HOV/HOT Lanes

Travel reliability is a primary driver concern, and the study's analysis showed that they want to be able to plan for consistent and reasonable trip times. The solution is to provide a two-way HOV/HOT facility that operates all day and includes variable congestion pricing. The HOV/HOT lane would be managed to operate with a consistent travel speed of 45 miles per hour. The amount of the price for single-occupied vehicles would vary based on the level of congestion at that time. Public transit and multi-occupancy vehicles would still be permitted to travel for free.

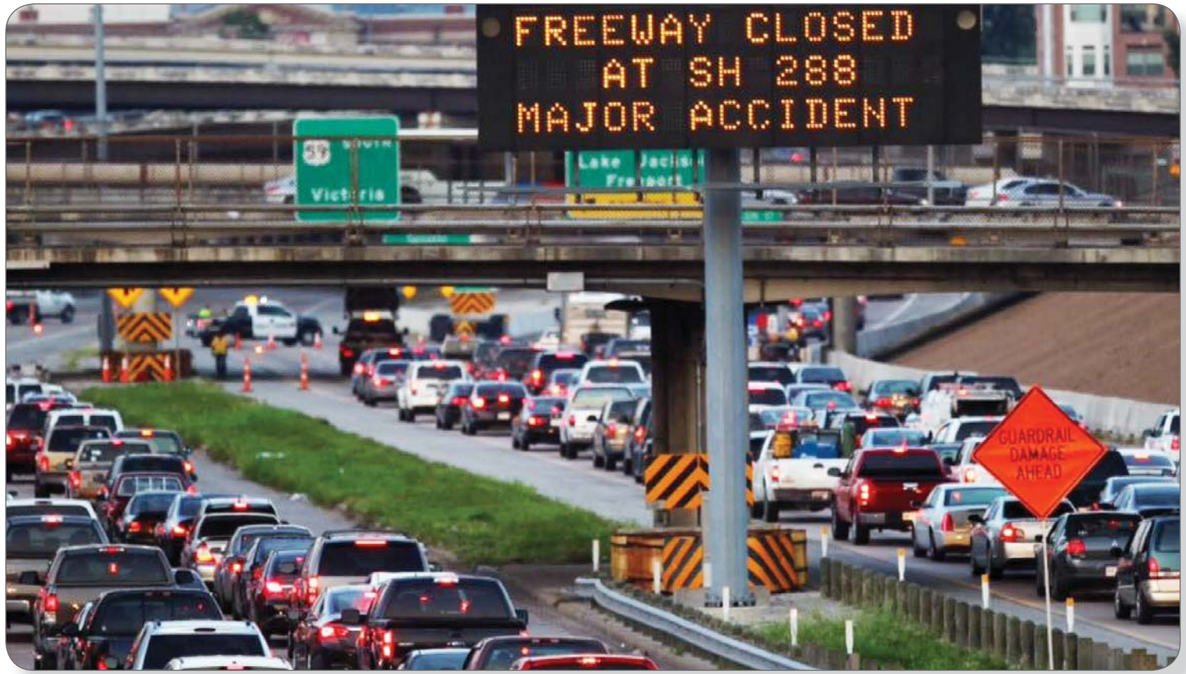
Improvement Summary	Benefits
• Single, bi-directional HOV/HOT lane with variable pricing • Operates 24 hours a day, 7 days a week	• 17-43 mph increase in PM inbound (northbound) • 8 mph increase in PM outbound (southbound) • Improved Emergency Response • Improved Transit Use and Ridership

The implementation of the two-way HOV/HOT lane with variable pricing is a longer-term solution and could not be implemented within the next 5 years. However, it is a strategy that directly addresses travel reliability and can significantly improve the current operation and future use of public transportation along the corridor. This strategy will require more study to address design issues at the Loop 610 interchange, Edloe Street and the transit center/park-and-ride access ramps. METRO is interested in developing this strategy further and TxDOT plans to further evaluate it as well.

Benefit/Cost of Improvement Strategies

The benefit and cost of each of these preferred strategies is summarized in the following table.

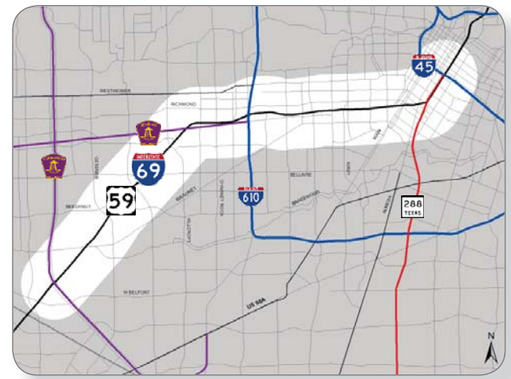
	Time Savings Benefit ($/yr)	Cost		Benefit/Cost Ratio
		Construction, Schematic and PS&E ($)	Operation and Maintenance ($/yr)	
Active Traffic Management	$30-40M	$30-40M	$1.5-3.5M	7.6
Access Modification	$30-40M	$10-20M	$1-2M	23.1
Managed Lanes – Bidirectional, Variable Pricing	$10-15M	$200-250M	$1-2M	1.1



my SOUTHWEST FREEWAY

EXECUTIVE SUMMARY

Background



STUDY AREA

H-GAC—along with several regional transportation agencies including TxDOT, METRO, Harris County, and the City of Houston—has conducted a study of the Southwest Freeway (US59/IH-69) corridor between Beltway 8 West and IH-45 in downtown Houston. The purpose of the study is to develop solutions that meet locally approved goals of Safety, Mobility and Reliability and can be implemented within the next five years. The Southwest Freeway connects numerous regional employment centers and in 2014, TxDOT ranked the section of IH-69 inside Loop 610 as the 3rd most congested roadway in the State, with an annual cost of delay of more than $215 million. In addition the corridor can be unreliable and many segments do not meet current national freeway standards. Since expanding the roadway is not an easy option, the study focuses on using the current road more efficiently.

In order to achieve the three study goals and based on analysis and feedback from stakeholders and the public, the following strategies are recommended.

Active Traffic Management

Active Traffic Management (ATM) is the ability to manage congestion (peak period and during incidents) based on prevailing and predictive traffic conditions. This is accomplished using:

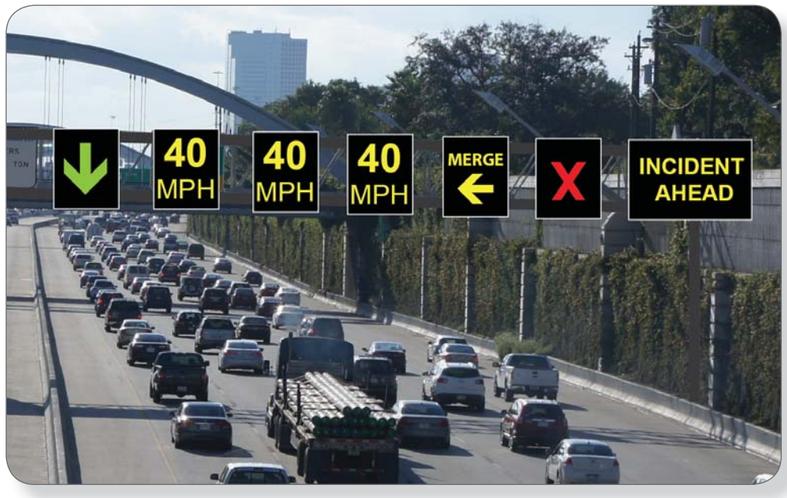
- Adaptive Ramp Flow Control
- Dynamic Rerouting
- Dynamic Merge Control
- Queue Warning
- Temporary Shoulder Use
- Traveler Information
- Advisory Speeds

A summary of the strategies and benefits associated with this recommendation is presented in the table below.

Improvement Summary	Benefits
• 32 ATM sign bridges • 4 full color matrix DMS • 36 detour DMS • 12 ramp meters • Staff for operations and maintenance	• Maximizes efficiency and capacity • Reduces impact of incidents and daily congestion • Increases safety by providing traveler information • 13% reduction in travel time during peak periods • 14-22% reduction in travel time during incidents

ACTIVE TRAFFIC MANAGEMENT

Active Traffic Management strategies along the corridor have received broad support throughout the study. The next step in implementing this improvement strategy is to develop an outline of operations and responsibilities, which TxDOT will move forward with.



Access Modifications

A high number of collisions and delays are attributed to the merging and weaving of vehicles entering and exiting the freeway, especially inside the Loop. The distances between entrance and exit ramps are short and do not meet the current desirable design standards. Access modifications will reduce the amount of merging and weaving traffic and will improve traffic flow on the main lanes—also reducing the number of collisions and associated delays. A summary of this improvement strategy follows.

Improvement Summary	Benefits
• Additional HOV/HOT entrance and exit • Addition of auxiliary lanes • Ramp removals • Bypasses at Buffalo Speedway and Kirby	• Improve corridor speed and throughput with less vehicle conflict • Reduce crashes with increased entrance and exit ramp spacing • 1.5 mph increase in AM outbound speed – 2% increase • 7 mph increase in PM outbound speed – 16% increase • 3 mph increase in AM inbound speed – 9% increase • 9 mph increase in PM inbound speed – 20% increase

ACCESS MODIFICATION LOCATIONS

Coordination with local businesses that may be impacted by the improvements will be required in order to address their concerns and to help them understand the benefits these improvements offer. TxDOT will conduct a study for the corridor, expected to begin in 2016, that will address the recommended access modifications in more detail.