



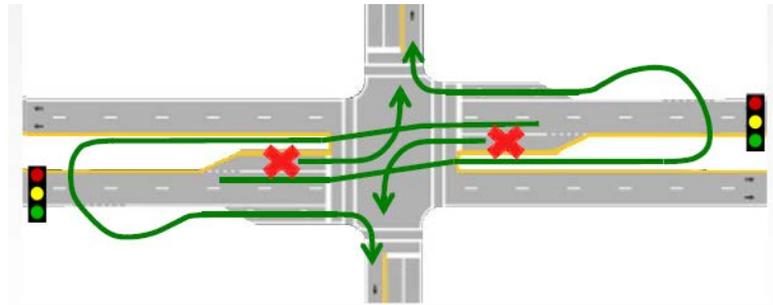
Projects First-Round Winner

Innovations Challenge

April 2018

Prepared by Transportation Planning
Missouri Department of Transportation

ThrU-Turns



Description

Our team's innovation is the first signalized Median U-Turn intersection constructed in Missouri as part of the Route 141/I-44 design build project. Our team branded this innovative intersection the "ThrU Turn". Our team demonstrated ThrU Turns can be designed and seamlessly implemented in urban areas, in this case along Route 141 which carries over 45,000 vehicles per day at the intersections of Vance/Forest and Meramec Station Road. The ThrU Turn reduces the number of conflict points at intersections. (19 fewer conflicts in the case of Route 141/Forest, Vance, and Meramec Station). ThrU Turns can reduce crashes by 20 to 50 percent. Because of the way the intersection is laid out, the chance of a side impact or "T-bone" crash is greatly reduced. The ThrU Turn constructed at the intersection of Route 141 and Vance and Forest Avenue saved millions of dollars. The traditional approach to improving mobility at this intersection would be to add an additional left turn lane from northbound Route 141 to westbound Vance Road. In order to construct this dual left turn lane, Vance Road would have needed to be widened to accept an additional westbound lane from Route 141. This widening would have resulted in a complete purchase of a liquor store in the SW quad costing an estimated 3 million dollars. Adding an additional left turn lane was also complicated by a rail road bridge pier located between northbound and southbound 141, the difficulty designing an additional left turn lane within the rail road bridge piers ultimately lead to the investigation of alternative intersections. It is our team's hope that when other districts see the benefits of the ThrU Turn and how with proper public involvement it can be transitioned into configuration with support and ultimately accolades from users. A critical part of the implementation of the ThrU Turn was a robust public outreach program focused on educating the traveling public and MoDOT's partners about the ThrU Turn.

Benefit

The intersection of Route 141 and Vance/Forest Ave has been heavily congested during peak hours causing a regional bottleneck for years. The intersection has multiple attributes that complicated intersection improvements. Route 141 passes under the Union Pacific Rail Road 300 feet south of the intersection, the bridge piers are located between northbound and southbound Route 141 and prevent widening Route 141. A levee is located 1200 feet south of the intersection; a vault containing floodgates for the levee is adjacent to Route 141 preventing widening. For years, the intersection was passed over because no feasible solution was developed. The ThrU Turn intersection provided an innovative intersection which avoided the structures that made other intersection designs unfeasible. Our team's hope is that other districts consider using the ThrU Turn design on intersections facing similar challenges. The ThrU Turn is an innovative intersection which can reduce crashes by 20 percent to 50 percent at signalized intersections. ThrU Turns can increase the amount of traffic that can travel through the intersection by up to 50 percent, reducing the congestion on the through roadway and the cross street during peak traffic periods all while requiring less Right of Way along cross streets than traditional signalized intersections.

Materials and Labor

Costs and labor vary by project.

For More Information Contact:

Justin Wolf at Justin.Wolf@modot.mo.gov or (314) 453-5057.

Additional information, photos or videos can be seen by accessing the Innovations Challenge SharePoint page at:

<http://sharepoint/systemdelivery/TP/Documents/InnovationsChallenge.aspx>