

A Domestic Scan of Congestion Pricing and Managed Lanes

Prepared for the:

Federal Highway Administration
U.S. Department of Transportation

Prepared by:

DKS Associates
TRANSPORTATION SOLUTIONS

1000 Broadway, Suite 450
Oakland, CA 94607
(510) 763-2061

In association with

PBSJ and Jack Faucett Associates

April 2009

Table of Contents

1.	Introduction and Overview	1
	Purpose and Objective of this Report	1
	Background Information on Domestic Congestion Pricing and Managed Lane Techniques.....	2
	Outline of the Report	5
2.	Methodology	6
3.	Summary of Survey Results.....	8
	Existing and Proposed Congestion Pricing and Managed Lane Projects	8
	How the Development of Congestion-Pricing and/or Managed-Lane Projects have been Incorporated into the Formal Metropolitan Planning Process.....	12
	How the Benefits of Congestion Pricing and/or Managed Lanes have been Measured and Evaluated	14
	How Political and Public Support for Congestion Pricing and/or Managed Lane Projects has been Developed.	15
	The Role that Federal Pricing Demonstration Grants have Played in Moving Projects Forward	15
	Lessons Learned	16
4.	Conclusions and Recommendations	20
5.	Results from Individual Metropolitan Areas	21
	Appendix A: Survey Questionnaire	49
	Appendix B: Contacts for Survey on Domestic Scan of Congestion Pricing and Managed Lanes.....	53

List of Tables

Table 1 Agencies Surveyed	7
Table 2 Planned and Programmed Congestion Pricing and Managed Lanes Project in the Ten Metropolitan Areas Surveyed	9
Table 3 Additional Studies of Congestion Pricing and/or Managed Lanes Conducted in the Ten Metropolitan Areas Surveyed	10

1. Introduction and Overview

Purpose and Objective of this Report

Congestion pricing and managed lanes have been receiving increasing attention in the U.S. as viable congestion management strategies and as ways to generate additional revenue. The purpose of this project was to conduct a scan of selected Metropolitan Planning Organizations (MPOs) and State Departments of Transportation (State DOTs) to determine how they are planning for congestion pricing and managed lanes. The scan was designed to identify current practices for regional consideration of congestion pricing and managed lanes as strategies for managing congestion as part of the broader transportation planning process. Congestion pricing is defined, for this project, to be any roadway pricing that varies by time of day based on the level of congestion on the facility. This definition does not include congestion pricing not involving tolls, such as parking pricing projects. Although managed lanes can include any differentiation of the use of lanes on a roadway including high occupancy vehicle (HOV) lanes, express lanes, high occupancy toll (HOT) lanes or truck lanes; the focus in this project has been on the planning of managed lanes that involve pricing. This includes HOT lanes, tolled express lanes or any restricted-use lanes that require the payment of a fee.

Ideally, the implementation of individual pricing or managed lanes projects would result from and be consistent with a regional plan for managing congestion. Such planning would look beyond the implementation of these pricing and managed lanes components on individual projects or on a project-by-project basis, and instead consider a region-wide, systems approach to congestion management. The regional plan should also be coordinated with the regional and statewide transportation planning process, and should be part of a statewide long-range transportation plan and the appropriate Metropolitan Transportation Plan (MTP)¹. This project was designed to develop an understanding of the current state of the practice and of future directions planned at MPOs and State DOTs for undertaking regional considerations of congestion pricing and managed lanes for managing congestion in a region. The approach taken to meeting this goal was to conduct a survey of the MPO and state DOT in ten major metropolitan areas to see what the current practice is toward regional approaches to congestion pricing, and managed lanes and what the relationship of implementation of individual pricing and managed lanes projects is to this regional approach.

¹ The term MTP is used throughout this report to refer to the plan prepared by the Metropolitan Planning Organization (MPO) in consultation with the State Department of Transportation and other participating agencies in response to regulations for the distribution of federal transportation funds. Other terms are often used to refer to the plan in different regions including Regional Transportation Plan, Long Range Transportation Plan, and Constrained Long Range Plan.

The scan was intended to accomplish the following:

- Identify the congestion pricing and managed lanes projects that have been implemented and the additional options that have been planned or studied in each region.
- Assess how pricing and managed lanes are included (or not included) in the regional transportation decision-making process including the MTP, the Congestion Management Process (CMP), long-range statewide transportation plan, the transportation planning process, other transportation plans or studies, policies, sub-area studies, corridor studies, and the National Environmental Policy Act (NEPA) process.
- Identify effective and broadly applicable practices for including pricing and managed lanes in the regional transportation planning process.
- Monitor how pricing and managed lanes are looked at as part of a planned, connected system for managing congestion.
- Identify how the system-wide benefits and the analysis of pricing and managed lanes for managing congestion are undertaken by MPOs, State DOTs, or others, for a region.
- Document the level and type of coordination (between the MPOs, State DOT, transit agencies, and local governments) that take place in a region when pricing and managed lanes strategies are planned for and are implemented in a region.

Background Information on Domestic Congestion Pricing and Managed Lane Techniques

When this project was initiated there was only a limited number of operating highway facilities in the United States that included either congestion pricing or tolled managed lanes²:

High Occupancy Toll (HOT) Lane Conversions:

- I-15 San Diego County: Eight mile, two way reversible lanes in freeway median
- I-15 Salt Lake City: Thirty-eight miles of buffer-separated lanes in each direction with limited entry
- I-25/US 36 Denver: Seven mile, two-lane barrier separated reversible facility in freeway median
- I-10 Quickride Pricing Program in the Houston metropolitan area of Texas: Thirteen-mile, reversible, barrier separated lane in median
- US 290 Quickride Pricing program in the Houston metropolitan area of Texas: Fifteen-mile, reversible, barrier separated lane in median
- I-394 MnPASS Express Lanes in the Minneapolis-St. Paul metropolitan area: Thirteen miles of HOV lanes converted to HOT lanes

² K.T. Analytics, Inc. and Cambridge Systematics, Inc., *Value Pricing Pilot Program: Lessons Learned, Final Report*, prepared for the U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., August 2008

- SR 167 HOT Lane Pilot Project in the Seattle metropolitan area: Nine miles of HOV lanes converted to HOT lanes
- I-95 Express Lanes in the Miami metropolitan area: Twenty-one mile express lanes with congestion-based pricing and free for buses, vanpools and carpools of three or more

Congestion Pricing of Express Lanes

- SR 91 Express Lanes in Orange County in the Greater Los Angeles metropolitan area: Ten-mile, four-lane toll facility in the median with congestion-based pricing

Congestion Pricing on Existing Toll Facilities

- Cape Coral Bridge and Midpoint Memorial Bridge in Lee County Florida: Bridges with peak and off-peak rates
- New Jersey Turnpike: 148 mile toll road with peak and off-peak rates
- Port Authority of New York and New Jersey: Peak-period surcharge for two tunnels and four bridges connecting New York and New Jersey
- Illinois Tollway: 274 miles of toll roads with peak and off-peak rates for trucks.
- Orange County, California: 67-mile public **toll road** system with peak and off-peak rates

Because the highway transportation infrastructure in the United States has become significantly more congested in the past twenty years and has begun to show signs of age through heavy use, there has been greater interest shown in methods for using pricing as a way to manage congestion and at the same time generate additional revenue for roadway improvements. Interest in roadway pricing as a management tool has also grown as a result of the increasing ability of electronic equipment to identify vehicles and record and store large amounts of data without requiring vehicles to stop to pay a toll.

Several major federal grant programs have been offered by the US Department of Transportation to stimulate interest in the use of pricing as a management tool. These programs have provided significant impetus for initiating and implementing projects in U.S. cities.

The **Value Pricing Pilot (VPP) Program**³, initially authorized in the Intermodal Surface Transportation Efficiency Act (ISTEA) as the Congestion Pricing Pilot Program, and most recently renewed with the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), encourages implementation and evaluation of value pricing pilot projects to manage congestion on highways through tolling and other pricing mechanisms. This is the only program that provides funding to support studies and implementation aspects of a tolling or pricing project.

³ FHWA web site for Value Pricing Pilot Program:
http://www.ops.fhwa.dot.gov/tolling_pricing/value_pricing/index.htm

The **Express Lanes Demonstration (ELD) Program**⁴ permits tolling on selected facilities to manage high levels of congestion, reduce emissions in a non-attainment or maintenance area under the Clean Air Act Amendments, or finance added Interstate lanes for the purpose of reducing congestion. The Secretary of Transportation is authorized to carry out fifteen demonstration projects through 2009 to allow States, public authorities, or public or private entities designated by States to collect a toll from motor vehicles at an eligible toll facility for any highway, bridge, or tunnel, including on the Interstate. Demonstration projects are required to have the following characteristics:

- Variable pricing by time of day or level of traffic, as appropriate to manage congestion or improve air quality, is required if an HOV facility is tolled; for a non-HOV facility, variable pricing is optional;
- Motor vehicles with fewer than two occupants may be permitted to use HOV lanes as part of a variable toll pricing program;
- Automatic toll collection is required in express lanes to optimize free flow of traffic; and
- Toll revenue may only be used for debt service, reasonable rate of return on private financing, operation and maintenance costs, or any eligible federally funded project if the facility is being adequately maintained.

Congestion pricing and managed lanes projects were also eligible for funding under the **Urban Partnership Agreement (UPA) Program**⁵ under which the Department of Transportation and its Urban Partners agree to pursue four strategies with a combined track record of effectiveness in reducing traffic congestion, known as the “Four Ts”: Tolling, Transit, Telecommuting, and Technology. Five metropolitan areas were originally selected in 2007 for UPA grants: Miami, Minneapolis-St. Paul, San Francisco, New York and Seattle. New York dropped out of the program in 2008. The UPA Program draws on funds already authorized in the VPP Program and other federal transportation programs.

A final grant program that is providing funding for testing of congestion pricing and managed lanes is the **Congestion Reduction Demonstration (CRD) Initiative**⁶. It is a follow-on to the UPA Program but is a separate and distinct program. Grants under this program were awarded in 2008 for congestion pricing and managed lanes projects in the Los Angeles, Chicago and Atlanta metropolitan areas. Like the UPA Program, the CRD Initiative also draws on funds already authorized in other federal transportation programs.

⁴ FHWA web site for Express Lanes Demonstration Program:
http://www.ops.fhwa.dot.gov/tolling_pricing/express_lanes.htm

⁵ U.S. DOT web site for Urban Partnership Agreement Program: <http://www.upa.dot.gov/> (Note: the UPA program will not fund any new projects)

⁶ U.S. DOT web site for the Congestion Reduction Demonstration Initiative: <http://www.crd.dot.gov/>

Outline of the Report

The remainder of this report is organized into four main sections. Section 2 describes the methodology used to conduct the scan. Section 3 provides a summary of the results of the scan. Section 4 provides a summary of conclusions and recommendations that emerge from the scan. Section 5 provides a summary of the scan results for each of the ten individual metropolitan areas included in the survey. A copy of the survey used in the scan is provided in Appendix A and a list of the agencies and individuals surveyed is included in Appendix B.

2. Methodology

The domestic scan of congestion pricing and managed lanes was performed by conducting a survey of agencies that had been directly involved in consideration of these options in ten metropolitan areas in the U.S. The survey requested information in the following six areas:

- Existing and proposed congestion pricing and managed lanes projects
- How the development of congestion pricing and/or managed lane projects have been incorporated into the formal Metropolitan Planning Process
- How the benefits of congestion pricing and/or managed lanes have been measured and evaluated
- How political and public support for congestion pricing and/or managed lanes projects has been developed
- The role that federal pricing demonstration grants have played in moving projects forward
- Lessons learned

A complete survey questionnaire is included as Appendix A to this report. The ten metropolitan areas included the following:

- | | |
|---|--|
| • Atlanta, Georgia | • Minneapolis-St. Paul, Minnesota |
| • Dallas – Fort Worth, Texas | • Phoenix, Arizona |
| • Los Angeles-Orange County, California | • San Francisco-Oakland-San Jose, California |
| • Kansas City, Missouri | • Seattle, Washington |
| • Miami, Florida | • Washington, D.C. |

For each metropolitan area, a survey was sent to a key contact at the MPO for the area and to a key contact at the State DOT. When appropriate, more than one State DOT was sent a survey and in one case (Los Angeles-Orange County, CA) a second regional planning agency was sent a survey. A list of the agencies contacted is provided in Table 1.

Table 1 Agencies Surveyed

Metropolitan Area	MPO and Other Regional Agencies	State Department of Transportation
Atlanta, GA	Atlanta Regional Commission	Georgia Department of Transportation
Dallas-Fort Worth, TX	North Central Texas Council of Governments	Texas Department of Transportation
Kansas City, MO and KS	Mid America Regional Council	Missouri Department of Transportation Kansas Department of Transportation
Los Angeles-Orange County, CA	Southern California Association of Governments Los Angeles County Metropolitan Transportation Authority	Caltrans Headquarters Caltrans District 7
Miami, FL	Miami-Dade Metropolitan Planning Organization	Florida Department of Transportation
Minneapolis-St. Paul, MN	Metropolitan Council	Minnesota Department of Transportation
Phoenix, AZ	Maricopa Association of Governments	Arizona Department of Transportation
Seattle, WA	Puget Sound Regional Council	Washington State Department of Transportation
San Francisco-Oakland-San Jose, CA	Metropolitan Transportation Commission	Caltrans Headquarters Caltrans District 4
Washington, DC	Metropolitan Washington Council of Governments	Maryland Department of Transportation Virginia Department of Transportation

3. Summary of Survey Results

Existing and Proposed Congestion Pricing and Managed Lane Projects

While there are operational examples of roadway tolling in many of the metropolitan areas surveyed and examples of HOV lanes in almost all of the areas, there are very few examples of congestion pricing or managed lanes with tolling of only special-purpose lanes. The following are the only examples of congestion-based pricing or pricing of individual lanes among the metropolitan areas surveyed:

- SR 91 Express Lanes in Orange County in the Greater Los Angeles metropolitan area
- I-95 Express Lanes in the Miami metropolitan area
- I-394 MnPASS Express Lanes in the Minneapolis-St. Paul metropolitan area
- SR 167 HOT Lane Pilot Project in the Seattle metropolitan area

All of these facilities involve tolling of users of an express lane with special provisions for high-occupancy vehicles (either free or a reduced rate). All four of these operational systems are also congestion-based with tolls varying by time of day based on the level of congestion on the roadway, either on a pre-scheduled basis (SR 91) or dynamically (I-95, I394 and SR 167) .

There was considerable enthusiasm for the concept of congestion pricing and pricing of managed lanes among the agencies in the metropolitan areas surveyed. All of them have given some consideration to one or more options. As indicated in Table 2, there are new projects that have been approved and are programmed for implementation in the metropolitan areas of Minneapolis-St Paul, San Francisco-Oakland-San Jose and Washington D.C. All of these involve tolling the use of managed lanes based on vehicle occupancy and level of congestion.

Almost all of the metropolitan areas surveyed have undertaken studies of congestion pricing or tolling of managed lanes. The studies are summarized in Table 3. The number of studies, and in particular, the consideration of congestion pricing on a regional-network basis suggest that interest in and acceptance of congestion pricing and managed lanes is growing.

Table 2 Planned and Programmed Congestion Pricing and Managed Lanes Project in the Ten Metropolitan Areas Surveyed

Metropolitan Area	Planned or Programmed Systems
Minneapolis-St Paul	<u>I-35 W HOT Facility:</u> This project will involve conversion of the current carpool (HOV) lane to a high occupancy toll (HOT) lane using the MnPass technology already employed in the area. Priced Dynamic Shoulder Lanes (PDSL) will be implemented, which allows the shoulder to operate as a HOT lane during heavy traffic and then switch back to a shoulder in the event of an accident.
San Francisco-Oakland-San Jose	<u>I-680 SB in Alameda County:</u> This managed lane project is planned to open in 2012, which will involve the conversion of HOV lanes to HOT lanes. This project is under evaluation. Carpools with 2 or more passengers will have free access to the facility.
Washington D.C.	<u>I-95/395 HOT Lanes:</u> This project consists of a 56-mile free-flowing facility for buses, carpoolers and vanpools from Arlington to Spotsylvania counties. Vehicles carrying three or more people, motorcycles, buses and emergency vehicles will use the HOT lanes free of charge. Vehicles carrying one or two people will have a choice to ride the HOT lanes by paying a toll. <u>I-495 HOT Lanes:</u> This project consists of 2 HOT lanes with a dynamic pricing scheme to keep traffic flow congestion free. Dynamic toll rate signs will display information to drivers. E-Zpass technology will be used for the Electronic Toll Collection system. <u>Intercounty Connector Express Lanes:</u> This project is an 18-mile fully open road tolled (cash-less) facility and is under construction. Tolls will be congestion-based.

Table 3 Additional Studies of Congestion Pricing and/or Managed Lanes Conducted in the Ten Metropolitan Areas

Metropolitan Area	Studies
Atlanta, Georgia	<u>I-85 HOT Lanes</u>: This project will run along the 85 Corridor from Doraville to Gwinnett County. Carpools, vanpools, buses, motorcycles, emergency vehicles and alternative fuel vehicles will be exempt from the toll. <u>I-75 HOT lanes</u>: This project involves the conversion of HOV lanes to HOT lanes. Prices will be dynamic and correspond to traffic volumes. The Value Pricing strategy will incorporate Bus Rapid Transit (BRT). <u>I-20 HOT Lanes</u>: This project will involve the conversion of HOV lanes to HOT lanes. Pricing will be dynamic.
Dallas - Fort Worth, Texas	<u>I-35W</u>: Planning is underway for 2 managed lanes in each direction in the median along I-35W. Congestion management opportunities are being evaluated while the project is currently undergoing preliminary design efforts.
Los Angeles - Orange County, California	<u>I-10 corridor</u>: This 14 mile project involves the conversion of HOV lanes to HOT lanes along with the improvement of transit. Free carpool requirements are 3 or more. <u>I-110 Corridor</u>: This 16.5 mile project involves the conversion of HOV lanes to HOT lanes. The electronic collection system "FasTrak" will be used. Carpool occupancy requirements for free service are 2 or more.
Kansas City, Missouri	<u>I-70 Managed Lanes</u>: This project proposes dedicated and segregated truck lanes along I-70 from the Interstate 435 beltway on the eastern part of Kansas City, Missouri to the Ohio/West Virginia border near Bridgeport, Ohio/Wheeling, West Virginia. The concept proposes adding four dedicated truck lanes to the existing infrastructure, two in each direction, with at least one interchange per county providing access to the truck lanes and includes, conceptually, truck staging areas.
Minneapolis - St. Paul, Minnesota	<u>I-94 Managed Lane Segments</u>: This project includes a single lane in each direction. Carpools and buses will have free access to the facility. <u>TH 77 Managed Lane Segments</u>: This project includes a shoulder lane in each direction with limited access points for carpools and buses, and toll-paying vehicles. <u>FAST Miles Feasibility</u>: MnDOT was awarded a grant to explore the political feasibility of an innovative pricing concept called "FAST Miles". Under the FAST Miles concept, each motorist is provided a number of dollar credits per month, analogous to the "free minutes" given by cell phone providers.

Table 3 Continued

Metropolitan Area	Studies
Phoenix, Arizona	<u>State Route 51:</u> High occupancy vehicle lanes are planned to be converted to high occupancy toll lanes.
San Francisco - Oakland - San Jose, California	<u>Regional HOT Lane Network</u> – A regional network of HOT lanes is being considered as part of the RTP Update. <u>San Francisco Doyle Drive Value Pricing Program</u> - A study was conducted of the possibility of tolling a rebuilt facility to implement demand management as part of a UPA grant. <u>Santa Clara County SR 85 and U.S. 101:</u> These projects would involve the conversion of HOV lanes to HOT lanes. <u>Alameda County I-580 EB:</u> This managed lane project would involve the conversion of HOV lanes to HOT lanes. This project is under evaluation. Carpools with 2 or more passengers will have access to the facility.
Seattle, Washington	<u>I-405 Express Toll Lanes Study:</u> Washington DOT is considering the construction of two new lanes to be designated express toll lanes. The express toll lanes on I-405 would be similar to the HOT lanes on SR 167. <u>Regional Value Pricing Awareness and Public Acceptance:</u> The Washington State Department of Transportation (WSDOT) was awarded a grant to advance public awareness and acceptance of value pricing and associated operational toll concepts from a "user's perspective," incorporate previous study findings into near and mid term policies and project planning, and improve state and regional coordination. <u>Regional Network of Tolled Facilities:</u> A network of tolled facilities is being considered as part of the MTP update.
Washington D.C.	<u>Network of Variably Priced Highway Lanes in the Metropolitan Washington Region</u> - This study examined the potential benefits and feasibility of a network of variably priced highway lanes. <u>I-270:</u> Express Toll Lanes could potentially be used in place or with High Occupancy Vehicle lanes. <u>MD 5:</u> Project planning studies are underway for MD 5 and Express Toll Lanes are one alternative being considered.
Miami, Florida	<u>Pricing Option On Florida Turnpike:</u> The Florida Turnpike Enterprise recently completed a study of the feasibility of implementing value pricing on a 21-mile section of the Homestead Extension of Florida's Turnpike (HEFT) in Southwest Miami-Dade County. <u>US 1 Managed Lanes:</u> This project would be a conversion of the US 1 busway to a managed lane facility.

How the Development of Congestion-Pricing and/or Managed-Lane Projects have been Incorporated into the Formal Metropolitan Planning Process

The survey responses indicate that most congestion pricing or managed lanes projects are incorporated into the formal Metropolitan Planning Process the way that most capital projects are. Projects are initiated and advocated for by agencies within the metropolitan area and are incorporated into the MTP and the Transportation Improvement Plan (TIP) by the MPO as updates of these documents occur. The initiators and advocates for the projects vary. It is most often the state DOT, but in some cases is the county Congestion Management Agency (CMA), as is the case for many of the new California projects, or a public/private consortium as in Virginia.

The MPOs have been proactive in several locations working with the state DOT and other local agencies in conducting regional network feasibility studies. Examples include the following:

- Dallas-Fort Worth – the North Central Texas Council of Governments led a regional value pricing corridor evaluation and feasibility study
- Phoenix – The Arizona Department of Transportation and the Maricopa Association of Governments led a regional congestion pricing feasibility study.
- San Francisco-Oakland-San Jose – The Metropolitan Transportation Commission has led a regional planned effort for a HOT Lane Network
- Washington D.C. – The Metropolitan Washington Council of Governments led a regional congestion pricing feasibility study.
- Seattle – The Puget Sound Regional Council is leading an MTP update with a major emphasis on a regional network of congestion-priced facilities.

The example from the Seattle area is unique in the degree to which it has been incorporated into the metropolitan planning process. The assessment of the congestion pricing and managed lanes options is being conducted as part of the evaluation of alternatives for the MTP. PSRC also recently updated its CMP and the new CMP has been used to identify the location where congestion is greatest and has defined guidelines for how pricing, demand management and system management strategies should be identified as options and evaluated. These guidelines are being used in the current MTP update.

All of the MPOs surveyed indicated that they had a CMP in place that helped to identify the most congested locations in the region. Most indicated that this information was used in at least an indirect way in identifying locations where congestion pricing or managed lanes might be appropriate congestion mitigation measures. In most cases, the desirability of a congestion pricing or managed lanes project did not emerge directly from a CMP assessment of options. In some cases like the Atlanta and Dallas-Fort Worth metropolitan areas, the CMP defines a process for initiating corridor studies or major investment studies where congestion is the greatest, and the CMP identifies a set of solution options for consideration. Many like the Kansas City metropolitan area have a “toolbox” of solution

options as part of their CMP and congestion pricing and managed lanes are included among the options. Many of the MPOs and State DOTs also described regional efforts to coordinate the consideration of congestion pricing and/or managed lanes with the Intelligent Transportation Systems (ITS) architecture and plan for the region. In the Atlanta, Miami and Minneapolis-St. Paul metropolitan areas, this coordination was reinforced in a Regional Concept for Transportation Operations.

Many of the metropolitan areas surveyed had also planned or initiated planning for supportive facilities and/or services. Often this included transit facilities and services with some of the funding coming from the pricing project. Park-and-Ride lots have also been planned as support facilities. In the San Francisco-Oakland-San Jose metropolitan area, the planning for a HOT lane network has also been coordinated with planning for freeway ramp metering and other freeway management strategies.

State DOTs have been actively involved in the planning for all of the implemented or planned congestion pricing and managed lanes projects reported on in the survey, although the level of involvement by the State DOT has varied. The State DOT was often the initiator but survey respondents generally did not indicate that the projects proposed were part of the state-wide planning effort. The California Department of Transportation (Caltrans) was one State DOT that indicated some statewide consideration of projects. Caltrans is striving to allow regional flexibility in HOV-HOT operations while at the same time standardizing some aspects. This is being done through an HOV-HOT Business Plan that is being developed in conjunction with Caltrans' regional partners, the California Highway Patrol and Federal Highway Administration. This project should be completed in early 2009.

Additional complexity is introduced into the metropolitan planning process when additional agencies have significant planning or implementation responsibilities in a metropolitan area. This is the case in the Washington, D.C. area where there are two State DOTs, the District of Columbia (which is not covered by either State DOT), and the Federal government involved in transportation planning and decision making. This increases the importance of the MPO in coordinating regional planning and decision making. In California, county-based Congestion Management Agencies (CMAs) have significant responsibility for setting transportation policy within the county. In addition, most counties in the large metropolitan areas also have sales tax measures devoted to funding transportation projects and services. As a result, the CMAs play a much greater role in generating transportation projects that are ultimately included in the MTP. In the San Francisco-Oakland-San Jose metropolitan area, the initiative for the HOT lane projects came first from the Alameda County CMA and the Santa Clara County CMA (the Santa Clara Valley Transportation Authority). The MPO (MTC) took the lead to develop the regional plan for a HOT lane network. In the Los Angeles-Orange County metropolitan area, the Orange County CMA (the Orange County Transportation Authority) has taken the lead with the SR 91 Express Lanes project and the Los Angeles County CMA (the Los Angeles County Metropolitan Transportation Authority) has taken the lead in developing the CRD demonstration projects on I-10 and I-110, but the MPO is now taking the lead in the regional congestion pricing study that is just starting.

Because the CMAs in California were required, by the voter initiative that created them, to also prepare and maintain a Congestion Management Program, the MPOs in California are not required to meet the

same federal regulations for a Congestion Management Process as the MPOs in other states. The California Congestion Management Program requirements focus more on linking transportation policy with land use and the development-approval process than on supporting the regional transportation planning process. Because the California Congestion Management Programs are also county-specific, they are less useful for regional assessment. Transportation authorities have also been formed in other multi-county regions in California to administer transportation sales tax revenues and these agencies are also specific to individual counties. Transportation authorities that are separate from the MPO have also emerged in other states to administer sales tax revenues or to provide a decision-making structure for a subarea of the region. This includes the Georgia Regional Transportation Agency (GRTA) in the Atlanta region and the Fort Worth and Denton County Transportation Authorities in the Dallas-Fort Worth region.

Yet another type of organization that has been directly involved in planning for congestion pricing and managed lanes projects in the cities surveyed are toll authorities. Specifically, the Georgia State Road and Tollway Authority has been actively involved in the planning of projects for the Atlanta area. Toll authorities have also participated in the planning for the Dallas-Fort Worth, Miami, and San Francisco metropolitan areas.

How the Benefits of Congestion Pricing and/or Managed Lanes have been Measured and Evaluated

The most common method for assessment of the benefits of congestion pricing or managed lanes projects was a separate evaluation of options independent of other possible improvement options for the region. Most of these independent assessments considered performance measures from the following three general categories:

- Travel time, delay and level of service
- Net revenue generated
- Distribution of cost impacts and travel time benefits across the population

Many of the assessments, such as that in the Washington D.C area also included consideration of the effect of the pricing option on use of alternative modes (transit, ridesharing, and non-motorized modes) and environmental benefits such as emission reduction and reduced fuel consumption. A growing concern about global climate change was also resulting in a greater emphasis on the potential reduction in green-house gases.

The analysis of congestion pricing and/or managed lanes projects among the ten metropolitan areas surveyed generally relied on the regional travel model maintained by the MPO or another regional model maintained by the State DOT or another regional agency. In most cases the regional model has been supplemented by other tools designed to add greater sensitivity to pricing and to conduct economic analysis of costs and benefits. Proprietary toll revenue models have been used for analyses in the Miami, Dallas-Fort Worth and Washington DC metropolitan areas. In a few cases microsimulation

models have also been used to assess the travel time and level of service associated with alternative pricing scenarios including Minneapolis-St. Paul, San Francisco-Oakland-San Jose, Seattle, and Washington DC. A Geographic Information System (GIS) has also been used in the Atlanta metropolitan area to associate the costs and benefits of the options to characteristics of the population for environmental justice assessments. Formal cost/benefit analysis models have been used in the San Francisco-Oakland-San Jose and Seattle metropolitan areas.

How Political and Public Support for Congestion Pricing and/or Managed Lane Projects has been Developed.

Most of the survey responses indicated that there had been some degree of resistance to congestion pricing and/or managed lanes within the metropolitan area. The reasons for the resistance included resistance to tolling what many in the public consider should be a free service already paid for by gas taxes or other taxes. Some resistance has also been based on a concern that the tolling favors higher-income travelers who are better able to pay for the use of the lanes with the higher level of service. Yet others were concerned about geographic equity when highway facilities within a region are not uniformly tolled.

Many of the concerns about congestion pricing and tolling of managed lanes are the same concerns that are expressed about any type of tolling in a region that has not had experience with tolling. Among the metropolitan areas surveyed only the Phoenix metropolitan area had not had any experience with roadway tolling. This lack of experience with tolling in the region is believed to be part of the explanation for the reluctance on the part of policy makers in the Phoenix area to move forward with any congestion pricing projects as of the time of the survey.

The Role that Federal Pricing Demonstration Grants have Played in Moving Projects Forward

Federal planning grants and pilot demonstration projects have had a significant influence on the consideration of congestion pricing and managed lanes projects among the ten metropolitan areas surveyed. The following are examples of how these federal grant programs have been used:

- Dallas – Fort Worth, Texas – Federal Value Pricing Pilot Program grant was used to prepare plans for the I-30 Tom Landry Managed Lane Facility and for the NCTCOG regional study.
- Los Angeles-Orange County, California – A Federal Congestion Reduction Demonstration Program grant has been used to prepare plans for the I-10 and I-110 Hot Lanes.
- Miami, Florida – Federal Urban Partnership Agreement grant provided funding for the I-95 Express project
- Minneapolis-St. Paul, Minnesota – Federal Value Pricing Pilot Program grant was used for the planning for the I-394 MnPass Express Lanes. Federal Urban Partnership Agreement grant will provide funding for managed lanes on I-35W

- San Francisco-Oakland-San Jose, California – Federal Variable Pricing Pilot Program grants were used to develop a plans for HOT lanes in Alameda and Santa Clara Counties as part of a regional HOT lane network; Federal Urban Partnership Agreement grant would have provided funding for congestion pricing related to Doyle Drive in San Francisco, but the pricing project was withdrawn by the urban partners
- Seattle, Washington – Federal Value Pricing Pilot Program grants were used in developing plans for projects on SR 167 and the SR 520 Bridge. Federal Urban Partnership Agreement grant will provide funding for congestion pricing on the SR 520 Bridge. VPPP funding was also provided for the PSRC Traffic Choices study that assessed region-wide pricing.
- Washington, D.C. – Federal Variable Pricing Pilot Program grant was used for a regional assessment of a congestion pricing network

Lessons Learned

The experiences of the ten metropolitan areas surveyed have provided many useful lessons. The following is a summary of the lessons reported:

Evaluation of Congestion Pricing and Managed Lanes Options

- It is important to recognize that reducing congestion is at least as important a reason for implemented congestion pricing or managed lanes as revenue generation. Many of the respondents reported that projects had been initiated primarily to generate revenue, but the congestion-management benefits were ultimately at least as important if not more important to the success of the projects.
- Congestion-pricing and managed lanes projects should be evaluated from a systems perspective and potential network choke-points should be taken into consideration when assessing the revenue-generation and other benefits of pricing. A single choke-point can change the viability of a project.
- Not all regional travel demand models are capable of simulating variable pricing and therefore time and resources should be set aside to collect the data needed to enhance the travel demand model to handle managed lanes projects.

Incorporation into the Metropolitan Planning process

- The metropolitan planning process should allow for projects to emerge individually as a result of corridor studies, but also regionally coordinated in a network approach.
- Managed lanes projects that cross several State DOT districts and/or MPOs create extra management and communication challenges in getting the projects into the MTP because of the added concern about allocation of toll revenues.

Policy Trade-offs

- It is important to balance revenue generation and HOV policy. To generate revenue, you may have to require HOVs to pay a toll.
- Developing successful projects may require some policy tradeoffs. For example, to meet revenue goals for a managed lanes project may require sacrificing HOV incentive by requiring a higher occupancy level for HOVs to use a HOT lane for free.
- It is useful to have flexible and responsive operational and pricing policies from the regional planning agencies. This will allow the planning and implementing agencies the flexibility needed to optimize the performance of the systems without conflicting with regional policy.

Gaining Stakeholder and Public Acceptance and Support

- Early outreach and education for elected officials, decision makers, key stakeholders and the public are important. Regional agencies should not be afraid to get the concept of congestion pricing out for consideration. Acceptance of new pricing concepts by decision makers and the public may take some “digestion” time. Many issues will be raised that can be addressed with technical analysis or information from other successful operating systems.
- There needs to be an education process to emphasize that congestion pricing is a tool that a metropolitan area can utilize as one component of reducing traffic congestion in a metropolitan region. Congestion pricing projects can assist metropolitan areas in developing a balanced transportation system for their regions. Transit access to the congestion priced/managed lanes should be addressed during the planning process.
- During the planning process, identify a project champion or a “concept champion.” If you have buy-in from local and state-level elected officials, it will go a long way in gaining positive (or at least not negative) support for the concept or a specific project utilizing the concept.
- During the planning process, the responsible agency or agencies should initiate a marketing campaign to inform the public/stakeholders about the concepts and benefits of managed lanes and/or congestion pricing. You must have public buy-in on the concept for it to move forward and be successful.
- On-going communication with potential users, adjacent communities, transportation providers, policy makers, local governments and elected officials is important before, during and after project implementation.
- How you refer to the aspects of congestion pricing (toll, price, fare, fee, etc.) can have an influence on public and decision-maker support.

- Public and political support comes from a feeling that there is some benefit for everyone. This often means that some portion of revenue from tolls should be used to enhance other modes of travel, such as transit, and that transit service be integrated into the project design so that transit passengers benefit directly. Transit access to the congestion priced/managed lanes should be addressed during the planning process.
- The educational process should emphasize that congestion tolls alone usually cannot fully fund construction of new highways or complete reconstruction of existing highways. The expectations for revenue generation by decision makers and the public are often over inflated.
- The make-up of an advisory task force is important when trying to achieve informed consent on complex and controversial projects. Legislators working alongside community representatives, citizens, interest groups, and technical experts can provide a productive and meaningful deliberative opportunity.
- Site visits to other HOT lane and express lane projects can play a critical role in increasing stakeholders' or decision makers' understanding of how value pricing works.
- An initial success in a region helps gain support for other projects.

Involving the Private Sector as a Partner

- Public-private partnerships may be important to the financial viability of congestion pricing or managed lanes projects, but the complexity of the partnerships can be challenging for public agencies trying to implement projects. When federal funding for planning or implementation is included in a public-private partnership, the complexity increases, and subsequent delays can be extensive to regional policy makers and elected officials.
- There can be so much enthusiasm for the revenue generation that public agencies are willing to give away too much in negotiation of public-private ventures.
- Private consortia do not necessarily have to take network effects into account. There needs to be public-sector regional oversight - a "watchdog" – to make sure that these effects are taken into account.

Planning, Designing and Implementing the Appropriate Projects

- During the planning process, it is important to engage local operations, traffic control center and maintenance staff in the dialogue because they will be the people who have to operate the facility on a day-to-day basis once implemented. They can provide very practical input early in the process that will help to formulate a more successful system in the long run.

- Partnerships between regional agencies and the application of an integrated multi-modal corridor management approach are needed to appropriately address mobility needs in planning for congestion pricing and managed lanes projects.
- Adequate attention should be given to enforcement to ensure the financial and political success of projects. High violation rates reduce revenue and undermine public and political support.
- Transportation agencies must be prepared to address operational problems quickly and effectively when they occur, because a poor operating experience with a congestion pricing or managed lanes project can damage the credibility of the concept among the public and decision makers.

4. Conclusions and Recommendations

The scan of congestion pricing and managed lanes conducted in this project has demonstrated that there is growing interest in using congestion pricing as both a revenue-generating and congestion-management tool in metropolitan areas in the US. The survey of ten metropolitan areas has indicated that projects have already been implemented or are planned for implementation in all but two of the areas – the Phoenix and Kansas City metropolitan areas. The other eight areas have multiple projects moving forward with congestion-based pricing as either an element of managed lanes or as tolled highway lanes. Although the initiation of congestion pricing in these eight metropolitan areas has started with individual projects, interest has increased in a regional approach to planning for congestion pricing. Regional studies have already been initiated in five of the metropolitan areas surveyed – Atlanta, Dallas-Fort Worth, San Francisco-Oakland-San Jose, Seattle and Washington, D.C. A sixth will begin soon in the Los Angeles-Orange County area. At least two of these have resulted in a regional congestion pricing or HOT lane network being included in the MTP: Dallas-Fort Worth and San Francisco-Oakland-San Jose.

As the interest in a regional approach to congestion pricing and managed lanes has increased, their integration into the metropolitan planning process has also increased. While many of the initial projects in the US were initiated by a State DOT, the MPO in all of the metropolitan areas surveyed have taken a more proactive role in the planning for additional projects. There has been more effort in recent years to take a regional approach to planning for these projects and the MPO has made a greater effort to provide an appropriate interagency collaborative process for identifying the need for the projects, identifying the options and alternatives to be considered, formulating an appropriate evaluation process, seeking public and stakeholder input and identifying a preferred approach. The interagency collaboration has included the MPO, the State DOT and, in most areas, transit operators, transportation authorities and toll authorities.

The Federal Highway Administration should continue to support the progress that has been made by encouraging the assessment of congestion pricing and managed lanes projects in a multi-modal and network context. The support can come in the form of additional encouragement through guidance documents and descriptions of exemplary practices and also in the form of recommendations as part of the MPO certification reviews. Support should also be in the form of federal grants to support regional planning for congestion pricing and managed lane projects. The Value Pricing Pilot Program has been a valuable program for encouraging a regional approach. Finally, the Federal Highway Administration should continue to support the enhancement of the modeling tools maintained by MPOs to improve their sensitivity to congestion pricing.

5. Results from Individual Metropolitan Areas

- Atlanta, Georgia
- Dallas – Fort Worth, Texas
- Kansas City, Missouri
- Los Angeles-Orange County, California
- Miami, Florida
- Minneapolis-St. Paul, Minnesota
- Phoenix, Arizona
- San Francisco-Oakland-San Jose, California
- Seattle, Washington
- Washington, D.C.

Atlanta, Georgia - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

HOV lanes are the only type of managed lanes that have been implemented in the Atlanta region, and there has been no implementation of congestion pricing. The region does have experience with tolling as a result of the Georgia SR 400. The planned I-20 Managed Lanes Corridor project will add two managed lanes per direction along I-20 Corridor from east of I-285 to Turner Hill Road for approximately nine miles. Three general purpose lanes per direction would be maintained along the project length. This project was recently under a public comment period and has advertised a request for proposals. A Value Pricing Pilot Program study was also completed for I-75 South in Atlanta.

In 2005, the Georgia DOT authorized a regional study of managed lanes. At about the same time, the Atlanta Regional Commission (ARC), the MPO for the Atlanta region, also created the Managed Lanes Planning Team for *Envision6*, their next MTP update. The team set a goal of developing a regional policy that incorporated the pricing concept. Team members included representatives from the Georgia DOT, the Georgia Regional Transportation Authority (GRTA), the Metropolitan Atlanta Rapid Transit Authority and the State Road and Tollway Authority (SRTA). Representatives from the U.S. Department of Transportation were also invited to participate. In 2007 the Georgia DOT adopted a managed lane vision and in 2008, the Georgia DOT and SRTA boards authorized a feasibility study for converting existing HOV lanes to HOT lanes. Public-private partnership proposals are under consideration for several corridors in the Atlanta region.

The Georgia DOT, the ARC, SRTA, GRTA, local governments (Gwinnett and Cobb Counties), and a broad range of private sector firms have advocated for consideration of these options. The managed lanes projects will be part of a future network of managed lanes in Atlanta, as described in the Metro Atlanta Managed Lanes System Plan.

Prioritization of future managed lane/pricing projects will be determined based on their expected performance in meeting regional needs such as congestion relief, land use impacts, and environmental impacts. The performance measures used to prioritize projects were selected to assess the potential impacts on recurring and incident-related delay; environmental impacts on resources such as flood plains and wetlands, and support for regional land use/development objectives according to the Unified Growth Policy Map. These measures were selected in a collaborative process among stakeholders to ensure consensus on their use. The regional travel demand model has been used to quantify potential project performance. Geographic Information Systems have been used to identify the potential environmental impacts of the project. Furthermore, benefit-cost analysis was used as part of the decision-making process for project prioritization.

Public and Stakeholder Outreach and Involvement

In the planning process for managed lanes along the corridors in Atlanta, extensive stakeholder outreach was conducted with focus groups and open houses. ARC has established an on-going managed lanes planning team to educate stakeholders on the benefits of managed lanes. One goal of the managed lanes planning team is to explore and address the public perception that the managed lanes projects would have limited benefits to overall system users.

Integration into the Metropolitan Transportation Planning Process

The concept of congestion pricing and managed lanes has been integrated into the regional planning process. The use of managed lanes is an evolution of the region's HOV planning concept and places an emphasis on pricing. Consideration for pricing and managed lanes projects will continue into ARC's MTP updates. According to the MTP, revenue generated from the managed lanes is expected to be used for project costs and maintenance of the project, but any excess revenue will be distributed among other projects such as corridor transit. The region's CMP has been used to help identify congested facilities and potential project solutions, including the consideration of managed-lanes/pricing alternatives.

Integration with Regional Operation and Intelligent Transportation Systems

Managed lanes and pricing projects are being planned to include ITS management tools, incident response and active monitoring via cameras and speed detection devices. Consideration of congestion pricing and managed lanes is fully integrated into the Regional Concept for Operations.

Lessons Learned

The Atlanta region has extensive past experience implementing HOV projects and has found the projects to be successful. Increasing emphasis is being placed on the use of pricing as a tool. The primary lesson in recent years for Atlanta has been that public-private partnerships are very complex for all agencies involved. When federal funding is included in a public-private partnership, project delays are likely to occur.

References

For information about the I-20 Managed Lanes Corridor, see:

1. <http://www.dot.state.ga.us/informationcenter/programs/ppi/ProjectsandProposals/Pages/I-20ManagedLanesCorridor.aspx>

For more information about the I-75 Corridor study, see:

2. [http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/6080542690A069478525707B0068FE3A/\\$FILE/SRTA%20I-75%20Final%20Report.doc](http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/6080542690A069478525707B0068FE3A/$FILE/SRTA%20I-75%20Final%20Report.doc)

Dallas-Fort Worth, Texas - Metropolitan Area

Dallas Region Experience with Congestion Pricing and Managed Lanes

In Dallas the I-30 Tom Landry Express Toll Lanes project opened on August 2007 as a "Managed HOV Lane". The project is currently operating in HOV-only mode. It will transition to "Express Lanes" with pricing in later phases as the tolling infrastructure is finalized. This project will include deceleration lanes, dynamic pricing and extended operating hours. The features proposed for I-30 are also being proposed on other facilities in the Dallas - Fort Worth region and likely other parts of Texas. The signing schematic for the project is being finalized for submission to Texas Department of Transportation to be integrated with statewide guidelines for managed lanes development. As this work progresses, it will be used as input into Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD) published updates on this topic. A "Draft" Comprehensive Pricing Model that includes dynamic pricing and testing of the different HOV eligibility rates for this project has been submitted. In addition to the I-30 project, the I-635 project is currently being planned and will consist of a 14-mile tolled managed lanes facility within the right-of-way of I-635. Corridor studies involving the evaluation of congestion management opportunities are being conducted for the I-35W corridor. The implementation of two managed lanes in each direction along the median of I-35W is being considered.

Process of Initiation and Evaluation of Projects

Key advocates of the managed lanes projects include Texas DOT, Dallas Area Rapid Transit (DART), and North Central Texas Council of Governments (NCTCOG). Texas DOT has taken the lead in implementing the new projects. DART is taking the lead in studying the possibility of migrating the existing HOV network into a HOT network. The Texas Toll Authority is the toll operator for all priced facilities. The I-30/Tom Landry Project has a requirement that Texas DOT and the Federal Highway Administration sign a Toll Agreement that will include a specific "Performance Goals, Measures, Monitoring and Reporting Program" component. This agreement will be published in the federal register for comment. Speed, volume, vehicle occupancy, use of revenue, incident clearance time, lane availability and toll rates will be monitored and evaluated for compliance with the project specifications.

The Texas Express Toll Lanes on I-30/Tom Landry in Dallas was selected as a demonstration project as a result of a Regional Value Pricing Corridor Evaluation and Feasibility Study completed in 2005. Similar to other managed lanes projects, the I-30/Tom Landry project followed a standard project development process that included full corridor analysis. The NCTCOG regional model has been used extensively to perform traffic projections and analysis for the assessments of the individual projects and for the Regional Value Pricing Corridor Evaluation and Feasibility Study. Environmental documents have been prepared on a project-by-project basis to meet NEPA requirements.

Public Outreach and Involvement

The issue of global warming has helped the public and stakeholders realize some of the benefits of congestion pricing or managed lanes. NCTCOG has conducted public hearings, presentations and open houses to further educate the public about equity issues concerning congestion pricing and managed lanes.

Integration into the Metropolitan Transportation Planning Process

Mobility 2030 is the current MTP for the Dallas-Fort Worth region. The plan was approved in January 2007 by the Regional Transportation Council (the independent policy board of the MPO) and the recommendations contained within **Mobility 2030** received an air quality conformity determination by the U.S. Department of Transportation in June 2007. **Mobility 2030** identifies a proposed network of tolled facilities with congestion-based pricing and a proposed network of managed lanes where pricing will be used to manage the level of utilization of HOV lanes. The proposed networks reflect the conclusions of the 2005 Regional Value Pricing Corridor Evaluation and Feasibility Study. The RTC has also passed a resolution that requires that all Major Investment Studies (MISs) include evaluation of operational management and travel demand reduction solutions. The region's CMP identifies a set of potential solutions that are to be considered in each MIS and congestion pricing is included among the travel demand management solution options.

Integration with Regional Operation and Intelligent Transportation Systems

Meetings have been conducted on a regional basis to have a common architecture for ITS. This has helped interconnect the metropolitan area's traffic management centers with deployed and to-be-deployed technology.

Lessons Learned

Lessons learned from the Dallas-Fort Worth metropolitan area include:

1. Occupancy detection, declaration and enforcement are financially important for these facilities to ensure that the lanes are being used properly and to sustain broad public support for the concept.
2. Communication with the potential users, adjacent communities, transportation providers, policy makers, local governments and elected officials should be ongoing.
3. Staying current with what is going on around the country in implementation and research is of great benefit.
4. It is important to stay flexible and responsive to operational and pricing policies.
5. How you refer to the aspects of congestion pricing (toll, price, fare, fee, etc.) can have an influence on public and decision-maker support.

References

For more information on the Regional Value Pricing Corridor Evaluation and Feasibility Study see:

- http://www.nctcog.org/trans/mtp/valuepricing/rvp_study.pdf

For more information on the I-30 Tom Landry Express Toll Lanes project, see:

- <http://www.keepitmovingdallas.com/2006+Public+Hearings/>

For more information on the I-635 Managed Lane Project, see:

- http://www.txdot.gov/business/partnerships/i_635.htm

For more information on the I-35W Corridor study, see:

- http://www.txdot.gov/project_information/projects/fort_worth/i_35w/study.htm

For more information on ***Mobility 2030***, see:

- <http://www.nctcog.org/trans/mtp/2030/index.asp>

Kansas City, Missouri - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

There are currently no congestion pricing or managed lanes projects in operation in the Kansas City metropolitan area, but the Mid-America Regional Council (MARC) (the region's MPO), the Kansas City Area Transportation Authority (the region's major transit provider), and the Regional Transit Alliance (a 501(c)3 advocacy organization) have advocated for congestion pricing and managed lanes projects. The Missouri Department of Transportation has incorporated consideration of managed lanes into the I-70 Major Investment Study and First Tier Environmental Impact Statement, which is in progress. The Kansas City region has a long history of roadway pricing, with a portion of I-70 that is the Kansas Turnpike.

Process of Initiation and Evaluation of Projects

As congestion pricing and managed lanes projects emerge for regional consideration, they will be evaluated based primarily on the impact to the highway corridor level of service. In addition, vehicle miles traveled (VMT) and vehicle hours traveled (VHT) performance measures will also be used to evaluate the benefits and impacts of the project. The managed lanes project that is being considered for the I-70 as well as any other congestion pricing or managed lanes projects that are considered by the region will be modeled using Mid-America Regional Council's 4-step travel demand forecasting model.

Public and Stakeholder Outreach and Involvement

Public and stakeholder outreach for the managed lanes project that is being considered for I-70 as well as any other congestion pricing or managed lanes projects that are considered by the region will be incorporated into the environmental review that is part of the NEPA process.

Integration into the Metropolitan Transportation Planning Process

Congestion pricing and managed lanes are strategies in the local "Congestion Management Planning Toolbox," which is used in the environmental review for regional projects. The MARC is integrating the concept of congestion pricing and managed lanes into the metropolitan planning process. MARC also has an initiative called Linking Environmental and Transportation Planning, designed to find ways of better integrating environmental and transportation planning for the goal of a sustainable regional transportation system. The initiative is supported by a federal grant and uses MARC's advisory committee for stakeholder input and feedback.

References

For more information on the I-70 Major Investment Study, see:

- http://www.modot.org/kansascity/major_projects/I-70MISConceptualStrategies2b2c.htm

Los Angeles-Orange County, California - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

In the Los Angeles-Orange County metropolitan area, there is currently one existing managed lanes project, SR-91 Express Toll Lanes in Orange County. The 91 Express Lanes is a four-lane, 10-mile toll road built in the median of California's Riverside Freeway (State Route 91) between the Orange/Riverside County line and the Costa Mesa Freeway (State Route 55). The SR-91 Express Toll Lanes are owned and operated by the Orange County Transportation Authority (OCTA). The Riverside County Transportation Commission (RCTC) is currently in the preliminary stages of evaluating the extension of SR-91 Express Toll Lanes into Riverside County. Complementary new HOT lanes on I-15 will include direct connections to and from the SR-91 Express Toll Lanes. The Los Angeles County Metropolitan Transportation Authority (LACMTA) is proceeding with the Los Angeles Region Express Lanes Project. This project is supported by federal grant funds under the US DOT Congestion Reduction Demonstration Program. The LACMTA intends to implement the demonstration program on two corridors in the Los Angeles area for a twelve-month period. The first is the I-10 corridor from I-605 to Alameda Street/Union Station (approximately 14 miles) and the second is the I-110 corridor from Artesia Boulevard to Adams Boulevard (approximately 11 miles). A "Concept for Operations" for both corridors is currently being finalized and the environmental documentation process has been initiated. A comprehensive assessment of the environmental justice impacts of the projects will be conducted to address the requirements of the California Environmental Quality Act (CEQA). NEPA requirements will be covered by an Environmental Assessment (EA).

Process for Initiation and Evaluation of Projects

The existing SR-91 Express Toll Lane came about as a result of California's public-private partnership law that allowed for four demonstration projects. Studies and evaluations of the SR-91 Express Toll Lanes have been completed, as required by a state law that there be annual reporting on HOT lane projects. The SR-91 Express Lanes extension project was selected by RCTC as they conducted their Measure A 10-Year Delivery Plan.

The LACMTA executed the Congestion Reduction Demonstration Memorandum of Understanding (MOU) with the US Department of Transportation (USDOT) in April 2008. The I-10 and I-110 HOT lanes in Los Angeles County were chosen based upon an analysis by LACMTA and Caltrans to identify those corridors that would best facilitate a HOT lane demonstration. Further technical studies and analysis of the Los Angeles County Congestion Pricing Operating Plan and concurrent research in support of the demonstration project are under way. To enhance the benefits of congestion pricing and managed lanes projects, consideration has been given to increasing transit service choices with improved rail service. Concern for global warming has increased interest in congestion pricing from the environmental community and expectations for these types of strategies will increase in order for the region to meet its AB32/SB375 requirements. AB 32 and SB 375 establish carbon reduction objectives by creating a state-based land-use planning and decision-making process.

Public and Stakeholder Outreach and Involvement

In the 1990s, the Southern California Association of Governments (SCAG) assembled a 75-member REACH Task Force (Reduce Emissions and Congestion on Highways) to evaluate the potential for emissions and congestion based transportation fees to achieve air quality and mobility goals. This effort introduced the concept of congestion pricing into the regional policy discussions. For the I-10 and I-110 LACMTA demonstration project, aggressive public outreach has been conducted to educate the public about the facilities and their benefits. Early in the project, efforts to engage the community and political stakeholders helped to identify issues that may evolve into equity or social concerns. Public outreach efforts include surveys and community meetings. In addition, LACMTA has developed and implemented a Public Outreach and Communications Plan for the project. Three Corridor Advisory Groups (CAGS) were formed to engage key stakeholders to provide feedback in the development of the project. Extensive public outreach is considered because of the perception that the project will benefit the wealthy. There is also a perception that charging a toll is “double taxation”. There has been difficulty getting wide-ranging state legislative authority to implement pricing.

Integration into the Metropolitan Transportation Planning Process

Over the past decade, SCAG has consistently considered and evaluated innovative finance mechanisms in developing its MTP. During the development of the 2008 MTP, SCAG’s governing board, the Regional Council, directed staff to pursue further study of congestion pricing. This was a result of many factors including the rapidly rising (at the time) costs of construction, recognition of the erosion of gas tax revenues due to inflation, and a gradual increase in the willingness to consider alternative financing mechanisms. SCAG is currently participating in the Caltrans effort to initiate a comprehensive Regional Congestion Pricing Feasibility Study that will begin in early 2009. SCAG will explore all options for feasible congestion pricing implementation in the six-county SCAG region: Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial. The study will be adopted into SCAG’s 2012 Regional Transportation Plan. Options will be evaluated based on speed, travel time and the state’s mandate that facilities operate at a level of service C or better. In addition there will be an assessment of impacts to corridor mobility as may be experienced on local streets and general purpose lanes, as well as the impacts on lower income commuters along the corridors. The performance measures are consistent with the goals and objectives identified in the MTP. According to the MTP, the revenue stream generated from any particular corridor will be invested back into the same corridor in support of operations, maintenance and capital needs. When SR-91 Express Toll Lanes were converted from private to public ownership in 2003, toll revenues were allocated to needed improvements projects on those lanes.

Integration with Regional Operation and Intelligent Transportation Systems

ITS is a big part of managed lanes projects in California. A key component of the I-15 Managed Lanes project and other planned HOT lane facilities is signage that shows travel times in the managed lanes, comparing them with the free lanes. The Regional Transportation Management Centers monitor these facilities, and have the ability to stop tolling operations and open the facilities to everyone in the event of an incident in the free lanes.

Lessons Learned

The lessons learned in the Los Angeles-Orange County Metropolitan area include:

1. Partnerships with regional agencies as well and the application of an integrated multi-modal corridor management approach are important to gaining broad support.
2. Early outreach to key stakeholders and the public, and engaging and educating elected officials and policy makers were important in gaining support for managed lanes projects.

References

For more information on the congestion pricing projects in the region, see:

- http://www.metro.net/projects_studies/fastlanes/index.htm

For more information on the SR-91 Express Toll Lanes, see:

- <http://www.91expresslanes.com/>

For an annual study conducted on the SR-91 Express Toll Lanes, see:

- <http://www.91expresslanes.com/generalinfo/91annualreport.pdf>

Miami, Florida - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

The 95 Express Project, which began tolling on an initial segment December 5, 2008, is a combined Bus Rapid Transit / Managed-Lanes project. It is the region's first project involving congestion pricing or managed lanes with tolling, although the area has extensive experience with tolling and HOV lanes. The 95 Express Project was implemented with federal funding assistance from the Urban Partnership Agreement (UPA) program. The lead agency on this project is the Florida Department of Transportation (FDOT). The Florida's Turnpike Enterprise provides tolling and violation enforcement operations. The 95 Express Project consists of approximately 21 miles of managed lanes, connecting the Miami Central Business District from I-395 in Miami-Dade County to I-595 in Broward County. The dynamic fee structure is "market based" with the ability to vary every 3 minutes depending on the changing levels of congestion. The critical system components include electronic toll collection, video for pricing and enforcement, traffic management and information dissemination including traffic monitoring and detection, and traffic and pricing information display to the users.

Project Highlights

Toll fees for the 95 Express Project will fluctuate with the goal of keeping traffic moving at a speed of approximately 45 – 50 mph. Toll fees vary between \$0.25 and \$2.65 from the Golden Glades Interchange to downtown Miami, and could increase to \$6.20 in very extreme conditions. Emergency vehicles, transit buses, registered vanpools, registered carpools of 3+, registered hybrid vehicles and motorcycles can use the facility free of charge. Trucks are prohibited. Five additional bus routes and 23 new low emission buses are included in the 95 Express operational strategy and will originate from a number of locations in Broward and southern Palm Beach County. The project uses the existing HOV lane and a new lane created by re-striping the existing pavement to create narrower lanes and by partial use of shoulders. Separation of managed lanes from the general-purpose lanes is accomplished with tubular delineators. Ramp metering is also installed at the freeway entrance ramps to improve traffic flow.

Process for Initiation and Evaluation of Projects

The 95 Express Project was one of several FDOT operational improvements designed to reduce congestion. The project, which was one of the original Urban Partnership grant award projects from the US DOT, creates more travel options and encourages use of public transportation and carpooling. The Miami-Dade County Metropolitan Planning Organization (the MPO for the region), FDOT and the Miami Dade Expressway Authority (MDX) are all advocates of congestion pricing and managed lanes. There are plans to expand the express bus operations, which could enhance the managed lanes project. Evaluation of the managed lanes projects against the county's priorities and goals will be conducted for the first time in the upcoming MTP. A key performance measure is to increase the person-carrying-capacity of a corridor. Consultants have performed financial modeling for MDX and FDOT and have developed a congestion pricing module for the regional transportation model that can be run to estimate volumes on a time-of-day basis. The next project being considered is the conversion of the US 1 busway to a managed lane facility.

Public and Stakeholder Outreach and Involvement

FDOT has conducted public meetings, workshops and hearings to educate the public about managed lanes and variable tolls. In 2005, during the development process of the Interstate Master Plan (IMP) for the Interstate 95 Corridor, a Public Involvement Plan (PIP) was prepared. The PIP identified and defined strategies to engage the users, property owners, agencies, private groups and governmental entities in the IMP development process. Strategies included meetings, presentations and public hearings in addition to the distribution of handouts, flyers, newsletters and brochures. The media helped inform the public about the development process and a web site was created to further educate the public about managed lanes and variable tolls.

Integration into the Metropolitan Transportation Planning Process

Studies of additional congestion pricing and managed lanes projects were included in the Unified Planning Work Program (UPWP) for the Miami-Dade MPO and are under way. Upon completion of these UPWP studies, the MPO will consider taking their recommendations into their MTP and subsequently into the Project Development and Environment process. Revenue generated from congestion pricing will first be used to repay bonds for the project, but any additional revenue will be used to support operations of transit in the corridor and finance future transit and highway improvements in the corridor.

Integration of Regional Operation and Intelligent Transportation Systems

The FDOT ITS Program, in partnership with District 5 Traffic Operations, has embarked on a major enhancement to the SunGuideSM Software that is used for dynamic message signs (DMS), vehicle detection control for ramp metering and incident management. In October 2006, the initial deployment of the SunGuide Software was accomplished at the Orlando Regional Transportation Management Center. This initial deployment consisted of SunGuide Software Release 2.2 along the I-95 corridor in District 5. The primary objective was for managed lanes and congestion pricing operation to be fully integrated with ITS. Considerations of congestion pricing and managed lanes have been integrated with other options in a Regional Concept for Transportation Operations.

Lessons Learned

Lessons learned in the Miami metropolitan area include:

1. Successful implementation of a first project is important to facilitating the implementation of other projects. Much of the concern about congestion pricing is addressed by a successful project.
2. It is important to involve the Federal Transit Administration and Federal Highway Administration early in the process of development of congestion pricing and managed lanes projects to ensure their support and approval.

References

For more information on the 95 Express Project, see:

- http://ops.fhwa.dot.gov/tolling_pricing/value_pricing/pubs_reports/projectreports/i95managedlanes/index.htm
- <http://www.95express.com/home/about.shtm>
- <http://www.dot.state.fl.us/publicinformationoffice/moredot/pdf%20files/BrowardMiamiDadeI95ManagedLanesPilotProject.pdf>
- http://ops.fhwa.dot.gov/tolling_pricing/value_pricing/pubs_reports/projectreports/sfl_95express_proj/sfl95explessonslearn.pdf

Minneapolis-St. Paul, Minnesota - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

The I-394 MnPASS Express Lane project created Minnesota's first HOT lanes and the first tolled facility in the state. The decision for implementation was supported by the perceived under-performance of the HOV facility in addition to public dissatisfaction with the HOV facility. The project allows solo drivers to pay a fee to use the HOV lanes and avoid traffic congestion on I-394, from Highway 101 to I-94. Buses, carpools and motorcycles can use the MnPASS Express Lanes for free. For solo drivers, tolls average \$1 - \$4 during the rush hours, with a maximum toll of \$8. Tolls are posted on overhead signs at entrances, deploying the electronic toll collection (ETC) system and a dynamic pricing scheme that reflects changing traffic volumes. The 2003 Minnesota Statutes, §160.93 authorized user fees in HOV lanes. The 13-mile section of HOT lanes on I-394 opened on May 16, 2005. According to the Minnesota Department of Transportation, after more than three years of operations the I-394 MnPASS project is functioning well and achieving its planned objectives for performance and public satisfaction. Traffic in the MnPASS lane is maintained at the speed limit 95% of the time. The speed in the general purpose lanes increased 2% to 15% and the same level of service as in 2005 has been maintained for buses and carpools.

Process for Initiation and Evaluation of Projects

The Metropolitan Council (the MPO for the Twin Cities area), the Minnesota DOT and the State and Local Policy Program of the Hubert H. Humphrey Institute at the University of Minnesota have all taken the lead to implement congestion pricing and managed lanes projects. Currently in the construction stage, a second HOV/HOT facility will begin operating in 2009 on the I-35W. This project was chosen partly due to the high rate of HOV violations on the facility. Minnesota has been awarded \$133.3 million through the U.S. Department of Transportation's Urban Partnership Agreement (UPA) program for strategies to reduce traffic congestion in the Twin Cities. Money from the UPA will be used to improve traffic flow on I-35W between downtown Minneapolis and the southern suburbs. Improvements that are under consideration and are eligible for the UPA funding include:

- Priced dynamic shoulder lanes, similar to the I-394 MnPASS, on I-35W from 46th Street to downtown Minneapolis
- Addition of a HOT lane in the Hwy 62 reconstruction project from 66th Street to 46th Street
- Conversion of the HOV lane to HOT lane on I-35W from 66th Street to Burnsville Parkway
- Cedar Avenue Bus Rapid Transit (BRT) between downtown Minneapolis and Lakeville built ahead of the current schedule
- Construction of additional park & ride lots along the I-35W corridor north and south of Minneapolis
- Construction of additional dedicated bus lanes in downtown Minneapolis
- Partnerships with major employers along the I-35W corridor to promote flex-time and telecommuting programs
- Use of additional ITS technology

The Minnesota DOT has pursued innovation in their MnPASS program. In addition to the I-394 and I-35W HOV/HOT lane projects, I-94 and TH 77 managed lane segments will be evaluated for MnPASS applications. Performance measures used for evaluation of congestion pricing and managed lane

projects include level of service for transit service (which includes transit advantages and maintenance of speeds in the HOV/HOT lanes), reduction in total hours of delay, safety, violations, and public satisfaction. The regional traffic forecast model and CORSIM modeling have been used to evaluate congestion pricing and managed lanes.

Public Outreach and Involvement

Advocates for congestion pricing were faced with the task of overcoming some historical opposition to congestion pricing in the metropolitan area. In 1995, Twenty-four randomly selected citizens gathered in St. Paul for five days as a Citizen Jury™ for Congestion Pricing. At the end of the five days, sixteen of the jury members were against of congestion pricing as a way of managing congestion and financing transportation in the Twin Cities area and only eight were in favor. Reasons given for the opposition were the following:

- Congestion was not yet not bad enough
- Congestion pricing was not fair and favored higher income travelers
- Congestion pricing costs too much compared to simply raising the gas tax
- They were not convinced that congestion pricing would work

Prior to implementing the I-394 MnPASS project, extensive outreach took place to address the concerns expressed in the past. The Minnesota DOT involved several committees which included community and legislative leaders to guide the agency through the process of development and implementation of the project. Focus groups, open houses, surveys, marketing and customer relations were also employed. Press releases and various media coverage were available for the public. In November of 2005, an Attitudinal Panel conducted a survey of MnPass users to understand their level of satisfaction with the system. The 1-394 Express Lane Community Task Force was formed to help citizens and stakeholders fully understand the project and its goals and to give advice and guidance during the development of the project. Through this process, the task force members became an informed voice for the project and an essential part of an extensive education, outreach and public involvement process for the 1-394 MnPASS project.

Integration into the Metropolitan Transportation Planning Process

Minnesota's priorities in their MTP include the support for HOV/HOT lanes, the preservation of HOV/HOT systems, the investment in transit and multi-modal systems and the plans for maximum efficiency of corridor investments. The Metropolitan Council's Policy Plan and the Minnesota DOT's Metro Transportation System Plan were coordinated in terms of considering options for congestion pricing and managed lanes.

The Minnesota DOT has conducted region-wide road pricing studies with a long-term vision. Pricing has been supported in the regional plan for over 10 or 12 years. Three years ago, the Minnesota DOT and Metropolitan Council signed a Memorandum of Understanding (MOU) to implement the regional MnPass system plan. There is a strong policy position in the MTP that is now being prepared for adoption in January 2009. Revenue generated from the managed lanes will be used for the cost of implementation and maintenance. The net revenue from the I-394 MnPASS project has not been

sufficiently large to warrant consideration of it in the MTP financial constraint. The tolling on the project has been viewed primarily as a congestion management tool.

The consideration of congestion pricing and managed lanes has been integrated with system management and ITS strategies for the region. Consideration has also been integrated with other options in a Regional Concept for Transportation Operations.

Lessons Learned

Lessons learned from the Minneapolis-St. Paul area include:

1. With the implementation of the MnPASS I-394 Express Lane Project, transit users benefit and general purpose lanes experienced higher average speeds.
2. The Value Pricing Pilot Program demonstration funds helped provide essential resources needed to bring the projects to completion.
3. It is unrealistic to assume that freeways in the region will be congestion free in twenty years. It is important to start planning for congestion pricing and managed lanes so an alternative to traveling in congestion can be provided in some manner.
4. While it is important to conduct region-wide road pricing studies it is also important to be agile in development and application of system components. System studies provide context and a long-term vision, but projects get implemented individually. New projects, if selected for implementation, will compete for funds in the programming process. These projects could be highly competitive based on their return on investment.
5. The make-up of an advisory task force is important when trying to achieve informed consent on complex and controversial projects. Legislators working alongside community representatives, citizens, interest groups, and technical experts can provide a productive and meaningful deliberative opportunity.
6. An advisory task force can be a highly effective way of getting key players as well as interested citizens at the table during the design and implementation of a project. A task force of a corridor's key stakeholders can help the project team in sifting through issues that are most important to the public and addressing them before any conflict arises.
7. It is significant that no organized opposition emerged during the design and implementation phase of the project. While there were critics who spoke out about the project in city council meetings and other forums, the task force became an important vehicle for assuring that public concerns were addressed and helped in assuring elected officials that their interests were represented in the design of the project.
8. Transportation agencies must address problems quickly when they occur. There were significant points of controversy during the project, in particular the "daily" operation of the HOV lanes west of Highway 100. While most of the members agreed to go along with the project team's recommendation to charge tolls at all times rather than just the peak periods, there was a clear understanding that the Minnesota DOT would observe how the "daily" operation worked and make changes if necessary. One legislative member of the task force chose to submit a minority report on this issue. When the project opened in May 2005, there was an unexpected increase in congestion in the morning in the westbound, reverse peak direction. After a few weeks of negative public reaction, the Minnesota Senate decided to further explore various alternatives. Minnesota DOT decided to reverse the "daily" tolls and

only apply them in the peak direction during peak periods and to open an auxiliary lane utilizing existing shoulders.

9. The selection of the right chair and task force members is very important. Skillful and respectful leadership increases the confidence and trust of committee members in the process and that their concerns would be heard and addressed.
10. Site visits to other HOT lane and express lane projects played a critical role in increasing the task force understanding of how value pricing works. Early in the task force deliberations, six of the members visited the SR 91 and I-15 projects in California. They came back with an increased understanding of how these projects work as well as the differences in the two projects. They reported what they learned to the other members of the task force and frequently referenced these projects during the course of the task force deliberations.
11. The project team brought all details to the task force and took every problem raised by a task force member very seriously, making special efforts to provide good analysis and answers to every question. For example, in response to concerns about additional bottlenecks at the Lowry Hill Tunnel with more traffic in the HOV lane after it was converted to a HOT lane, the project team produced a computer simulation of just how merging would occur with increased traffic in the HOT lane and why it would not lead to increased congestion in the general purpose lanes.
12. People respond negatively to tolls unless they see some benefit for themselves. The public view tolls as they do taxes and will only support them if they can see benefits they would not otherwise receive. Value pricing solutions, such as a HOT lane if presented as a choice, offering a quicker trip and better transit, can generate public support.
13. People are willing to pay a fee to avoid congestion. The key is that they have a choice of paying a fee for a quicker trip when driving alone or avoiding a fee by carpooling, using transit, or using the general purpose lanes. The fact that people of all income levels use and strongly support these lanes in places such as San Diego indicate that concerns about equity are of less concern than originally anticipated.
14. People respond positively to new technologies if they work. Many people still associate tolls with toll booths and are likely to be more supportive when they see the simplicity and effectiveness of electronic toll collection. While Minnesota does not currently have tolls, the public is becoming more familiar with electronic toll technologies as they travel in the east or west and through news accounts of success with HOT lanes in other U.S. cities, such as San Diego.
15. People will strongly support value pricing if they see it work. A major reason the 1995 Citizens Jury™ opposed congestion pricing was that they didn't believe it would work. Since then the successful value pricing projects in San Diego and other U.S. cities, as well as the recent success with London's Congestion Pricing Scheme, helped in convincing the public that pricing does in fact work. The survey results in San Diego indicate that the public can become strong supporters when a project has proven successful.
16. A package of benefits will assure a broader base of support. The public is most likely to support a value pricing project if they see benefits to themselves and clear improvements in the transportation system. It is important to show a package of benefits --consumer choice, faster trip, better transit, more road capacity, reliable technology, carpooling encouraged – that appeals to a wide range of users.

References

For studies and reports conducted for the I-394 MnPASS Express Lane project, see:

- <http://www.mnpass.org/systemstudy.html>
- <http://www.dot.state.mn.us>

For more information on the I-35W Corridor Study and Evaluation, see:

- http://www.dot.state.mn.us/i35wbridgedata/groupwise/March-2007/attachments/DMFS-TM_4-Visions+Projects-03-12-2007_1d78bfec0-9532-2977-4038-83c9d3850c59.pdf

Phoenix, Arizona - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

Apart from the HOV network in the region, there are currently no managed lanes in Arizona. There are also no facilities with congestion pricing and any other type of tolled facilities in the region, and state legislation would be needed to allow their implementation. Arizona Senate Bill 1471 was introduced to allow the conversion of the HOV lane on SR 51 (Scottsdale) into a HOT lane facility. The bill requires the Arizona Department of Transportation (ADOT) to issue a request for proposals (RFP) by November 15, 2013, to convert the HOV lanes on State Route 51 into HOT lanes and allows ADOT to issue additional RFPs to convert HOV lanes on any other highway in Arizona into a HOT lane. SB 1471 is still being debated.

Process of Initiation and Evaluation of Projects

In 1993, a private consortium proposed to develop HOT lanes on I-10 and other corridors in the Phoenix area. This concept was endorsed by the Maricopa Association of Governments (MAG), the MPO for the region, and ADOT and then was submitted to the Federal Highway Administration for approval and funding as a demonstration program, but the proposal was not accepted. More recently, a private consortium, identified as Metro Road, developed a proposal for toll facilities in the East Valley. This proposal included HOT lanes on the Superstition Freeway, Price Freeway and portions of the Pima Freeway. In 1997, the Metro Road proposal was withdrawn. In 1997 and 1998, ADOT submitted two applications to the Federal Highway Administration to implement HOT lanes on I-10 and I-17, as part of a region-wide congestion pricing pilot project, but neither of these applications resulted in HOT implementation. In 2002, a High Occupancy Lanes and Value Lanes Study Report was completed for MAG and ADOT. The study assessed the potential for Value Lanes on MAG's freeway system. The study also outlined an HOT Implementation Plan. Further action on implementation of the plan awaits passage of the state legislation to allow the tolling. Because of the absence of legislation authorizing tolling, neither congestion pricing nor managed lanes with pricing have been included in the long range plan for the region.

Although there has been staff consideration of congestion pricing and managed lanes as congestion management tools, there has not been a clear policy direction from elected officials to support the options. In the past, MAG's CMP has not been used directly as a mechanism for consideration of congestion pricing or managed lanes, but the CMP is being updated in a way that will make consideration of these options more appropriate.

References

For more information on the regional High Occupancy Lanes and Value Lanes Study (2002) see:

- Parsons Transportation Group, Inc., ***High Occupancy Lanes and Value Lanes Study Final Report***, prepared for the Arizona Department of Transportation in partnership with the Maricopa Association of Governments, December 2002.

For more information on State Bill 1471, see:

- http://www.azleg.gov/DocumentsForBill.asp?Bill_Number=1471

San Francisco-Oakland-San Jose, California - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

There are currently no congestion pricing or managed lanes projects in operation in the San Francisco-Oakland-San Jose metropolitan area, but there is a long history of tolling of bridges and an extensive HOV lane system in place. HOT lanes are planned on I-680 (Alameda and Santa Clara Counties -2010), I-580 (Alameda County -2012) and US 101/ SR 85 (Santa Clara County – 2012). Federal demonstration funds under the Value Pricing Program have been provided for partial funding of the I-680 HOT lane implementation, as well as for studies involving I-580 and SR 85. The Metropolitan Transportation Committee (MTC), which is the MPO for the nine-county region, is currently planning an HOT Network approach to convert HOV lanes to HOT lanes region-wide that will be implemented on a corridor basis. The San Francisco-Oakland-San Jose metropolitan area was also selected to receive a US Department of Transportation Urban Partnership grant of \$159 million that is to fund a Value Pricing Program in San Francisco as the centerpiece. The grant was initially awarded to implement congestion pricing to fill a funding gap and manage demand on Doyle Drive which is scheduled to be rebuilt. A political consensus could not be reached on the use of congestion pricing on the rebuilt roadway or the Golden Gate Bridge to which it connects, however, and so alternative methods for using congestion pricing as part of the Urban Partnerships grant are being considered.

Process for Initiation

The Alameda County Congestion Management Agency (ACCMA) arrived at the decision to manage interregional commutes using tolls to close existing gaps within the HOV lane system within the county. In addition the Santa Clara Valley Transportation Authority (SCVTA), the Congestion Management Agency for Santa Clara County, is advocating the conversion of HOV lanes to HOT lanes along US 101, which was found to be most feasible for the implementation of HOT lanes. The San Francisco County Transportation Authority (SFCTA) began exploring congestion pricing in its 2004 Countywide Transportation Plan. In 2005, SFCTA applied for and received a \$1 million grant from the USDOT Value Pricing Program to study congestion pricing in San Francisco. The study, currently in progress, focuses on the larger context of congestion management, providing competitive alternatives to driving, such as transit, cycling, walking and carpooling. The goals of congestion pricing are consistent with the City's "Transit First" and "Clean and Green" policies. In the long-term, congestion pricing is to provide a means for sustainable growth of the City. Ultimately, the region desires to have a region-wide HOT network.

Process of Evaluation

MTC has incorporated consideration of a managed lanes network into the MTP and the current draft of the MTP includes an 800-mile regional HOT lane network. In analysis of options for the MTP, the benefits of congestion pricing and managed lanes have been quantitatively assessed using a benefit/cost model. Qualitatively the benefits are assessed by the extent to which the MTP goals are addressed. Performance measures that have been used in the evaluation of congestion pricing and managed lanes

in the region include vehicle miles traveled, emission volumes, vehicle hours traveled and individual and network delay savings. The HOT lane network has been evaluated using regional travel forecasting model, a VISSIM simulation model and a proprietary toll optimization model. Enhancements to the regional travel model have been made to increase its sensitivity to pricing.

The concern for global warming has heightened the interest in congestion pricing. Using technical analysis, the region has been able to show that pricing and land use can have a larger regional impact on emissions than infrastructure alternatives. Documentation for environmental impact and mitigation efforts under CEQA and NEPA will be required for the new HOT lane network prior to implementation of any part of the network.

Public and Stakeholder Outreach and Involvement

The region's transportation agencies have considered the issues of equity and environmental justice using research done by others as well as conducting surveys and working with focus groups. These issues have been a major concern for policy makers, but a recent survey that was conducted by ACCMA found that congestion pricing would benefit motorists' regardless of their income scale. These survey results have helped gain support for the HOT lane projects. The use of press releases has helped to increase stakeholder and public acceptance. During the environmental review for the I-680 project, a public hearing process was conducted to allow public and stakeholder input. Geographic equity issues also have been a barrier to the implementation of congestion pricing on any of the Bay Area bridges and this concern has not yet been completely resolved as indicated by the lack of support for the congestion pricing proposal for Doyle Drive or the Golden Gate Bridge.

Integration into the Metropolitan Transportation Planning Process

MTC is in the process of integrating congestion pricing and managed lanes into the region's CMP. The CMP was not used directly to identify congestion pricing or managed lanes as options, but travel demand modeling and a toll optimization model were used to evaluate the need for options and their potential benefits and impacts. The regional agency's plan is to use the revenue generated from HOT lanes to first fund operation and maintenance and then to fund transit and other corridor improvements. A Joint Power Authority will ultimately determine how the revenue will be used. The net toll revenues are included in the financially constrained element of the MTP. One of the goals for the HOT lane network is to fund the closure of gaps in and extension of the HOV lane system.

Integration with Regional Operation and Intelligent Transportation Systems

Congestion pricing and managed lanes will be integrated with the regional ramp metering program. Consideration is given for congestion pricing and managed lanes to be integrated with the Regional ITS Architecture.

Lessons Learned

The lessons learned from the San Francisco-Oakland-San Jose metropolitan area include:

1. Involve all partners and stakeholders in decision-making at all implementation steps.
2. Timing is very important, especially with public outreach and stake holder involvement.

3. It is important to realize that reducing congestion, not revenue generation, is the main reason for congestion pricing or managed lanes.

References

For more information on the MTC's Draft Transportation 2035 Plan for the San Francisco-Oakland-San Jose metropolitan area see:

- http://www.mtc.ca.gov/planning/2035_plan/DRAFT/Draft_T2035_Plan.pdf

For more information on the SFCTA's congestion pricing study, known as the Mobility, Access and Pricing Study in San Francisco, see:

- <http://www.sfmobility.org>

For more information on the MTC's HOT Regional Network Planning in the Bay Area, see:

- <http://www.mtc.ca.gov/planning/hov/>

Seattle, Washington - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

Washington State's tolling experience includes the recently opened SR 167 HOT lanes. This pilot project is the State's first HOT lanes implementation and includes dynamic pricing. The Seattle region has an extensive system of HOV lanes, but has only recently used tolling as a revenue-generating or congestion-management tool. In addition to the SR 167 HOT lanes, the Washington State Department of Transportation (DOT) also began tolling on a rebuilt Tacoma Narrows Bridge in July 2008.

Tolls for the SR 167 HOT Lanes are collected electronically using the State's **Good to Go!** electronic toll collection system. Data are available for the first three months for HOT lanes operation from May 3 through July 31, 2008. On average during this three-month period single-occupant-vehicle drivers paid one dollar to save ten minutes of travel-time during their peak-hour commutes while the travel speeds for carpools and transit have been maintained. There also appears to be room in the HOT lanes for additional carpool vehicles, transit or toll-paying solo drivers. The average number of peak-hour toll transactions has increased each month.

Other projects under development in the Seattle metropolitan area include the SR 520 HOV and Bridge Replacement project that will include tolls that vary by time of day. Managed lanes are under consideration for I-405. The I-405 Express Toll Lanes Study considered two lanes of the freeway (including the HOV lane and an adjacent lane) being separated from other traffic with designated access and egress points, managed with dynamic tolls. Some direct access ramps to inside lanes have already been constructed with intermediate transit stops to support bus rapid transit operation.

Planning and Initiation of Projects

SR 167 HOT Lanes project was pursued as a pilot project to demonstrate and assess the HOT lane concept. SR 520 has been a legislative priority because the bridge has a limited design life. Washington DOT is undergoing a long-range transportation plan update and the prioritization process for future projects is currently under discussion. Washington DOT has floated the concept of converting its HOV lane system to a tolled express lane system that would also include the existing reversible express lane roadway on I-5. Both state funding and a value pricing grant have been applied to study and develop this concept further. The current update of the region's MTP by the Puget Sound Regional Council (the MPO for the area) is also examining five system-level pricing options, including tolled express lanes as well as variable tolls for general purpose roadways.

An Environmental Justice (EJ) analysis was prepared for the SR 167 HOT lane pilot project and a more substantial analysis is currently being prepared for the SR 520 Urban Partnership project that includes a public opinion survey. For the SR 520 Urban Partnership program a separate environmental document for tolling in advance of SR 520 bridge construction is being prepared, and the SR 520 project will also address tolling impacts for the complete project in its supplemental EIS.

Public and Stakeholder Outreach and Involvement

Advocacy for congestion pricing and freeway management have come from members of the Puget Sound Regional Council (PSRC), Transportation Policy Board, Washington DOT, the Sierra Club, and the Transportation Choices Coalition. Members of the PSRC Transportation Policy Board have kept a focus on the issues of pricing and congestion management, and the PSRC has established a Pricing Task Force to oversee analysis of tolling strategies in the Transportation 2040 MTP update. The Cascadia Project of the Discovery Institute has promoted pricing through several large public events. Supporters such as the Sierra Club and the Transportation Choices Coalition have actively participated in community outreach programs to further educate the public. A video was developed called “Rachel’s Drive” which simulated what a driver’s experience could be like in the HOT lane. This was an important tool for helping people understand the concept of managed lanes. Washington DOT conducted public opinion research on managed lanes over a decade ago in a managed lanes feasibility study, which also included a two-day workshop for Washington DOT and local agency staff to better understand the state-of-the-art. Washington DOT applied for and received federal value pricing funding for an Attitude and Awareness of Tolling project which is underway and which has funded some of the public opinion research for the SR 520 toll outreach process.

Integration into the Metropolitan Transportation Planning Process

The current update of the PSRC MTP is examining five system-level pricing options, including tolled express lanes as well as variable tolls for general purpose roadways. The alternatives in the MTP will be evaluated using a benefit/cost analysis model as well as other more traditional performance measures. The MTP update is also being guided by the region’s recently updated CMP that identifies the existing and potential future locations and intensity of congestion. The new CMP uses multimodal measures of congestion that incorporate measures of safety, reliability and access as well as delay. The CMP identifies a set of solution options that should be considered to address congestion and these options include congestion pricing. Washington DOT is also currently in the process of updating its long-range transportation plan, and will reflect the outcome of the MTP update in its new plan.

Integration with Regional Operation and Intelligent Transportation Systems

The PSRC has used the regional EMME/2 model for toll analysis to identify likely usage and diversion impacts of HOT lanes and managed lanes project. They have used a proprietary toll optimization model to develop toll rates that optimize user benefits or other objectives, and a benefit-cost analysis tool to assess regional transportation alternatives. Washington DOT has used the VISSIM simulation software to assess and improve managed lane operations on SR 167 and I-405. The agency is also developing tolling systems that will be able to integrate effectively with traffic management systems. The Washington ITS plan includes many active traffic management techniques to be used with HOT and other managed lanes. The Regional ITS Architecture includes the tolling management system market and equipments packages for the Tacoma Narrows bridge. The architecture will be amended to include further expansion of tolling applications as they are further defined in Transportation 2040. Washington DOT is working on a Regional Concept for Transportation Operations for Active Traffic Management that may contain linkages to tolling. Most of the Active Traffic Management deployments are intended to be on roadways that could be tolled or may be alternate routes for tolled roadways such as SR 520.

Lessons Learned

Lessons learned from the Seattle metropolitan area include:

1. Planning for congestion pricing and managed lanes projects requires the development of an understanding and expertise at the staff level of congestion pricing practices. This understanding and expertise is not always adequate in the organizations responsible for the planning and development of proposals.
2. It helps to have engaged policymakers who are willing to advocate and promote dialogue.
3. It also helps to have a progressive state DOT and regional MPO willing to directly address policy issues such as Environmental Justice.

References

For more information on the I-405 Express Toll Lanes project, see:

- <http://www.wsdot.wa.gov/projects/i405>

For more information on the SR 167 HOT Lanes project, see:

- <http://www.wsdot.wa.gov/Projects/SR167/HOTLanes/>

Washington D.C. - Metropolitan Area

Region Experience with Congestion Pricing and Managed Lanes

There are currently no congestion pricing projects that have been implemented in this region. However, three congestion pricing projects have been planned and are proceeding to implementation: the Virginia I-495 Beltway HOT lanes, the Virginia I-95/I-395 Shirley Highway HOT lanes, and the Maryland Intercounty Connector Express Lanes. In July of 2008, construction for the I-495 Beltway HOT lanes began in Northern Virginia. The Virginia Department of Transportation (VDOT) and Fluor-Transurban are working in partnership to deliver two new I-495 HOT lanes in each direction from the Springfield Interchange to just north of the Dulles Toll Road, a length of approximately 14 miles. A dynamic pricing scheme will be deployed to regulate demand for the lanes and keep the traffic flow congestion free, and the rate will be locked in upon a driver's entrance. Dynamic toll rate signs will display information to help drivers decide whether to use the HOT lanes. E-ZPass technology will be used for the Electronic Toll Collection (ETC) system.

The Virginia I-95/I-395 Shirley Highway HOT Lanes project will provide a 56-mile, free-flowing facility for buses, carpoolers and toll-paying vehicles. Vehicles carrying three or more people, motorcycles, buses and emergency vehicles will use the HOT lanes free of charge. Vehicles carrying one to two people can either travel on the general purpose lanes for free or pay a toll to ride the HOT lanes. This proposed project is also made possible through a public-private partnership between VDOT and Fluor-Transurban.

The Maryland Intercounty Connector will link the I-270/I-370 and I-95/US 1 corridors within central and eastern Montgomery County and northwestern Prince George's County. It will be an 18-mile fully open-road tolled (cashless) facility and is now under construction. Tolls will be set to maintain uncongested conditions on the facility.

Process for Initiation and Evaluation of Projects

Late in 2006, Virginia DOT completed a review of initial private-sector HOT Lanes proposals for the new Capital Beltway High Occupancy Toll lanes. In November of 2006 VDOT initiated the federal environmental review process. In September of 2007, the Virginia Commonwealth reached a public-private partnership agreement with Transurban and Fluor Enterprises. The public-private partnership gave VDOT ownership of the facility, oversight of the project development, and management of the environmental review process. The Department of Rail and Public Transportation (DRPT) oversees the Transit Advisory Committee and coordinates transit involvement for the project. Fluor and Transurban provide private funds for construction, operations and routine maintenance. In addition to the project, public transportation will be enhanced. Bus stations and park-and-ride facilities will be upgraded and bus-only ramps will be created. The primary performance measures for the project include congestion and delay, travel time reliability, accessibility to jobs and residences, regional VMT, HOV volume and land use, and transit ridership.

The idea of implementing congestion pricing and managed lanes in Maryland has been advocated by the Maryland Department of Transportation, Maryland State Highway Administration and Maryland

Transportation Authority. In 2004, the Maryland DOT put together a Statewide Vision for Express Toll Lanes that would include one or more lanes along many major highways in central Maryland. The Intercounty Connector project was chosen as the first congestion pricing project based on the need for the project to relieve congestion as well as the availability of funding.

Public and Stakeholder Outreach and Involvement

In the early stages of the I-95 HOT lanes proposal, stakeholder input was encouraged for the refinement of the scope of the project. Public information meetings and public hearings were also conducted. Input from the Transit Advisory Committee and further transit studies are ongoing. During the environmental review process, citizen information meetings were held in July 2007 for further input. Public hearings were held in 2008 to gather feedback before the project moved to the next stage of development. For the I-495 Beltway HOT lanes project, residents in the community were informed through various public information meetings and public hearings. As construction began, the VDOT designated a Community Transportation Liaison. Residents were also highly encouraged to attend regular project briefings on construction. Information centers were provided by VDOT on retail storefronts to distribute materials on construction and alternative modes. The website is regularly updated with details about the project.

Maryland DOT, Maryland Transportation Authority and State Highway Administration have jointly held public open house meetings introducing the concept of Express Toll Lanes in the Capital Beltway corridor. Maryland DOT has published brochures to further educate the public. Currently these organizations are developing an extensive marketing campaign which would begin six months prior to the opening of the first congestion priced/managed lanes facility.

Integration into the Metropolitan Transportation Planning Process

The Maryland Intercounty Connector project has been adopted in the 2004 MTP for the Washington DC area. The Virginia I-495 HOT lanes project has been adopted in the 2005 MTP. The Virginia I-95/I-395 HOT lane project has been adopted in the 2007 MTP. For these projects, the CMP was used indirectly to identify the need for additional capacity to relieve congestion, but was not used to identify congestion pricing as a congestion-reduction option. Revenue generation was the main reason for consideration of congestion pricing and not congestion management. Revenue obtained will be used to cover the costs of each project, but in Virginia excess revenue will be used to fund for transit improvements.

The I-95/I-395 HOT Lanes project was subject to NEPA review, where consideration was given to possible impacts to noise, air quality and cultural resources. Public comments were also collected during this phase. VDOT initiated a federal environmental review process in November 2006. The project was split into two sections for environmental review. The northern section converts existing HOV lanes, which required a less intensive review. The southern section is new construction which required a more comprehensive environmental review.

Under the leadership of the National Capital Region Transportation Planning Board (NCRTPB) of the Metropolitan Washington Council of Governments (MWCOC), which is the MPO for the region, a regional analysis of a network of variably priced highway lanes was completed using funds from a Value Pricing Pilot Program grant. The study provided an opportunity to engage the region's transportation policy board in a review that was supported by strong technical analysis. The regional model maintained

by MWCOC was the primary tool used for analysis of the projects and the regional network of congestion pricing. Network bottleneck capacity improvements were also considered where bottlenecks might reduce the effectiveness of the priced lanes or the effectiveness of the other parts of the network. It has been the conclusion of NCCTPB that a regional approach is necessary to ensure that network effects are appropriately recognized.

Integration with Regional Operation and Intelligent Transportation Systems

Congestion pricing and managed lanes have not formally been integrated with other system management or ITS options. The region has started a regional committee for management but it has been oriented toward incident management.

Lessons Learned

The lessons learned in the Washington D.C. area include:

1. There is substantial value in having projects regionally coordinated in a network approach.
2. Both a bottom up and top down approach are needed to allow for projects to come out of corridor studies, but also regionally coordinated in a network approach.
3. It is important to balance revenue generation and HOV policy. To generate revenue, you may have to require HOVs to pay
4. There can be so much enthusiasm for revenue generation that public agencies are willing to give away too much in negotiation of public -private ventures.
5. Private consortia do not have to take network effects into account. There needs to be public-sector regional oversight - a "watchdog."
6. Regional agencies should not be afraid to get the concept of congestion pricing out for consideration by stakeholders.
7. Network choke-points should be taken into consideration when assessing the revenue-generation and other benefits of pricing.

References

For more information on the regional analysis of a network of variably priced highway lanes see:

- <http://www.mwcog.org/uploads/committee-documents/aF5fWVlW20080314161420.pdf>

For more information on I-495 HOT Lanes project see:

- <http://www.virginiahotlanes.com/beltway-project-info.asp>

For more information on the I-95/I-395 Shirley Highway HOT Lanes project, see:

- <http://vamegaprojects.com/projectSummary03.html>

For more information on the Maryland Intercounty Connector Express Lanes project see:

- <http://www.iccproject.com/>

Appendix A: Survey Questionnaire

The Federal Highway Administration is conducting a scan of how agencies in major metropolitan areas in the U.S. are developing plans for congestion pricing and/or managed lanes. To support that effort, we are conducting this survey of the Metropolitan Planning Organization (MPO) and the state DOT in ten metropolitan areas to find out how they are including consideration of congestion pricing and/or managed lanes (ones that involve pricing such as High Occupancy Toll Lanes) in the metropolitan planning process and the development of the long range plan for the region. Please enter your responses directly in the WORD document in the spaces immediately following the questions. Your response will help FHWA gain a better understanding of current state of the practice and the tools and techniques that are most useful in the process. If you have any questions about the survey please contact Bill Loudon at (510) 267-6623 or by email at wrl@dksassociates.com.

The first set of questions is related to the experience of your region with planning for or consideration of congestion pricing and/or managed lanes.

1. What types of congestion pricing or managed lane projects are currently in place in the region today or have been programmed for future implementation and what is their current status?

Response:

2. How were these projects chosen for implementation? How were they prioritized over other projects?

Response:

3. What organizations within the metropolitan area or state have advocated for consideration of congestion pricing and/or managed lane options?

Response:

4. Which organization or organizations have taken the lead in planning for or implementing these projects?

Response:

5. Was the assessment of congestion pricing and/or managed lanes facilitated by any state or federal demonstration or pilot project funding?

Response:

6. Were any complementary projects also built or approved in order to enhance the benefits of congestion pricing or managed lanes?

Response:

7. Is the application of a congestion pricing and/or managed lane project an initial step towards a broader network? If so, how does this fit into the regional transportation plan with other competing priorities?

Response:

The second set of questions relates to how congestion pricing and/or managed lanes have been evaluated.

8. How are the benefits of congestion pricing and managed lanes weighed against other priorities and goals in the regional transportation plan?

Response:

9. What performance measures are used to evaluate congestion pricing and/or managed lane projects?

Response:

10. Are these performance measures designed to reflect the goals and objectives of the regional transportation plan? If so, how is that done?

Response:

11. What analytical models or tools have been used to evaluate congestion pricing and/or managed lane options?

Response:

12. How has concern for global warming affected the interest in congestion pricing and managed lanes?

Response:

13. What steps are taken to explore equity and environmental justice issues related to congestion pricing and managed lanes?

Response:

14. If there has been any implementation of congestion pricing or managed lanes in the region, has there been any formal evaluation conducted?

Response:

The next set of questions relates to public and stakeholders outreach.

15. What public and stakeholder outreach efforts have been undertaken for congestion pricing and/or managed lanes? Does this differ from other projects? Why and how so?

Response:

16. What specific actions have been taken to gain stakeholder and/or public acceptance of congestion pricing or managed lanes projects?

Response:

17. What institutional or political barriers or challenges might make consideration of congestion pricing and/or managed lane options difficult?

Response:

Next we would like to know how the consideration of congestion pricing and/or managed lanes has been integrated in the metropolitan planning process for your region.

18. Has your region sought to integrate congestion pricing and/or managed lane projects into the broader regional transportation planning process or are there plans to do so? If so, what steps have you taken or are you planning on taking?

Response:

19. Is there (or will there be) a new revenue stream as a result of congestion pricing and/or managed lane implementation? If so, how is this revenue stream allocated? How does this allocation relate to your regional transportation plan or statewide transportation plan?

Response:

20. How do the potential revenues from congestion pricing get reflected in the financial constraints in the regional planning?

Response:

21. How has the Congestion Management Process been used to generate appropriate congestion pricing and/or managed lane options?

Response:

22. Has the consideration of congestion pricing and/or managed lanes been integrated with other regional or system management or ITS strategies for the region?

Response:

23. Has the consideration of congestion pricing and/or managed lanes been integrated with other options in a Regional Concept for Transportation Operations or the Regional ITS Architecture?

Response:

24. How are environmental review and documentation (NEPA and any state requirements) covered for congestion pricing and/or managed lanes projects?

Response:

We have one final question designed to help other regions gain from your experience

25. What lessons have been learned about planning for congestion pricing and/or managed lanes on a regional basis?

Response:

Please return the completed questionnaire to wrl@dksassociates.com. If you have any documents that provide additional information that you would be willing to share, please send an electronic file along with this questionnaire or send us the web address for the document.

Thank you for your cooperation and participation. Your input is greatly appreciated.

Appendix B:

Contacts for Survey on Domestic Scan of Congestion Pricing and Managed Lanes

Region	MPO and Other Regional Agencies	State Department of Transportation
Atlanta Metro Area	Atlanta Regional Commission Jane Hayse - Manager of Transportation Planning (404) 463-3265 Jhayse@atlantaregional.com 40 Courtland Street, NE Atlanta, GA 30303	Georgia Department of Transportation Gerald Ross - Chief Engineer (404) 631-1004 gross@dot.ga.gov One Georgia Center Atlanta, Georgia 30308 600 West Peachtree NW
Dallas-Fort Worth Metro Area	North Central Texas Council of Governments Michael Morris - Director of Transportation (817) 695-9241 mmorris@nctcog.org 616 Six Flags Drive P.O. Box 5888 Arlington, TX 76005-5888	TxDOT Dallas District Matthew E. MacGregor, P.E. CDA / Tollway Director Phone (214) 319-6571 Phone (214) 319-6571 mmacgre@dot.state.tx.us
Kansas City Metro Area	Mid America Regional Council Assistant Director of Transportation Mid-America Regional Council (816) 474-4240 Ron Achelpohl [RONA@MARC.ORG] 600 Broadway, Suite 200 Kansas City, MO 64105-1659	Missouri Department of Transportation Allan Zafft Transportation Planning Coordinator – District 4 (816) 622-0687 Allan.Zafft@modot.mo.gov
Los Angeles-Orange County Metro Area	Southern California Association of Governments Philip Law -Corridors Program Manager (213)236-1841 LAW@scag.ca.gov 818 W. Seventh Street, 12th Floor Los Angeles, CA 90017	Caltrans Headquarters Joe Rouse - Statewide HOV Program Manager (916) 654-6448 jrouse@dot.ca.gov 1120 N Street MS #36 Sacramento, CA 95814
	Los Angeles County Metropolitan Transportation Authority Brian Lin - Manager HOV Performance Program (213) 922-3036 LinB@metro.net One Gateway Plaza (MS-99-22) Los Angeles, CA 90012-2952	Caltrans District 7 Frank Quon – Deputy Director for Operations (213) 897-0362 frank_quon@dot.ca.gov Marco Ruano – Office Chief marco_ruano@dot.ca.gov 100 S. Main Street, Los Angeles, CA 90012

Miami Metro Area	Miami-Dade MPO José Luis Mesa - Director (305) 375-4507 jlm1@miamidade.gov 111 NW 1 Street Suite 920 Miami, Florida 33128	Florida Department of Transportation Debora Rivera, District Traffic Operations Engineer (305) 470-5335 Debora.Rivera@dot.state.fl.us 1000 NW 111th Avenue, Room # 6236 Miami, FL 33172-5800
Minneapolis-St. Paul Metro Area	Metropolitan Council Connie Kozlak - Manager Transportation Systems Planning (651) 602-1720 connie.kozlak@metc.state.mn.us 390 Robert Street North St. Paul, MN 55101-1805	Minnesota Department of Transportation Kenneth R. Buckeye - Program Manager Office of Policy Analysis, Research & Innovation (651)366-3737 Kenneth.Buckeye@dot.state.mn.us 395 John Ireland Boulevard MS 440 Saint Paul, MN 55155-1899
Phoenix Metro Area	Maricopa Association of Governments Eric Anderson - Transportation Director (602) 254-6300 eanderson@mag.maricopa.gov 302 North 1st Avenue Suite 300 Phoenix, Arizona 85003	Arizona Department of Transportation Dianne Kresich - Planning Supervisor (602) 712-7961 dkresich@azdot.gov 206 S. 17th Ave. Mail Drop 310B Phoenix, AZ 85007
San Francisco-Oakland-San Jose Metro Area	Metropolitan Transportation Commission Doug Kimsey - Manager of Transportation Planning (510) 817-5790 DKimsey@mtc.ca.gov 101 - 8th Street Oakland, CA 94607-4700	Caltrans Headquarters Joe Rouse - Statewide HOV Program Manager (916) 654-6448 jrouse@dot.ca.gov 1120 N Street MS #36 Sacramento, CA 95814
		Caltrans District 4 David Seriani - Manager of Systems Operation and HOV (510) 286-4653 david_seriani@dot.ca.gov P.O. Box 23660 Oakland CA 94623-0660

Seattle Metro Area	Puget Sound Regional Council Charles Howard - Transportation Manager (206) 464-7122 choward@psrc.org 1011 Western Avenue, Suite 500 Seattle, WA 98104-1035	Washington State Department of Transportation Rob Fellows - Manager of Tolling (206) 464-1257 fellowr@wsdot.wa.gov WSDOT Urban Planning Office 401 Second Ave. S., Suite 300 Seattle WA 98104
Washington, DC Metro Area	Metropolitan Washington Council of Governments Ronald Kirby - Transportation Director (202) 962-3310 rkirby@mwkog.org 777 North Capitol Street, NE, Suite 300 Washington, DC 20002	Maryland State Highway Administration Neil Pederson - Administrator (410) 545-0400 npedersen@sha.state.md.us Office of the Administrator Mail Stop C-400 State Highway Administration P.O. Box 717 Baltimore MD 21203-0717
		Virginia Department of Transportation Robin Grier 804-786-2964 Robin.Grier@vdot.virginia.gov 1401 E. Broad St. Richmond, VA 23219

Appendix C: Technical Report Documentation Page

1. Report No. FHWA-HEP-09-044	2. Government Accession No.	3. Recipient's Catalog No.	
Title and Subtitle A Domestic Scan of Congestion Pricing and Managed Lanes		5. Report Date April 2009	
		6. Performing Organization Code	
7. Author(s) Bill Loudon (DKS Associates)		8. Performing Organization Report No.	
9. Performing Organization Name and Address DKS Associates 1000 Broadway, Suite 450 Oakland, CA 94607 in association with PBSJ and Jack Fawcett Associates		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. DTFH61-04-D-00016-T-08-001	
12. Sponsoring Agency Name and Address Office of Planning Federal Highway Administration United States Department of Transportation 1200 New Jersey Avenue SE Washington, DC 20590		13. Type of Report and Period Covered	
		14. Sponsoring Agency Code. HEPP-10	
15. Supplementary Notes Harlan Miller, Jienki Synn, FHWA Office of Planning			
16. Abstract Under the sponsorship of the Federal Highway Administration, DKS Associates conducted a national scan of how agencies in major metropolitan areas are developing plans for congestion pricing and/or managed lanes. Staff members from the metropolitan planning organization (MPO) and the state DOT in ten metropolitan areas were surveyed to find out how they are including consideration of congestion pricing and/or managed lanes in their metropolitan planning process and the development of their long range transportation plan for the region. In addition, the study team identified the projects that are already in operation in each region, those that are already in the long range plan and those that are being considered. The study results reported in this paper focused on how the MPOs, state DOTs and other key agencies interact, contribute and cooperate in the consideration of congestion pricing and/or managed lanes. The study also produced information on the methods used to evaluate these types of strategies including the modeling tools used; the performance measures used; and how network effects, diversion of trips, and equity effects are taken into account. The study identified how federal grants were used to fund studies and projects in the early stages of consideration of congestion pricing and/or managed lanes in the ten regions. Public and stakeholder involvement methods used by the MPOs and state DOTs to advance projects were also identified.			
17. Keywords Metropolitan Planning Organization (MPO), State Department of Transportation (State DOT), congestion pricing, managed lane, transportation planning process		18. Distribution Statement No restrictions. This document is available to the public from: Office of Planning, Federal Highway Administration United States Department of Transportation 1200 New Jersey Avenue SE Washington, DC 20590	
19. Security Classif. (of this report) Unclassified	20. Security Class. (of this page) Unclassified	21. No. of Pages 56	22. Price free

Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Ave., SE
Washington, DC 20590

www.ops.fhwa.dot.gov
Toll-Free "Help Line" 866-367-7487

Publication # FHWA-HEP-09-044



U.S. Department of Transportation
Federal Highway Administration