INTRODUCTION

Except for the recent severe economic recession which reduced traffic congestion in 2008 and 2009, measures of traffic congestion from 1982 until the present show that it is an increasing phenomenon in several respects. First, an ever increasing percentage of travelers in major metropolitan areas are subject to congestion delays. Second, congested roadway segments are congested for longer periods of the day, with serious congestion occurring in some places on weekends as well as during the weekday commuting periods. [Downs 2004, p 1. Schrank & Lomax 2011. Sipress 2000.]

Although the academic literature shows a large degree of consensus that road-use pricing can successfully mitigate traffic congestion, common sense suggests that drivers are unlikely to support a proposal to pay for roadway access – something that they now get for free. Because the majority of people drive for most of their daily trips, this would seem to doom most road-use pricing proposals from a political perspective. And, as expected, many road-use pricing proposals have not been implemented due to a lack of political support. [Congressional Budget Office 2009, p x.] Yet, there have been several instances of successful implementation. [Lewis 2008, Table 8, pp 32-33] This report examines the scientific literature regarding both failed and successful attempts at road-use pricing to glean insights into the conditions and circumstances that might determine whether such attempts will succeed or fail.

Prior to beginning this review, it seemed reasonable to explore the following themes:

1. Different road-use pricing policies have different impacts. Are some options inherently more acceptable to the public than others?
2. The public consists of different groups. Although these groups are not mutually exclusive (someone might be a “driver,” a “transit rider” and a “community activist”), understanding how different groups are affected by different proposals, understanding how different groups understand the discussion about road-use pricing, and understanding how different groups influence political decision-making might help determine which road-use pricing campaigns will succeed and which will fail.

3. What is the context within which road-use pricing is proposed and discussed? While the imposition of a fee for roadway use or access is a big change in itself (compared to no charge for roadway access or use), there is usually much more going on than merely the imposition of a new fee. Is the purpose of road-use pricing to pay off roadway construction or operating costs, transit capital or operating costs, reduce congestion, reduce pollution, enhance economic development – or some combination of these goals? Is it a stand-alone measure – or bundled with other policies and programs? How will the revenues be used? Is the proposal perceived to be fair and equitable? Who is proposing the fee and are they trusted? Are the administrative mechanisms simple or complex, cheap or expensive, invasive of privacy or not? How are the communications managed, both in terms of substance (what is the problem and how will road-use pricing solve the problem) and in terms of process (who is involved in the decision-making and when and how are they involved in the process)?

The public’s acceptance of road-use pricing depends, at least in part, on the public’s understanding of the problem and the proposed solution. Therefore, the first section of this literature review focuses on some key aspects of congestion and road-use pricing – particularly those that may be misunderstood or counter-intuitive. Next, this report briefly describes the different types of road use pricing policies and the different constituency groups that are likely to play a key role in shaping public acceptability of road-use pricing. Then the report focuses on the contextual issues that can shape public perception and acceptance of road-use pricing. Finally, the report reviews the literature about what types of intervention have been successful in achieving the necessary public support for road-use pricing.
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CAUSES AND EFFECTS OF CONGESTION

A common misperception is that traffic congestion is caused by too many people in the same place at the same time. This is only partly true. Cars take up a lot of space, even when parked. When they are moving, drivers are instructed to keep one car length for every 10 miles per hour of speed between them and the car in front of them. A street can appear congested (because it is full of cars). But if each car has only a single occupant, the street may be transporting relatively few people. While the number of people traveling is an important factor in creating congestion, the mode by which they travel – walking, biking, transit, carpool or single-occupant vehicle (SOV) – is equally important, as the photos show below.

These pictures, taken by Phil Sheffield for an article in The Tampa Tribune by Jim Beamguard on July 18, 1999, show 40 people on a Tampa street using different modes of transportation.

Photo #1 above shows 40 people in 40 cars parked nose-to-nose.
Photo #2 shows the same people without the cars, and chairs placed where the drivers were sitting in photo #1.

Photo #3 shows the same 40 people arranged as if they were sitting on a transit bus.
Photo #4 shows these people, 10 as cyclists and 30 as pedestrians. Clearly, different modes of transportation consume different amounts of space per person.

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Cars are often a convenient and efficient way to travel. Yet in some circumstances, walking, cycling or transit can be comparably convenient and more efficient regarding the use of public space. In the Washington, DC Region, over 80% of trips are not commuting trips. The median distance for such trips is about 4 miles and 25% of these trips are less than 1.5 miles. [NCR TPB HHTS 2007-8: Bike Ped, p 12 and Shaver 2003.] Thus a significant number of auto trips are within a reasonable distance for biking and walking. [MWCWG Bike Ped Plan 2010, p i-3.]

However, when government policies make it cheaper to drive and park than to take transit, or when sidewalks and bike lanes are missing, it should be no surprise that most people will chose to drive and park, even for short trips. Careful attention to transit pricing, roadway pricing, parking pricing and the provision of bicycle and pedestrian facilities can help people make better choices about when to drive and when to walk, bike, carpool or use transit. The end result can be a better experience for drivers, transit users, cyclists and pedestrians alike while maximizing access to businesses, schools, shopping, recreation and cultural activities.
Another aspect of congestion that is not well-understood is that the severity of congestion on a roadway segment does not increase at the same rate as the increase in the number of vehicles using that segment. Thus, assuming a period when there is almost no traffic, many vehicles can enter this segment of roadway without any of them having to reduce speed (more than momentarily) to accommodate one another. In other words, many cars can enter a roadway without any evidence of congestion. However, when a roadway gets close to its carrying capacity at the prevailing speed, the entrance of relatively few additional cars will compel most drivers to slow down to leave enough room between themselves and the car in front of them, resulting in a noticeable reduction in average vehicle speed over the length of the roadway segment. And, after congestion begins, it takes the addition of fewer and fewer cars to take congestion to the next level of severity. The good news is that once congestion occurs, “a small reduction in the number of vehicles on the road will produce a large reduction in congestion.” [Walker 2011, p 9 and FHWA 1999.]

One final technical aspect of congestion that is not commonly understood is that congestion does more than merely reduce the speed of traffic. When congestion reaches a certain point, it actually reduces traffic flow -- the number of vehicles that pass a given point over a specified time period. When congestion begins, average speeds begin to slow, but the traffic flow continues to increase as additional cars enter the roadway segment and the distances between cars shrink. After congestion reaches a certain point however, traffic flow begins to decline. Thus, congestion is not only an inconvenience, after a certain point it actually diminishes the capacity of a roadway to carry traffic at the times when this capacity is most in demand. [Downs 2004, pp 157-160.] See the following chart from Anthony Downs, “Still Stuck In Traffic” Brookings Institution, 2004, p 357.
Traffic congestion is experienced as slower travel speeds and longer travel times than at times when a roadway has fewer vehicles. Causes for congestion can vary widely. They include, singly or in combination:

- Introducing cars into cities that were designed and built without facilities to accommodate their substantial space needs;
- Geographical features that create bottlenecks;
- Transportation network configurations that create bottlenecks;
- Changes in population, by numbers or by location;
- Changes in employment, by numbers, location or start and finish times;
- Land use patterns (densities and distributions of uses) that are not compatible with transportation networks. This includes both too much and too little density in relation to underlying demand for land utilization;
- Regular and predictable events – such as “rush hours” caused by uniform starting and quitting times for most jobs or sun glare into oncoming traffic near dawn and dusk;
- Intermittent, but predictable events – such as holidays and planned roadway construction or repair; and
- Unpredictable events such as crashes, bad weather, or sudden roadway failures.

**Causes of Congestion**

*Temporary disruptions such as road work can reduce road capacity and reliability.*

- Incidents (crashes, disabled vehicles) 25%
- Insufficient capacity/bottlenecks 40%
- Weather (snow, ice, fog) 15%
- Poor signal timing 5%
- Other, nonrecurring events (special events) 5%
- Work zones 10%

**SOURCE:** Federal Highway Administration

**November 24, 2003**

Because roadway capacity is typically not priced, “Insufficient capacity” could also be labeled “Excessive demand.”

In some instances, congestion might be overrated as a serious problem. First, towns and cities that lack employment and shopping opportunities and that lack recreational and cultural activities rarely suffer from congestion. In other words, to some extent, congestion can be a symptom of local or regional vitality. [FHWA UCR 2011 4Q, showing that congestion declined during the recent recession (2008 and 2009) when compared to 2007 and 2010.] Many people might prefer to live in a vibrant community with some congestion than in a moribund community with no traffic.

And congestion might have some positive consequences such as encouraging some people to carpool or take transit, encouraging some people to travel at “off-peak” times, and encouraging others to live closer to their typical or most important destinations. [Eliasson 2010, p4.] All of these reactions to congestion allow more people to use the same amount of transportation infrastructure. Whether congestion’s harms outweigh its beneficial consequences depends on the severity of congestion and a case-by-case analysis.

Second, some objective measures of congestion might overstate the problem. Estimates of wasted time and fuel are derived by comparing actual driving times and speeds during congested periods to driving times and speeds during uncongested conditions. It is unrealistic to assume that peak travel times could be completely uncongested, so estimates of “wasted”
time and fuel are overstated and no attempted remedy should be expected to eliminate congestion entirely. [Downs 2004, p3.] Furthermore, when these estimates of wasted time are disaggregated by the number of people experiencing delay and by the number of trips that they make annually, the delay per person may average between 4 and 5 minutes per commuting trip, or between 8 and 10 minutes per day. [Downs 2004, p 3.] Of course, this per person average understates the impact of congestion in regions where congestion is most severe. (For another critique of the TTI methodology, see Joe Cortright, Driven Apart, CEOs for Cities, September 2010.)

Third, although many of us complain about congestion, we accommodate ourselves to it. [Downs 2004, p 323.] In a Washington, DC area survey, participants were asked to rate regional performance on a number of issues and also rank them by their willingness to pay more taxes for each priority. In terms of “transportation choices,” respondents thought that the DC region performed well. In terms of “easy to get to jobs” and “walkability,” respondents thought that the region’s performance needed improvement. Yet, in spite of the region’s ranking as one of the most congested in the nation, survey respondents indicated that they were not willing to spend additional tax dollars to improve transportation. [MWCOG, Region Forward 2010, p 7.]

In general, people have some choices about when, where and how to travel. (Only about 20% of all trips are commuting trips. Business and household activities constitute the remainder.) Although people don’t relish congestion, their efforts to avoid or minimize their experience of it have led us to the status quo. So many people do not object to congestion more than they object to the alternative actions necessary to avoid it. For some people, time spent in their own automobile listening to audio programming of their choosing at a temperature they control is not entirely unpleasant.

While complaints about congestion are almost universal and may be overstated in some cases, severe traffic congestion is more than simply an aggravation to individuals. It can also impede a region’s economic performance and productivity. Congestion can subject businesses to higher costs to receive or deliver goods. Congestion can also impose productivity losses if employees don’t report on time. In a highly competitive market and for businesses with small profit margins, congestion can be crippling. [Lewis 2008, Table 1, pp 9-10] Along this same line, the Texas Transportation Institute (TTI) estimates of financial losses related to congestion are limited to wasted time and fuel experienced by drivers. TTI’s estimates do not account for lost business productivity. Adding these losses would almost double TTI’s estimated costs of congestion. [Weisbrod 2011.] In its 2007 Urban Mobility Report, the Texas Transportation Institute (TTI) estimated that the cost of congestion (lost time, wasted fuel and excess vehicle wear-and-tear) in the USA’s 437 metropolitan regions was about $78 billion. This estimate grew
to $87.2 billion in 2009 and to $101 billion in 2011. So, regardless of whether its methodology is over- or under-inclusive, TTI shows us that congestion is increasing at a substantial pace.
Traffic congestion also has environmental consequences because it increases fuel consumption and pollution. TTI’s 2009 report estimated that congestion wasted 2.8 billion gallons of fuel. (As mentioned above, wasted time and fuel and excess pollution cannot be eliminated entirely. But it is hard to justify any waste of fuel or any unnecessary increase in toxic pollution.) Severe congestion reduces traffic flow when roadway capacity is needed most.

Finally, congestion reduces the distance between vehicles and this can increase the number of collisions. In 2008, AAA estimated that the costs of collisions (property damage, injuries, and deaths) were more than double TTI’s estimated economic losses from simple delay. [AAA 2008.] And congestion also creates demands for roadway extensions and widening that are very expensive. [Lewis, 2008, p 22] So efforts to reduce congestion can have potentially large benefits in terms of increased safety, lower infrastructure spending requirements, and higher economic productivity. [Lewis 2008, Table 5, p 21]

The disparity in the impacts of congestion, from mild aggravation to the loss of businesses and jobs, is an important part of the context of this report. As a roadway nears its carrying capacity, the addition of relatively few additional cars can dramatically diminish speeds, create congestion and reduce traffic flow. Yet the drivers who create this congestion face no cost other than their own experience of congestion – and this cost may be discounted because drivers who create congestion are generally not aware that they are the cause.

Thus drivers fail to understand the consequences of their actions and are not accountable for these consequences (i.e., a driver does not compensate persons or businesses who might be severely and negatively impacted by the driver’s actions). Thus, more drivers create congestion than they would if they understood their actions and had to compensate those negatively impacted. This is a classic example of an economic externality (i.e., a cost or benefit that is not mediated through the market’s pricing system). When actors impose costs on others without compensating them, this leads to economically inefficient resource allocation known as market failure. And traffic congestion is a symptom of market failure. Drivers do not pay for some significant costs associated with their travel behavior.
Our understanding (or misunderstanding) about congestion’s causes, may prompt us to take actions, collectively or individually, that exacerbate congestion. [Downs 2004, p321.]
Congested urban streets in the early 1900s were part of the impetus for suburban development. People, including planners, thought that spreading development out in lower-density suburban communities would reduce congestion.
Yet, while our intuition is correct that dense cities have more congestion than low-density rural areas, the relationship between density and congestion is not necessarily a linear one. Some observations indicate that traffic congestion is at its worst in moderate-density suburbs. [Cortright 2010 and TCRP 128 noting that transit-oriented development projects “generated around 47% less vehicle traffic than that predicted by the ITE manual. At Metrorail stations outside the District of Columbia, “vehicle trip generation rates were more than 60% below that predicted by the ITE manual.” See also Kienitz 1999.]
For example, an interstate highway (“Beltway”) was created in the 1960s around the District of Columbia to allow suburbanites to
avoid DC traffic congestion. Yet suburban traffic congestion on the Beltway is now so bad that about 25% of the traffic entering the District of Columbia at key points from Maryland and Virginia during peak periods is using the District as a short-cut to other suburban destinations. [Griffiths 2006. See also, NCR TPB RMAS 2006.] It is not density *per se* that reduces congestion, but density in combination with mixed uses and grid streets that create the opportunity for walking, cycling and economically viable transit service. According to the 2007-2008 regional household travel survey in the Washington Metropolitan Region, persons in regional activity centers take fewer trips, shorter trips and more trips by walking & transit than the regional average. [NCR TPB – HHTS 2007-8: RAC.]

In many suburban areas, segregation of land use types and long distances between potential destinations make waking, cycling and shared transportation impractical, if not impossible. In communities where each and every daily activity requires an auto trip, congestion is almost inevitable. And because 80 percent of trips are not commuting trips, weekends may be as congested as weekdays in these areas. [Sipress 2000.] And sprawl exacerbates a host of other problems that are beyond the scope of this project. [OECD, Compact Cities, 2012]
There are a wide variety of techniques that can be used to ameliorate congestion. These techniques include supply-side strategies (building new roads or wider roads, expanding transit services, ramp metering, responding more quickly and effectively to crashes, vehicle breakdowns, fallen trees, etc.) and demand-side strategies (road-use pricing, telecommuting requirements, zoning & land use changes). [See Downs 2004, pp336-337 for a comprehensive list of strategies.]

And this leads to a caution that some attempts to alleviate congestion may provide only temporary results, at best. As mentioned above, we have both an aversion to and a tolerance for congestion. This results in a “congestion equilibrium.” If a congested road is widened to increase capacity and becomes less congested, people will find out and some will shift their travel to that road from other routes, other times or other modes of travel. [Downs 2004, p327.] (Of course, some highway projects that alleviate bottlenecks can result in congestion reduction in those areas. Examples include the Woodrow Wilson Bridge replacement and several freeway ramp reconfigurations in the Metropolitan Washington Area.) Additionally, a relatively less-congested road or corridor in a generally congested area will be seen as an attractive location for new development, which in turn, will increase traffic and congestion over time. The only lasting remedies to congestion will result from:

- Shifting travel to modes that consume less space (walking, biking and transit); and
- Reducing the number and length of typical daily trips by clustering and mixing land uses.

This report will focus on public acceptance for the demand-side strategies that entail pricing. The good news is that congestion pricing has been shown to reduce congestion dramatically.

Where it has been implemented, there have been sudden and noticeable reductions in congestion. In Stockholm, relatively modest charges between 87p and £1.74 reduced traffic by more than 20%. [Walker 2011 p x and p 60.] In London, traffic subject to the charge was reduced by more than 30% [Walker 2011, p40]. In turn, this has reduced bus transit journey times by 15% and increased bus speeds by 20% within the priced area while reducing excess waiting times due to service irregularity by 30% and reducing bus service disruptions due to traffic delays by 60%. [Ensor 2004.] Yet, there are relatively few examples of road-use pricing on a network of roads or facilities. London, Stockholm and Singapore are the most notable examples of places where road-use pricing has been implemented. (Other cities using road pricing include Oslo, Bergen and Trondheim in Norway.) In the USA, there have been numerous failed attempts. [Schaller, Munnich, King, Downs.] However, performance-based parking pricing has been implemented in a few cities in California and in Washington DC as a pilot program. Additionally, there are a growing number of HOT lane projects that have been

There are three hurdles to clear for roadway pricing. [Howitt 1980, p156] There must be
1. Public support;
2. Approval from public officials for legal enactment; and
3. Implementation by public agencies.

Many attempts to implement roadway pricing have failed because the first hurdle cannot be overcome. The balance of this report will review the literature about why public support for road use pricing is so hard to come by and what conditions might enhance its acceptability.

**FACTORS THAT INFLUENCE PUBLIC ACCEPTANCE OF (OR OPPOSITION TO) ROAD USE PRICING**

On the one hand, where road use pricing has been implemented, public acceptance has been broad enough and deep enough to prevent it from being withdrawn or eliminated. [Eliasson]
On the other hand, we rarely get to observe public acceptance of road use pricing because public opposition to it frequently prevents its implementation.

The public often fails to support roadway pricing because:
1. Citizens act defensively, responding more to threats than opportunities. Thus the loss of the benefit of free roadway use is more likely to engender protest and the promise of less congestion is less likely to engender active support. [Howitt citing Altshuler et al, 1979]
2. It is difficult to organize people to seek a collective benefit or “public good.” Most people are more motivated to take action to secure a private benefit; [Howitt citing Olsun, 1965]
3. Citizens tend to be more sensitive to immediate, short-term costs than to long-term benefits. [Howitt, p 157]; and
4. Individuals are more likely to take political action when policy effects are the direct consequence of government action rather than when impacts are indirect. [Howitt citing Altshuler 1979].

Thus, due to the structure of roadway pricing’s costs and benefits, the benefits are unlikely to motivate active support while its costs are very likely to engender both organized and individual opposition. [Howitt p 157, 159]
“There is nothing more difficult to take in hand, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old order of things, and lukewarm defenders in those who may do well under the new.”

-- Machiavelli, *The Prince*, [quoted in King 2007]

**The Nature of Pricing Policies**

The nature of a pricing policy can affect drivers’ support for or opposition to it. Below are some brief descriptions of different road use pricing policies.

**Gas Tax**

When the National Defense Interstate Highway System was being planned, President Eisenhower suggested that drivers be assessed a fee based on the number of miles that they would drive on the interstate. Although this comported well with a notion of economic fairness – i.e., people would pay for the interstate in proportion to their use of it – tolling was not considered to be practical. Highway planners convinced Eisenhower that traffic volumes would not generate enough revenue in most corridors to repay construction bonds [FHWA – I-FAQ.]. Additionally, toll booths would be expensive to operate and impede traffic on a system that was intended to expedite it.

So a fuel tax was proposed as a surrogate to tolls. Although a fuel tax is paid in proportion to the total amount of driving that one does, it is not necessarily paid in proportion to driving on interstate highways. Additionally, the fuel tax is levied as a defined number of cents per gallon of fuel. Thus the fuel tax is not indexed to inflation. As the cost of road construction or repair increases (and even as the price of fuel increases), the fuel tax remains constant for each gallon of fuel sold. Also, as vehicles become more efficient in terms of “miles per gallon,” the user charge, in terms of money paid per mile driven, actually declines.

Through the use of the fuels tax (and even more so through the use of sales and property tax revenues for transportation), public officials have separated transportation facilities and services from transportation financing. Thus users of transportation facilities and services are not paying market-based prices for doing so. This lack of market information makes it difficult for users to consider how their travel choices impose costs on society (through congestion delays, noise, emissions, crashes, etc.).

[Taylor, 2010, p 6]
Tolls

Some highways and bridges do charge tolls. With few exceptions, tolled highways were built prior to the creation of the interstate highway system and then “grandfathered” into the system. [Tolling is generally prohibited on the Interstate Highway System, with few exceptions. See 23 US Code §301 for the general prohibition on tolling and 23 USC 129 for the exceptions. In some cases, tolls were discontinued when existing tolled highways were integrated into the interstate system.] Typically, tolls for these facilities are flat or distance-based fees intended to defray capital and/or operating costs. The fees are not intended to discourage or mitigate congestion, although tolls can be expected to divert at least some traffic to untolled parallel routes.

Tolls to pay for bridges and tunnels also exist. They are referred to as “point-based” charging or tolling. These fees typically are static (they do not rise and fall with increases and decreases in congestion). Therefore, they do not impact congestion. Also, because bridges and tunnels are less likely to have convenient “free” alternatives, they generate little or no traffic diversion. Yet, these tolls might influence some drivers to combine trips (trip chaining), divert trips or eliminate trips to reduce the impact of the toll.

Time and Distance Charging

Time and distance charging most closely reflects a user fee both in terms of how much of the road is impacted by a user’s travel and in terms of the congestion costs that a user imposes upon others. Thus, this type of charging encourages drivers to avoid congested places at congested times. Time-and-distance charging also encourages residents and businesses to locate homes and businesses closer to the people and places that they interact with on a regular basis. Thus it can encourage more compact development that is more conducive to walking, cycling, transit and other modes of shared transportation.

Two types of time-and-distance charging are discussed below:

HOT Lanes

Some road-use pricing related to congestion mitigation has been introduced into the USA. [See 23 USC 129 for authorization of HOT lanes within the interstate system.] This has typically occurred where one or more freeway lanes have been reserved for transit buses and high-occupancy vehicles (HOVs). HOV lanes can transport many more people per lane mile per hour than general purpose lanes.
Yet, because fewer vehicles are using them, the HOV lanes may appear to be underutilized. When adjacent general purpose lanes are congested, SOV drivers can pressure officials to make the HOV lanes available for general purpose traffic. Doing this, of course would simply result in all lanes being congested. [Munnich 2005, p80]

A compromise that has been successfully employed in a growing number of cases has been the conversion of HOV lanes into high-occupancy toll (HOT) lanes. [Allowed on interstate highways by 23 USC 166(c).] Transit and carpool vehicles continue to use the lanes free of charge. However, SOV drivers are allowed to use the HOV lanes if they pay a fee for doing so. The cost of the fee is set high enough so that the HOT lanes do not become congested. Tolls are collected electronically through the use of license plate cameras and/or transponders, without the use of toll booths.

Express Toll Lanes

Express toll lanes are similar to HOT lanes with one major difference. In HOT lanes, HOVs are not charged a toll. In an express toll lane, all vehicles must pay. This simplifies enforcement. It diminishes the financial incentive to form carpools, but does not eliminate it.

Cordon Tolling and Area Charging

Cordon tolling charges a vehicle each and every time for entering or leaving a defined area during a time when charging is enforced. Thus, it creates a strong incentive to reduce or eliminate the number of trips across this boundary. [Walker 2011 p 127] Singapore began cordon tolling in 1975. [NCHRP 377, p28] Cordon systems have some drawbacks. They create parking pressure immediately outside the boundary. There also can be a perception of unfairness about the way that people who live near the boundary are (or are not) charged for their travel. And, over time, some residents and businesses may seek to avoid the charge by moving away from the cordon boundary. To the extent that a cordon toll can create incentives for less compact development, this can exacerbate sprawl and reduce opportunities for transit, cycling and walking as convenient and viable modes of transportation in lieu of SOVs.

Area charging levies a fee on vehicles that are used within a defined area when charging is enforced, regardless of whether or not they cross the area boundary. [Lewis 2008, p11.] London implemented this in 2003. [Walker, 2011 p 39.] Because area charging is usually assessed on a daily basis, once a vehicle has been charged, there is no incentive to reduce the number or length of trips within the congested area. Like cordon toll,
area charging can also create incentives to move outside of the charged area, resulting in less compact development.

**Parking Pricing**

In the USA, not only is there generally no charge to access the highway network, but in most places it is also free to park or parking may be allowed for a nominal charge. (The cost of providing parking is not free. Therefore, the costs of supplying parking are usually passed on in the form of higher building rents and/or in the prices of goods produced or sold at locations where parking is subsidized. Thus, where parking is subsidized, its costs are economic externalities that lead to market failure.) The result of subsidized parking is that people drive more than they would if they had to pay its full cost. In some situations, the number of people seeking free or nominally-priced parking spaces may exceed their supply. According to Shoup, about 30% of vehicles on some downtown streets had already reached their destination, but were “cruising” for a parking space. [Shoup 2007, p 17.]

When employees have access to free parking at work, they are twice as likely to drive alone as compared to employees who much pay for parking. In the Washington, DC area, when people have free parking at work, 83% drive alone. When people do not have free parking at work, only 48% drive alone. Compounding the problem, approximately 68% of the region’s commuters have access to free parking at work. [MWCOC 2007 SoC p 37. See also, Shaver 2002.] (And this does not include workers whose parking costs are not free, but are substantially subsidized.) A 1975 survey was conducted of federal and county government workers commuting to the same building in downtown LA. County workers parked for free but federal workers had to pay. Of the county workers, 72 percent drove to work alone, but 60 percent of federal employees carpooled, took public transportation, or even walked. When forced to pay a practical value for parking, drivers were twice as likely to carpool—traffic congestion was halved, carbon emissions were halved. [Gardetta 2011.]

Thus parking prices (or the lack thereof) can influence congestion in at least two profound ways:

1. They influence the decision to drive alone or use an alternative mode.
2. They help determine whether drivers will find parking spaces available when they arrive at their destinations.
Free or heavily subsidized parking ensures that more people will drive alone (putting more cars on the road) and that there will be insufficient parking once they arrive at their destination (keeping those cars on the road longer as they hunt for parking).

Strategies for making parking costs explicit include:

- New or higher parking fees or taxes
- Performance-based parking meter fees. The concept is to set parking meter prices so that 85% curbside occupancy is achieved. This ensures that the curb space is well-utilized but also ensures that new arrivals can find a parking space without excessive cruising.
- Parking cash-out. Employers typically provide free parking to employees who drive. This can be a very valuable benefit and is generally not available to employees who walk, cycle or take transit. Instead, employers would make a cash payment to each employee based on the value of a parking space. Employees could then choose to return the payment in exchange for the parking space. Alternatively, they could walk to work and pocket the payment. Or, they could carpool and return only part of the payment to the employer. Or, they could take transit and use the payment to cover transit expenses. This would shift travel away from SOVs to other modes, and thereby reduce congestion. [Shoup 1997, pp 201-216; Also Downs 2004, p 193 and p 337.]


DIFFERENT & OVERLAPPING PUBLICS

Many of the studies reviewed here speak about the structural characteristics of congestions’ costs and the costs and benefits of road-use pricing, such that the public is much more likely to oppose road use pricing than endorse or support it. “Policymakers’ ... failure to price the roads is not the result of senseless intransigence or of their inability to ‘get it.’ Congestion pricing looks good only from an economic perspective. Politically, it looks risky and possibly disastrous.” [King 2007, page 121]

Many of these studies also reveal that there are multiple publics. “Instead of a well-defined, distinct public, many publics exist—and the state of public opinion depends on— which particular public has been polled or surveyed. Each of these distinct subgroups may hold
different opinions of road pricing and tolling programs.” [NCHRP 377, p 2] Not only are there many different publics, but many of them also overlap one another. Some of us might be drivers, passengers, pedestrians and cyclists all in the same day. We might be both, consumers and producers, children and parents, constituents and officials. We might be directly or indirectly impacted by policies, or both. How we react to a proposed policy, therefore, depends on many factors:

- The nature of the policy
- The way in which we understand the impacts of the policy on ourselves and our communities
  - The identity of proponents and opponents
    - Do we trust them?
  - Which of our many different roles (and values) do we focus on when we consider the pros & cons?
  - How proponents and opponents communicate to us about the policy
    - How do their communications support or conflict with our values?
    - How are we included in (or excluded from) deliberations about policy and implementation?

As we think about whether road-use pricing might be an appropriate congestion mitigation measure, we must also think carefully about how to communicate road pricing issues. Some people will be directly impacted by road use pricing. These include drivers of SOVs and HOVs, and may also include carpool passengers, transit riders and public officials and drivers on parallel routes where diversion might occur. Other groups affected indirectly might include transit riders, pedestrians, cyclists, labor unions, business owners, environmentalists, community activists and public officials.

The direct effects of road-use pricing can be divided into the follow four categories:

**Negative Effects:**
- Road-use payments; and
- New behavior to avoid the fee. This is an inconvenience because, in the absence of the fee, this new behavior would not have been chosen.

**Positive Effects:**
- Less congestion. This results in time savings, fewer collisions, less stress, and monetary savings from lower fuel consumption and reduced vehicle maintenance; and
- Benefits received from the spending of road-use pricing revenues.

These direct effects will experienced by
• Existing solo drivers on priced roads.
  o The majority of these drivers will pay the fee and continue to drive.
    ▪ If the time savings from reduced congestion is more valuable than the fee, they win.
    ▪ If the time savings from reduced congestion is less valuable than the fee, they lose.
  o Some of these drivers will engage in alternative behavior such as using alternative routes, times, modes, destinations or foregoing some trips completely.
    ▪ Generally, alternative behavior is less attractive than what they were doing previously, so this is typically a negative consequence. However, if congestion reduction makes the alternative behavior more pleasant than solo driving during congestion, then this could become a positive effect.
• Existing carpool and transit bus users on priced roads
  o If they already have access to an uncongested HOV lane, there should be little difference assuming that the priced lane is managed so as to prevent congestion in that lane.
  o If they don't have access to an uncongested HOV lane, they should experience a benefit in terms of reduced congestion. How much of a benefit depends, in part, upon whether HOVs and buses travel free (HOT lanes) or must pay (Express Toll Lanes)
• Users of nearby unpriced highways and roads
  o Depending upon the design and implementation of the road-use pricing system, there could be a diversion of traffic from priced roads to nearby unpriced highways and roads.
    ▪ Experience has shown that diversion tends to be minimal. [Walker 2011, p 104.]
    ▪ If alternative roads become very congested, they should be included in the pricing system.

To assess political feasibility, we need to consider not only individuals, but groups likely to be identified in any public debate over congestion pricing. [Text below from Small pp 363-364.]

“Traveling public
People who use the transportation system extensively, especially automobile drivers, can be expected to express some common interests that will shape any political debate over congestion pricing. If galvanized on a transportation issue, these people can be a very large voting block, as exemplified by the large
membership of the American Automobile Association. Their interests include reducing congestion, improving service on mass transit, and keeping taxes and user charges low.

State and local officials
Political, administrative, and technical officials must reconcile the public’s demand for services, including transportation, with strong resistance to taxes. Many of these officials have career interests in constructing public works, whether or not efficient. State and local officials have a strong interest in finding ways to finance transportation projects and other services.

Public transit and taxicab industries
State and local officials in agencies supplying mass transit services are joined by transit unions in seeking increased levels of transit funding. Taxicab operators want to ensure a stable operating environment, continued demand for their services, and authorization to pass on any increases in their costs.

Trucking organizations
While more active at state and national than local levels, these organizations are dedicated to better highways, full access to trucks, and financing mechanisms that do not target heavy vehicles. They are adamantly opposed to restrictions on truck movements, such as those proposed for Los Angeles. Congestion pricing might be viewed as a substitute for such restrictions.

Business sector
Local businesses share an interest in good public services, including transportation facilities, to support their activities. Some depend crucially on reliable timing of deliveries, and hence care a great deal about the inefficiencies of congestion; but they seek solutions to it that maintain their flexibility. They also share an interest in low business taxes. Beyond that, their interests can be quite divergent, ranging from a desire to increase downtown property values to a desire to promote new outlying development. Developers are especially active in transportation issues, and often play an important role in lobbying officials and shaping public opinion on transportation proposals.

Environmentalists and slow-growth advocates
Successful lobbying groups have formed around issues of environmental degradation due to highways and their associated development. Concerns
include scenic values, air-pollution, noise, water runoff, and loss of wildlife. Typically these groups oppose most proposals to expand the highway system, although they may be willing to compromise on highways that are smaller and less environmentally damaging.

Low-tax advocates

A number of disparate organizations have successfully united to oppose tax increases, including past versions of the dedicated sales-tax surcharges now in place in many metropolitan areas. Some of these groups are amenable to higher user fees, while others oppose all government charges. Some are interested in privatizing highways.”

Here is what the literature reveals about public acceptance of the different road-use pricing policies mentioned above:

Fuel Taxes:

Key features of the fuel tax include:

1. Inexpensive and easy to administer

2. Invisible to drivers. Consumers only see the retail price per gallon (which already includes national and state fuel tax rates). Thus, many drivers do not know the tax rate nor how much tax they pay. Some focus group surveys indicate that people imagine that the rate and the amount that they pay are much higher than is actually the case. From a psychological perspective, it is interesting to note the difference between a “tax” and a “price.” Many voters and politicians feel that increasing the gas tax by one cent per gallon is politically unacceptable. Yet, when gas prices rise by more than a dollar per gallon, many of the same people will shrug and say, “That’s the price, what can you do?” Thus, taxes appear to arouse people’s emotions more strongly than prices.

3. Payment of a fuel tax does not vary with the route traveled nor with the time that travel occurs. So payment of a gas tax may deter driving in general, but does not deter travel on congested routes at congested times.

Tolls

Private toll roads were created in the early days of the United States. Road names that end in “Pike” are often indications that a road had once been a toll road. After the advent of the auto, states used tolls to pay for the construction and operation of
highways. Some of these were grandfathered into the US Interstate system while others took advantage of the availability of federal fuel tax revenues and discontinued toll collection. Because of this history, people tend to understand tolls only as a source of funding for highway (or bridge or tunnel) construction and operations. (There is also a misunderstanding about the extent to which fuel taxes pay for all highway- and road-related costs. Highway operations and maintenance are often funded from general revenues as are state and local roadway construction and police, fire and emergency medical response costs which are a substantial – but often invisible – costs of providing roadway services.)

The notion of a driver paying a toll to compensate others for congestion, pollution or other negative externalities is not something that most US residents are familiar with or readily understand. Thus people often feel that road-use pricing is double-billing them because they believe that their fuel taxes have already paid for a highway’s construction and they do not comprehend the concept of paying for congestion.

HOT Lanes:
The key reasons that HOT lanes have been successful include:

1. The vast majority of drivers, drivers of SOVs, lose nothing. They may continue to drive on congested general-purpose lanes without charge.

2. SOV drivers gain an option. Those who want to access the uncongested HOV lanes may pay a fee to do so at controlled access points where tolls are collected electronically.

3. Careful management of the fee allows the HOT lane(s) to remain uncongested. This is important to:
   a. HOV drivers and transit riders who depend upon and are constituents of the HOV lane. IF SOVs congested the HOT lanes, carpoolers and transit riders might seek repeal of the HOT feature.
   b. SOV drivers would not be willing to pay a fee if the HOT lane(s) became congested.

4. Careful management of the HOT lane itself. Collisions and vehicle break-downs in the HOT lane(s) must be resolved quickly. Allowing these lanes to become congested will eliminate people’s willingness to pay for using them.
5. The drivers of SOVs who elect not to pay a fee to access the HOT lanes might gain something. To the extent that some SOVs leave the general purpose lanes for the HOT lanes, the general purpose lanes become somewhat less congested. Whether or not this is a noticeable benefit is uncertain.

Express Toll Lanes

Because all vehicles must pay to use an express toll lane, enforcement and administrative costs are reduced and procedures are simplified. The negative aspect, from a public support standpoint, is that HOV users and transit riders will feel that they are losing a benefit.

Cordon Pricing / Area Charging

With some exceptions (taxis, transit vehicles, emergency vehicles), all vehicles that enter or exit a defined area are charged. This lack of a “free” option generates substantial opposition, generally in excess of support. Opposition can be reduced somewhat, by limiting the charge to urban highways and it can be reduced even more by limiting the charge to “new” roads. [NCHRP re Oslo survey 1999, pp 28-29] New York City’s congestion pricing proposal was a cordon price that negatively impacted about 5% of commuters from eastern boroughs. Yet, the perceived lack of choice associated with this approach intensified feelings among those who were opposed and may have engendered sympathy from elected officials. [Schaller 2010, p 13.]

In London, two surveys were conducted. The first was a qualitative survey. It found strong opposition among the car-using public generally, and among residents in particular who felt it was unfair to charge residents for driving in their own neighborhood. The opportunity to use revenue to support transportation improvements softened opposition slightly, but engendered skepticism that the improvements would be made. The second survey offered respondents a choice between two pricing scenarios: The first entailed an area charge for Central London. The second entailed an area charge for Central and Inner London. When respondents were asked if a £5 fee would be a “good thing” to “reduce congestion and improve traffic and public transport,” 53% agreed. (But among drivers in Inner and Central London, only 30% agreed it would be a “good thing.”) When a general mix of roadway and public transport improvements was mentioned, approval by the general public increased to 67% and then to 73% when the respondent’s own preference for specific transportation improvement projects was included as part of the proposal.
asked, 57% of the general public agreed that “road-user charging was necessary,” but 48% believed that it would be unfair. [NCHRP London 1999, p29]

In Fort Myers Beach, FLA, there is a single main road along the island that is very congested during much of the day. A survey was conducted about implementing a cordon toll around the island. Overall, 64% agreed that tolls are “a fair way to pay for transportation improvements.” But different segments of the public reacted very differently. Among non-residents, 80% agreed. Among long-term residents, only 53% agreed. When the question was amended to mention the possibility that residents could be reimbursed, approval by long-term residents increased only slightly to 57%. [NCHRP Fort Meyers Beach p 30]

Parking Pricing

As with most pricing proposals, performance-based parking generates public opposition. However, it has been successfully implemented in a few California cities (Pasadena and Redwood) and in Washington, DC. In these cases, using new parking meter revenues for infrastructure and transportation improvements in the areas generating the new revenues was key to winning political support from residents and merchants. [Shoup 2005.]

In Washington, DC, the construction of a new baseball stadium at the Southeast waterfront and the creation of a suburban-style big box store complex in Columbia Heights were sufficient potential generators of new traffic and parking demand that the District Department of Transportation was able to obtain grudging acceptance of higher parking rates in light of almost certain gridlock in the absence of new measures. However, performance-based parking prices were enacted only as a pilot program of limited geographic scope and duration. Revenues are allocated as follows:

- 20% for general DDOT purposes;
- Up to 60% to pay off meter acquisition, installation and maintenance costs, related signage installation and maintenance costs;
- After meters are paid off, 5% for meter & related signage operations and maintenance costs
- Remaining funds to be made available for the impacted communities as well.

Compilation of Public Opinion Data on Tolls and Road Pricing:

The National Cooperative Highway Research Program, in its “Compilation of Public Opinion Data on Tolls and Road Pricing,” NCHRP Synthesis 377, 2008, noted that there were eight common themes that arose from their review of polls, regardless of the different nature of the road pricing projects or the different segments of the public being polled. These eight themes are:

1. The public wants to see the value of the proposal.
2. The public wants to react to tangible and specific examples.
3. The public cares about the use of revenues.
4. The public learns from experience.
5. The public uses knowledge and available information.
6. The public wants fairness.
7. The public wants simplicity.
8. The public favors tolls over taxes.

Although implicit in several of the eight themes above, other authors added another:

9. Trust

Each of these themes will be explored in detail below.

1. The public wants to see the value of the proposal.

   It is important to articulate benefits as they pertain to individuals, to communities, and to society as a whole. [NCHRP p 45. Also see Eliasson p 10]

2. The public wants to react to tangible and specific examples.

   When a concrete benefit is linked to the idea of tolling or charging for road usage (e.g., reducing congestion on a specific highly congested facility) as opposed to tolling in the abstract, public support is higher. In the former context, road pricing is perceived of as a “choice” rather than as punishment. [NCHRP pp 45-46] Providing choices seems inherently more fair to most people. See “fairness” below.

   Also, a proposal for road-use pricing seems more tangible if it is part of a larger, more comprehensive approach to transportation, environmental and economic problems. [Jones 1991, p 194.] See the discussion in the last section about New York City’s pricing proposal as part of a larger long-range plan for environmental and economic sustainability. Also see the discussion immediately below regarding the importance of how the revenues are used.
3. The public cares about the use of revenues.

There are very different views about how to reach different stakeholder groups and constituencies so that they will be supportive of road-use pricing (or at least less adamantly opposed). However, there does seem to be clear consensus that congestion relief by itself is not a sufficient benefit to engender the necessary support for (or quell the likely opposition to) the imposition of new or higher fees.

One focus area revolves around road-use pricing revenues. There is a consensus that just as the negative externalities associated with free roadway access are large, revenues derived from fees to internalize those externalities could be similarly large. [Small 1992, p370] One obvious approach, particularly in a time when “no new taxes” is a common slogan, would be to use these revenues solely to offset other existing taxes or fees. Even though user fees are more justifiable and promote economic efficiency when compared to other taxes which are less justifiable and are likely to produce economic inefficiencies, substituting a good fee for a bad tax is likely to be viewed by the general public as merely substituting one tax for another. Therefore, just as congestion relief is seen as an insufficient benefit to engender support, merely substituting congestion fees for other taxes is unlikely to motivate support or quell opposition. [Small 1992, p 366]

Therefore, use of tolling revenues is a key determinant to the acceptance or rejection of tolling and road pricing. Revenues should be linked to specific uses not to specific agencies. Support tends to be higher when revenues are used for highway infrastructure, public transit improvements, or more rapidly completing necessary construction. [NCHRP p46]

Several authors have proposed a variety of different arrangements for distributing road-use pricing revenues:

Phil Goodwin proposed the following use of revenues:
- 1/3 for highway improvements
- 1/3 for transit improvements
- 1/3 for either general tax relief or general expenditures
Small (1992) proposed the following:

1/3 for monetary reimbursement to travelers as a group;
1/3 for reducing general taxes now used to pay for transportation services; and
1/3 for new transportation services

The concept is to offer an array of benefits to persons whose time savings are worth less than new tolls in the hopes that most people will end up with a net positive benefit. For example, people who avoid the toll by switching to transit would be compensated by expenditures to improve transit (“linked compensation”). Small also looks for reductions in existing regressive taxes and fees to offset the perceived regressive aspects of congestion charges. The paper is very theoretical, but insightful and creative in finding benefits in addition to time savings that might motivate public acceptance or support. They include:

- **Reimbursements to travelers:**
  1. Employee commuting allowance ($10/mo.)
  2. Fuel tax reduction (5 cents/gal.)

- **Reduced general taxes:**
  3. Sales tax reduction (1/2 of transportation surcharge)
  4. Property tax rebate (eliminate local highway subsidy)

- **New transportation services:**
  5. Highway improvements
  6. Transit improvements
  7. Transportation services in business centers

[Small 1992, p 372.]

King (2007)

- Provide the lion’s share of revenues to cities impacted by freeways.
- Elected Officials in cities will become champions for pricing so that they can obtain the revenues.
- These officials, few in number but well-organized and influential, can become the constituency for road pricing that does not now exist.

The authors refer to the I-15 HOT Lane project outside of San Diego as a place where local elected officials successfully championed a road-use pricing project based on the concept of providing greater transportation choices and motivated by their ability to control the revenues.

Some of the authors cite real-world examples where the public supported their favored approach. Some don’t. But each community faces unique congestion problems, solutions and key constituencies. So instead of seeking some elusive universal
“formula” for the distribution of revenues, it is probably more important and productive to focus on the process of public outreach, education and involvement that will develop a distribution of revenues that grows organically from each community’s or region’s situation. See the discussion of “fairness” and the section, “Interventions” below.

It is particularly instructive that 2400 English adults were polled about potential remedies to traffic congestion. [Jones, 1991, p 195.] They were asked whether they would support or oppose the following measures:

<table>
<thead>
<tr>
<th>Measure</th>
<th>% Support minus % Opposed</th>
</tr>
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<tbody>
<tr>
<td>Increased investment in public transport</td>
<td>+68</td>
</tr>
<tr>
<td>Traffic calming measures in residential areas</td>
<td>+58</td>
</tr>
<tr>
<td>Banning cars from central areas</td>
<td>+15</td>
</tr>
<tr>
<td><strong>Charging motorists a fee</strong> for driving in heavily congested areas.</td>
<td>-27</td>
</tr>
</tbody>
</table>

Thus, an auto ban was seen as preferable to road-use pricing.

However, when the same individuals were asked about charging motorists a congestion fee and then using the proceeds to fund transit, roadway and traffic-calming measures along with better facilities for cyclists & pedestrians, the difference between the percentage in favor and the percentage opposed was a **net positive response of +23** (compared to a net negative response of -27 when road-use pricing was proposed absent any discussion about the disposition of revenues). [Jones, 1991, p 195] Thus, how the revenues are used and how that use is justified is central to public acceptance of roadway pricing.

4. **The public learns from experience.**

Support from a majority of citizens often cannot be expected from the outset. When the opportunity to use a tolled facility already exists, public support is higher than when it is simply a possibility for the future. Building support is a long-term, continuous process that should not stop after implementation. [NCHRP p 46]

“Support for congestion charging often follows a typical pattern. The figure below shows the principle. A fairly large fraction of the population is generally willing to support the idea of congestion pricing. How large this fraction is depends on how the question is formulated and framed – for example, revenue use, the purpose of the charges and what policy alternatives it is contrasted against all matter. **But once a detailed proposal is worked out, support generally decreases.** There may be several reasons for this – for example, that the disadvantages suddenly become more evident than the potential advantages, or
fears that the technical system will not work or become very expensive. This is sometimes summarized in the formula “acceptability decreases with detail”. But once the system is in place, support will generally increase, which is often summarized as “familiarity breeds acceptability.” [Eliasson Discussion Paper, 2010-4, p9]

One of the key insights here is that public approval tends to be at its lowest immediately prior to implementation. Thus, road-use pricing initiatives should avoid having elections or referenda when support for the program can be expected to be at its lowest. [Eliasson, p10] This ebb and flow of support also suggests the importance of pilot or demonstration programs because public support tends to rise dramatically after implementation. And all of these points highlight the importance of the public outreach, education and involvement methodology developed in Minnesota and discussed in the final section of this report.

5. The public uses knowledge and available information.
When opinion is informed by objective explanation of the conditions and mechanics of tolling and its pros and cons, public support is higher than when there is no context for how tolling works. Thus, visual and testimonial information about how road-use pricing works in places where it is being used can be compelling and help people change their opinions about its desirability or undesirability. This factor may also explain why

members of the public may express negative opinions about tolling or road pricing as theoretical constructs but will use a priced facility when it opens. [NCHRP p 46]

6. The public wants fairness.
Public opposition of tolling is higher where there is perceived unfairness. For this reason, an initial road-use pricing proposal should provide choices and options. Everyone, regardless of income, benefits from having choices. Among these options, having a cost-free alternative is very important. For this reason, HOT lanes and new construction of tolled lanes (like the Inter-County Connector in Maryland) have become the most widely implemented form of road pricing in the United States [DKS Associates 2009, pp 2-3.] The Inter-County Connector is a roadway project that uses congestion pricing on all lanes. However, because this is an entirely new facility, drivers are seen as having a choice whether or not to use it. Equally important, nobody became accustomed to using it for free and must face the withdrawal of that benefit.)

This also explains why support is generally higher for tolling new facilities than for tolling existing facilities. The public often believes that they have already paid for existing facilities (through taxes) and that tolling would be “double-billing.” [NCHRP pp 46-47] (The concern about “double-billing” might not be supported by fact in many cases, but this topic is beyond the scope of this report.)

“Fairness” can be defined in many ways. For this reason, many individuals, interest groups and officials can talk passionately about equity while talking past each other and failing to communicate. [Taylor 2010, p 8.] Regarding transportation finance, the following key questions need to be addressed:
1. Who pays for transportation facilities and services?
2. How and where do they pay?
3. Who benefits from transportation facilities and services?
4. How and where do they benefit?
[Taylor 2010, p3.]

Taylor also defines some distinct approaches to answering these questions:

- Market Equity – Bring prices in line with benefits received or costs imposed. (Much of the discussion in this paper has approached equity from this perspective.)

- Opportunity Equity – Treat all individuals (or groups or places) the same.
• Outcome Equity – Redistribute resources (if necessary) so that everyone (or every group or place) ends up in the same position. [Taylor 2010, p 8.]

And, within each approach, there are different units of analysis, such as

• individuals or households,
• groups or interests (defined by income, ethnicity, mode of transportation, industry or business sector)
• places (defined as areas, transportation sheds, political jurisdictions) [Taylor 2010, p8.]

Thus, with three different perspectives and three different units of analysis within each perspective, there are nine different ways to analyze the equity ramifications of any particular proposal.

HOT lane proposals were dubbed “Lexus Lanes” by opponents who believed that the rich would benefit (because the rich could afford to pay for an uncongested ride) and the less affluent would be stuck using the congested free lanes. [Taylor p 24] Research has indicated that this is an overly simplistic and distorted view. [Taylor 2010, p 7, citing a variety of studies about the relative incidences of tolls and sales taxes on different income groups.]

First, surveys show that while the affluent use HOT lanes more frequently, they are used and valued by all income classes. In particular, if a parent is running late to pick up a child from daycare and there’s a $20 late fee, that parent might want the option to spend $5 to use the HOT lanes and save $15. Likewise a plumber might find that using the HOT lanes allows for the completion of an additional job, more than offsetting the cost of using the HOT lanes. (This is also a potential benefit to consumers. Workers who travel from job to job must include a portion of their travel time in their bill. Reducing travel time and dividing that time among more customers might result in lower prices even after factoring in the road-use price.)

Second, one must assess the equity of the alternative means of financing transportation. In what proportion would different income classes pay if a sales tax was used instead? How would this affect equity between road users and non-users (because people don’t pay sales tax in proportion to the length, frequency or location of travel).
Third, regardless of the method of collecting revenues, how (and on whom) are those revenues spent? Spending on transit may benefit some individuals, groups and locations in a different proportion to their contribution to the revenue stream – and in different proportion to spending the same revenues on roads or on general governmental operations.

Given the intensity with which people assess a proposal’s impact on their own situation and their relative lack of knowledge about how such a proposal might affect other individuals, groups or places, it can be difficult to have an informed and open discussion where participants listen to and learn from one another. Thus it is crucial that proponents of road-use pricing understand all the different equity perspectives in advance and facilitate a discussion that recognizes and respects the feelings of each impacted individual, group and place while allowing each individual, group and place to appreciate the equity impacts on others regarding the status quo, a proposed future alternative, and a future that is likely if the proposed alternative fails. (Too often, we tend to compare the status quo to a proposed future alternative. A more productive exercise would be to compare one future alternative with another future alternative, particularly if the status quo is creating a physically, fiscally or environmentally unsustainable situation.)

7. The public wants simplicity.

“When the mechanics of tolling or other user fee programs are simple and clear and therefore easy to understand, public support is higher than in situations where there is a high level of complexity in how pricing should be applied. Opposition is generally lower for the simplest proposals and increases as proposals become more complex.” [NCHRP p 47] The key is that implementation, operation and administration should be easy for users to understand and comply with. At the same time, it must minimize evasion and avoid placing up-front costs on drivers. [Walker 2011, p 31.] It must be remembered that users will include residents, businesses and visitors from outside the area.

A corollary is that the costs of implementation, operations and administration should be reasonable and as low as possible. For example, the London system of license plate recognition cameras is very expensive. This system would have been prohibitively expensive except for the fact that many of the cameras had already been installed to address national security concerns associated with the Irish conflict. Operating costs will dwarf implementation costs over time. Operating costs should not exceed 20% of revenues and must be clearly communicated to the public as an intrinsic aspect of the program. [Oehry 2010, p 12.]
Simplicity is part of the rationale for proposing an initial implementation in a limited and defined geographic area. It simplifies the proposal and its implementation. It facilitates public input and allows for quick “on-the-fly” adjustments that may be required when operational realities depart from pre-implementations expectations. [Taylor 2010, p 30]

This desire for simplicity refers to the technology and mechanics of pricing implementation. As mentioned elsewhere in this report, many of the causes and solutions for congestion are non-linear and counter-intuitive. As mentioned above, there are at least 9 ways of analyzing the “fairness” of any proposal. Thus issues of congestion and road-use pricing are inherently complex. This does not render it impossible to generate understanding and support, but it magnifies the importance of combining accurate and sophisticated technical analysis with a competent, credible and empathetic public education campaign. If pricing advocates can create understanding, then complexity becomes less of a barrier. See the discussion about Minnesota in the last section of this report on “Interventions” as an example of how public understanding and support can be attained in spite of the complexities associated with road-use pricing.

8. The public favors tolls over taxes.

“Although there are isolated instances of groups preferring tax increases over tolling, most individuals prefer tolling over taxes. With toll revenues, the public is more assured of getting their fair share, because revenues are generated and applied locally. Also, tolling represents freedom of choice; only users pay.” [NCHRP p 47]


An important contextual factor not mentioned explicitly in the NCHRP survey of polls, but discussed in other studies and articles, is one of trust. [Walker 2011, p 31 and Oehry 2010, p 20.] When a government official or agency proposes road-use pricing, they typically will indicate that it is being proposed to alleviate congestion, reduce pollution, and enhance economic productivity. However, in an era of concern about public deficits and about the inherent undesirability of government programs, members of the public might be suspicious that the “real” motivation is simply to obtain additional funds and/or expand government authority and intervention. Therefore, advocates of pricing should seek credible and “independent” community leaders and institutions that are free from this apparent conflict of interest.
This concern about trust and credibility is intensified when a proposal for road-use pricing suggests the use of a public-private partnership (PPP). Frequently in such proposals, a private entity would set and administer the tolls or charges. In such a case, members of the public will be aware that a private entity’s primary concern is to make a profit. Therefore the public will assume that a private company will set road-use prices to maximize private profits rather than to alleviate congestion and optimize traffic flow. Indeed, the polls sampled by the NCHRP survey showed that public opinion did not support any of the PPP projects for which surveys were reviewed. Indeed, when the public was surveyed regarding their approval of tolls to fund construction of new roads and simultaneously surveyed regarding their approval of a PPP to set and administer the tolls, support for PPP was less than for tolling generally. [NCHRP pp 32-34].

The design, implementation and operation of road-use pricing will differ depending on the ultimate objective – either revenue generation or congestion management – as compared in the table below.

<table>
<thead>
<tr>
<th>Comparing Road Pricing Objectives (Market Principles)</th>
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<tbody>
<tr>
<td><strong>Revenue Generation</strong></td>
</tr>
<tr>
<td>• Generates funds.</td>
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<tr>
<td>• Rates set to maximize revenues or recover specific costs.</td>
</tr>
<tr>
<td>• Revenue often dedicated to priced roadway.</td>
</tr>
<tr>
<td>• Shifts to other routes and modes not desired (because this reduces revenues).</td>
</tr>
<tr>
<td>• Travel shifts to other modes and times considered desirable.</td>
</tr>
</tbody>
</table>

[This table was slightly revised by Just Economics LLC. Its source is TDM Encyclopedia by the Victoria Transport Policy Institute- http://www.vtpi.org/tdm/tdm35.htm ]

Trust and credibility must be earned and can be easily lost. The next section deals with two intensive public outreach, education and involvement campaigns – one pursued by New York City and another pursued by the State of Minnesota. These campaigns created and tested relationships among and between diverse groups of stakeholders over significant time periods.
INTERVENTIONS

As mentioned, congestion has many different causes. And, in certain situations, some degree of congestion is unavoidable and not necessarily undesirable. Therefore, congestion mitigation is not always appropriate. When it is appropriate, some policies may work better than others, depending on the underlying cause (or causes).

The information presented above shows that the structure of congestion’s costs, when compared to the structure of costs and benefits associated with road use pricing policies, make organized and individual opposition to road-use pricing measures more likely (and more robust) than support. Nonetheless, road-use pricing measures have been implemented in some places. So there are lessons to be learned from both failures and successes about techniques and processes that can overcome the three primary hurdles:

1. Public support;
2. Approval from public officials for legal enactment; and
3. Implementation by public agencies.

In this section, two different experiences will be reviewed. First, an unsuccessful attempt by New York City to impose a cordon fee of $8 per day for cars entering Manhattan’s central business district. [Schaller 2010.] Second, after several unsuccessful attempts at road-use pricing in 1996 and 1997, Minnesota created a statewide Value Pricing Advisory Task Force in 2001 to obtain legislative authorization. After obtaining legislative authorization in 2003, Minnesota created an I-394 Express Lanes Community Task Force to maintain that support while advising the state about project design and operations. [Munnich 2005 and Buckeye 2006.]

New York City

In early 2006, Mayor Bloomberg initiated a comprehensive long-term planning effort responding, in part, to pressure from New York City’s (NYC’s) booming economy on NYC’s resources. The plan took shape as a 25-year sustainability plan to create a “greener, greater New York.” [Schaller 2010, p 2.] At about the same time, civic and advocacy groups that had been focused on NYC’s transportation needs were taking note of London’s successful implementation of congestion pricing in 2003 while The Partnership for New York City (representing large businesses) had been focusing on the economic costs of congestion. The result was a coalition of environmental, labor, business, transportation advocates and a few elected officials who became interested in congestion pricing. Some university-based research centers joined as well. They held some public forums and produced some reports about the
impacts of congestion on NYC’s environment, public health and economic productivity. The conclusion was that congestion was costing the New York Metropolitan Region $13 billion annually and that driving into Manhattan was not a “necessity” for most auto users. [Schaller 2010, p2]

On Earth Day in April 2007, Bloomberg released “PlaNYC,” listing 127 initiatives to make NYC “green” clean and sustainable. The overriding goals were to reduce greenhouse gas emissions, and achieve a state of good repair for NYC’s streets and transit system. Of the initiatives, a proposal to implement an $8 daily fee on cars entering or leaving Manhattan’s core between 6 am and 6 pm attracted the most attention. The initiative proposed using EZ-Pass (an electronic tolling system already used on NYC bridges and tunnels (and throughout the Northeast US), along with cash and credit card payment options. No driver would pay more than $8 per day. So, those already paying bridge or tunnel tolls to enter NYC would receive credit for those payments. Revenues would be devoted to transportation improvements. [Schaller 2010, p3]

During this same time, the US Department of Transportation (USDOT) was offering $1 billion in “Urban Partnership” grants to jurisdictions willing to implement projects applying tolling, transit, telecommuting and technology. On behalf of NYC, the Metropolitan Transportation Authority (MTA) submitted the PlaNYC tolling proposal to USDOT. NYC also introduced authorizing legislation in the New York State Legislature in June 2007. The Legislature adjourned without taking action on the tolling proposal. Under pressure from NYC, civic groups and the media, the Legislature reconvened to create a 17-member Traffic Congestion Mitigation Commission. The Commission was to consider both pricing and non-pricing options and make recommendations by January 31, 2008.

In August 2007, USDOT awarded MTA $345 million to help implement the tolling proposal. The award was conditional on the enactment of authorizing legislation by April 2008. This award helped build support for the proposal. It also applied substantial pressure to the State Legislature to take the PlaNYC tolling proposal seriously and act expeditiously. In the absence of this grant, the State Legislature might have dismissed the pricing proposal without reconvening for a special session and appointing a study commission. [Schaller 2010, p 12.]

After a series of fall meetings, the Congestion Mitigation Commission recommended a modified version of Bloomberg’s proposal. The Commission removed some neighborhoods from the pricing zone and eliminated outbound fees. The $4 “intra-zonal” fee (for cars traveling within Manhattan’s pricing zone) was eliminated and replaced with taxes and surcharges on downtown parking garages and taxi trips. [Schaller 2010, p 5.] The modifications simplified operations and reduced implementation and operating costs. The modifications focused pricing on those trips most responsible for congestion and for which the best transit alternatives existed. The Commission also recommended the creation of a residential permit
parking program to limit the potential impact of people seeking to park immediately outside of the pricing zone. [Schaller 2010, p 6.]

Analyses of the modified proposal estimated the following impacts:

- Reduced vehicle miles travelled (VMT) in Manhattan’s core by 6.8%;
- Reduced periods of near gridlock by 30% in the pricing zone and by 20% in adjacent areas;
- Net annual revenues of approximately $491 million which were to be devoted to transit. Expenditures would include enhanced local and express bus and subway service to accommodate drivers switching modes.

The modified proposal was approved by the Commission on a 13 to 2 vote. It was supported by Governor Paterson, Mayor Bloomberg, a coalition of 135 civic, business, labor, environmental and advocacy groups, and the editorial boards of all four major newspapers. It was also endorsed by several suburban elected officials including a county executive in suburban Long Island.

However, vocal opposition arose from elected officials and civic groups in the four NYC boroughs outside of Manhattan with the strongest opposition centered in eastern Queens and southern Brooklyn. Some officials, even those not having affected constituents, questioned whether new funds would be spent effectively on transit. They also questioned regional equity because drivers from New Jersey would pay little or nothing extra (after receiving credit for bridge and tunnel tolls) whereas commuters from Brooklyn and Queens would pay the entire $8 fee (because several bridges from Brooklyn and Queens into Manhattan had never been tolled).

Public opinion polls of NYC residents from March 2008 showed 67% favored the plan while 27% opposed. But support was heavily contingent on the utilization of revenues for transit. Without assurance that funds would be used for transit, only 40% of NYC residents supported the proposal. And, a slight majority of residents did not believe that the new revenues would be used as proposed. City Council adopted a resolution in support of the proposal, but only by a vote of 30 to 20.

At the state legislature in Albany, the senate was expected to approve the plan if it came to a vote. But the state assembly was controlled by members from the outer boroughs who were deeply skeptical about the plan. They succeeded in blocking a vote as the April deadline passed. The $345 million in federal funds conditionally allocated to NYC was reallocated to Los Angeles and Chicago.
Congestion in NYC is real and severe. There was broad consensus that it needed to be addressed for both environmental and economic reasons. With the exception of the pricing proposal, consensus has remained on the other sustainability goals and initiatives in PlaNYC.

Key factors regarding the NYC pricing proposal failure:

- The structure of the approval process allowed a small number of opposed auto users to exert control. Approval was required by three legislative bodies (Council, State Assembly, and State Senate) and by the Mayor and the Governor. [Schaller 2010, p 10.] (In London, the Mayor was able to implement cordon pricing on his own authority. In Stockholm, congestion pricing occurred only because the Green Party insisted upon it as a condition for becoming part of a governing coalition. Even then, it was adopted only as a short-term demonstration. However, because the actual experience with the demonstration was so favorable, public opinion became more supportive of pricing after the demonstration was implemented. As a result, pricing was permanently authorized by referendum after the demonstration period expired. The Stockholm referendum on pricing would not have been approved but for the support garnered during the demonstration phase.) [Schaller 2010, p 13.]

- Elected officials are more likely to be drivers than transit users. Thus they identify more strongly with concerns raised by other drivers.
  - There was much debate about fairness and about whether drivers from certain neighborhoods had adequate access to transit as an alternative to driving. (An inherent limitation to cordon pricing – as opposed to mileage-based fees – is that a cordon will be, by necessity, somewhat arbitrary and create questions about fairness for people who live or work near this artificial boundary.
  - Many drivers have a significant antipathy toward using transit.
  - Unlike HOT lanes which provide drivers with an option to pay or not to pay, the cordon pricing proposal results in a compulsory payment by all drivers who cross the cordon. Only 5% of workers in eastern Queens and southern Brooklyn commute by car into Manhattan’s central business district. [Schaller 2010, p 10.] But the lack of choice heightened concerns by elected officials over the small minority of drivers who would actually be affected.

- As mentioned earlier, issues of “trust” and “credibility” were key. There is some antagonism between outer borough “working people” and Manhattan “elites.” But most importantly, in March of 2008, MTA cancelled $30 million in service improvements that it had announced three weeks earlier. Thus skepticism was heightened about
whether the road-pricing revenues would reach MTA and, even if they did, whether MTA would use the funds to benefit riders. [Schaller 2010, p 8]

Many of the necessary ingredients for a successful road-use pricing project were in place for the NYC proposal. However, the compulsory nature of the charge on all drivers crossing an artificial and arbitrary boundary, the lack of trust about whether revenues would be used as proposed, and the control over authorization in a remote location (Albany) influenced by elected officials with no Manhattan or NYC constituents, allowed a small number of antagonistic drivers to defeat this proposal.

**Minnesota**

In Minnesota, road-use pricing advocates struggled unsuccessfully for over 10 years to gain sufficient public acceptance for a road-use pricing project in Minnesota. [Munnich 2005, p 164.] A 1996 proposal to replace Highway 212 with a public-private toll road failed as did a 1997 effort to convert the I-394 HOV lanes to HOT lanes. The public’s top two complaints involved pricing’s impact on HOV users and on economic fairness. [Munnich 2005, p 164.] However, a new approach to public outreach, education and involvement finally tipped the balance in favor of pricing with strong bi-partisan support.

The State and Local Policy Program in the Humphrey Institute at the University of Minnesota studied the problem and issued a report, “Buying Time: Political and Institutional Issues of Congestion Pricing” in 1996. In 2001, the Minnesota Department of Transportation (MnDOT) agreed with this report and took the following steps to overcome past failures:

- MnDOT hired a communications firm with political experience to coordinate and execute public outreach.
- MnDOT hired an engineering firm with knowledge of value pricing and the highway corridors considered for pricing to provide detailed responses to the public’s questions and concerns and to support the education and outreach effort.
- MnDOT asked the Humphrey Institute to convene a statewide Value Pricing Advisory Task Force. [Munnich 2005, pp164-165]

The statewide Value Pricing Advisory Task Force (VPA Task Force) was key to creating and mobilizing support. As a foundational issue, the fact that the Humphrey Institute convened the Task Force may have been important to key stakeholders. Governmental bodies are often assumed to have an “agenda.” Therefore, the involvement of an academic institution as the sponsor may have helped establish both “trust” and “credibility” that could not have been obtained from a governmental body. [Munnich 2005, p 167] Furthermore, many of the techniques and processes outlined below were designed to enhance the credibility and trust
associated with the Task Force by building long-term relationships with the most strategically relevant stakeholders. [Munnch 2005 p 165]. The key steps involved included:

- Identifying key stakeholders from among state legislators, interest groups, state government and municipal officials, and transportation and transit advocates;
- Recruiting key stakeholders by arranging small groups to meet with them. Those who expressed support were asked to help recruit other key stakeholders within their sphere of influence;
- Market research to identify consumer concerns;
- Documenting key contextual developments such as:
  - Worsening traffic congestion;
  - Increasing state budget deficits
  - Pledges by many politicians not to raise taxes
  - Capacity of I-394 HOV lanes to carry significantly more vehicles;
- Background briefings for editorial boards and news reporters;
- Conducting several public policy roundtables between experts and the public.

The VPA Task Force held several half-day meetings to permit in-depth discussions. The VPA Task Force chair (former chair of the state senate’s transportation committee) conducted these meetings in an open, inclusive and fair manner. This fostered open communications and trust among a group of diverse stakeholders. [Munnich 2005, p 166] Other key operational aspects that fostered success included:

- The VPA Task Force helped identify, educate and empower credible local champions for road-use pricing. Once identified, the communications and subject-matter experts paired the right champion with the right outreach task;
- The communications consultants were continually monitoring and tending to the needs and concerns of the VPA Task Force members. “Minnesota value pricing proponents learned that value pricing appeals to a diverse group of stakeholders who have often been at odds with one another—businesspeople and environmentalists, solo drivers and HOV users, urban interests and suburban interests, Republicans, Democrats, and Independents. Although this kind of diversity is a source of tremendous strength for any public policy coalition, maintaining cohesion, trust, and cooperation within such a coalition is challenging. Maintaining a coalition of such “strange bedfellows” required constant monitoring and tending by individuals with experience in managing diverse public policy–oriented coalitions.” [Munnich 2005, p 166]
- Organizers of the VPA Task Force avoided media coverage until fundamental communications tools could be established. These tools included:
  - Visual tools to explain road-use pricing and its impacts
An “answer book” that provided detailed responses to anticipated public questions and concerns; and

- A set of diverse and credible messengers.

- The Task Force formed a public outreach team to ensure that no question go unanswered. “The team met weekly to discuss proactive tactics to preempt criticism and reactive tactics for addressing pending questions. The ... team immediately addressed [concerns] before misunderstandings could fuel the kind of public opposition that had led to the rejection of value pricing projects in the past.” [Munnich 2005, p 166]

- The communications plan was flexible so that pricing advocates could take advantage of unforeseen messaging opportunities.

- Road-use pricing messages were “customized” for conservatives, liberals, business people, environmentalists, transit advocates, carpool advocates and SOV drivers. There were common themes for all groups, but messages were tailored for each group’s unique values, needs, and motivations.

- Accentuating the positive. Terms like “value pricing,” “congestion pricing” “high-occupancy toll lanes” etc. all emphasize the cost. Pricing advocates emphasized terms like “express lanes” and “MnPass” to emphasize the consumer benefit. Likewise, the public outreach team intervened in a proposed poll by changing the question from “Would you support or oppose a toll?” to “Would you support or oppose having an option of paying a fee to use an uncongested freeway lane when in a hurry?” This question elicited more support than prior surveys. [Munnich 2005, p 167]

- Emphasizing “choice.” Public support for I-394 HOT lane project was much higher than for I-35W / Highway 62 Crosstown project because the Crosstown project would have priced all lanes. The public highly valued choice.

- Pictures and Videos are more powerful tools for conveying the concept and benefits of road-use pricing. A video was made contrasting the underutilized I-394 HOV lane with successful HOT lanes in other parts of the country. Another video showed every-day people in California responding to congestion-relief toll projects there. PowerPoint presentations with lots of pictures were used at public meetings. Actual transponders were passed around to help people understand electronic tolling. [Munnich 2005, p 167]

The statewide VPA Task Force succeeded in shifting public opinion in favor of road-use pricing. [Buckeye & Munnich, 2006, p81] In 2003, legislation was enacted authorizing the conversion of HOV lanes to HOT lanes. [Buckeye & Munnich, p 82] However, that was not the end of the public outreach and education effort. Prior to implementation, MnDOT established the I-394 Express Lane Community Task Force (I-394 Task Force) to provide advice and guidance on public
involvement, communications, outreach & education. Additionally, this task force was empowered to provide advice about operations, pricing, access and enforcement. MnDOT and their design-build consultant provided expertise to this implementation task force. [Buckeye p 84.] MnDOT leaders agreed to incorporate the I-394 Task Force recommendations into project plans – and did so (although MnDOT made all final decisions). [Buckeye p 83.]

The I-394 Task Force membership was more circumscribed than the statewide Value Pricing Advisory Task Force – with elected and citizen members drawn from communities along the I-394 Corridor. Additionally, there were representatives from the state legislature, private interests (AAA, Minn Trucking Association), public organizations (Downtown Minneapolis Transportation Management Organization, Transit for Livable Communities) and public agencies (Metropolitan Council, Metro Transit, Hennepin County, MnDOT. [Buckeye p 83] Using many of the same techniques and processes as the statewide VPA Task Force, the I-394 Task Force sought to maintain and build public support by building consensus on implementation and operations.

More market research was performed among those who lived along the I-394 Corridor west of the Twin Cities. Focus groups expressed support for the project to relieve congestion, but they also raised questions and concerns, including:

- How would revenues be used?
- What would be the price?
  - A few dollars per day would be acceptable to avoid congestion and stress
- How does “dynamic pricing” work?
- Will SOVs clog the lane and discourage carpools and buses?
- What about a bottleneck at the Lowry Hill Tunnel?
- What about fairness to low-income drivers?
- What about safety if people swerve into and out of the HOT lanes?
- Will there be a toll when there’s little traffic? If so, why?

The I-394 Task Force met monthly from Sept 2003 through Oct 2004 and discussed:

- Access point and traffic operations;
- Hours of operation;
- Enforcement;
- Dynamic message signs;
- Toll rates;
- Types of vehicles allowed;
- Transponders;
• Expected revenues;
• Public outreach; and
• Project evaluation [Buckeye p83].

Many aspects of the I-394 Task Force mirrored those for the statewide VPA Task Force. [Buckeye pp85-86] In particular, all I-394 Community Task Force questions and issues of concern were treated with respect, taken seriously and addressed expeditiously.

The public outreach, education and involvement process designed and implemented in Minnesota – with its intensive and extensive listening, hand-holding and respect for stakeholders – may more closely resemble therapy than a traditional issue-oriented campaign. But this emphasis is vital in light of the complexity and counter-intuitiveness of some of the issues. It is equally important in light of the conceptions and misconceptions that stakeholders will bring to the table. The process must allow stakeholders to express themselves – but also to learn from others and shed misconceptions without losing face. Finally, in light of the level of cooperation and trust that must be established to move a pricing proposal above and beyond most people’s natural inclination to oppose increases in prices and fees, those who seek shortcuts in the process do so at the peril of defeat and the ultimate waste of their time.

CONCLUSION

Part of the challenge in making any change to the transportation system comes from the fact that most people “experience” the transportation system as drivers or as transit riders on a daily basis. Because of this daily emersion in traffic and transportation, we consider ourselves to be experts on the subject. Yet, as some of the research reviewed in this report indicates, there are significant aspects of traffic behavior, transportation system efficiency and equity that are non-linear and counter-intuitive. [Taylor, 2010, p 28.] Thus proponents of change must be diligent in establishing an inclusive and respectful forum in which what we know (and what we don’t know) can be discussed in an open and informative manner that allows us to transcend our initial perceptions (and misperceptions) without losing face and that allows the vast experience of transportation experts and system users to inform and improve system design and operations.

Replacing free roadway access and free parking with various types of payment systems is not an easy task. In particular, if road-use pricing is seen as “social engineering” intended to modify behavior or compel a uniform response, it will be vigorously opposed. If road-use pricing is
seen primarily as an attempt by the government to grab additional revenues, chances for authorization and implementation are highly unlikely.

However, when there is:

- A clear perception of a serious congestion problem;
- A concerted and sophisticated public outreach, education and involvement effort;
- A trustworthy and credible source of technical information;
- A context within which
  - Road-use pricing is part of a larger improvement effort
  - Potential benefits are tangible and specific
- A commitment to use new revenues for identified and agreed upon transportation improvements;
- An element of choice, so that some who don’t want to pay have other transportation and access options;
- System design so that operations are comprehensible and compliance is easy
  - While allowing choice, evasion is minimized
  - Data and privacy are secured and respected; and
- Leadership by public officials who have the courage, discipline and perseverance to pursue these strategies,

then road-use pricing proposals have at least a fighting chance for implementation.

Of course, this list of project characteristics is not absolutely determinative of a project’s success or failure to gain public acceptance. There might be a project (such as New York’s) that has most of these elements and yet fails. Likewise, there might be a project (such as Minnesota’s I-394 MnPass) that has most of these elements and succeeds in spite of the fact that the Minnesota project was not part of a larger improvement effort outside of reducing congestion.

Public opinion research shows that once road-use pricing can be demonstrated – even in a temporary and limited way – public support and acceptance increases significantly and opposition weakens. This, in turn, allows for more permanent and widespread uses of this technique for transportation, environmental and economic improvement.
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