

**MoDOT PROJECTS  
2008 APPLICATION FORM**  
(required for each entry)

**Job No.** J7P0659 **Route** 71 **County** Bates

**STIP Description** (Scoping or Construction, state which STIP) Scoping for roadway improvements 3.1 miles south of Rte. 52 (south) to 1.0 mile north of Routes A and B. Determine necessary improvements to achieve freeway/interstate status.

**Is the submittal for the entire project or just a portion of the project? Please explain:** Yes

**Project Manager** (could have both) **MoDOT** Sean Matlock **Consultant** \_\_\_\_\_

**Key core team members as approved by the MoDOT PM** (may include consultants) (limit of 9)

<u>Joe (William) Aldridge</u>	<u>Larry Ayres</u>	_____
<u>Craig Switzer</u>	<u>John Mehuys</u>	_____
<u>Charles Pursley</u>	<u>Jay Schroeder</u>	_____

**Project Contacts:** **District** \_\_\_\_\_ **Consultant** \_\_\_\_\_

**Project Budget:**

**Conceptual budget** \$ 4,441,000 **Initial STIP Budget** \$ \_\_\_\_\_  
**Final STIP budget** \$ \_\_\_\_\_ **Award amount** \$ \_\_\_\_\_  
**Other :** \_\_\_\_\_

**Value Engineering study during design?** yes  no  (if yes) **Project Stage** \_\_\_\_\_

**Total VE savings implemented** \$ \_\_\_\_\_ **VE Contact Person** \_\_\_\_\_

**Construction-stage VE (VECP)?** yes  no  (if yes) **Explain** \_\_\_\_\_

**Total VECP savings** \$ \_\_\_\_\_ **VECP Contact Person** \_\_\_\_\_

**What would make this entry stand out from the rest of the entries when considering MoDOT's practical design philosophy?** (In layman's terms - 100 words or fewer) This project compares a previously approved conceptual with a new conceptual plan that uses the flexibility of practical design to come up with a better solution. The previous conceptual plan not provide the same level of access because it was assumed that if you can't build a standard diamond interchange then you can't provide any access. Now, we used a half diamond with a non-standard connection underneath an existing bridge. By decreasing the distance between ramps, the impacts to the environment and right of way were lessened and access is provided.

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



**MoDOT  
District 7  
Route 71, Bates County  
Job No. J7P0659**

## ***Project Summary and Historical Background***

### ***Historical Background:***

Location of Project: 2.25 miles south of Route 52 (south intersection) to 1.0 mile north of Routes A & B.

Length: 5.3 miles

Route 71 from Joplin to Kansas City has fully controlled access right of way for ready conversion to a freeway once interchanges are constructed. This location is the exception. To obtain fully controlled access, it will involve closing three county road connections and several field entrances along Rte. 71 from 2.25 miles south of the Rte. 52 East intersection to 1 mile north of the Rte. A/B interchange at Rich Hill. Outer roads and service roads will be constructed to provide access to properties that will lose their access to Rte. 71 when the at-grade crossings are removed. Also, access rights will need to be acquired from adjacent property owners.

This section of Route 71 was originally constructed in approximately 1970 and one could assume that the reason it was not initially built to freeway standards was because it was cost prohibitive. Possibly because this section of Route 71 lies in the watershed area of the Marais des Cygnes River and the Bates County Drainage Ditch.

Customers served by this facility area large farms and 2 conservation department areas. Additional access to the 280 acre Ripgut Prairie Natural Area and the only access to the 310 acre Old Town Access will be provided by this project.

### ***Purpose and Need:***

The purpose of the project is to bring this section of Route 71 up to a fully controlled freeway. The need is to provide continuity and safety for the public on the corridor by elimination of at-grade intersections.

### ***Scope Comparison:***

The original conceptual plan was approved on November 4, 1996. We recently completed a new conceptual study which used practical design techniques to come up with a best fit solution. The original conceptual discussed the need for an interchange but

did not include it in its recommendation. Without an interchange there would be 8.5 miles between access points. Although that is not uncommon, it depends on what land features or ownerships that are included within that area. The previous conceptual was similar to the Option B that we recently studied. (see Location Map) and therefore we are comparing the recommended Option A with that of Option B to show how practical design has influenced the scoping process in this case.

***New Techniques, method and non-traditional design:***

The new recommended option A is basically a half diamond but uses an existing bridge for the connection underneath as shown in blue in figure 1. This interchange will be constructed to fit within a minimum amount of new right of way. A design exception was needed for the proposed 300’ minimum spacing between ramp terminals and the proposed 500’ minimum spacing between outer roads, in lieu of the current standards of 700’ minimum spacing between ramp terminals and 1400’ minimum spacing between outer roads. The ramps and outer roads are projected to handle <50 ADT in the design year. Constructing the interchange with this configuration will provide for adequate travel while minimizing right of way costs and environmental impacts.

***Cost Savings***

The difference from Option A to Option B is a savings of 15% (includes R/W cost).

	<b>Option A*</b>	<b>Option B</b>	<b>Option C</b>	<b>Option D</b>	<b>Option E</b>
Right of Way:	\$361	\$423	\$358	\$358	\$4,669
Construction:	\$4,441	\$5,147	\$3,372	\$3,328	\$2,276

\* Recommended Best-Value Option

The savings from not building a new bridge on the outer road over the Bates County Drainage Ditch was \$1,960,000 as shown in figure 2. We were able to provide access to the conservation area using a half diamond, as show in figure 1.

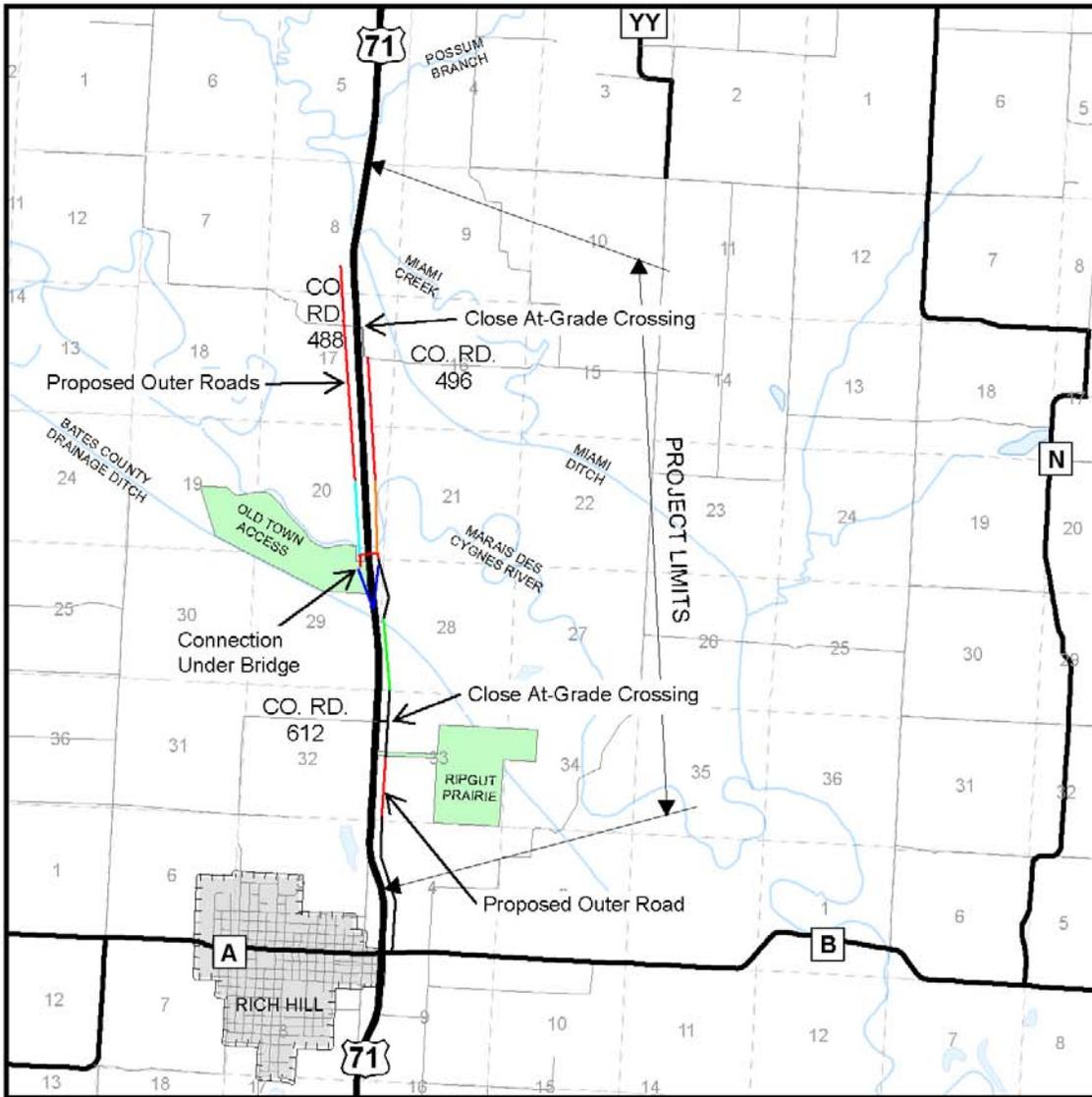
***Roadway User Expectations***

This provides the most direct access to the effected properties from Rte. 71, although the access is somewhat inconvenient because only a northbound off-ramp and a southbound on-ramp will be constructed. The Rte. A/B interchange at Rich Hill must be used as a U-turn for certain turning movements.

The primary benefit of this option is the ease of access for maintenance. The entire interchange area lies within the 100-year floodplain and occasional flooding should be expected. It is essential that the area be easily accessible for MoDOT maintenance forces to repair flood damage and close the road during times of flooding.



### Location Map



- Build for All Options
- Option A
- Option B
- Option C
- Option D

LOCATION MAP  
ROUTE 71  
BATES COUNTY  
JOB NO. J7P0659

## Non-Standard Half Diamond

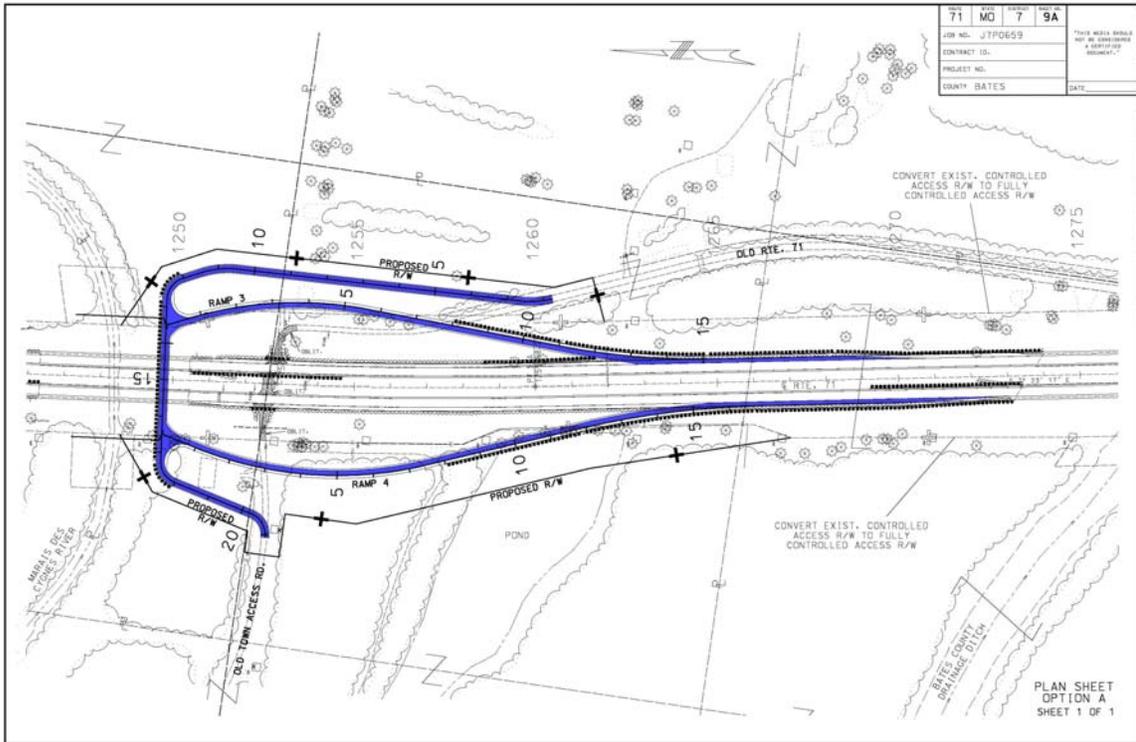


Figure 1.



Photo of existing bridge over the Marias des Cygnes River

Part of Option B. (not proposed)

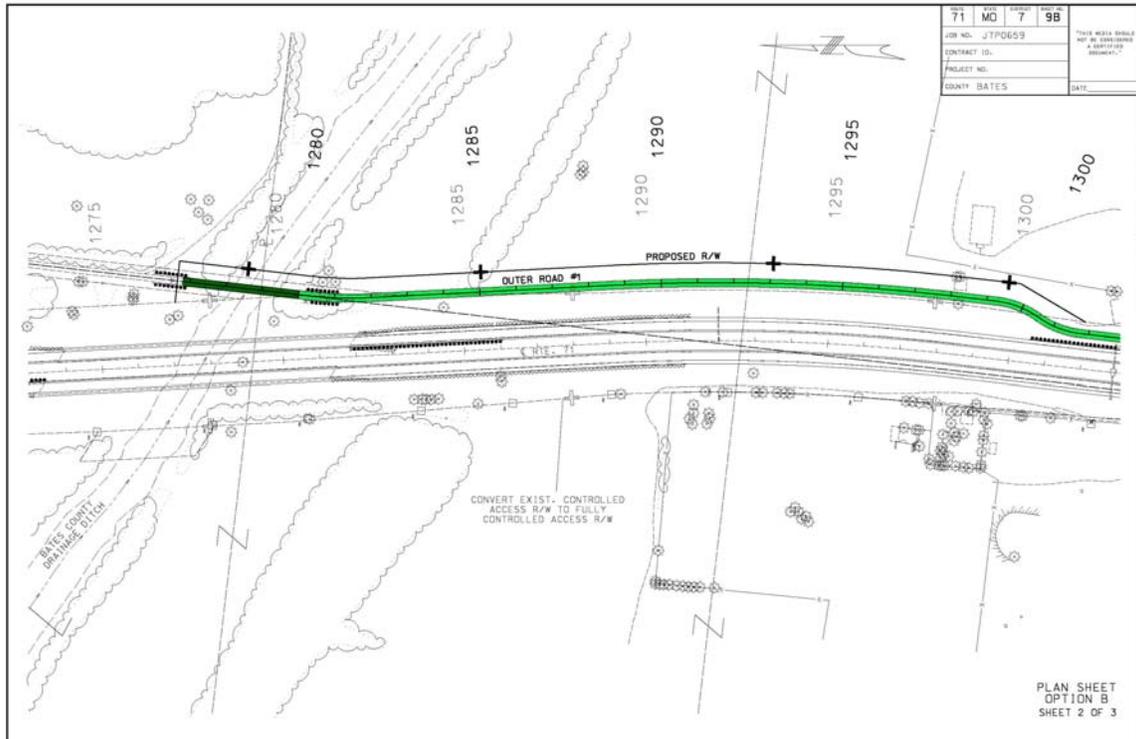


Figure 2.



Bates County Drainage Ditch





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