

# MoDOT Project Summary

## Diverging Diamond Interchange / I-270 at Dorsett Road St. Louis, Missouri



### Project History

MoDOT opened the first Diverging Diamond Interchange (DDI) in the St. Louis Metro area on Sunday October 17, 2010, at Interstate 270 and Dorsett Road in Maryland Heights, Mo. This interchange is only the fourth to open in the United States. MoDOT opened the first DDI in North America in Springfield, Mo., in 2009. The DDI concept comes from France where at least three locations have existed for many years.

The advantages of a DDI include making left turns without crossing opposing traffic, and improvements in signal timing due to the reduction in the number of traffic movements for each cycle. Plus, increased efficiency and capacity of the ramps on and off the interstate.

In 2006, a cost share agreement was approved to fund the upgrades with contributions from the Missouri Department of Economic Development, St. Louis County, City of Maryland Heights, Edward Jones, and MoDOT.

A Single Point Urban Interchange (SPUI), similar to the I-270 at Olive Blvd, and Route 141 at Manchester Road interchanges, was initially selected as the design for the improvement project to replace the diamond interchange at I-270 and Dorsett Road, originally built in 1965.

### Cost Savings

The initial cost for construction of the new interchange was estimated at \$23 million for a SPUI. MoDOT investigated the option of a DDI, which was selected as the preferred alternate following a public meeting held in October 2007. The DDI construction contract was awarded to Fred Weber Inc. in July 2009 at a cost of \$10 million. The DDI design requires less bridge structure compared to a SPUI, and less lowering of Dorsett Road for overhead bridge clearance. Both items resulted in savings in construction time and cost.

## Traffic Flow / Safety Improvements

Computer modeling of the interchange indicated the DDI would be as much as four times more efficient moving traffic at the interchange during peak periods. The I-270 and Dorsett interchange has a heavy movement of left turns with limited through traffic. This demand fits perfectly with the efficiencies of a DDI. After opening the DDI, the frequent backups and delays previously encountered at the interchange during daily rush hours have essentially disappeared. Safety is also improved with the reduction in conflict points at the signals.

## Fast Construction Time

MoDOT utilized incentive/disincentive contracting to encourage quick construction and minimal impact to traffic. MoDOT's contractor, Fred Weber Inc., completed the reconstruction of the I-270 bridges over Dorsett Road in only 56 days. This was quite a feat considering the bridges had to be built one at a time to accommodate traffic lane shifts, first the southbound bridge and then the northbound.

## Positive Response

MoDOT received many supportive comments from drivers pleased with the performance of the new interchange. A February 2011, Time magazine article featured MoDOT's DDI's in St. Louis and Springfield. Also in February 2011, the St. Louis Metro Chapter of WTS (Advancing Women in Transportation) presented its "2010 Innovative Transportation Solution Award" to the project.

## Enhancements



The City of Maryland Heights, Mo., funded \$1.7 million of aesthetic enhancements to the interchange including landscaping, decorative lighting and added architectural elements to the new bridge.

## What's Next?

Installation of the enhancement items will continue this spring, with completion by summer 2011. MoDOT will continue to monitor and evaluate engineering performance of DDI's installed in Missouri. Additional MoDOT DDI projects are planned for three locations in Kansas City, one in Columbia, and one in Farmington. The roadway transportation industry is embracing the new DDI design, and many new locations are planned across the country.

## More Information

For more information please visit the project website: <http://www.270dorsettpage.com>.

Or contact MoDOT Community Relations Specialist - Jack Wang at 314-453-1809, [Jack.Wang@MoDOT.mo.gov](mailto:Jack.Wang@MoDOT.mo.gov)

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