

## EXECUTIVE SUMMARY

### Introduction

US 491 is a major north/south route that begins at Interstate 40 in Gallup, New Mexico and ends at US 191 in Monticello, Utah. The existing US 491 highway is a 4-lane divided facility from Gallup north to the intersection with Navajo 9 which is at approximately milepost 15.1, the highway then transitions to a 2-lane rural road. At approximately milepost 84.7, the road transitions back to a 4-lane highway and remains 4-lanes all the way to the Colorado state line.

A previous study was completed for the US 491 corridor in March 2004. The previous study evaluated US 491 from milepost 15.1 to milepost 84.7. The Detailed Evaluation of Alternatives Report for the US 491 corridor (March 2004) recommended that the existing two-lane road be widened to four-lanes with a varying median. The existing lanes were to be reconstructed or rehabilitated. An Environmental Assessment was completed in May 2004. The Finding of No Significant Impact (FONSI) was issued by the Federal Highway Administration (FHWA) on September 20, 2004.

The estimated cost for the entire length of the preferred alternative was \$212,800,000 (December 2003) which was higher than the \$84,750,000 that was originally budgeted by the New Mexico Department of Transportation (NMDOT). The project was put on hold while options were evaluated for implementation into the project. The NMDOT is committed to constructing a 4-lane facility as recommended in the previous study and is moving forward with two studies to re-evaluate US 491; a US 491 North Corridor study, and a US 491 South Corridor study. These supplemental reports will evaluate recommendations from the Value Planning Report and the Value Engineering Lite (Design optimization) Report that the NMDOT has conducted since the project was put on hold. The Supplemental Phase B Report for the North Corridor was completed in January 2006.

This supplemental study re-evaluates the South Corridor of US 491 beginning at the end of the 4 lane section near Navajo 9 at approximately Milepost 15.1 and ending at the intersection of NM 134, within the community of Sheep Springs, at approximately milepost 46. Two additional alignments have been evaluated for the construction of the South Corridor of US 491 including an east and a west alignment. The east alignment would convert the existing lanes into US 491 to two southbound travel lanes and construct two new northbound lanes to the east. The west alignment would convert the existing lanes on US 491 into two northbound travel lanes and construct two new southbound lanes to the west.

### Summary of Changes

The following changes from the Value Planning, the Value Engineering Lite and the design team will be incorporated into the project.

- Rehabilitation / reconstruction / pavement preservation on existing lanes will be deferred until the corridor is a four lane facility.
- Borrow ditches will be constructed adjacent to the new lanes where feasible in order to reduce the purchase of borrow and material haul. The success of this cost savings will depend on whether or not the earth in the borrow ditches is suitable for use in the roadway embankment.
- The new lanes will be constructed to the east or west of the existing lanes with a depressed median. The existing lanes are centered in the existing right-of-way easements so an offset will require right-of-way to be obtained from the Navajo Nation.
- The design speed will be reduced from 80 mph to 70 mph. This eliminates the need to reconstruct nine vertical curves that did not meet the 80 mph design criteria.

- A 50 year drainage criteria not to overtop the road will be used instead of a 100 year drainage criteria. This should reduce the number of additional pipes to be added.
- Deceleration lanes will be constructed only at major intersections. Acceleration lanes will be evaluated to determine if they are required.
- The driving lane width on the new lanes will be reduced from 12 feet to 11.5 feet.
- The outside shoulders will be reduced from 8 feet to 6 feet and a 4% cross slope will be used on the shoulders to reduce the pavement thickness.
- A course graded PMBP will be investigated for the top asphalt lift instead of the Open Graded Friction Course.
- Fill slopes for 0 to 5 feet will have 4:1 slopes instead of 6:1 to reduce earthwork requirements.

**Construction Cost Estimate**

The above listed changes and revised quantities based on design level mapping have resulted in a construction cost estimate of \$141,305,150.15 (MP 15.1 to MP 84.7) including New Mexico Gross Receipts Tax, Navajo Tax, and 8% Engineering and Contingencies (E&C) for the entire project. Since the project is still at the preliminary design level this estimate includes a 10% design contingencies to account for items that may be encountered during the design process. The cost estimate for the two South Corridor alignment alternatives is \$69,738,889.00 (east alignment) and \$66,529,388.00 (west alignment).

A breakdown of the preliminary construction costs including taxes and E&C for each segment is shown in the following table:

**Table 1 – Preliminary Construction Estimates**

Segment	Mileposts	East Alignment Cost	West Alignment Cost
1	15.1 to 19.75	\$9,628,365.00	\$8,872,806.00
2	19.75 to 31	\$24,025,816.00	\$21,785,730.00
3	31 to 37	\$13,652,850.00	\$13,429,992.00
4	37 to 46	\$22,431,858.00	\$22,440,860.00
<b>TOTAL</b>		<b>\$69,738,889.00</b>	<b>\$66,529,388.00</b>

\* Estimate Completed in August 2006, based upon 2005 Average Unit Bid prices

**Alignment Recommendation**

Based upon the individual segment costs, right-of-way and borrow ditch easement requirements, and impacts to cultural sites, the recommended alignment for the US 491 South Corridor would be a west alignment from MP 15.1 to MP 45. The alignment would then shift to an east alignment north of MP 45 to avoid sensitive areas.

