


Project Bulletin 4160-1B

Project 0-4160: Operating Freeways with Managed Lanes

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Managed Lanes Symposium



As a new concept in operating freeways, managed lanes have a limited experience base, creating a knowledge vacuum in emerging key areas that are critical for effective implementation. Thus, the Texas Department of Transportation (TxDOT) is sponsoring a multi-year research project in which a cross-disciplinary team of Texas Transportation Institute (TTI) researchers, in partnership with Texas Southern University (TSU), is addressing the complex issues involved in alternative freeway operating strategies. The intent of the research is to provide TxDOT with practical guidance in the planning, design, and operation of managed freeway lanes.

What We Did . . .

To kick off the project, the research team and TxDOT sponsored the Managed Lanes Symposium to begin generating a dialogue between all potential partners and to provide insight into the concerns of

those partners regarding operation of managed lanes. The intent was for the symposium to serve as a starting point for continued movement toward using managed lanes to maximize capacity on congested roadways and enhancing the mobility of the transportation user.

The symposium assembled over 90 key staff, decision makers, and other related stakeholders from transportation agencies across Texas to discuss issues pertinent to the planning, design, and operation of managed lane facilities. The attendees gained insight from experts around the country, who provided current thinking about managed lane operations.

What We Found . . .

Several key panelists provided information relative to the national perspective and local experiences. The intent was to provide a full perspective on the issue of managed lanes and to

establish a basis of knowledge for generating discussion during the afternoon breakout sessions.

Guest Speakers and Panelists

The first panelist, Dr. Kiran Bhatt with KT Analytic, Inc., provided an update on managed lanes projects across the country, focusing on four operational strategies: 1) high occupancy vehicle (HOV) facilities, 2) high occupancy toll (HOT) lanes, 3) variable-priced lanes, and 4) fast and intertwined regular (FAIR) lanes. After briefly discussing these four strategies, Bhatt noted that agencies considering managed lanes facilities should first consider several issues such as design constraints, enforcement, equity, and determining criteria for success. The recipe for success is the demonstrated need for the project, forward-looking planners, careful design,

responsiveness to user concern, and prospects for self-sufficiency. Bhatt noted that even if projects do not prove to be self-sufficient, they might still be worthwhile given alternatives such as new construction.

Sally Wegmann, P.E., director of Transportation Operations for the TxDOT Houston District, gave a brief overview of the history of innovative mobility strategies in the Houston region. She reflected back to 1974 when HOVs were called transit ways and the lanes were intended to provide a free-flow lane for buses and car pools consisting of eight persons or more. Today, HOV lanes in Houston currently allow a minimum of two persons. The HOV lanes are highly successful at moving people from the suburbs to the central business district. However, as demand increases and the general lanes become more congested, the district must examine ways of responding. As a result, TxDOT is testing a HOT lane approach on the IH-10 corridor and on US 290 to assess feasibility. TxDOT must then examine ways to increase marketing and to identify other target groups and modes that need to be developed, including trucks, congestion pricing on general lanes, and express lanes that can be served as efficiently as the HOV lanes are being served.

George Beatty, Jr., division president of the Greater Houston Partnership, gave the perspective of managed lanes from the community at large. He expressed his belief that Houston is a transportation laboratory and that there are many scientists managing the project. He also stressed that transportation professionals must establish what the Houston transportation system is designed to accomplish. No longer can transportation professionals respond to congestion by building a road. Now, transportation

professionals and community leaders need to consider other issues, including environmental concerns. Beatty suggested we think of HOT and HOV lanes not as individual units, but as a part that must fit into the whole.

Transportation and system-wide benefits must be enumerated to both users and non-users.

Matthew MacGregor, P.E., LBJ project manager for the TxDOT Dallas District, spoke on managed lanes and the LBJ Freeway in Dallas, Texas. The project is 21 miles long and includes tunnels and multiple points of access. The challenge is to balance the trip patterns. LBJ has peak traffic hours for 12 hours a day, and traffic continues to grow during non-peak hours. Traffic is increasing on arterial street systems, as well. Current options include main lanes with four HOV lanes, main lanes with four HOV lanes and express lanes, and main lanes with six HOV lanes. MacGregor cited numerous reasons for managed lanes, such as safety, predictability, air quality, and mobility. Other issues critical to the LBJ managed lane project include multiple access points, signing, tunnels, pricing, occupancy detection, electronic collection, and ticketing by mail. He also emphasized the importance of the regional plan and the inclusion of bus rapid transit as part of the managed lanes considerations.

Glenn McVey, P.E., congestion management engineer for the TxDOT Austin District, and Chuck Fuhs, AICP, deputy project manager with Parsons Brinckerhoff, Inc., gave the Austin perspective on managed lanes. McVey began by

discussing the status of HOV studies in Austin, which include long-range and interim HOV operations for three roadway categories (Loop 1, IH-35, and arterials) and the possibility of HOT lanes. Several freeway sections currently under construction will be built with the ability to retrofit with HOV or managed lanes. A reversible HOV is planned for IH-35, which has a high directional distribution. Fuhs focused on the characteristics of Loop 1, which has high two-directional demand with high levels of congestion. Concepts screened for this facility include managed lanes at grade, elevated, or in depressed sections and designed for limited access. A key area is the intersection of Loop 1 and US 183, a design that provides direct access into transit support systems, the downtown street system, and other key points. Thus, according to Fuhs, access management would be a key to regulating flow and balance demand, perhaps through tolling if necessary.

Dan Lamers, P.E., principal transportation engineer with the North Central Texas Council of Governments, discussed managed facilities in north central Texas. He highlighted the benefits of managed facilities, which are travel-time savings, travel cost savings, generation of revenue, maximizing capacity and efficiency for the



corridor and the facility, maintaining acceptable levels of service (again for the entire corridor), and maintaining operational flexibility. Key operational issues to consider include how an HOV can be adapted to a managed facility or how a toll road (already a managed concept) can be better managed. Lamers also stressed that it is important to recognize the viewpoints of other stakeholders and that managed facilities must provide additional modal options, particularly in light of environmental equity and other planning issues. He encouraged listeners to maintain sight of goals, stating that we are not just moving vehicles or people. We want to connect origins with what people want to do with their lives. He also encouraged the audience to focus on technology to ensure the technology is moving in a direction to support our long-term goals.

Peter Samuel, editor for Toll Roads Newsletter, spoke on demonstrating managed lanes’ benefits to constituents. He stressed that community leaders and transportation professionals should not suppress the truth when discussing improvements or changes to the transportation system. Such thinking is critical for

managed lanes. Samuel stressed that consummate leadership focuses on a single objective when eloquent, well-chosen words are used. Further, he posed a challenge about the term “managed lanes,” as the term implies that other lanes are not managed.

Interactive Breakout Sessions

The second half of the symposium consisted of concurrent breakout sessions. During these interactive workshop sessions, attendees participated in one of three separate groups to discuss managed lanes issues and determine priorities. A facilitator and a scribe liaison coordinated each session and helped the flow of dialog to occur efficiently. In these sessions, the facilitator asked attendees to identify their most important issues associated with managed lanes. Each facilitator reviewed a potential list of issues as a starting point. Groups were asked to add, modify, and supply subcategories to the initial discussion list. The initial list included the following:

- design standards/access,
- eligible users/user groups,
- technology/interoperability,
- performance and evaluation,
- public awareness,

- equity,
- enforcement/operations,
- legislative requirements/regulatory, and
- funding/financing.

Participants brainstormed the list of pertinent issues surrounding planning, constructing, implementing, and operating managed lanes. Thereafter, attendees identified their top five issues from among those on the list. Groups were structured to reflect the range of organizations and TxDOT divisions represented by attendees to foster discussion, exchange ideas, and appreciate different views on transportation concerns. The interesting result was that each group arrived at a similar list of critical managed lanes issues, as presented in Table 1. Other issues discussed, but not ranked, included equity, private institutional issues, private/public partnerships, and affordable transit access.

The Researchers Recommend . . .

The research team was extremely pleased with the inaugural Managed Lanes Symposium. As evident by the large number of attendees, managed

Table 2-1. Key Issues from Interactive Breakout Sessions.

Group 1	Group 2	Group 3
Eligibility and User Groups Design Standards/Access Public Awareness Enforcement Operations Legislative Requirements Funding/Financing Marketing Performance and Evaluation	Public Awareness Design Standards Performance/Evaluation Eligibility/User Groups Funding/Financing & Enforcement/Operations	Enforcement/Operations Public Awareness Technology/Inoperability Legislative Requirements/Regulatory Design Standards/Access

lanes is a major issue that urban areas across Texas and the country are considering for help in maintaining mobility. The results from the symposium, particularly from the breakout sessions, have helped the research team direct the project so that they address the major issues and concerns of stakeholders over the course of the project. It is anticipated that future symposia will be held to continue the dialogue between stakeholders and to present key research findings that can aid them in planning, designing, and operating managed lanes facilities in their region.

For More Details . . .

Related Report:

Report 4160-1, *Managed Lane Symposium Conference Proceedings*

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