

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

**Job No.** J8U0548B **Route** I-44/65 **County** Greene

**STIP Description** (Scoping or Construction, state which STIP) Construction Letting – April 2006

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

Entire project.

**Project Manager** (could have both) **MoDOT** Linda Bokel **Consultant** Todd Welz

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

Larry Colson – MoDOT, DE Todd Welz - Jacobs

Leo Cologna – MoDOT, TR John Finke - Jacobs

Joyce Foster – MoDOT, BR Andrew Frey - Jacobs

**Project Contacts:** **District** Linda Bokel, PM **Consultant** Todd Welz, PM

**Project Budget:**

**Conceptual budget** \$ \_\_\_\_\_ **Initial STIP Budget** \$ \$25M

**Final STIP budget** \$ \$22M **Award amount** \$ \$25M

**Other :** \_\_\_\_\_

**Value Engineering study during design?** yes  no  (if yes) **Project Stage** Preliminary Plan

**Total VE savings implemented** \$ VE estimates were flawed **VE Contact Person** \_\_\_\_\_

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

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

**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's scope was tailored to meet the immediate

needs only. No more was re-built than was needed. Typically, more than one flyover ramp has always been constructed on projects like these. However, in the scoping process, accident data and traffic data revealed the problems with this interchange were concentrated in the weaving area on westbound I-44. By rebuilding only one loop into a flyover ramp, the problem was resolved. At the same time, the full build out was designed so that additional ramps can be installed, when needed and afforded, without conflicting with the improvements just made.

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

**ALL ENTRIES MUST BE RECEIVED NO LATER THAN CLOSE OF BUSINESS ON DECEMBER 15, 2007.**

## TAILOR THE SCOPE TO FIT THE NEED

High numbers of accidents brought this interchange into the forefront of roadway needs. The perception was that the “interchange” was dangerous. A closer look at the accident diagrams (attachment) showed that the accidents were concentrated in one area of the interchange. A plot of traffic volumes showed that the accident area coincided directly with the highest traffic volumes. By building only one flyover ramp, we were able to separate the two highest volume merges and give them both longer acceleration and deceleration lanes.

## CONSIDER THE FUTURE NEEDS

We concentrated the money on the most immediate needs. But we also wanted to make sure more upgrades can be made later. Planning all the ramps and how they will be added later, means there will be savings on future projects too. Stub outs were installed at locations where more ramps will intersect with the new ramp of this first phase project. This eliminates rework and makes adding ramps easy and efficient.

## DON'T FORGET THE MAINTENANCE COSTS

The core team decision-making process was utilized on this project. Getting input from various areas of discipline ensures that all details are considered. This project involved MSE retaining walls. The standard method for placing MSE walls was to have a grassy slope, guardrail and gutter between the roadway and MSE wall. This has posed maintenance and aesthetic problems. We cleaned up the typical by placing the MSE wall directly at the shoulder of the higher roadway with a concrete barrier. This negated the need for a gutter and guard rail with difficult to maintain grassy area behind it. Jacob's Consulting did extensive geological design work to ensure that these walls would work structurally. A system of connecting straps between the parallel walls on each side of ramps was utilized to provide the structural stability where walls were closer together than the strap lengths that normally called for.

## ECONOMIZE THE DESIGN

Once the scoping phase was complete, the idea of being practical did not stop there. Practical design was utilized by nailing down the geometrics of the interchange precisely. The first level bridge—new northbound Route 65, was designed with MSE wall end bents, which shortened the span length. Shorter span length on this first level not only saved money on that bridge itself, but also saved money on every level above it since shorter spans mean less height.

## GET IT DONE FASTER

An incentive was offered to the contractor to finish this project sooner. This project was completed in less than 18 months. Ramps were closed during construction to maximize construction efficiency. Traffic volume analysis and vissim simulation played an important part in determining what could be closed and where it could be detoured. Simulating detours ensured that we were not creating new congestion problems on detours. Good public information kept drivers in the loop during the entire construction project. Drivers with knowledge will make better choices and have buy-in. Public information got the citizens on board. When citizens know what to expect, they are very understanding and tolerant.

Nighttime work was the norm in order to take advantage of lower traffic volumes while closing lanes.

## KILL TWO BIRDS WITH ONE STONE

Hydraulic calculations showed that the new higher northbound to eastbound ramp in the southeast corner of this interchange would back up water into the highly developed hotels and business in that corner. This water was channeled under the new ramp with more culvert space. However, the higher volume of water passing through could be just as detrimental to a golf course and condo development on the downstream end. Since there is a lot of “space available in the middle of interchanges, the space inside the remaining loop in the southeast corner was used to construct a detention area. We were able to ensure that MoDOT would not be adversely impacting the drainage on developed properties upstream and downstream of the project.

## THE FINAL NUMBERS

For the sum of \$25M, we were able to build; a new flyover ramp over 1000 ft long, two side ramps to match into the flyover, and a new northbound Route 65 bridge over I-44. This was all accomplished in a highly urbanized commercial area.



4 loops before improvement



**MSE Walls start at shoulder**



**Easy future maintenance**



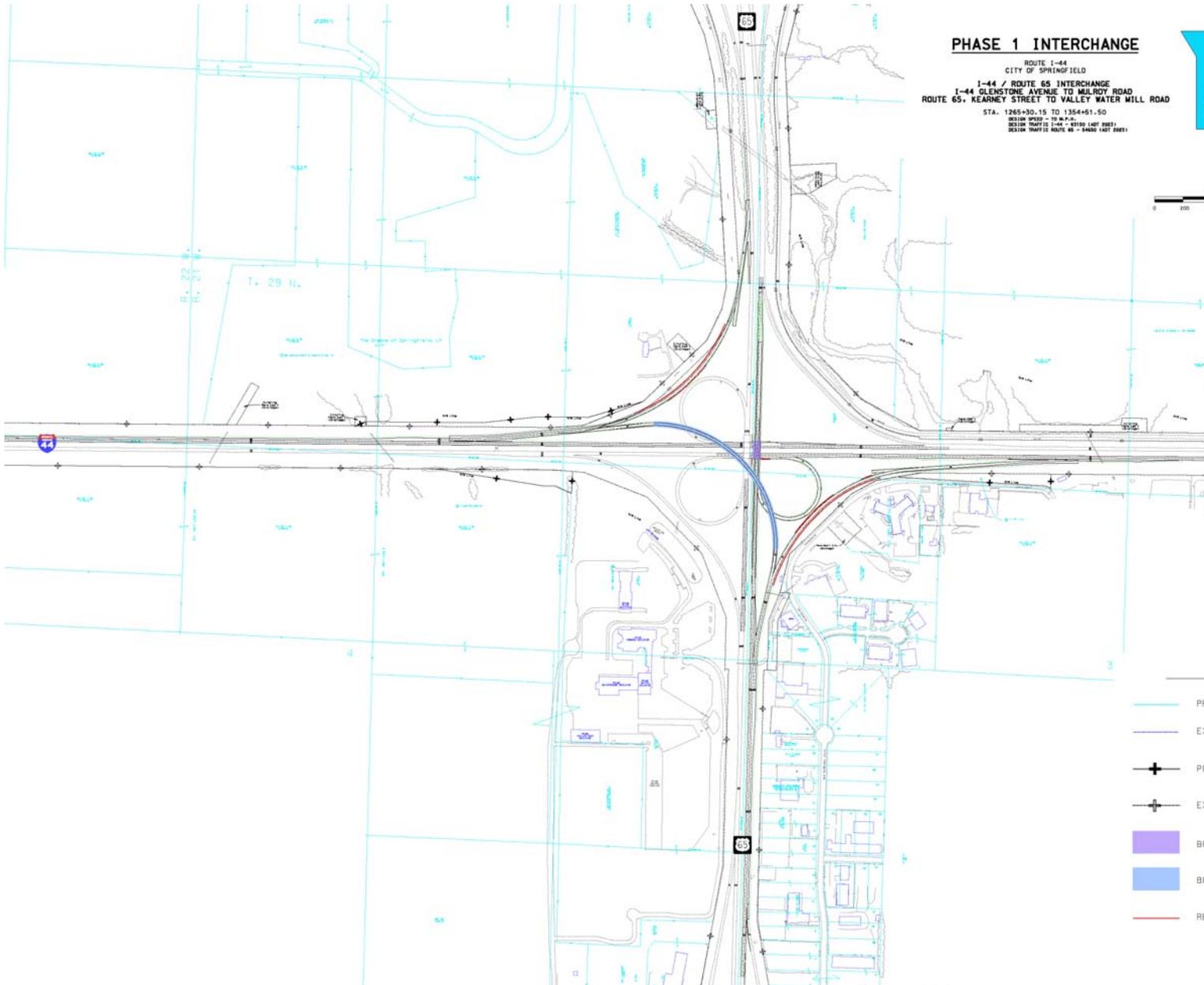
**Urban area with tight right of way**



**Flyover bridge construction**

# PHASE 1 INTERCHANGE

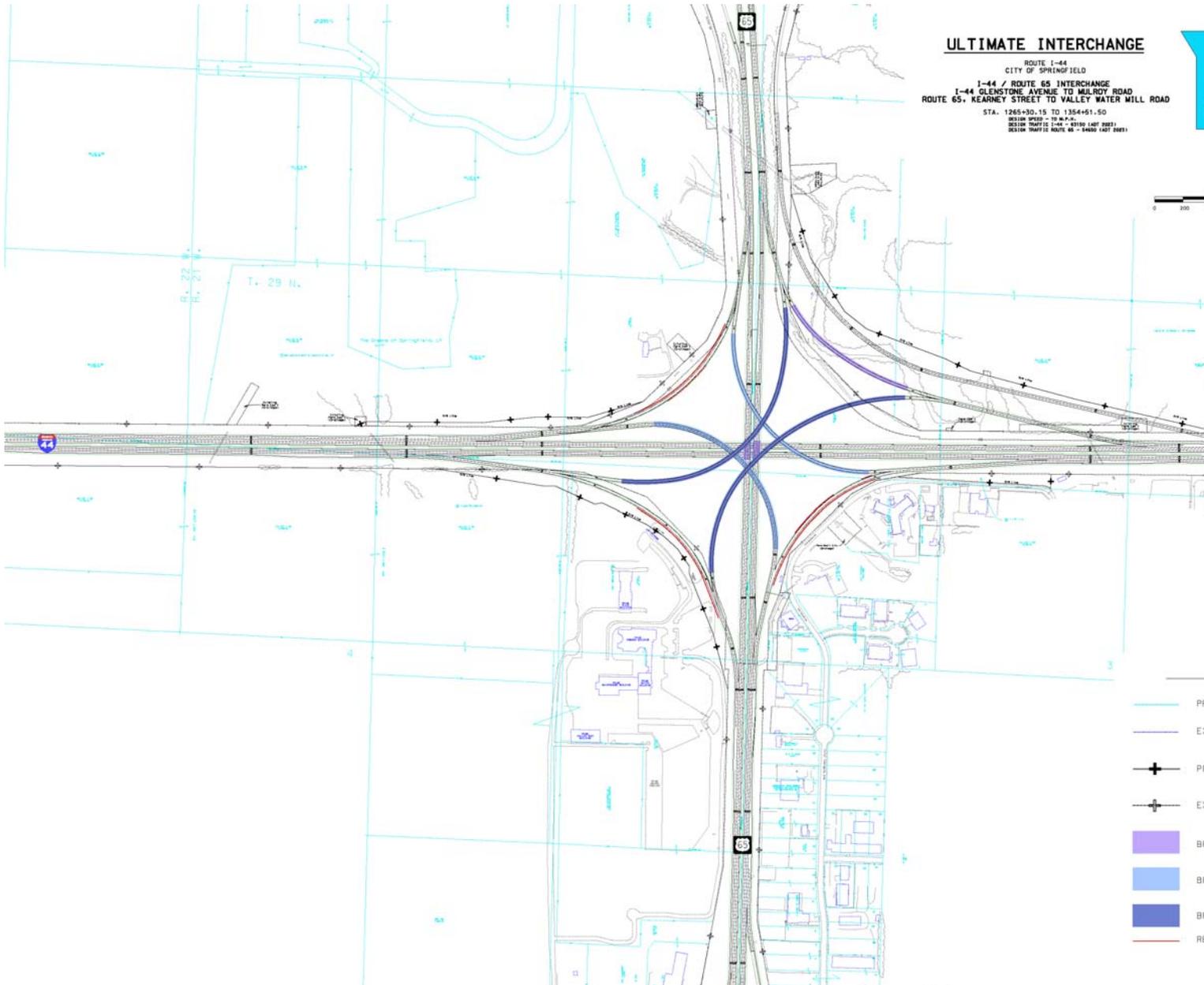
ROUTE I-44  
CITY OF SPRINGFIELD  
I-44 / ROUTE 65 INTERCHANGE  
I-44 GLENSTONE AVENUE TO MULROY ROAD  
ROUTE 65, KEARNEY STREET TO VALLEY WATER MILL ROAD  
STA. 1265+30.15 TO 1354+51.50  
SECTION SPEED - 70 M.P.H.  
SECTION TRAFFIC I-44 - 25100 (AFT 2003)  
SECTION TRAFFIC ROUTE 65 - 24600 (AFT 2003)



- PRO
- EXI
- PRO
- EXI
- BR
- BR
- RET

# ULTIMATE INTERCHANGE

ROUTE I-44  
CITY OF SPRINGFIELD  
I-44 / ROUTE 65 INTERCHANGE  
I-44 GLENSTONE AVENUE TO MULROY ROAD  
ROUTE 65, KEARNEY STREET TO VALLEY WATER MILL ROAD  
STA. 1265+30.15 TO 1354+51.50  
DESIGN SPEED - 70 M.P.H.  
DESIGN TRAFFIC I-44 - 22190 (ADP 2003)  
DESIGN TRAFFIC ROUTE 65 - 24600 (ADP 2003)



- PRO
- EXI
- PRO
- EXI
- BR
- BR
- BR
- RE

