

2007 APPLICATION FORM
(required for each entry)

Job No. J7P0675C Route 37 County Barry
STIP Description (Scooping or Construction, state which STIP) 05-09 06-10 07-11
Grading, paving, drainage and resurface to replace pavement
from 1.3 miles south of Rte. B to 1.4 miles south of Rte. W.

Project Manager (could have both)

MoDOT Scott McKee- pm- Consultant _____

Active core team members as approved by the MoDOT PM (may include consultants)

<u>Steve Campbell RE</u>	<u>Bob Cannon ME.</u>	<u>Pat McDaniel</u>
<u>Daryl Weinkein Trakt</u>	<u>Jennifer Hinson ER.</u>	<u>Larry Whiteside CO</u>
<u>Kevin Marti de</u>	<u>Charles Pursley</u>	<u>Jack Myers whites</u>
<u>Jim Conley mat.</u>	<u>Llans Taylor</u>	<u>Mike Dunseith ME.</u>

Project Contacts (will have both for consultant entry)

District Scott McKee Consultant \$ _____
STIP budget \$ 2,855,000 or Award cost \$ 2,469,846.37

Value Engineering study during design? yes no (if yes) Project Stage _____

VE contact person _____

Construction-stage VA (VECP)? yes no (if yes) Explain _____

Total VECP savings \$ _____ VECP Contact Person _____

Why is this entry the "poster" image for MoDOT's practical design philosophy?

(In layman's terms - 100 words or fewer - attach additional sheet if necessary)

Saving millions of dollars on one project will allow District 7 to use these funds to build other projects.
That is what practical design is all about. This project took a new approach by decreasing the shoulder
width. By using 8 feet instead of 10 feet or even 12 feet in this case, the savings not only affected
pavement quantities it saved on culverts, driveways, and grading. This project accomplished the purpose
and need to preserve and maintain a major route while saving over 62% of the cost.

Send entries to: **MoDOT Design Division, ATTN: Jay Bestgen**
1320 Creek Trail Drive
Jefferson City, Missouri 65109

All entries must be received no later than close of business on February 1, 2007



MoDOT
District 7
Route 37, Barry County
Job No. J7P0675C

Project Summary and Historical Background

Historical Background:

Location of Project: from 1.3 miles south of Route B to 1.4 miles south of Route W.

Length: 5.3 miles

This section of Route 37 is part of a corridor that serves traffic traveling from Northwest Arkansas and connects to Route 60 to also serve the Springfield area. This corridor experienced a large increase in truck traffic due to the poultry industry and economic boom in Northwest Arkansas.

This 5-mile section of concrete pavement on Route 37 between Monett and Cassville was in poor condition. The existing pavement was 24 foot wide and constructed in 1965, with 10 foot seal-coated aggregate shoulders. Along the route, there is an existing railroad overpass with a vertical clearance of 15'-4".

Purpose and Need:

The purpose of the project was to rehabilitate the pavement. The need was to provide continuity for the corridor by maintaining the roadbed for smooth travel for the public.

Scope Comparison:

The original plan was to build full-depth shoulders and overlay the roadway with 5-3/4" of asphalt. The 12' shoulders would have handled construction traffic and provided for potential expansion to an alternating three lane section. The plan also included pavement replacement under the railway bridge in order to achieve a standard vertical clearance of 16'-6".

The revised plans changed the shoulders to 8' with an asphalt overlay depth of 3-3/4" of asphalt. The final shoulder thickness was 5-3/4". Traffic was handled with lane closures

and a one-lane, two-way operation. Pavement under the railway bridge was overlaid instead of reconstructed, leaving a vertical clearance of approximately 15'- 1".

New Techniques, method and non-traditional design:

It is very unusual that a roadbed be decreased. In this case, the existing 10-foot shoulder was changed to an 8-foot shoulder. This allowed minimization of grading work by pulling the existing foreslope material up against the new shoulder point at 8' and only 3-3/4" above grade. The previous design created a new shoulder point at 12 foot and 5-3/4" above grade. This would have necessitated bringing in new material or getting it from the backslopes. This method also would have caused concern for utilities at the backslope and also caused numerous culvert extensions.

Another technique used on this project was the use of paving fabric. Since the thickness of the asphalt pavement was decreased and the concrete had deteriorated, the fabric was added to slow the development of reflective cracks in the asphalt overlay. The fabric is impermeable and it prevents surface water from entering into the pavement structure (the PCCP and subgrade) from the top down. It should extend the life of the overlay and will reduce the moisture in the subgrade and thereby reduce significantly the erosion of the subgrade support to the pavement.

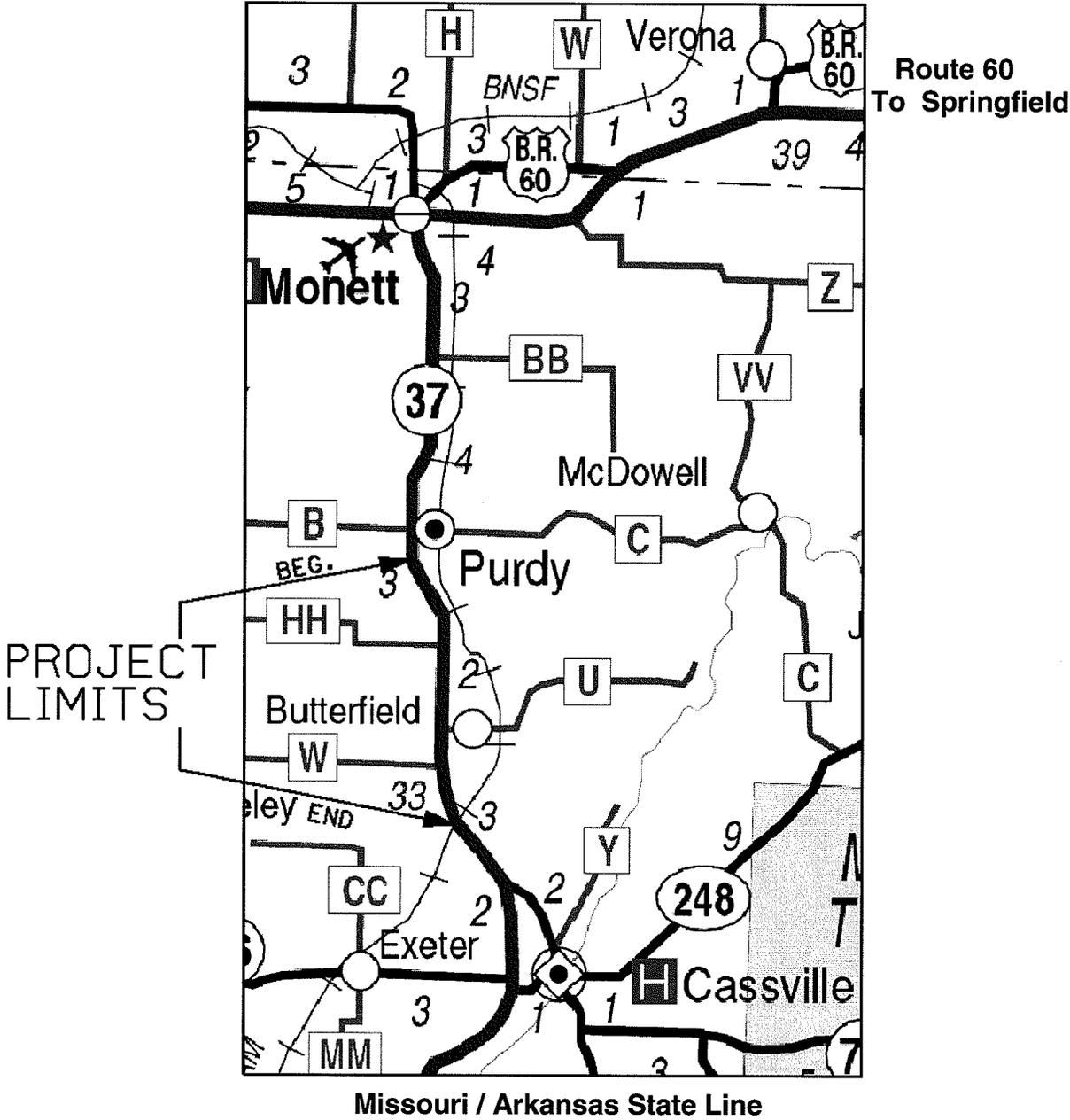
Cost Savings

The project was previously programmed for ~~\$7.4 million~~. The redesigned project was estimated at \$2.8 million and the project was awarded for \$2.5 million.
62% Cost savings.

Roadway User Expectations

Roadway users expect smooth roads with minimal delays. The pavement is significantly smoother. The project added left turn lanes at Routes HH and U, minimizing delays and increasing safety. This project was the third section that completed an overall improvement of Route 37 from Monett (Route 60) to Cassville.

Location

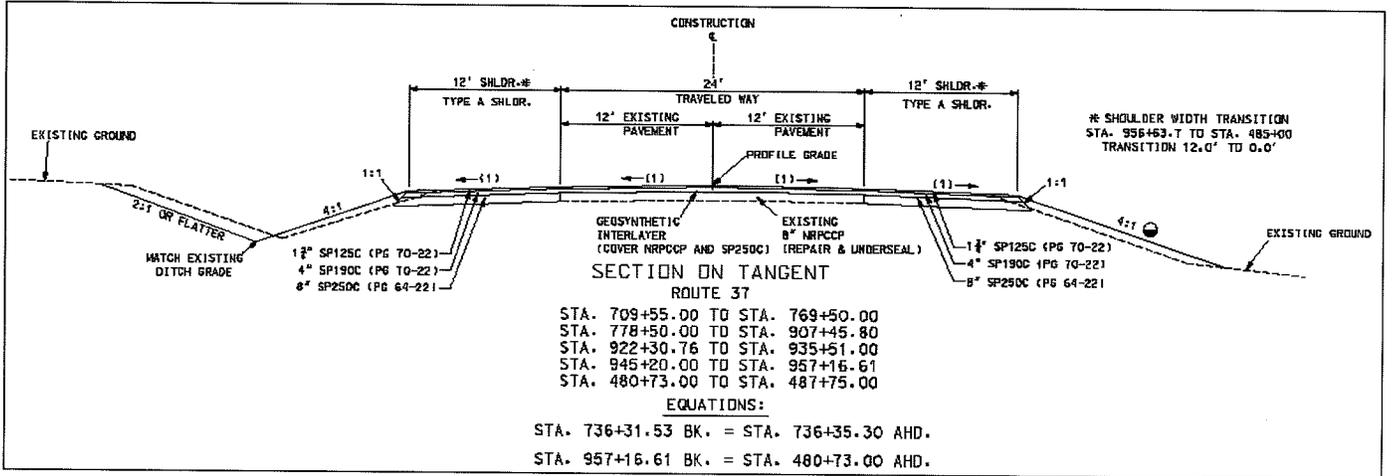


Purpose and Need

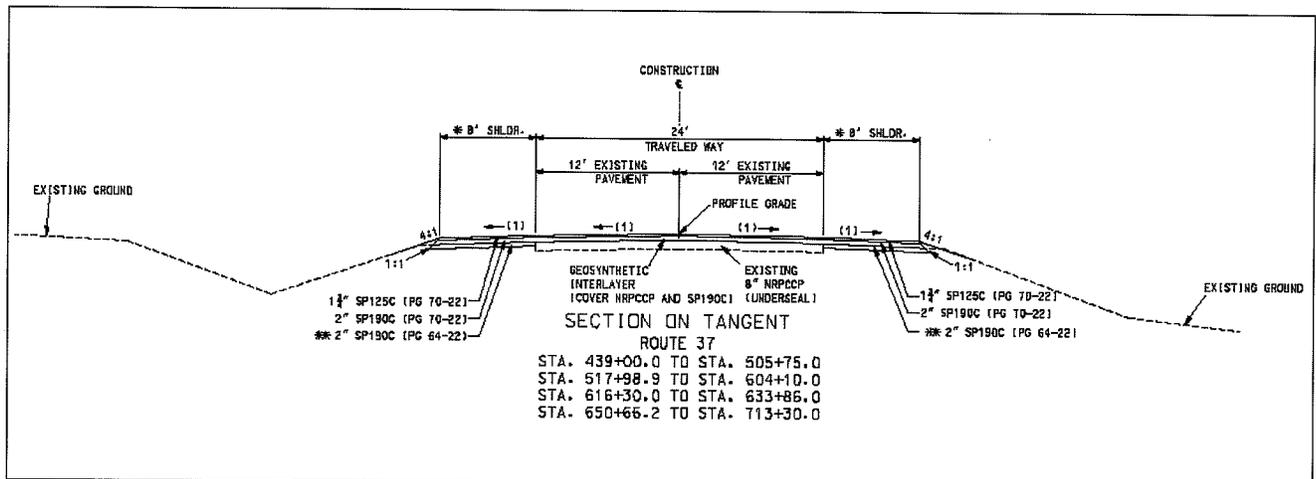
Repair deteriorating pavement



Typical Section Comparison



Typical with 12 foot shoulders.



Typical after Practical Design

Scope Comparison Summary

Item or Criteria	Pre-practical Design	Practical Design
Traffic Handling	Maintain two-way traffic during paving operations for work zone guidelines	Flagger control during paving
Shoulder width	12'	8'
Shoulder depth	13-3/4"	5-3/4"
Overlay depth	5-3/4"	3-3/4"
Grading	Extensive due to shoulder widening	Minimal due to revised shoulder width
Drainage	Extensive culvert extension work to accommodate shoulder widening	Minimal
Vertical Clearance	16'-6"	15'-1"
Pavement design at RR overpass	Total replacement to achieve standard vertical clearance	Overlay with sub-standard Vertical Clearance
Widening for left turn lanes	State Routes	State Routes

Roadway User Expectations

Smooth travel way with center rumble strip and rumble edge strip

