REPORT ON

THE VALUE PRICING PILOT PROGRAM THROUGH APRIL 2006

U.S. Department of Transportation
Federal Highway Administration

Introduction

Congestion on the Nation's transportation system – highway, air, rail, water, and transit modes – is an increasingly pervasive national problem. It affects travel times, freight deliveries, related economic activity, air quality, and the nation's overall quality of life. Attempts to deal directly with transportation congestion represent some of the most important elements of national transportation policy, and the Value Pricing Pilot Program (VPPP) may be viewed in this broad context.

Internationally, major cities and even whole countries (e.g., Germany) have undertaken wide-scale road pricing activities. At the U.S. Federal government level, the Department of Transportation in May 2006 announced a multi-mode Congestion Initiative to address the problem, with particular emphasis on establishing partnerships with major urban areas to roll back roadway congestion. These Urban Partnerships are likely to resemble and, in many instances, reflect the earlier efforts of VPPP project analyses and pre-implementation studies. Drawing heavily upon the experience provided by VPPP projects, the Congestion Initiative and its Urban Partnership program serve to amplify the important groundwork that the VPPP has provided in this major policy area.

The root causes of congestion have long been understood, and there is now broad consensus that congestion generally reflects a fundamental imbalance of supply and demand. That is, during hours of peak usage on the transportation facilities most desirable to motorists, the supply of roadway (bridge, transit, etc.) capacity is insufficient to meet the demand for those facilities. Economists have also long understood that such an imbalance stems from inefficient pricing, where the true costs of usage are not reflected in prices paid by the users. Pricing aligns supply with demand in the water, energy, telecom, hotel, manufacturing, agriculture, and other fields, and it works in transportation as well. It is also important to note that efficient pricing sends signals to suppliers that can lead to additional supply being added where it is most critical. The VPPP has tested and proven the concept of pricing, and the Program continues to refine ways of adapting the concept to the often complex mix of economic, engineering, political, and social factors that surround daily use of the nation's transportation network.

In recent years, other programs and activities have emerged to complement the VPPP in efforts to deal with congestion. For example, in the highway mode, the 2005 highway and transit reauthorization bill – SAFETEA-LU – broadened States' authority to toll the Interstate Highway System and other Federal-Aid Highway system components. SAFETEA-LU also expanded the potential of private financing to build and operate highway infrastructure. Nationally and internationally, more private sector capital is flowing to support infrastructure investments, with various U.S. toll roads being notable examples. And, as noted above, DOT's 2006 Congestion Initiative and its 2007-2009 focus on Urban Partnership Agreements validate and expand upon the lessons learned from the VPPP.

The VPPP remains a crucial laboratory for developing ways to mitigate highway-related congestion. A fundamental role of the VPPP is to help integrate the numerous operational, political, social, and economic aspects of managing travel demand, especially in urban areas. And while the focus to date has been largely on feasibility studies, implementation of pricing concepts on single roadway facilities, and political and public outreach activities, the VPPP's

potential for pilot testing of flexible, comprehensive approaches to roadway pricing remains a crucial part of the battle against congestion.

The U.S. Congress established the Congestion Pricing Pilot Program in 1991. It was subsequently renamed the Value Pricing Pilot Program under Section 1216 (a) of the Transportation Equity Act for the 21st Century (TEA-21) in 1998, and continued through the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The Secretary of Transportation is to monitor the pilot projects for at least 10 years and report to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives every 2 years on the effects of the pilot programs. Specifically, "the Secretary shall report the effects value pricing programs are having on driver behavior, traffic volume, transit ridership, air quality, and availability of funds for transportation programs."

This document updates activities reported previously in the "Report to Congress on the Value Pricing Pilot Program through March 2004," and it is the first report to Congress subsequent to passage of SAFETEA-LU. Like earlier reports, it illustrates pricing's impact and success in affecting driver behavior, and it delineates individual state participants, projects, and further data sources on the extent and nature of the Program.

Value Pricing Objectives

Value pricing of highways, also known as congestion pricing or peak-period pricing, entails fees or tolls for road use that vary by level of vehicle demand on the facility. Value pricing can also include conversion of fixed charges for vehicle use, such as insurance or parking charges, to prices that vary with the amount, location, and time of use. Charges are typically assessed electronically to eliminate delays associated with manual toll collection facilities. Road-use charges that vary with the level of vehicle demand provide incentives to shift some trips to off-peak times, less-congested routes, or alternative modes; or to cause some lower-value trips to be combined with other trips or simply to be eliminated.

Value pricing encompasses a variety of strategies to manage congestion on highways and streets, including both tolling of highways and other strategies not involving tolls. There are at least four broad types of pricing strategies that have been implemented or are under consideration in the United States:

- Variable tolls on existing toll-free facilities.
- Variable tolls on existing flat-tolled facilities.
- Variable tolls on new lanes (added to existing highways) or on newly built roads, bridges and tunnels.
- Pricing strategies that do not involve tolls, including usage-based vehicle charges and market pricing of parking facilities (whether publicly or privately operated).

Value pricing has several important objectives. First, it seeks to balance demand with available capacity, i.e., the supply of road space. Second, it seeks to fairly allocate the costs associated with operating, maintaining, and expanding the transportation system to meet growing travel

demand. Third, it seeks to improve operation of the highway system. A fourth objective may include revenue generation. These objectives are explained below.

Balancing Demand with Capacity: The idea that prices should be highest at times of heaviest demand has long been established within market economies. This includes the transportation sector, especially in the case of commercial air travel. As with market pricing in other sectors, road pricing helps allocate limited supply – in this case that of available road space. With user charges assessed at the point of use, greater efficiency results through improved response to market forces. Moreover, shifts in a relatively small proportion of peak-period trips can lead to substantial reductions in overall congestion. For example, a feasibility study of road pricing in the UK found that pricing would result in a 9-percent reduction in urban trips and lead to a 52-percent reduction in urban congestion delay (U.K. Department for Transport's "Feasibility Study of Road Pricing in the U.K," Chapter 4, 2004).

Fair Allocation of Costs: The price of highway travel (gas taxes, registration fees, etc.) currently bears little or no relationship to the cost of congestion or the high costs for expanding highway facilities in congested metropolitan areas. With variable tolls that are higher during times of peak demand, the rush hour driver pays out of pocket costs that more fairly reflect the true cost of the travel. And, while variable charges create incentives for more efficient use of existing capacity, they also provide improved indicators for when and where to expand capacity.

Improving Highway System Performance: From an operations perspective, efficiency of existing, expanded, and new highways may be maximized by introducing *peak period* tolls on congested segments. Such congestion-based pricing eliminates the loss of throughput that otherwise occurs under severely congested conditions, while also increasing travel speeds. Normally, once freeway vehicle density, i.e., vehicles per mile, exceeds a certain critical value, both vehicle speed and vehicle throughput drop precipitously. Empirical evidence suggests that vehicle throughput may drop as much as 50 percent, while speeds may drop from 60 mph to 15 mph or lower. Even if demand decreases after the breakdown of traffic flow, the freeway may not recover its full efficiency until much later, because queued vehicles keep vehicle density high. With road pricing, variable tolls dissuade some motorists from using freeways that are approaching critical density and prevent a breakdown of traffic flow in the first instance. Variable tolls are adjusted to match changing levels of demand and are thus more effective than flat tolls in maintaining high levels of throughput. Due to the increased throughput on free-flowing freeways, diversions may even occur from parallel arterials to the freeway, reducing congestion in the entire travel corridor.

Revenue Generation: An additional objective of value pricing may be revenue generation. While congestion in metropolitan areas continues to increase, States are finding that existing sources of revenue from fuel and vehicle taxation are inadequate to expand highway capacity. In many cases, current funding sources are sufficient only to maintain and operate the existing transportation system. Due to increasing maintenance costs and stable or declining inflation-adjusted tax revenue, little or no revenue may be left for funding of needed highway and transit investments to expand services in growing metropolitan areas. Some States and localities are looking to tolling to make up for the shortfall in revenue. Value priced tolls on existing or new highway lanes in currently congested metropolitan areas can provide a significant source of user-based revenue to pay for the high costs of improving or expanding transportation infrastructure.

The Value Pricing Pilot Program

The Value Pricing Pilot (VPP) Program is a Federal discretionary grant program that provides states, local governments, or other public entities with 80 percent Federal matching funds to establish, maintain, and monitor pricing projects and to report on their effects. Section 1604(a) of SAFETEA-LU amends Section 1012 (b)(8) of ISTEA (as amended), which authorized the Secretary of Transportation to create a VPP Program by entering into cooperative agreements with up to 15 State or local governments or other public authorities to establish, maintain, and monitor local value pricing pilot programs. Notwithstanding other provisions of law, any value pricing project included under these local programs may involve the use of tolls on the Interstate Highway System. Funds available for the Pilot Program can be used to pay for pre-implementation activities and implementation costs.

The VPP Program is aimed at learning the potential of different value pricing approaches for reducing congestion and improving air quality. SAFETEA-LU provided a total of $59 million for Fiscal Years (FY) 2005-2009 for the VPP Program. Eleven million dollars was authorized for FY 2005 and $12 million is authorized for each of Fiscal Years 2006 through 2009. Of the amounts made available to carry out the program, $3 million must be set aside in each of the Fiscal Years 2006 through 2009 for value pricing projects that do not involve highway tolls. Funds allocated by the Secretary under this section shall remain available for obligation for a period of 3 years after the last day of the fiscal year for which funds are authorized. If, on September 30 of any year, the amount of funds made available for the VPP Program, but not allocated, exceeds $8 million, the excess amount will be apportioned to the states through the Surface Transportation Program.

During the 2005-2006 program period, 14 States were participating in the program: California, Colorado, Florida, Georgia, Illinois, Maryland, Minnesota, New Jersey, North Carolina, Oregon, Pennsylvania, Texas, Washington, and Virginia. Table 1 (Appendix) shows the number of funded value pricing projects in each State since 1998. Since the last report to Congress through March 2004, three value pricing projects have been implemented, and a number of pre-implementation studies have been initiated, as indicated in Table 2 (Appendix).

Projects Implemented Since March 2004

Table 3 (Appendix) summarizes projects under the VPP Program that were implemented through March 2004 and are currently operating. The following paragraphs describe projects that have been implemented since March 2004. More details on earlier projects were provided in the Report to Congress through March 2004.

I-394 MnPASS in Minnesota: In May 2005, the Minnesota Department of Transportation (MNDOT) introduced drivers to I-394 MnPASS, the Twin Cities' first HOT lane project, which allows vehicles that do not meet vehicle occupancy requirements to use the HOV lane if they pay a toll. The Federal Highway Administration (FHWA) provided funding through the VPP program for outreach and project development for the I-394 HOT lanes. The project was opened with the goal of making the HOV lane more efficient and improving traffic flow in the corridor. I-394 MnPASS is the first project of its kind tolling drivers in lanes not separated from toll-free

general purpose lanes by physical barriers. This has been made possible by a strong commitment to enforcement and by incorporating the latest technology into operations.

Under the MnPASS concept, drivers have the option of using uncongested lanes for a variable fee set at a price to keep traffic on the lanes free-flowing. Pricing of the lanes occurs only in the peak direction during peak periods. Toll rates are dynamically set, meaning they rise and fall in real-time depending upon the demand to use the facility. Transit, carpools, and motorcycles remain free at all times as they were previously, and use of these modes has not diminished.

The project opened with 8,000 weekly toll transactions and grew steadily toward 20,000 transactions per week in November and December of 2005. Likewise, the number of transponder leases has shown substantial growth. More than 9,400 had been leased through April 2006. Data show that most customers use the facility just occasionally and that very few are everyday users. However, despite the moderate level of regular usage, the more compelling point is that every day close to 3,500 MnPass users choose to purchase premium service, rather than be delayed by general-purpose lane congestion. This choice has contributed significantly to performance improvement in the adjacent general purpose lanes on I-394.

Illinois Tollway System Pricing: In January 2005, a new toll rate structure went into effect on the Illinois Tollway, increasing both truck and passenger car tolls for the first time since 1983. Despite the rate hikes, the pricing and efficiency incentives for both trucks and passenger cars are significant. While rates for trucks increased from $1.25 to $4.00 at most toll plazas, trucks traveling between 10:00 p.m. and 6:00 a.m. (off-peak) pay only $3.00. Passenger cars also have pricing incentives: while rates were doubled at all toll plazas, e.g., from 40 cents to 80 cents, cars using the electronic I-PASS transponder still pay the old rate.

The revised toll rate structure provides efficiency incentives for both trucks and passenger cars. Off-peak pricing discounts for trucks encourage more efficient use of the Tollway, and discounts for cars with electronic toll cards provide incentives for use of a more efficient toll collection technology.

The FHWA provided funding through the VPP program for a variable tolling feasibility study that led to the decision to implement variable tolls for trucks on the northeastern Illinois Tollway System.

Pay-As-You-Drive Demonstration in Minnesota: In Minnesota, 100 people were recruited to participate in a pay-as-you-drive (PAYD) simulation, and another 30 drivers were selected to form a control group. The FHWA provided funding through the VPP program for this PAYD demonstration. The project team monitored participants' mileage via onboard equipment to determine mileage patterns. All participants were subject to an initial 2-month control period to assess their normal travel mileage, which was then used to set mileage budgets and provide a baseline for comparison. Households were then given individual incentives and an account from which they could "spend" or "save" depending upon their driving patterns and the test objectives. They were then rotated through a variety of pricing experiments. The behavior of each participant during his or her own control period was compared to the experiment period. A stated-preference survey component of the study showed that 25 percent of the survey

respondents were *probably* or *definitely interested* in mileage-based insurance, and 16 percent of respondents expressed *probable* or *definite interest* in mileage-based vehicle leasing (as opposed to, say, monthly or annual leases).

Lessons Learned

Table 4 (Appendix) summarizes key travel demand and traffic impacts for the various types of value pricing projects implemented in the United States under the VPP Program during the past decade.

Driver behavior: Pricing changes travel behavior. Drivers shift their time of travel to off-peak travel periods to take advantage of lower tolls (e.g., New York and Florida), and they choose priced lanes (e.g., in Los Angeles, San Diego, Minneapolis, and Houston) to take advantage of faster and more reliable travel times. The HOT lanes have provided the public a new option of traveling congestion-free in return for a fee.

Traffic volume: In the Houston, San Diego, Minneapolis, and Los Angeles metropolitan areas, pricing has kept congestion from occurring on priced lanes, and has improved utilization of existing highway capacity. In the Los Angeles metropolitan area, data provided by the Orange County Transportation Authority show that, during peak travel hours, each priced lane on SR-91 carries twice the volume of traffic that is carried on each of the adjacent free general-purpose lanes; and the priced lanes carry vehicles at three to four times the travel speed on the free lanes. This occurs because vehicle throughput collapses on the free lanes along with speed reductions when traffic flow breaks down. In San Diego, traffic volumes have increased on the HOT lanes by as much as 140 percent (without loss of speed) to make use of spare capacity on these lanes. This project took traffic off the regular lanes and thereby reduced the congestion levels that they would have otherwise experienced.

Transit ridership: Definitive data on impacts of pricing on transit ridership are unavailable. However, revenues from the I-15 HOT lanes project fund the Inland Breeze Express Bus service, which provides new transit service to downtown San Diego along the I-15 corridor. This service operates during peak weekday commute times. Express buses use the I-15 HOT lanes.

Availability of funds for transportation programs: Pricing can provide funding for transportation improvements. New transit service was funded from toll revenues in San Diego, and the construction and operation of the new SR-91 Express Lanes in Orange County have been supported entirely from toll revenues.

Outreach

The FHWA, working with its State and local partners, has carried out an active VPP Program. The VPP Program acquaints the public and transportation professionals with value pricing concepts, promotes open discussions and citizen participation in the development of potential pricing projects, and furthers opportunities for information exchange about issues related to project development. This section briefly summarizes some of the tools that have been used.

Regional Workshops: Through a series of regional workshops on value pricing, the VPP Program has stimulated interest in many parts of the country. Workshops have introduced the concept of value pricing to local audiences, featured presentations by representatives of active projects, and examined potential pricing applications in the local context.

Project Partners' Workshops: Another key element for outreach is the Project Partners' Workshops sponsored twice each year in cooperation with the Transportation Research Board (TRB) Committee on Congestion Pricing. The Workshops bring together current and prospective partners in the VPP Program to discuss key technical, institutional, and political issues associated with project implementation. Experts on various aspects of developing and implementing pricing projects are featured to stimulate workshop discussions, and partners are given the opportunity to exchange ideas with their peers.

Tolling and Pricing Opportunities Web site: In late 2005, FHWA launched a new Tolling and Pricing Opportunities Web site ***http://www.ops.fhwa.dot.gov/tolling_pricing/index.htm.*** The Web site was created to provide information about the tolling and pricing programs available under Federal law, and to invite Expressions of Interest from States and other public entities seeking to obtain tolling authority. The Web site also provides key contacts and links to resources related to tolling and pricing that can be used to support an initiative.

Coordination of Tolling and Pricing Programs

The FHWA's Office of Operations is responsible for coordinating all tolling and pricing programs that currently exist under the Federal-aid Highway Program, including the VPPP. To facilitate this coordination activity, the Office of Operations has formed a Tolling and Pricing Team to assist public authorities by directing them to the most appropriate tolling program option(s) available to them.

In total there are six FHWA programs that grant authority to toll Federal-aid facilities. These include three programs that are primarily focused on revenue generation and three that primarily focus on managing demand. The revenue generation programs are the Interstate System Construction Toll Pilot Program, the Interstate System Reconstruction and Rehabilitation Pilot Program, and tolling permitted under Title 23 United States Code Section 129 Tolling Agreements. The three that primarily focus on managing demand are the Value Pricing Pilot Program, the Express Lanes Demonstration Program, and High-Occupancy/Toll (HOT) lanes permitted under the High Occupancy Vehicle (HOV) Facilities Section (Section 1121) of SAFETEA-LU. Both substantially and procedurally, these other tolling and pricing program activities complement the VPPP.

Next Steps

Value pricing projects in the United States continue to break new ground and provide important lessons for exploring the use of market-based approaches to help solve traffic congestion problems and improve air quality. Observations from projects implemented to date reveal that travelers are willing to pay for improvements in transportation service and that pricing can lead to more efficient use of existing highway facilities. People respond to price signals when making

transportation decisions, just as they do in other aspects of their economic lives, and those responses can serve as important guides for transportation planners and policy makers in future transportation investments.

In the future, several pricing strategies that have either not been tested or not yet been widely implemented in the U.S. could help advance pricing's role in sharply reducing surface transportation congestion. The U.S. Department of Transportation is actively seeking partners to test these strategies as discussed below.

Systemwide Pricing: Analysis published in the Eno Foundation's *Transportation Quarterly* ("The Long Term Value of Value Pricing in Metropolitan Areas," Summer 2002) shows that widening and then pricing most of the severely congested freeways in a major metropolitan area would generate as much as $2 to 4 billion in annual net economic benefits. If 10 major metropolitan areas applied this strategy, net economic benefits of $20 to $40 billion annually could be achieved. Toll payments alone would generate sufficient revenue to pay for all widening costs.

Per-Mile Charges for Vehicle Use: Charging drivers on a per-mile basis could improve the system's overall efficiency, while also generating revenues for new investment. Current fuel taxes typically amount to 2 - 2.5 cents per mile, based on 40-50 cents per gallon in combined Federal and State fuel taxes and gas mileage of 20 miles per gallon. Yet the true costs of driving on congested facilities during peak hours can easily exceed 60 cents per mile. Individually tolled facilities, especially those using dynamic pricing or other forms of variable pricing, can charge drivers the appropriate per-mile amount during these key hours of operation. In-vehicle devices can tally per-mile charges and, with the help of technologies like the Global Positioning System (GPS), can do so on an areawide basis, regardless of whether road segments are equipped with tolling infrastructure. Such systems have the potential to transform current highway payment mechanisms. The fact that some large insurance companies are now exploring per-mile charging for setting premiums, rather than annual fees based largely on gross mileage estimates, further reflects the potential for per-mile charging. The VPPP will continue to explore opportunities for taking advantage of per-mile charging developments.

Parking Pricing: Parking pricing strategies have so far been tested in a limited way, affecting only small numbers of drivers. Broader tests of these strategies would advance more widespread application. As with roadway pricing, imposing local market prices for both metered on-street and off-street parking encourages motorists to modify their travel behavior – mode choice, trip time, etc. Eliminating employer-provided free parking for employees can be an effective strategy for reducing automobile commuting. Encouraging employers to offer transit benefits or to "cash out" current parking benefits would be an important interim step. ("Cash out" of free parking involves offering employees who currently get free parking at their work sites the option to get the value of this benefit in cash if they choose not to drive to work.) Reducing or eliminating minimum off-street parking requirements in zoning codes could make housing more affordable, and may be an effective strategy for helping to bring parking prices toward market levels and thus encourage the use of alternative transportation.

Cordon Pricing: Cordon or area pricing involves charges for entering or driving within a congested area. Cordon/area pricing systems have been implemented in the central areas of Singapore, London, and more recently Stockholm. The applicability and effectiveness of this strategy in the United States may be more limited because much congestion in the United States tends to be on suburban freeways, which cannot easily be priced using this concept. However, in the United States, San Francisco and New York may be good candidates and are now considering some version of cordon pricing. This strategy could demonstrate to United States motorists and other stakeholders that pricing existing roads really is feasible and can produce substantial benefits to a wide spectrum of travelers and other stakeholders.

Concluding Remarks

The environment in which VPPP projects are undertaken continues to evolve. Growth in U.S. traffic levels and the resulting congestion appears unlikely to abate soon, certainly not without major corrective policies. In terms of combating the growth in congestion, however, there are encouraging signs that more and more localities are prepared to follow both domestic and international leads in dealing with the issue. Moreover, private parties, including toll road operators and financial firms, are expanding their involvement in operating and pricing U.S. highway infrastructure. These responses should strengthen the overall effort to deal with congestion and help put in place long-term strategies for managing our transportation network.

The U.S. Department of Transportation is strongly committed to reducing congestion. DOT views few, if any, transportation policies as holding as much potential to solve congestion problems and improve the operation of the US transportation system as pricing the system appropriately. The Value Pricing Pilot Program has been crucial in developing and promoting congestion pricing, helping to convey its importance to the traveling public and to policy officials at all government levels. The Department's 2006 Congestion Initiative and its Urban Partnership Agreement Program build upon the VPPP and serve to elevate its role in the overall pricing effort.

Congestion reduction strategies are migrating from mostly single-facility feasibility studies with longer-term horizons to broad-scale deployments with more immediate timeframes. As this occurs, the VPP program is expected to follow the change in emphasis and remain a vital part of the Federal strategy to combat transportation congestion.

Appendix

Table 1. Projects Funded FY 1998 - FY 2005	
State	**Projects Funded by VPP Program***
CA	11
CO	2
FL	9
GA	5
IL	1
MD	1
MN	4
NJ	3
NC	1
OR	2
PA	1
TX	10
WA	5
VA	2
TOTAL	**57**
*Includes projects both under development and operational.	

Appendix

Table 2. FY2004-2005 Project Grant Awards

State	Locality	Project
California	Alameda Co.	I-680 SMART Carpool Lanes
	San Diego	Violation Enforcement on I-15 HOT Lanes
	San Diego	Violation Enforcement System on I-15 HOT Lanes
	Orange County	Implementation of Dynamic Pricing on SR 91
	San Francisco	Area Road Charging and Parking Pricing
	Alameda County	I-680 SMART Carpool Lane in Alameda County
Florida	Miami	I-95 Managed Lanes Research and Educational Outreach
	Orlando	Express Lanes on I-4
	Lee County	Expansion of Value Pricing to the Sanibel Bridge and Causeway
Georgia	Atlanta	Pricing Atlanta's Interstate System
	Atlanta	Value Pricing on the I-75 HOV/BRT Project
	Atlanta	GA-400 Variable Pricing Institutional Study
	Savannah	Northwest Truck Tollway
	Atlanta	I-75 South Feasibility of HOT/Truck-Only Toll (TOT) Implementation
Minnesota	Minneapolis	I-394 Pricing - Planning, Outreach and Education
New Jersey	New York	Express Bus/ HOT Lane in Lincoln Tunnel
Oregon	Statewide	Mileage-based Road User Fee
Texas	Dallas	I-30 Managed Facility Operational Plan
	Houston	Houston HOT Network
	Austin	Loop 1 HOT Lane Enforcement and Operations
	Austin	Deliberative Polling –Loop 1 Corridor
	San Antonio	IH-10 Value Priced Express Lanes
	Waco	I-35 Value Priced Express Lanes
	Austin	Truck Traffic Diversion Using Variable Tolls
Virginia	Washington, DC	Regional Network of Value Priced Lanes
Washington	Seattle	SR 167 HOT Lanes
	Seattle	Global Positioning System (GPS) Based Pricing Pilot Program
	Seattle	State Route 167 HOT Lane Pilot

Appendix

Table 3. Operational Value Pricing Projects through March 2004

State	Locality/ Year Implemented	Project
A. Pricing on Existing Roads		
California	San Diego/ 1996 (low tech) 1998 (electronic tolls)	HOT lanes on I-15: Toll varies dynamically from 50 cents to $4 depending on traffic demand.
Texas	Houston/1998	HOT lanes on Katy Freeway (I-10): $2 toll charged to two-person carpools in the peak hour of the peak period; 3-person and larger carpools are free.
Texas	Houston/2000	HOT lanes on US 290: Toll policy same as for I-10, but applies only to morning peak period .
B. Pricing on New Lanes		
California	Orange County/1995	Express Lanes on SR91: Toll varies from $1.0 to $8.50 depending on traffic demand.
C. Pricing on Toll Roads		
California	Orange County/2002	Peak pricing on the San Joaquin Hills and Foothill Toll Roads: Toll surcharge ranging from 25 cents to $1.00 during peak period at three mainline toll plazas.
Florida	Lee County/1998	Variable pricing of two bridges: 50% toll discount (amounting to 25 cents) offered in shoulders of the peak periods.
New York	New York metropolitan area/ 2001	Variable tolls on interstate crossings: Off-peak tolls discounted by 20% relative to peak period tolls, i.e., $4 vs. $5.
New Jersey	Statewide/2000	Variable tolls on New Jersey Turnpike: Peak period toll exceeds off-peak toll by 12.4%; for the entire 238 km (148 mile) length, off-peak toll is $4.85 vs. peak toll of $5.45.
D. Pricing of Parking and Vehicle Use		
California	San Francisco/2001	Car sharing: Charges are $4 per hour (10 AM –10 PM) and $2 per hour (other times); plus 44 cents per mile.
Washington	Seattle/2002	Parking cash-out: Monthly average parking cost in downtown Seattle is about $175. This is the amount those cashing out might expect to get.
Washington	Seattle/2000	Cash out of cars: Weekly average cost for owning a car was estimated at $63.90. This is the amount those "cashing out" their cars might expect to save.

Appendix

Table 4. Comparison of Key Aspects of Operational Value Pricing Strategies

	Priced lanes on otherwise free facilities	Variable tolls on toll facilities	Other non-tolling techniques, such as mileage-based charges and car sharing
How does it reduce congestion?	Keeps traffic free flowing on the priced lanes, maintains high vehicle throughput, accommodates some traffic previously using regular lanes.	Shifts peak period travelers to other modes, routes and times.	Reduces use of driving for all trips, both peak and off-peak.
What incentive is offered to change travel behavior?	Prices change to influence traveler choice and keep demand within pre-determined limits.	Off-peak toll discounts, or higher peak tolls.	Travelers save money by reducing driving.
What are the observed travel impacts?	In the peak hour, each lane of the priced Express Lanes on State Route 91 (California) carries twice as many vehicles as the regular lanes, and speeds are three to four times higher.	Four to seven percent reduction in peak period traffic observed in New York; 71 percent of participants shifted time of travel to get a discount at least once a week in Florida; seven to 10 percent reduction in peak period truck traffic in Illinois.	San Francisco, California's car sharing members drove 6.46 miles less per day than non-members.