATSS 538-6320
Public Phone (707) 445-6320

ATTACHMENTS

- A. Alternate A
- B. Alternate B
- C. Alternate D
- D. Alternate E
- E. "SCAN" and "PYRS" Sheets
- F. Priority Rating Sheet

CAN AAN170
 .1 MI SO TO 3.7 MI NO WILSON CR BR
 YPASS BLUFF AREA
 PROJECT DATA PYPSCAN FACTORS
 PROGRAM HE14 ALIGNMENT -
 T TYPE FB ADT ----
 STRUCTURES --- LANES ---
 Q ADVERT /--- TERRAIN ---
 SAP DATE / WEATHER 5
 IST PS&E / LOCATION R
 TRC PS&E /
 PARCELS 5
 RELATED E/AS
 E/A STAGE E/A STAGE

NEXT: DN-101-12.5 * A C S P *
 LENGTH 3.8 EA AAN170
 AGREE & CLEAR FLAG S
 ENVIRONMENTAL ND CONST COSTS (01/87)
 RAILROADS (1000'S)
 COASTAL ZONES DISTRICT PS 35784
 FISH & GAME STRUCTURES PS 2941
 CORPS OF ENGR TOTAL 38725
 HISTORICAL R/W COSTS UNESCALATED
 PUBLIC LANDS X ACQUISITION 1466
 ENDGR SPECIES SQUAD _ PHONE -----

----- -	----- -					ENVIRONMENTAL UNIT --
----- -	----- -					CALC WORKING DAYS 430
----- -	----- -					CONST WORKING DAYS 400
		PJD X	RWO X	CON X	STD _	STC _
RESPONSIBLE UNIT	---		---	---	---	---
TRANSFERRED	---		---	---	---	---
TO DISTRICT	---		---	---	---	---
DESIGN ENGR	-----	BRIDGE ENGR	-----			
		PYPSCAN UPDATE	05/16/86			
						FREEZE THAW
						UUU -

* THIS JOB SUBMITTED BY DREW IRW

YRS AAN170 NEXT: DN=101-12.5 * A C S P *
 U P P O R T BY F I S C A L Y E A R WINDOW YR LAST PYPSCAN 05/16/86 (X)
 MONTHS 86-87**87-88 88-89 89-90 90-91**91-92 92-93 93-94 94-95 AFTER
 JD 45 3.66 4.87 8.06 7.23 .55
 .36 .54 .02

TC
 ON 34 5.62 14.76 14.06 .53

TOTAL 3.66 4.87 8.42 7.77 6.19 14.76 14.06 .53
 I L E S T O N E S (* COMPUTED BY PYPSCAN) REG RW LEAD 15 WDAY 400 FLAG S
 BEG STDY STG1 WP STG2 WP CIRC DPR SUBM PR CIRC ED HEARING REQ PROJ
 01/ /89
 * 01/88 03/88 05/88 08/88 10/88 02/89 03/89 05/89
 PA&ED CL GEO BASE BR SITE BEG BR RW MAPS REG RW SKEL LAY ENV REVL
 * 07/89 11/89 NA/ NA/ 11/89 05/90 04/90 03/91
 BR PS&E DT PS&E RW CERT HQ PS&E HQ ADV APR CNTR JOB COMP
 * NA/ 06/91 08/91 09/91 10/91 03/92 06/94

XEC PYPSCAN

06 INFO- CONSIDER PYPSCAN CALCULATION.

* THIS JOB SUBMITTED BY DREW IRW

HE1 PRIORITY RATING SHEET

```

=====
DIST. 1          PIN          90          TOTAL COST $ 40,966,000
CO.  DN         MPIN         90          STATE COST $          0
RTE. 101       STWD PRI.   6/24       LOCAL COST $          0
P.M. 12.5/16.3 DIST PRI.   6/24       MAIN LN ADT          4,100
EA.  AAN170    HE          14          CROSS ADT            0
PSR DATE 10/ 5/87 STIP NO.    EXIST. LOS          C
XSA      0.4    CA          80          RCR LOS              B
ICS (STATE/LOCAL) STIP( ) RTIP( ) 10-YR. LOS          D
QUALIFICATIONS: SYSTEM PLAN ALT 1( ) ALT 2( ) ALT 3(X)
=====

```

LIMITS: FROM 1.0 MI SOUTH TO 3.7 MILES NORTH OF WILSON CREEK BRIDGE

PROPOSAL: 4-LANE EXPRESSWAY (BYPASS COASTAL BLUFFS)

```

=====
I. PUBLIC ACCEPTANCE (75 PTS. MAX)                                     SCORE
  A. RTP
    1. CONSTISTENT/INCONSISTENT (20,10,-20 PTS.)                    20
    2. TOP 3 LTC PRIORITY (15,10,5,0 PTS.)                          15
    3. IN APPROVED STIP OR CURRENT PSTIP (15,0 PTS.)                 0
  B. Local Support
    1. CIRCULATION ELEMENT OF GENERAL PLAN (10,-10 PTS.)           10
    2. OTHER SUPPORT (10,0,-10 PTS.)                                 10
  C. Planned Development
    1. EFFECT (20,0,-20 PTS.)                                        0

II. COST EFFECTIVENESS (200 Pts. max.)
  A. SAFETY INDEX: 0
  B. DELAY INDEX: 0 (2/3XSI+1/SXDI) = 0

III. TRANSPORTATION SYSTEM BENEFITS (200 Pts. max.)
  A. MODAL CHOICE (10,0 PTS.)                                        0
  B. GAP CLOSURE (20,10,0 PTS.)                                    0
  C. EX. LOS VS. RCR LOS = TABLE I (0 - 70 PTS.)                  7
  D. 10-YR. LOS VS. RCR LOS = TABLE II (0 - 70 PTS)              18
  E. IMPACT ON ADJACENT SEGMENTS (10,0 PTS)                       0
  F. ALLEVIATES PASSING RESTRICTIONS (10,0 PTS)                   0
  G. ALLEVIATES ROAD CLOSURES (10,0 PTS)                          10

IV. DISTRICT PRIORITY (25 Pts. max.)
  A. TOP 3 UNPROGRAMMED DIST. PRIORITY (25,0 PTS)                  0
  B. IN APPROVED STIP OR CURRENT PSTIP (25,0 PTS)                  0
=====

```

REMARKS: PRIORITY RATING SHEET FOR ALTERNATE D

NAME Drew Irwin ATSS 8- 538-6330 REV. 3/24/87