Implementing Value Pricing for U.S. Roadways

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This paper reviews the current status of congestion-based road pricing in the United States and examines some of the characteristics of successful and unsuccessful projects, including their marketing aspects. It is concluded that forward momentum has been established for innovative road pricing, but future progress toward more widespread use of congestion-based pricing is likely to take advantage of local opportunities which present themselves, and will proceed cautiously. Considerable emphasis will be placed on marketing strategies in order to win consumer acceptance.

1. Status of the U.S. Value Pricing Program

As throughout the world, U.S. policy makers have for many years expressed interest in applying some form of congestion-based pricing to congested roadways. As noted by Higgins and Arrilaga, during the mid-1970's the federal government offered funds to U.S. cities willing to try a Singapore-like pricing scheme to reduce congestion. (Higgins, 1986; Higgins, 1994, Arrilaga, 1992) Although some implementation studies were conducted, which on the whole produced findings favorable to the concept, all of these early initiatives failed, largely due to local community opposition. However, interest remained.

Around 1990, two landmark pieces of legislation set off a flurry of activities to develop creative road pricing projects, which continues to this day.

In 1989, the California State Legislature enacted Assembly Bill (AB) 680, intended to attract private capital to investments in highway projects. The Legislature, recognizing that fuel taxes were becoming increasingly inadequate, in part due to improving vehicle fuel efficiency, and facing an unusually strong anti-tax political climate, mandated that state

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highway officials seek private participation in a limited number of new or previously programmed highway improvements. The first and, as yet, the only project implemented under AB 680 is the well known State Route 91 (SR 91) Express Lanes.[2] The SR 91 operating company chose to implement a variable toll schedule, which their marketing personnel called "Value Pricing."

In 1991, the U.S. Congress passed a surface transportation act, one in a series of laws enacted every five or six years through which the Congress establishes national policies for surface transportation and authorizes the corresponding federal spending programs. This 1991 legislation, called the "Intermodal Surface Transportation Efficiency Act (ISTEA)," created the U.S. Congestion Pricing Pilot Program. It directed the U.S. Department of Transportation (DOT) to help develop and fund congestion pricing pilot projects. The 1991 law authorized $25 million per year of 80% matching federal funding for these purposes. The U.S. DOT established a new office to administer the program. The program was extended in 1998 by the subsequent surface transportation act, entitled the "Transportation Equity Act for the 21st Century (TEA-21)," and renamed the "Value Pricing Pilot Program." The 1998 law authorized an additional $51 million in total spending through the year 2003 (generally $11 million per year). (Berg and Young, 1999; Berg *et al*, 1999)

Late in 2001, the U.S. Congress passed a transportation appropriations bill making adjustments in spending priorities under TEA-21. The Congress decided to withdraw about $9 million of the remaining funding authorized for the Value Pricing Pilot Program under TEA-21. Arguments heard for reducing this federal funding include the slow pace of local commitments to implementing projects, the lack of a large and vocal constituency for the program, and the perception that pricing might be hostile to persons' free use of their vehicles. The Value Pricing Pilot Program continues to this day but with reduced financial capability.

Sometime in the next year or two, the U.S. Congress will pass another surface transportation act to define national priorities for the rest of this decade. Whether or not the national Value Pricing Program will appear among these priorities remains to be seen. However, even if the federal Value Pricing Pilot Program disappears or is included within other federal programs, it can be argued that the 1990's were instrumental in demonstrating the merits of congestion-based road pricing in the United States. The program facilitated and directed national attention to enough congestion-based pricing projects to heighten public awareness and show that congestion-based road pricing can provide practical benefits in a variety of settings. Whatever happens to the federal program, one can expect that some state and local authorities will pursue further applications of these principles from this time forward.

The rest of this section briefly reviews the status of projects associated with the U.S. Value Pricing Pilot Program. More complete descriptions of these projects are posted on the national Value Pricing Website. (Univ. of Minn., 2002)

[2] A second AB 680 project, a 16 km. toll highway which is part of State Route 125 in San Diego County, is under construction and scheduled to open in 2004-2005. (NCHRP 2001a)

Table 1. Summary of Operational Value Pricing Projects in the U.S.

Project/ Location	Start Date	Operator	Project Description	Toll Rules	For More Information
SR 91 Express Lanes, Orange County CA	1995	CA Private Transportation Company (a private company)	16 km., 4-lane express toll facility in median of 8-lane freeway. Continuous operation 7 days, 24 hours. 3+ occupant vehicles receive 50% off normal tolls. No heavy vehicles.	Time-based tolls varying in 17 steps from $1 in late night to $4.75 in the PM peak.* Electronic toll-payments only.	(Sullivan, 2000; Sullivan 2002) http://www.91expresslanes.com/ http://ceenve.calpoly.edu/sullivan/sr91/ Email: esulliva@calpoly.edu
I-15 HOT Lanes, San Diego County CA	1996	San Diego Council of Governments and the CA Dept. of Transportation	13 km., 2-lane reversible facility in median of 8-lane freeway. Peak period, peak direction only. 2+ occupant vehicles pay no toll. No heavy vehicles.	Dynamic tolls usually varying from $0.75 to $4, but able to go to $8 in extremes. Electronic toll payment only.	(Supernak et al, 2001) http://argo.sandag.org/fastrak// Email: bpe@sandag.org
Variable Pricing of Bridges, Lee Co. FL	1998	Lee County FL Dept. of Transportation	Two toll bridges with off-peak discounts in selected shoulder-of-peak hours to patrons using electronic toll collection	50% off $1 toll for electronic toll users during designated hours	(Swenson et al, 2001) http://leewayinfo.com/ http://www.crspe.com/ Email: crs@crspe.com or mwb@crspe.com
Houston Katy Fwy. (I-10) QuickRide	1998	Texas Dept. of Transportation	21 km., reversible lane with 7 access points located in median of freeway. Operates inbound AM, outbound PM. Toll for 2 occupant vehicles; 3+ occupant vehicles pay no toll.	$2.00 toll in peak hours; free during other hours. Prepaid electronic toll payment only.	(Shin and Hickman, 1999) http://www.hou-metro.harris.tx.us/services/hovsystem.asp Email: jlight@dot.state.tx.us
New Jersey Turnpike Post-Paid Commercial Off-Peak Discounts	1998	New Jersey Turnpike Authority; N.J. Dept. of Transportation	Off-peak discounts for commercial customers with charge accounts who pay over $50/month. Percentage discounts decrease with use	15% off $50-$200 in off-peak tolls paid; 12.5% off $200-500; 7.5% off $500+/month	http://www.state.nj.us/turnpike/
Houston Northwest Fwy. (US 290) QuickRide	1999	Texas Dept. of Transportation	16 km. reversible lane with 7 access points located in median of freeway. Operates inbound AM, outbound PM. Toll for 2 occupant vehicles; 3+ occupant vehicles pay no toll.	$2.00 toll in peak hours; free during other hours. Prepaid electronic toll payment only.	http://www.hou-metro.harris.tx.us/services/hovsystem.asp Email: jlight@dot.state.tx.us
New Jersey Turnpike Variable Tolls	2000	New Jersey Turnpike Authority; N.J. Dept. of Transportation	Toll discounts in off-peak for passenger cars paying electronically; not for trucks (see post paid discount plan above)	Typically 7%-10% discount for electronic payment, 10% more for travel off-peak	http://www.state.nj.us/turnpike/
Variable Tolls on N.Y. Hudson River Crossings	2001	New York & New Jersey Port Authority	Off-peak discounts for vehicles paying electronically (all vehicle types included). Cars get added discount for paying electronically	15-20% discount for off-peak vs. peak travel (6-9 am; 4-7 pm).	http://www.panynj.gov/tbt/tbtframe.HTM Email: jhv@ce-mail.engr.ccny.edu
San Joaquin Hills Corridor, Peak/Off-Peak Tolls; Orange County CA	2002	Orange Co. CA Transportation Corridor Agencies	Discount for paying electronically and for traveling off-peak (outside 7-9 am, 4-7 pm)	Typical trip $2.75 peak, $2.50 off-peak if electronic payment, $3 cash payment anytime	http://www.tcagencies.com/ Email: swindle@sjhtca.com

* Tolls as of November 1, 2001. The corresponding AM peak period toll is $3.60.

Table 1 identifies nine value pricing activities currently operational in the United States. The projects appear in order of their implementation. A common feature of all these projects is that pricing (the toll) varies with the time of day, in an effort to encourage traffic to shift to shoulder or off-peak periods.[3]

Tolls on these facilities are generally determined by the responsible operating authorities, which include one private company, three state DOTs (Florida, New Jersey, and Texas), and three regional government agencies. Toll-setting by these local government agencies involves due process including public comment and, in some cases, superior agency review. The federal government plays no direct role in approving tolls. In the unique case of the privately operated SR 91, the only public sector influence over the tolls is a prescribed upper limit on the company's allowed rate of return on investment, established in the franchise agreement.

As seen in Table 1, pricing rules for the current projects vary widely, with peak/off-peak differentials ranging from as little as 7-9% (New Jersey Turnpike and San Joaquin Hills Corridor) to a factor of five (SR 91 and I-15). The complexity of the toll structures also vary widely, from the 17 step system of SR 91 through the traffic volume-activated dynamic pricing on I-15 to the simple two-tier structures of most other facilities. There appear to be no differences in consumers' acceptance or ability to comprehend any of these current systems, regardless of their complexity. In about half of these projects, value pricing has been linked to operators' efforts to encourage greater use of electronic toll collection on existing toll facilities (Lee County Bridges, San Joaquin Hills, N.Y. Hudson River Crossings, and the N.J. Turnpike).

For some projects, in particular SR 91 and I-15, toll levels and toll structures have changed significantly since inception. What appears in the table is the latest information available. Projects which are established long enough to have been evaluated were mostly found to have had measurable positive effects on traffic and are largely free of major negative consequences. (Sullivan, 2000; Sullivan, 2002; Supernak *et al*, 2001; Swenson *et al*, 2001) A minor exception is the Houston QuickRide program where researchers found no negative effects but concluded that traffic changes were insignificant, perhaps due to the high level of the toll. (Shin and Hickman, 1999).

Table 2 summarizes two additional value pricing projects which are currently under development and which are likely to be under construction or operational in the next year or so. These projects, in San Diego and Lee County, Florida, are both extensions of previously implemented projects.

Table 2. Value Pricing Projects Likely to Be Implemented Soon

Project/Location	Lead Agency	Project Description	For More Info.
I-15 HOT Lanes Extension, San Diego County CA	San Diego Council of Governments and the CA Dept. of Transportation	Widen to 4 lanes and extend the existing 13 km. HOT lanes an additional 20 km. Intermediate entry and exit points to be created, so I-15 will no longer be an express facility	Email: bpe@sandag.org
Lee County FL Variable Bridge Tolls for Heavy Vehicles	Lee County FL Dept. of Transportation	Apply off-peak toll discounts to commercial vehicles (trucks) on the toll bridges	Email: kcella@cella.com

[3] This paper only describes projects of the U.S. Value Pricing Pilot Program (VPPP) which involve some degree of congestion-based pricing. It should be noted that the VPPP also supports some projects addressing other aspects of road costs, such as efforts to convert fixed costs to variable costs through shared urban vehicles and distance-based insurance fees.

Table 3 describes ten more value pricing projects which are now in the planning stages, and for which implementation is at best a number of years in the future. These proposed projects are being evaluated by the responsible agencies and the affected communities, and decisions on whether or not to proceed are pending.

Table 3. Value Pricing Projects/Initiatives under Consideration

Project/Location	Lead Agency	Project Description	For More Information
I-25/US 36 HOT Lanes, Denver CO	Colorado Dept. of Transportation	Conversion of existing HOV lanes to permit single occupant vehicles to purchase unused capacity to access Denver CBD	Email: myron.swisher@dot.state.co.us
I-680 Hot Lanes, Alameda County CA	Alameda County Congestion Management Agency; CA Dept. of Transportation	Construct new HOT lanes along 23 km. portion of congested commute route serving Silicon Valley, near San Jose CA	Email: jhart@accma.ca.gov
Peak/Off-Peak Pricing on Pennsylvania Turnpike	Pennsylvania Dept. of Transportation	Study of peak, off-peak toll differentials to mitigate congestion throughout the existing statewide facility	Email: ghannon@paturnpike.com or rsmith@paturnpike.com
Cordon Pricing of Access to Fort Myers Beach FL	Town of Ft. Myers Beach & Florida Dept. of Transportation	Study of strategies to mitigate congestion in this island community by off-peak toll differentials	Email: crs@crspe.com or mwb@crspe.com
Variable Pricing in Minneapolis MN	Minnesota Dept. of Transportation	A task force of political leaders working to identify promising value pricing demonstration projects for Minnesota.	Email: Lmunnich@hhh.umn.edu
Route 1 HOT Lanes, Santa Cruz CA	Santa Cruz Regional Transportation Commission	Study of 11 km. HOT lane expansion of route highly congested from daily commute and weekend recreational use	Email: karena.pushnik@co.santacruz.ca.us
Value Pricing Options for the Florida Turnpike near Miami FL	Florida Turnpike; Fl Dept. of Transportation	Study of value pricing options to mitigate congestion, e.g. value priced express lanes	Email: Gary_Phillips@urscorp.com
Route 470 HOT Lanes, Denver CO	Colorado Dept. of Transportation	Study of HOT lanes and other value priced new capacity options on a 45 km. section of highway, with private funding	Email: myron.swisher@dot.state.co.us
Value Priced Queue Jump Facilities, Lee County FL	Florida Dept. of Transportation	Construction of value priced facilities to bypass congestion at congested locations on local roadways	Email: crs@crspe.com or kcella@cella.cc
Value Pricing Financing Study for Oregon	Oregon Dept. of Transportation	Task force to study alternatives to gas tax funding; peak road use charges being considered.	Email: john.r.svadlenak@odot.state.or.us

Also of interest are previously proposed value pricing projects withdrawn prior to their implementation and which are no longer under consideration. Several noteworthy projects in this category are listed in Table 4.

The following sections provide suggestions for why some of these projects succeeded and others did not.

Table 4. Examples of Value Pricing Proposals Withdrawn

Project/Location	Lead Agency	Project Description	Stated Reasons for Withdrawal
Variable Tolls, San Francisco Oakland Bay Bridge	San Francisco Metropolitan Transportation Commission	Off-peak discounts and peak toll surcharges on the S.F. Oakland Bridge	No support in CA Legislature for enabling legislation; opposition of key legislator
Ramp Queue Bypass Pricing, Minneapolis MN	Minnesota Dept. of Transportation	Value priced queue jump facilities at selected metered freeway on-ramps	Public opposition; perception that congestion was not bad enough to warrant solution
HOT Lane Conversion, Portland Oregon	Portland METRO and Oregon Dept. of Transportation	Conversion of existing freeway lanes to value priced lanes at several congested locations	Public opposition to removing free capacity from an overloaded system
HOT Lanes for I-270, Rt. 50, and variable tolls on the Chesapeake Bridge, Suburban Maryland	Maryland Dept. of Transportation	Initially general pricing study for congested commute highways without tolls; later focused on new HOT lanes	Governor cancelled initiative on grounds of local concerns and unfairness to low income commuters
I-880 HOT Lane for Small Commercial Vehicles, Alameda Co. CA (south of Oakland CA)	Alameda County Congestion Management Agency and the CA Dept. of Transportation	28 km. long HOT lane for small commercial vehicles placed on existing HOV facility	Concerns over insufficient capacity, enforcement feasibility, and tepid support of businesses to be affected

2. Attributes of Successful Projects

A review of the value pricing projects which have been successfully implemented in the United States suggests that such projects often share several key attributes:

1. Considerable attention was given to effective advertising and public relations.
2. Project advertising and public relations emphasized the benefits to be gained by travelers, primarily time savings, improved reliability, the opportunity to pay less, and in some cases highlighting that pricing creates superior travel options not previously available.
3. Benefits were identified to the public in simple, tangible terms, and evidence of their existence was clear after implementation.
4. Traveler participation in variable pricing has generally been optional; if people wanted to ignore the "new" pricing methods, they could avoid them.
5. Although critics were given opportunities to be heard, proponents had the perseverance and authority to pursue their goals to fruition. Some projects were noteworthy due to the presence of strong individual leaders and strong institutions willing and able to make potentially controversial decisions.

At the national level, it was recognized that using the rather academic title "Congestion Pricing" elicited negative emotions. Switching to "Value Pricing" provided a more positive way to identify the same notion. At the local level, examples of the efforts made to create positive public perceptions appear in Figure 1, which shows several of the marketing images used. The toll collection technologies were identified using such positive labels as "Fastrak" (all the CA projects), "QuickRide" (Houston), "LeeWay" (Lee County bridges), and "E-ZPass" (New York, New Jersey). Operators also adopted catchy slogans such as "More time to spare" (I-15), "Because life's too short" (San Joaquin Hills Corridor), "Start Saving Today!" (Lee County bridges), and even "The Lane Change That Could Change Your Life!" (SR 91). In addition, extensive marketing and public relations initiatives were conducted. The I-15, SR 91, and Lee County projects serve as models for how to win public acceptance. These projects included extensive use of positive media-oriented events; numerous press

releases; aggressive outreach to community, professional, and media groups; and development of slick advertising materials. The power of the news media to foster or to embarrass an innovative pricing initiative cannot be overstated.

The benefits promoted by the different projects vary somewhat, depending on their physical and institutional natures. The Lee County and New York Hudson River crossings, as well as the New Jersey Turnpike and San Joaquin Hills Corridor in California have emphasized peak period congestion reduction and the possibility for travelers to save money by shifting their times of travel and using electronic toll collection. In contrast, the SR 91, I-15, and Houston HOV projects have emphasized the opportunities created for travelers to bypass congestion, while also providing incentives for ridesharing. The I-15 project also highlighted the fact that the toll revenues were used to provide a new bus service within the corridor. With this exception, none of the projects explicitly linked the use of congestion-based tolls to promises of providing new transportation infrastructure or services.

Figure 1. Marketing Images for Selected U.S. Value Pricing Projects

Weathering opposition and staying the course to eventual implementation occurred in different ways across the different projects. In the case of SR 91, once the agreement with the State was consummated per the requirements of AB 680, the private developer/operator

needed no further public approvals, since environmental clearances for construction had already been obtained by the State. The SR 91 operating company aggressively defended its project against litigation filed by opponents, in one instance winning a counter-suit award through which it was able to enhance its marketing activities.

The success of some projects seems related in significant measure to the involvement of individual strong leaders who became convinced of the opportunities presented by congestion-based road pricing and became local champions of the cause, guiding their projects through the political and administrative minefields. The influence of individual champions is clearly evident in the stories of the I-15 HOT Lanes in San Diego and the Lee County Toll Bridges in Florida.

The success of other projects may at least partly be attributed to the presence of strong special purpose public institutions. For example, the adoption of variable pricing on the N.Y. Hudson River crossings, the New Jersey Turnpike, and the San Joaquin Hills Corridor was decided by the Boards of Directors or Commissioners of the New York/New Jersey Port Authority and by the two toll road authorities. Although these bodies emphasize effective public relations and are careful to seek community opinions, and some are elected officials of superior jurisdictions, these decision makers are not directly elected to their positions. While remaining responsive to those appointing them, their decisions are somewhat insulated from the daily pressures felt by directly elected officials.

For many projects, the availability of federal pilot program funding clearly provided a significant incentive for local authorities to persevere despite the difficulties. However, in some cases the federal program had little impact, such as with the privately funded SR 91 and the recently implemented variable tolls for the N.Y. Hudson River crossings and the New Jersey Turnpike. In these cases, the implementing agencies did so without direct federal financial assistance, except for the funding of evaluation studies.

3. Characteristics of Unsuccessful Efforts

Obviously, some projects that were not successfully implemented lacked some of the key attributes for success described above. In addition, several other characteristics can be identified:

1. The presence of influential project adversaries, typically arguing that congestion-based pricing hurts poor people and benefits the rich.
2. The perception that the new pricing proposals are schemes by public authorities to extract more money (taxes) for facilities already paid for, and that additional revenues are not needed.
3. The concern that the promised benefits are not likely actually to occur or, if they do, that the benefits would not be sufficient to warrant the action taken.
4. Concern over uncertain technological practicality of implementing the proposed pricing systems.

The failures of two major pricing proposals, for the San Francisco Oakland Bay Bridge and in the State of Maryland, can be traced to the vigorous opposition of, on the one hand, a senior San Francisco Area legislator (now California Attorney General) and, on the other, the Governor of Maryland. Both of these political leaders saw value pricing as potentially

detrimental to the established egalitarian road financing system. They expressed fear that transportation corridors with commuters willing and able to pay premium tolls (presumably rich people) could generate ample funds for future transportation improvements while transportation funding in corridors serving low income people unable to pay premium tolls would become inadequate. On a different front, it appears that the Colorado HOT lane proposals have been stalled for years by the difficulty of securing Federal Transit Administration approval to allow single occupant vehicle buy-in on HOV lanes which were originally funded strictly for the purpose of promoting ride-sharing.

The I-880 HOT lane proposal in California to allow small trucks to use existing HOV lane for a congestion-based fee was abandoned for several reasons, including technical concerns about how to perform accurate electronic tolling and enforcement along a toll facility with continuous entry/egress to and from the adjacent non-tolled lanes. To date, no project in the U.S. has demonstrated toll-booth-free distance-dependent and time-of-day-dependent toll collection along a continuous facility with many entrances and exits. A further technological complication exists for HOT lanes which generally have vehicle-occupancy-based tolls. Widespread deployment of HOT lanes, whether using congestion-based pricing or not, is currently seen as limited by the technical inability to enforce vehicle occupancy-dependent and distance-based electronic tolling without extensive deployment of enforcement personnel equipped with transponder targeting technology.

4. Conclusion - Strategies for the Future

In the author's opinion, an ideal package of strategies for future expansion of congestion-based road pricing in the United States would have the following key elements:

1. Emphasis on how new road pricing methods can enrich the array of available travel options, by creating multiple standards of service for different market segments, and through funding of new service options or new infrastructure with the toll revenue generated.
2. Aggressive actions to assure local communities that new road pricing methods do not create windfalls for the budgets of public agencies. In the U.S., this may require reducing some taxes to achieve a zero-sum tax result. This may take the form of transportation tax rebates for persons willing to reduce their roadway use, especially during congested periods.
3. A national effort aimed at developing data and public information resources to address the perception that congestion-based pricing is regressive in providing greater benefits to wealthy compared to low income people.
4. Efforts to expand use of HOT lanes, where pricing permits utilization of excess capacity of existing or proposed High Occupancy Vehicle (HOV) facilities. This includes the conversion of HOV lanes along freeways, HOV bypass of freeway ramp meters, and exclusive HOV/bus lanes on urban streets.
5. Efforts to attract private capital to transportation projects including HOT lanes and new toll facilities. Congestion-based pricing of new capacity should help generate sufficient revenue to attract private capital, even though revenue might be insufficient to fully fund a given project. Public-private joint ventures can yield ideal solutions,

where the different partners bring their particular strengths to create successful projects.

Some value pricing projects in the U.S. have demonstrated the merits of creating multiple standards of service. The SR 91, I-15, and Houston projects, for example, provide different combinations of travel conditions and prices to persons driving alone, in two-person rideshare groups, and (except for I-15) in three-plus person rideshare groups. One can envision even more complex menus of service options; for example, in a highly congested corridor, parallel lanes could have different toll levels reflecting different travel conditions. How this could be accomplished technologically, including violation enforcement, is not yet clear for a continuous toll highway with electronic toll collection; however, such market segmentation would be fairly easy to implement for queue jumping systems at bottlenecks which are controlled by toll booths, such as at bridges.

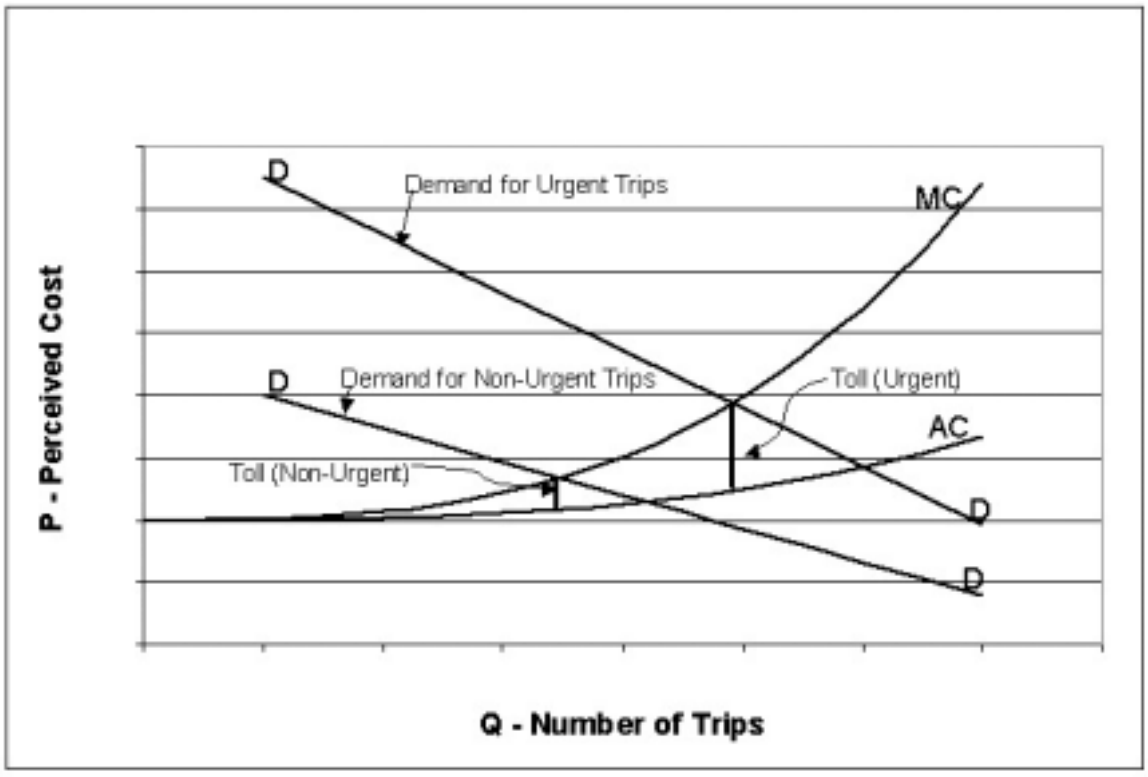

Figure 2. Theoretically Optimum Tolls with Market Segmentation

The notion of market segmentation in road pricing is entirely compatible with the pursuit of congestion-based pricing, as illustrated in Figure 2. Although a single demand curve reflects the range of consumer valuations of a particular product or service, where consumers perceive different products or services to exist, it is appropriate to define multiple demand curves. Figure 2 illustrates two hypothetical demand curves, one for travelers on urgent journeys, where fast and reliable transport is very important, and one for travelers on non-urgent journeys, where fast and reliable service is not as important as for the other group. If the relationship between traffic and perceived cost is the same on different parallel lanes assigned to these two market segments, the result (from the figure) is that different optimum tolls exist

for the two market segments. As is common in the U.S., social policies may increase the number of market segments, for example if we decide that high occupancy vehicles should receive toll discounts, subsidies, or reserved road space. Of course, this assumes the existence of suitable technology.

The need to avoid the appearance of double taxation (paying to use road facilities already funded by fuel taxes) and to avoid windfall revenues for public authorities are key points of contention impeding more deployment of congestion-based pricing in the U.S., especially HOT-lane conversions or instituting queue-bypass tolls on existing roadways. Numerous proposals have been made to solve this, such as revenue-neutral toll and taxation procedures by which, for example, the expected fuel tax generated by users of a priced toll facility would be rebated, as is currently done with fuel taxes paid for many vehicles used in agriculture and other off-road applications.[4] Toll systems, such as the FAIR lanes concept, which incorporate rebates while encouraging more efficient allocation of road capacity may prove more acceptable than fees simply placed on top of existing road taxes. (DeCorla-Souza, 2000) Despite their potential complexities, these approaches merit consideration.

In the U.S., suggesting the use of congestion-based pricing often creates concern about differential impacts on low income people. There is a widely held view that it is socially unacceptable to restrict automobile use by low income persons, a view reflected in such things as hesitant enforcement of laws on mandatory vehicle insurance and reluctance to prohibit the continued use of decades-old high polluting vehicles. Impact studies for variable toll facilities have shown that the frequency with which people choose to pay tolls for improved travel conditions does correlate to income. That relationship was found to be not very strong among SR 91 commuters, and stronger among I-15 commuters. (Sullivan, 2000; Ghosh, 2001) There are other, sometimes more important factors in determining which people take advantage of value pricing. For example, SR 91, I-15, and Lee County data have shown that females are significantly more likely than males to pay tolls to bypass congestion. It should also be noted that value pricing projects in the U.S. upon which these findings are based are all located in relatively affluent commuting corridors.

It seems clear that persons who have experienced variable pricing generally approve of having more travel choices and most feel that these pricing methods are fair to everyone concerned. Survey findings from I-15, Lee County, and early findings from opinion surveys of commuters on SR 91 show high approval ratings, even among people not personally benefiting from value pricing.[5]

The recently inaugurated peak/off-peak toll differentials on the San Joaquin Hills Toll Road and the number of other pricing projects currently being considered suggest that a degree of momentum for these kinds of projects has been established in the U.S. As more such individual projects are proven successful, it should be possible after a time to consider integrated systems of facilities with congestion-based pricing. Eventually, area-wide congestion-based pricing may be feasible. However, established methods do not change quickly and patience is essential.

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[4] In the U.S., most road construction is funded by trust accounts (state and federal) which receive taxes paid on consumer purchases of fuel. Americans are very aware that most roads are pre-funded by this mechanism. Major toll facilities are exceptions, usually being funded by bond indebtedness.

[5] The most recent surveys for SR 91 show lower approval ratings. However, these later surveys were done at a time when the operator was under intense public criticism for alleged improprieties related to their business reorganization efforts and for blocking congestion relief on nearby public roadways.

A final issue is the role of private enterprise in providing future road capacity. The private SR 91 Express Lanes and the now privately operated Route 407 project near Toronto are generally seen as successful investments. These projects illustrate that, under proper circumstances, investments in suburban highways can be profitable. The proposed Colorado Route 470 project is also planned as a public-private venture. Clearly, congestion-based pricing can enhance revenues as well as operating efficiency. However, the controversy and litigation which surrounded the SR 91 project, and the initial default of the privately funded Dulles Greenway Toll Road outside Washington DC (subsequently refinanced) have raised some red flags of caution in the U.S. regarding the role of private involvement.[6] (Sullivan, 2000; NCHRP, 2001b) As discussed in greater detail in the SR 91 evaluation study, more carefully crafted agreements between private and public partners need to be devised so that private investors can be assured of fair treatment by public authorities, and public authorities can be free to develop appropriate transportation improvements which do not undermine the revenue streams of the privately funded components of the system.

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[6] In January 2003, the SR 91 franchise was sold for about $200 million to the public transportation authority of Orange County. As a publicly operated toll facility, the SR 91 pricing policy could change in ways yet to be determined.

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