



Texas Council of Engineering Companies
2011 Engineering Excellence Awards
Gold Medal Winner – Category I: Special Projects

Triple-Left Turn in Sugar Land



Triple-Left Turn Transforms Traffic-Congested Intersection

During peak hours, drivers exiting US 59 for SH 6 in Sugar Land found themselves unable to enter the frontage road because traffic at the intersection was backed up for more than a mile. This backup was not only a safety hazard but also a source of great frustration for commuters. To avoid a costly reconstruction project (more than \$50 million), the City of Sugar Land asked several engineering firms to submit low-cost, alternative solutions for improving traffic flow and capacity at this intersection.

The concept presented by Brown & Gay Engineers, Inc. (BGE) combined triple-left-turn lanes with in-pavement LED lights and an overhead dynamic message sign to guide traffic through the intersection. High-speed intersections, such as this one, are not typical candidates for triple-turn lanes because drivers tend to veer into adjacent lanes. In-pavement lights had previously been used to delineate double-left-turn lanes in the United States, but never for triple-left-turn lanes. The Texas Transportation Institute (TTI), an important part of the team, was able to secure approval from the

Federal Highway Administration for the experimental use of the in-pavement lights. Initial findings from a TTI follow-up study show that fewer drivers drift into other



Approximately 100,000 cars per day travel through the intersection of US 59 and SH 6.

lanes than before, when the intersection had only two turn lanes. In addition, this was the first time a dynamic message sign was used on a local roadway, although the

Texas Department of Transportation routinely uses them on highways and within airport campuses.

With a budget of \$410,000, BGE was able to complete the project in a compressed schedule and \$20,000 under budget. This innovative solution not only increases traffic flow through the intersection, but also improves safety and reduces vehicle idling times, thereby diminishing air pollution.

This intersection, once the bane of commuters, is now praised by them and touted by City leaders as one of the top ten accomplishments of 2010. This innovative solution demonstrates that a low-cost project can produce high-impact results.

