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Project Summary Report 0-4761-S
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Project 0-4761: Evaluation of Vehicle Lane Restrictions in Texas

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PROJECT SUMMARY REPORT

Guidelines for Vehicle Lane Restrictions in Texas

As more operating agencies look for low-cost ways to improve the safety of Texas' urban freeways, a demonstration project on the I-10 East Freeway in Houston used a previously unused law in the state that allows vehicles (18-wheeler trucks in this case) to be restricted from an inside freeway lane (Figure 1).

Figure 1. Truck Restriction on I-10 East Freeway in Houston.

The project was a success in that a preliminary review indicated that vehicle crashes had been reduced along that section of freeway. As word of this success spread throughout the state, other municipalities wanted to deploy a similar project on their freeways and were anticipating similar successes. However, there had not been a long-term evaluation of the demonstration project, and a defined set of guidelines had not been developed.

Texas Department of Transportation (TxDOT) Project 0-4761 was initiated to complete a more detailed evaluation of the vehicle lane restriction concept and to develop a set of guidelines that could be used statewide for implementation on other highways. The 18-month project was structured to develop the guidelines such that the lane restriction could be deployed where warranted, while at the same time not "over-deployed" such that its effectiveness would be reduced.

What We Did...

The project began with a literature review and a profile of views from other states to determine any specific issues relative to lane restrictions for heavy trucks that might apply in Texas. The operational and safety impacts with respect to vehicle lane restrictions within the state were also studied. Existing lane restriction projects in the state were monitored and evaluated throughout the duration of the project, and the effect of enforcement on safety was studied. Researchers developed guidelines for future deployment of vehicle lane restrictions (specific to heavy truck traffic) based upon the findings of this project.

What We Found...

Other states have had similar successes with implementation of similar projects. The I-10 East Freeway project has been operating in Houston since September 2000, and crash rates have decreased by 7 percent throughout the areas included in the project, while the rates have increased by 3 percent on an adjacent section of that freeway without the restriction in place. However, it was inconclusive whether enforcement had any impact upon safety.

The compliance on all projects in Houston continues to achieve levels above the goal of 85 percent, indicating that the guidelines used to develop the existing projects do not need a major overhaul and should continue to be used as appropriate. Agencies are encouraged to work together in developing an overall plan should it be determined that restrictions need to be considered, and enforcement is an important component in this process.

The Researchers Recommend ...

Based upon the findings of the research project, researchers developed a set of guidelines that should be used when developing vehicle lane restrictions in Texas:

- The requirements of Texas Transportation Code Section 545.0651 or 545.0652 should be met.
- A minimum of 4 percent total trucks in the traffic stream over a consecutive 24-hour period is necessary.
- Approximately 10 percent of the total truck traffic should be observed using the lane (most likely left or inside) to be restricted.
- The section of freeway to be restricted should be approximately 1 mile beyond any entry and/or exit ramps in the restricted lane to allow sufficient distance for traffic to access or vacate the lane as needed.
- The length of freeway to be restricted should be a minimum length of 6 continuous miles.
- A brief overview of the local freeway system should be completed to develop an overall plan for truck restriction implementation.
- Truck volumes and operations should be monitored such that the guidelines continue to be met. Monitoring also serves as a means to be aware of increasing truck and general traffic volumes, which may also cause concern that the restriction may need to be modified to accommodate higher traffic volumes.

- As compliance is an important element of the restriction, routine enforcement of either regular traffic patrols and/or specialized dedicated units should be available for deployment.

- Signs should be provided at 1-mile intervals throughout the restricted area. In addition to signs placed along the right side of the freeway as per normal practice, supplemental signs should be placed overhead and along the left side to increase awareness of the restriction. The sign message should specify the class of vehicles to which the restrictions apply (for example, "vehicles with three or more axles" instead of "trucks").

- A good public information campaign should be undertaken to inform the public of the implementation of the restriction. Special emphasis on getting the word out to truck drivers who frequent the corridor is important to assure success of the project.

For More Details...

The research is documented in Report 0-4671-1, *Monitoring of Texas Vehicle Lane Restrictions.*

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TxDOT Implementation Status—March 2005

This research project evaluated truck lane restrictions in Texas and further developed guidelines for future implementations on freeway systems in Texas. One product was required for this project: Guidelines for implementation of vehicle lane restrictions in Texas. The findings of this project are presented in Chapter 7 of research Report 0-4761-1, *Monitoring of Texas Vehicle Lane Restrictions,* and have been used for developing truck lane restrictions on the I-10 East Freeway in Houston. These findings may be applicable for truck lane restrictions on other freeways in Texas provided that certain criteria are met — i.e., sufficient truck volumes and minimum number of lanes for a given freeway segment.

For more information, contact Mr. Wade Odell, P.E., RTI Research Engineer, at (512) 465-7403 or e-mail wodell@dot.state.tx.us.

YOUR INVOLVEMENT IS WELCOME!

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