

FAST LANE

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Welcome to FastLane

This is the eleventh issue of *FastLane*: a quarterly newsletter that highlights ongoing activities and research in managed lanes in Texas. Previous issues can be found in the *FastLane* archives on our web site, <http://managed-lanes.tamu.edu>. Please feel free to forward this newsletter to anyone who might be interested in its contents, and as always, we welcome your comments and suggestions.

Thank You

The Interoperability Research Team and TTI Managed Lanes Project Team would like to take this opportunity to thank all the respondents, who participated in the research process by filling out the interoperability survey. The responses contained a great deal of useful information and added substantial knowledge to the project. The final report on this portion of the project is being completed and will be available on-line at the managed lanes web site in the near future.

Managed Lanes On the Web

The project team has updated the web site and added two reports. The Managed Lanes web site is located at <http://managed-lanes.tamu.edu>. The reports are available in Adobe Acrobat format.

Report 4160-13: Identification of Traveler Information and Decision-Making Needs for Managed Lane Users
<http://managed-lanes.tamu.edu/products/reports/4160-13.pdf>.

Report 4160-16: Traffic Control Devices for Managed Lanes
<http://managed-lanes.tamu.edu/products/reports/4160-16.pdf>

In addition, we have added a new feature to our Products section. On the main page, all of our products (reports, bulletins, presentations, products) are provided in a quick list by topic. You can access this list at “Our Products.”

Future Meeting of Interest

The TRB’s Committee on High-Occupancy Vehicle (HOV) Systems in conjunction with the Road Pricing Subcommittee, Managed Lanes Joint Subcommittee, Bus Transit Committee, and Freeway Operations Committee is hosting the *TRB 12th International HOV Systems, Pricing, and Managed Lanes Conference*. The conference theme will focus on HOV systems, managed lanes, and pricing: strategies for improving metropolitan mobility and accessibility. The conference will be held in Houston in the Spring of 2005.



Meetings of Note

The third annual meeting of the Managed Lanes External Stakeholder Committee Meeting was held on Wednesday, 22 September 2004, at the TxDOT Riverside Complex in Austin, Texas. The agenda for the meeting included highlights of Managed Lanes Projects both in Texas and the United States, a review of research to date, as well as a discussion on future activities.

The meeting began with opening remarks from **Carlos Lopez**, P.E., Director of Traffic Operations for TxDOT and the Project Director for research project 0-4160 - Operating Freeways with Managed Lanes. Carlos emphasized that the intent of the meeting was to highlight research to date, discuss upcoming tasks on the project, and to request the assistance of the stakeholder committee in identifying efficient and effective methods of disseminating research results. Presentations that highlighted project research at both the state and national level as well as future efforts were made by the research team. A discussion of managed lanes issues and concerns completed the meeting agenda.

Research Team Out in Front

In the last few months, two researchers from the managed lanes team have given presentations on the project to audiences of note. **Beverly Kuhn** gave a status report and presentation on the managed lanes project at the recent TxDOT RMC 4 meeting in June, and made an overview presentation on the project at the Utah DOT Managed Lanes Scanning Tour meeting held in Houston in June.

In August **Sue Chrysler** gave a presentation entitled, *Signing for Managed Lanes: What are the Issues and Successful Practices*, at the annual ITE meeting in Orlando, Florida. **Beverly Kuhn** made a presentation on *Managed Lanes Research in Texas* to the Texas Transportation Summit which was held in Irving, Texas.

The Managed Lanes List

A managed lanes listserv is available to interested readers. This list is a means for the research team to disseminate information to members of the list in an efficient manner. This listserv is open to anyone interested in managed lanes topics or research. If you have concerns or questions about the list or would like to be added to the list, please contact Beverly Kuhn at b-kuhn@tamu.edu.



Other Meetings of Note and Presentations

TRB Managed Lanes Joint Subcommittee Meeting

The first TRB Managed Lanes Joint Subcommittee meeting was held on July 26, 2004, in Park City, Utah during the TRB Joint Summer Meeting. **Ginger Goodin** opened the first official meeting by providing background on the subcommittee and its approval by the the HOV Systems Committee. The first business discussed was to identify other standing committees to communicate with about managed lanes efforts. It was also decided that the next Managed Lanes Joint Subcommittee meeting would be during the Annual TRB Meeting in January. The subcommittee will support the development of joint sessions on managed lanes for the 2005 Annual TRB Meeting with parent committees. A TRB workshop on managed lanes is also in the planning stages and is planned for Sunday, January 9, 2005, at the Hilton in Washington, D.C.

HOT Lane Evaluation Roundtable

In April **Mark Burris** of the Texas Transportation Institute (TTI) spoke at a HOT Lane Evaluation Roundtable hosted by the Center for Transportation Studies and the Humphrey Institute of Public Affairs at the University of Minnesota. Mark stressed that evaluation is important in determining if a HOV lane program is the best investment of public funds. Good evaluations also provide a means of paving the way for support of future project. Burris cited findings of the I-10 and US-290 HOV projects in Houston that utilize HOT lanes.

Traffic Control Devices for Managed Lanes

Managed lanes facilities may present drivers with unfamiliar access, geometries, and operating rules. Conveying information concerning these features requires effective use of standard and novel traffic control devices. As managed lanes facilities continue to evolve, new operational strategies and geometric designs may require new traffic control devices.

The research team conducted a thorough review of United States (U.S.) standards for traffic control devices for managed lanes; high occupancy vehicle lanes, special use lanes, and toll facilities were reviewed. This review included a summary of current practices in the U.S. and other countries and highlighted differences between current practice and new standards. Careful sign placement and color coding were also investigated.

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Traffic Control Devices for Managed Lanes

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The research team found that current managed lanes facilities, including HOV lanes and toll facilities, use a variety of traffic control devices. This is, in part, due to the lack of guidance and standardization in the MUTCD. In addition, the course of development for many of these facilities has led planners to feel that theirs is a "one of a kind" facility where standard signs don't apply.

The complete report which contains guidance on good signing practices is found on the managed lanes web site as *Report 4160-16: Traffic Control Devices for Managed Lanes*

<http://managed-lanes.tamu.edu/products/reports/4160-16.pdf>.

Managed Lanes in the News

Evaluation of the Effectiveness of High Occupancy Vehicle Lanes

A research report entitled, *Evaluation of the Effectiveness of High Occupancy Vehicle Lanes* was released in May 2004 by the University of Utah. The two year study examined 16 miles of HOV lanes opened on I-15 in the Salt Lake Valley in 2001. Researchers looked at automatic data from traffic monitoring stations and manual data from roadside and travel time surveys.

The researchers found that during afternoon peak period the HOV lane moves the same number of people as each general purpose lane with only 44 percent of the vehicles. According to the study the HOV lanes provide a 30 percent travel time savings in the afternoon and a 13 percent travel time savings during the morning peak.



MnDOT Going Slow on Toll Lanes

Reports by Laurie Blake in the Minneapolis-St. Paul *Star Tribune* states that the Minnesota Department of Transportation (MnDOT) found some public resistance to proposed toll lanes in metro areas. The toll lanes, which would be privately built and financed by drivers tolls, would be used where congestion relief is needed. As a result to concerns voiced by legislators and the public, a consulting team was hired to study the issues. As a part of the study existing carpool-bus express lanes on I-39 will be converted into toll lanes and

opened as such next spring. The report by the consulting team is expected by December 2005.

U.S. Transportation Secretary Mineta Outlines Plans to Fight Traffic Congestion as Texas Transportation Institute Releases Annual Mobility Report

A September 7, 2004, press release from the U.S. Department of Transportation (DOT) provided comments from Transportation Secretary Mineta. The release was made in conjunction with the release of the Annual Mobility Report from TTI. Secretary Mineta outlined short term solutions that DOT is providing states to combat congestion. Among the measures specifically mentions the use of tolling on HOV lanes as well as ramp metering were prominently featured.

U.S. Transportation Secretary Puts I-5 Project on Fast Track

The September electronic newsletter, *rEgion*, for the San Diego's Regional Planning Agency (SANDAG) featured an article regarding the I-5 North Coast Project. The project is designed to reduce traffic congestion through improvements to I-5 including additional general purpose lanes, an HOV/managed Lane facility, and operations improvements. Recently U.S. Transportation Secretary Norman Mineta placed the project on a fast track. The fast track process allows an accelerated decision making process and streamlines the extensive environmental and regulatory review process. Implementation of this process may reduce construction time by several years.



Toll Roads, Traffic Fixes Explored

A *Deseret Morning News* article lists public toll roads, reversible lanes, HOV lanes, HOT lanes, and cordon pricing as innovative managed lanes techniques as possibilities to manage lanes in Utah. A Transportation Planning Task Force unanimously voted to recommend to the Utah Legislature a number of managed lanes techniques as a way to maximize the capacity of the state roadway system. The recommendation came from a year long study about the use of managed lanes policies. Of the five techniques only HOV lanes are currently used in Utah. HOV lanes are currently used on I-15, and more are planned for the future. Cordon pricing which charges tolls when drivers enter certain congested areas of a city was the least favored technique recommended by the task force.

Managed Lanes Terminology

This feature of *FastLane* highlights several commonly-used terms in managed lanes that serve as a framework upon which our researchers will base future efforts. The entire glossary of terms may be accessed on the managed lanes web site.

★ **Grade Separation** - the vertical separation of an intersecting transportation facility.

★ **Traffic Assignment Zone** - the division of a study area into subunits or zones allowing for a more detailed analysis.

★ **Volume to Capacity Ratio** - the ratio of demand flow rates to capacity for a given type of transportation facility.

★ **HOV/HOT Freeway-to-Freeway Connectors** - special freeway-to-freeway ramps restricted to HOV/HOT lane-eligible vehicles.

★ **Limited Access** - access management use to restrict entry to a facility based upon facility congestion levels or operational condition, such as the presence of an accident or maintenance activities. Typically, access is not restricted by user type.

★ **Price Elasticity of Demand** - a measure of the sensitivity of demand for a commodity to a change in its price. It equals the percentage change in consumption of the commodity that results in a 1-percent change in its price. The greater the elasticity, the more price-sensitive the demand for the commodity.

★ **Queue Bypass** - an HOV facility that provides a bypass around a queue of vehicles delayed at a ramp or mainline traffic meter or other bottleneck location.

Identification of Traveler Information and Decision-Making Needs for Managed Lanes Users

An implied goal of the managed lane concept is to offer additional choices to motorists on a section of freeway. These choices can vary by time of day or possibly in response to changing traffic conditions on either the managed lane or the other general-purpose lanes in the corridor or region. The extent to which travelers can and will accommodate such operational

flexibility hinges on getting the right information to travelers, at the right time, and in the right format so that they can make effective decisions pertaining to their trip.

The research team addressed managed lanes traveler information and decision-making needs for managed lanes users in Research Report 4160-13, *Identification of Traveler Information and Decision-Making Needs for Managed Lane Users*. This portion of the study provides an overview of previous literature and available analysis tools relevant to traveler information overload, and positive guidance in a freeway and/or managed lane environment. It also contains the results of a series of focus groups to investigate motorist understanding of several managed lane operational issues and information concepts. Finally, it contains a critical analysis to assess information needs that support key decisions by motorists attempting to use various types of managed lanes.

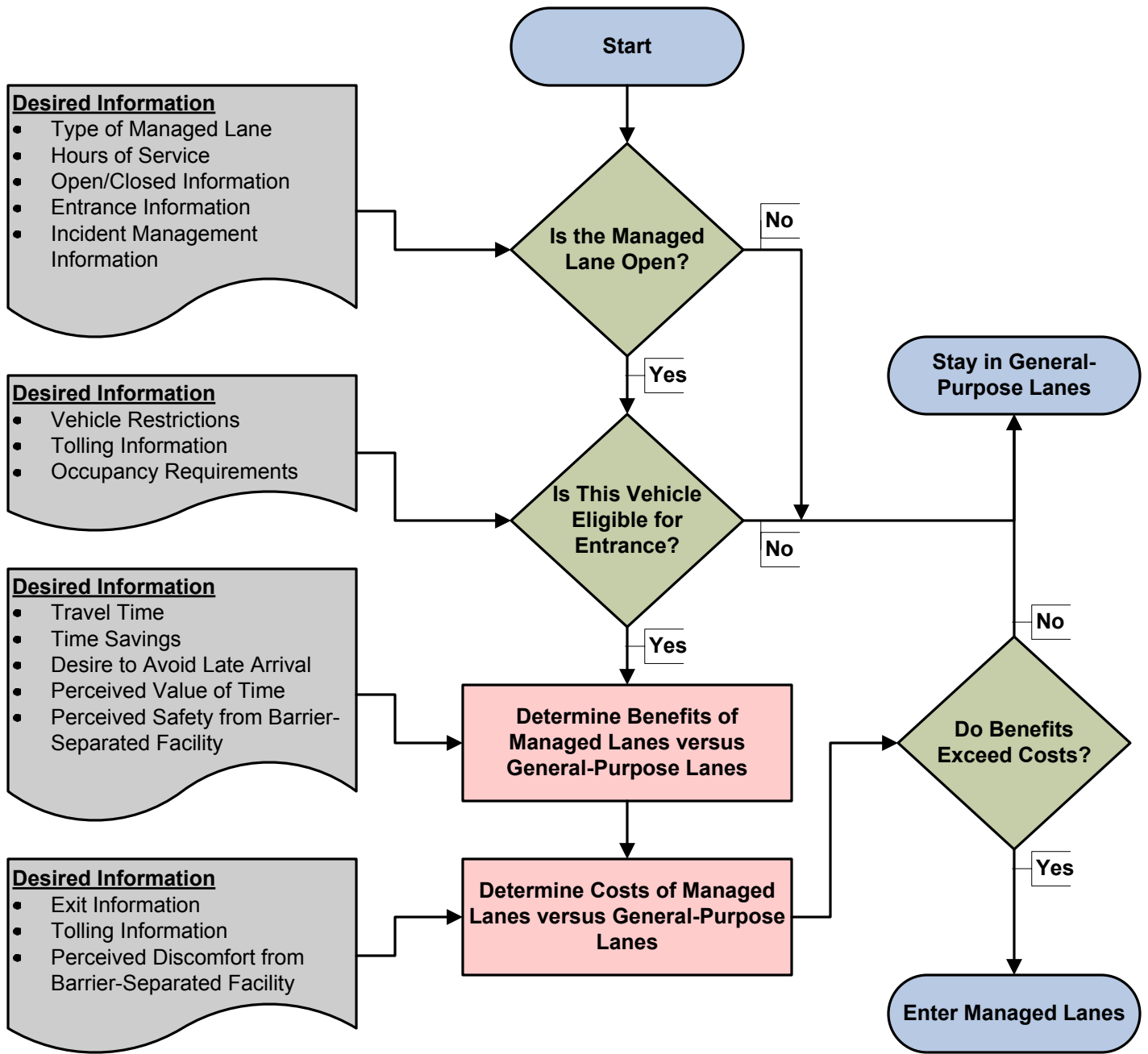
The study found that for managed lane environments, four points are clear from a critical review of previous research:

- there are limits to human information processing;
- proper placement and presentation of managed lane information will alleviate some of these limitations;
- by considering the information needs earlier in the design process (prior to exit ramp and managed lane entrance location selection, for example) the information needs of drivers can be more easily addressed; and
- despite initial attractiveness, newly developed tools for analyzing driver workload conditions do not have the capabilities to effectively capture the nuances and special situations that arise in managed lane applications.

The researchers developed a conceptualized decision model. This model depicted in the following graphic, incorporates the information a driver needs to correctly answer each of the questions required in the process of deciding whether a managed lane facility is a better choice than the general-purpose lanes. It also takes into account not only the specifics of the managed lane facility and traffic conditions, but also the qualitative specifics of the individual driver.

The complete report is found on the managed lanes web site as *Report 4160-13: Identification of Traveler Information and Decision-Making Needs for Managed Lane Users*

<http://managed-lanes.tamu.edu/products/reports/4160-13.pdf>.



Project 0-4160
 Operating Freeways with Managed Lanes
 Conceptualized Traveler Decision Model