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Project 0-4160: Operating Freeways with Managed Lanes

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Developing a Managed Lanes Position Paper for a Media Audience

The managed lane concept is currently being considered on major freeway projects in Texas cities. While the high-occupancy vehicle (HOV) concept is familiar in most urban areas, motorists are less familiar with managed lanes.

The term “managed lanes” encompasses a variety of facility types, including HOV lanes, high-occupancy toll (HOT) lanes, single-occupancy vehicle (SOV) express lanes, special use lanes, and truck lanes. The premise of the managed lanes concept is to increase freeway efficiency and provide free flow operations for certain freeway users by packaging various operational and design strategies. The strategies deployed offer the flexibility to be adjusted to match changing corridor and regional goals.

Communicating a complex concept, such as managed lanes, to the public can be very challenging. Additionally, there are no facilities in operation that

encompass the complete range of managed lane strategies. Not having a tangible project to point to as an example makes the task even more difficult.

What We Did . . .

The research team produced a position paper on managed lanes intended to provide TxDOT’s statewide perspective on managed lanes. The paper provides an effective means of communicating information about managed lanes, how they may be operated, the benefits of managed lanes, where successful projects have been implemented, and what TxDOT is planning for Texas.

The paper is tailored to editorial staff, transportation reporters, and others in the media. By educating the media on this concept, this paper will place media representatives in a better position to accurately portray the concept to the general public. Providing this

information alleviates the possible spread of misinformation. The approach and structure for the paper are a result of research conducted on managed lane projects and studies throughout the country.

What We Found . . .

The research identified common messages necessary for project acceptance. These include:

- *Choice* – Research has shown that the public does not perceive pricing as inequitable when it is presented as a choice for commuters. The education process is key to communicating this message.

Tool – The public may perceive a project that utilizes pricing concepts as a “Band-aid” or short-term solution. Messages should emphasize that it is only one tool that

works with a comprehensive plan.

- *Efficiency* – Typically the public does not understand how underutilized a high-occupancy vehicle (HOV) lane may be. When shown that pricing maximizes available capacity, the pricing concept is more acceptable.
- *Operations* – People want to know how the proposed operational strategy will work. Presenting examples of successful projects and how they operate helps facilitate understanding and support. This is especially true in areas where there are no HOV lanes or toll roads. They need assurances that toll collection will not impede travel that is already congested because they may be unfamiliar with electronic toll collection.
- *Enforcement* – Enforcement is especially important in areas that currently operate HOV lanes because enforcement preserves the integrity of HOV lane. The traveling public wants to know that if they pay for a premium service others will not be allowed a “free ride.”
- *Revenue Use* – How the managing agency plans to use the revenue must be clearly defined from the outset of the project. Successful projects have targeted the money for improvements in a corridor where the project is occurring. Public opinion research indicates that people are evenly split on revenue use for transit improvements or to fund roadway projects. Additionally, as part of the on-going public information, improvements that

are made with revenue should be highlighted.

- *Transportation Funding* – Research has shown that the public is unaware of how transportation projects are funded. Messages should focus on the funding shortfall and show pricing as a means to raise revenue for projects that might otherwise not be funded. This reinforces the idea that a pricing project is a management tool in a comprehensive plan that will impact the entire region.

The Researchers Recommend . . .

The position paper that follows provides an overview of TxDOT’s position of managed lanes and what the department hopes to achieve. However, each region of the state will have different goals for the region or for a particular corridor. It is important for policy makers to tailor the message of managed lanes and its concepts to match these goals. Focus groups, telephone interviews, and surveys have been used to gauge public perception before a project has been implemented. The methods should also be employed in areas around the state where managed lanes are being considered. The results from this input will be invaluable in defining the message for the public. Communicating a clear, concise message to the intended audience will help achieve consensus to formulate policy.

The position paper resulting from this task will help TxDOT articulate the concept of managed lanes to those in the media as a means to achieve statewide mobility goals. The position can then be further refined at the local level to match regional and community objectives. By communicating the

concept TxDOT can begin to build consensus to utilize an available tool to maximize efficiency of the transportation network and provide options for the traveling public.

TxDOT should develop a brochure for distribution to the media and other interested parties. The brochure should communicate the managed lanes concept in a manner that is easily understood. The brochure may also be tailored to a specific region or project.

Managed Lanes: A New Concept for Freeway Travel: A Position Paper for the Media

INTRODUCTION

What was once known as rush hour may now last up to six hours each day in Texas’ most congested cities. But the idea of “managed lanes” is giving transportation planners another way to address the growing problem of traffic congestion.

Limited land availability, scarce funds, and social and environmental concerns may prevent adding new freeway lanes. The combination of these factors is forcing transportation planners and engineers to explore new ways to more effectively operate the existing transportation network.

“Managed lanes” is one such concept that is being used successfully across the country.

WHAT ARE MANAGED LANES?

The theory behind managed lanes is to set aside certain freeway lanes and to use a variety of operating strategies to move traffic

more efficiently in those lanes. As a result, travelers have an option to traveling on a congested freeway. High-occupancy vehicle (HOV) lanes, operating successfully in Houston and Dallas for the last two decades, are examples of managed lanes. The concept of HOV-only lanes is evolving into a new type of facility that offers more choices and more flexibility for a wider range of freeway motorists.

The Texas Department of Transportation (TxDOT) believes that using managed lanes will allow it to leverage existing capacity and move both people and goods in the most efficient manner possible. The managed lane concept is a tool that is available to the transportation community. This tool may be used as part of a comprehensive plan to achieve regional goals.

Managed lane strategies can:

- maximize existing capacity,
- manage demand,
- offer choices,
- improve safety, and
- generate revenue.

HOW DO MANAGED LANES WORK?

There are different strategies that can be employed to keep traffic flowing on a managed lane facility. Demand management techniques include:

- Time-of-Day Restrictions – allowing access to certain lanes at certain times of the day,
- Vehicle Type Restrictions – allowing access to managed lanes only to certain types of vehicles, such as carpools, buses, trucks, or vehicles paying a fee, and
- Value Pricing – charging motorists for access to managed lanes and/or charging at varying

rates for specific time periods. All fees would be collected electronically without the need for toll booths.

Techniques that can be used to operate managed lanes offer incentives to rideshare through improved access for buses or HOVs, which is an important component of regional goals to reduce vehicle travel. Additionally, value pricing is a mechanism that may be used to offer free or reduced-fee travel at certain times as an incentive to shift motorists out of the peak hours.

generate *revenue*. TxDOT estimates that it currently has only 35 percent of the funds needed to complete projects necessary to maintain mobility throughout the state. Therefore, utilizing tolling mechanisms may provide the only opportunity to get a project built. Additionally, a managed lanes project with pricing may be completed in less time than traditional state financing by using bond proceeds to finance the project. By implementing a project financed through bond money, other local non-tolling projects in the funding pipeline may be advanced

Where To Go For More Information

Texas Studies Underway

LBJ Project, Dallas:

<http://www.dot.state.tx.us/insdot/geodist/dal/mis/ih635/LBJhome.htm>

Katy Freeway Reconstruction, Houston: <http://www.katyfreeway.org/>

Loop 1/US 183, Austin: <http://www.mopac183.com/>

Other Resources

I-15, San Diego:

<http://www.sandag.org/index.asp?projectid=34&fuseaction=projects.detail>

FasTrak, California: <http://www.91expresslanes.com/>

Value Pricing Research: <http://www.valuepricing.org>

FHWA's official policy: <http://www.fhwa.dot.gov/////policy/13-hmpg.htm>

Colorado: <http://www.valuelanes.com/>

Seattle area: <http://www.wsdot.wa.gov/regions/northwest/Traffic/ExpressLanes/>

The key to successfully operating managed lanes is the ability to alter the operations of the lanes in ways that keep traffic flowing. This strategy provides flexibility, not only in the day-to-day operations of the lanes, but in situations where isolated incidents such as a major accident call for the lanes to be open to more or different user groups.

WHAT ARE THE BENEFITS?

In addition to maximizing *capacity*, managed lanes may

more quickly.

Managed lanes may improve the *safety* of a roadway. By reducing congestion, the chances for conflict are also minimized. This is especially true in the case of large trucks. Large trucks do not have the maneuverability of passenger autos and thus are at increased risk. Lanes restricted to trucks take the trucks out of the regular mix of traffic resulting in a decreased risk for both motorists and truckers.

Other potentially positive benefits of managed lanes are *environmental impacts*. As

congestion in large urban areas increases, air quality decreases. Emissions from motor vehicles stuck in traffic contribute to the decline in air quality. Emissions, combined with other pollutants, may lead to a non-attainment designation by the U.S. Environmental Protection Agency. This designation has many ramifications, one of which is the loss of millions of dollars in federal highway funding. This funding loss could seriously limit roadway construction.

Even though population in these urban areas is increasing and congestion is becoming worse, new roadway construction is limited by a number of factors, creating a cycle of problems. By more effectively managing existing capacity, the need to add more capacity is lessened, resulting in fewer negative community impacts. For instance, by installing managed lanes in the median of an existing roadway, TxDOT may not need to acquire additional right-of-way where neighborhoods may be affected. At the same time, the managed lanes may move more people in HOVs than simply adding general-purpose lanes.

WHERE IT'S WORKING

One of the most successful examples of a managed lane facility is the I-15 project, known as FasTrak, in San Diego, California. I-15 is a very heavily congested corridor where motorists typically experience more than 30 minutes of delay daily. The corridor includes two reversible express lanes in the median of I-15. These lanes are separated from the other lanes with concrete barriers.

This two-lane, eight-mile stretch of separated lanes was restricted to high-occupancy vehicles with two or more people. With this restriction the express lanes were underutilized while the adjacent mainlanes of I-15 were heavily congested. The San Diego Association of Governments, the metropolitan planning organization for the area, acting with the California Department of Transportation and the Federal Highway Administration implemented a demonstration program whereby single-occupant vehicles could use the excess capacity by paying a toll to travel in the Express Lanes. The toll varies from \$.50 to \$ 4.00 depending on

the level of congestion in the Express Lanes.

The I-15 project has been operating successfully since 1996. Drivers now have an option for their daily commute. HOVs continue to use the lanes free of charge, and solo drivers can decide whether or not to pay the toll for a faster commute. The operating agencies are now using the roadway capacity more effectively. The program also generates revenue that funds transit improvements in the corridor.

Bus ridership in the corridor has increased by 25 percent, and the number of daily carpools increased 57 percent since project inception. In fact, an entirely new bus service, *Inland Breeze*, is funded solely from revenue generated by the FasTrak program. A 20-mile extension of the project is planned.

Recent public opinion research in the I-15 corridor indicates broad support for the project. Eighty-eight percent of the FasTrak users and 66 percent of the non-users approve of the program, and a majority of both groups agree that the FasTrak program reduces congestion on I-15. A vast majority of the motorists agree that it is a good idea to have a time-savings option on I-15. These high levels of approval are represented across all income levels and ethnic groups.



Figure 1. I-15, San Diego, CA

WHAT'S AHEAD FOR TEXAS

In Houston, the managed lane concept is currently being used on the I-10 and US 290 HOV lanes. HOVs with two people (HOV2s) are allowed to use the lanes during the HOV 3-person (HOV3+) time period by paying a flat-fee toll of \$2.00 per trip. For this fee, HOV2s travel at free-flow conditions in the barrier-separated HOV lane. Similar to the FasTrak program, participants in the program must

register and be issued an electronic transponder, and the tolls are debited from the driver's account. Motorists who take advantage of the program cite its flexibility as an incentive for using the program.

Throughout the state there are a number of major freeway reconstruction projects where managed lanes are either planned or being considered. Cities where managed lanes are under consideration are:

- Houston – I-10,
- Dallas – I-635,
- San Antonio – I-35,
- Ft. Worth – SH 121/SH 114,
- Austin – Loop 1/US 183, and
- Waco – I-35.

Each project has unique characteristics, and TxDOT is approaching each in a way that meets the travel needs in the corridor and is consistent with community objectives.

The managed lanes concept is but one tool available to transportation planners. When used in conjunction with a comprehensive, long-range transportation plan, the concept has the ability to achieve the intended goals of the entire community.

For More Details . . .

Related Report:

Report 4160-7, *Marketing the Managed Lanes Concept*.

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Disclaimer

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