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Florida's 2003 Intelligent Transportation System Strategic Plan Update

Value Pricing

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Version 2

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List of Acronyms

DMS ..... Dynamic Message Sign
ETC ..... Electronic Toll Collection
FDOT ..... Florida Department of Transportation
FHP ..... Florida Highway Patrol
FHWA ..... Federal Highway Administration
HOT ..... High-Occupancy Toll
HOV ..... High-Occupancy Vehicle
I-10 ..... Interstate 10
I-15 ..... Interstate 15
ISTEA ..... Intermodal Surface Transportation Efficiency Act of 1991
ITS ..... Intelligent Transportation System
LPR ..... License Plate Reader
ORT ..... Open Road Tolling
PIO ..... Public Information Officer
SR ..... State Road
SUL ..... Special-Use Lane
TDM ..... Travel Demand Management
TEOO ..... Traffic Engineering and Operations Office

1. Purpose

This *Technical Memorandum* identifies new intelligent transportation system (ITS) trends, technologies, and initiatives for use with the implementation and fulfillment of the vision, goals, and objectives identified in *Florida's Intelligent Transportation System Strategic Plan*, referred to in this document as the *Plan*.[1]

The *Plan's* primary purpose was to present a 20-year vision for ITS in Florida and to recommend strategies to achieve this vision. The *Plan* included four main ITS goals, which were consistent with the mission and goals of the *2020 Florida Transportation Plan*.[2] These goals included:

- Safe transportation for residents, visitors, and commerce;
- Protection of the public's investment in transportation;
- A statewide, interconnected transportation system that enhances Florida's economic competitiveness; and
- Travel choices to ensure mobility, sustain the quality of the environment, preserve community values, and reduce energy consumption.

This *Technical Memorandum* researches national and statewide efforts in value pricing, and determines the feasibility of pursuing or implementing these efforts as part of the ITS Program over the next three years. Several areas around the country, including Florida, have deployed or are considering the deployment of value-pricing programs, particularly in the area of dynamic electronic toll collection (ETC). Several local jurisdictions in Florida are examining the benefits of value-pricing strategies. Of particular interest is Lee County, where variable pricing has been deployed on two toll bridges. This area of ITS will be investigated further to determine its potential short- and long-term applications in Florida, and to recommend actions or strategies that the Florida Department of Transportation (FDOT) Traffic Engineering and Operations Office (TEOO) can implement over the next several years.

[1] PB Farradyne, *Florida's Intelligent Transportation System Strategic Plan – Final Report* (August 1999). Available online at http://www.dot.state.fl.us/trafficoperations/its/its_default.htm.

[2] Florida Department of Transportation, *2020 Florida Transportation Plan* (2000). Available online at http://www.dot.state.fl.us/planning/2020ftp/default.htm.

2. Background

Value pricing, also known as congestion pricing or peak-period pricing, entails road use fees or tolls that vary according to the level of congestion. Fees are typically assessed electronically to eliminate delays associated with manual toll collection facilities. This concept of assessing relatively higher prices for travel during peak periods is the same as that is used in many other sectors of the travel industry to respond to peak-use demands. Airlines offer off-peak discounts and hotel rooms cost more during peak tourist seasons. Road use charges that vary with the congestion level provide incentives to shift some trips to off-peak times, less-congested routes, or alternative modes, or to cause some lower-valued trips to be combined with other trips, or eliminated. A shift in a relatively small proportion of peak-period trips can lead to substantial reductions in overall congestion. And, even though congestion charges create incentives for more efficient use of existing capacity, they also provide improved indicators of the potential need for future capacity expansion while generating revenues that can be used to further enhance urban mobility.

A number of value-pricing projects have been launched in the United States in recent years. The private sector led the way in 1995 by constructing new tolled express lanes in the median of State Route (SR) 91 in Orange County, California. Tolls there vary by time of day and congestion level to maintain an uncongested alternative along one of the most heavily traveled commuter routes in the country.

Under the Value Pricing Pilot Program[3] and its predecessor, the Congestion Pricing Pilot Program established by the *Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991*,[4] value-pricing projects have been launched in San Diego, California; Houston, Texas; and Lee County, Florida. The California and Texas projects involve tolling on high-occupancy vehicle (HOV) lanes to make better use of available capacity. In San Diego, drivers of single occupant vehicles are allowed to use the HOV lanes on Interstate 15 (I-15) by paying a toll that varies directly with the congestion level. In Houston, drivers of vehicles with two occupants can pay a fixed toll during rush hour to use an HOV lane on Interstate 10 (I-10) that is otherwise restricted to vehicles with three or more occupants. This type of initiative has become known as the high-occupancy toll (HOT), with shared facilities referred to as HOT lanes.

[3] More information on the Value Pricing Pilot Program is available online at http://www.fhwa.dot.gov/policy.

[4] *Intermodal Surface Transportation Efficiency Act of 1991* (October 2001). Pub.L.No. 102-240, 105 Stat. 1914.

The Lee County project involves the use of peak and off-peak toll variations to provide motorists with an incentive to shift trips out of the most heavily traveled times. The toll charged is reduced by 50 percent on the Cape Coral and Midpoint Memorial bridges Monday through Friday during four time segments (i.e., 6:30 to 7:00 a.m.; 9:00 to 11:00 a.m.; 2:00 to 4:00 p.m.; and 6:30 to 7:00 p.m.). Holidays are excluded. To participate, a motorist must have a LeeWay®[5] prepaid toll account and a transponder attached to his or her vehicle.

A number of additional cities across the United States are evaluating the feasibility of value pricing to improve traffic flows and to enhance mobility. Several of these are expected to move toward implementation in the near future. Internationally, pricing projects have been implemented recently on a new beltway in Toronto, Canada; in three cities in Norway; on intercity toll roads in France; and in the central area of Singapore. In the United Kingdom, several cities are considering congestion-charging projects similar to London's project, which has been in operation since early 2003. The London project has successfully reduced the number of vehicle trips into central London, with fees raised by the congestion charge used to fund additional bus service as an alternative mode of travel.

The London project is an example of open road tolling (ORT) in which on-street cash toll collection is completely abolished. The notion of retrofitting toll plazas on the streets of central London, where none existed prior to the congestion-charging project, was a nonstarter that necessitates 100 percent toll payment off-street. Open road tolling is a concept that is generating a lot of interest in the United States, given growing travel demands; traffic congestion at toll plazas; and the physical, environmental, and cost issues of increasing capacity at toll plazas.

Today's sophisticated electronic payment systems, such as the FDOT's ***SunPass***®[6] and the associated enforcement systems, provide a technology option to increase throughput without increasing toll lanes, provided that the customer care aspects of ORT are addressed (i.e., catering to customers, especially occasional users, whose vehicles do not have electronic tags or transponders). In London, ORT facilitates offering discounts to residents within the central London district. Clearly, the flexibility for value pricing strategies in an ORT environment is immense, given the potentially large database of market segmentation information that can be assembled on the program users.

[5] LeeWay is a registered trademark of Lee County.

[6] ***SunPass*** is a registered trademark of the Florida Department of Transportation.

In summary, typical objectives for value pricing include:

- Reducing congestion for those willing to pay;
- Achieving better use of special-use lanes (SULs);
- Raising revenues for transportation;
- Encouraging modal shifts and ride sharing
- Encouraging fewer and shorter trips, and shifting trips out of peak periods; and
- Achieving reductions in overall congestion.

3. Potential Issues

The remainder of this *Technical Memorandum* highlights some areas of potential concern that merit deeper research and status tracking, as well as prioritization for future consideration and possible action. No priority is implied by the order in which these issues are listed, although in general they are listed from a "soft" issue perspective to a "hard" issue perspective. This order was selected for two reasons, the first being simply that this provides a logical flow to the discussion. The second reason reflects the potential degree of difficulty (ranging from most difficult to least difficult) that may be associated with addressing the issues. In short, the more external partners beyond the FDOT that may or will need to be involved, the more likely it is that the degree of difficulty will be greater.

3.1 Legal and Budgetary Context

With the general concept of value pricing as an innovative financial mechanism for managing transportation demand, the Federal Highway Administration (FHWA) has set aside funds under previous legislation for pilot projects. It remains to be seen what funding provisions will be included in new transportation legislation.

Fundamentally, legal issues associated with value pricing must be identified and addressed to ensure that no project can be challenged by law. With the interest in, and deployment of, value-pricing projects across the nation, there is a growing pool of knowledge through the FHWA, as well as specific project development teams.

Related to this is the need to understand the challenges that law enforcement may face to ensure that violators are identified without disrupting regular traffic operations. For the London project, the innovative use of cameras linked to automatic license plate readers (LPRs) has been very effective in identifying violators and generating citations, but has also created a heavy demand on the courts to ensure that violators pay their fines.

The budgetary context for value pricing has changed over the past decade. Whereas initially value pricing was seen as an innovative tool to address congestion, many states now recognize that the revenue generated by such initiatives make them more affordable in today's financially constrained environment. Not only may this raise the priority of such initiatives, it may also result in the generation of new revenue streams. Some caution must be exercised in this area, as public acceptance of the congestion benefits of value pricing may be diminished if projects such as HOT lanes are perceived as an alternative form of taxation.

3.2 Policy and Institutional Coordination

Florida has a long history of using toll technology with long distance and local transportation facilities, and travelers in the state are consequently accustomed to paying for such facilities. The challenge facing Florida from a policy standpoint is in making the case for paying different prices for the same facility depending on the time of day or day of week. Further, setting price ranges and using generated revenues for transportation or other purposes are all issues worthy of debate and, ultimately, will shape a statewide policy on value pricing. Developing such policy will likely be as much of a political matter as it is one of transportation efficiency. Nonetheless, a clear policy will ultimately benefit a uniform approach across the state, encompassing state and local transportation jurisdictions. This is of great importance because for certain types of pricing initiatives, their impact, whether perceived or actual, may extend beyond Florida's transportation system.

In this regard, existing or new transportation forums such as those in central and southeast Florida may offer very positive environments for the discussion and development of value-pricing initiatives.

3.3 Technical Design

It is not the purpose of this *Technical Memorandum* to explore the technical design specifics of value pricing. However, it is vitally important for senior management, politicians, and the traveling public, as well as planners and designers, to have a grasp of some of the concepts that define how a value-pricing initiative should work. Specifically, this refers to the concept of price elasticity, or how demand varies relative to changes in the price charged. The elasticity of demand will depend on a number of factors, such as the availability of suitable, acceptable alternatives. Elasticity will vary from one initiative to another (e.g., a bridge versus a corridor; a suburb versus a metropolitan area; etc.). Under the auspices of the FHWA, evidence has been gathered across the nation from value-pricing pilot projects, including Lee County. An even greater body of evidence exists from the numerous overseas projects. It is of the utmost importance that the FDOT identify a small group of technical experts to become familiar with this research, synthesize the evidence, and serve as a technical resource to any policy groups that may form at the state, regional or local level.

3.4 Technology

Current initiatives already make it clear that technology will play a pivotal role in any value-pricing initiative. This may include transportation system monitoring; electronic payment systems with in-vehicle transponders; and the use of dynamic message signs (DMS) or in-vehicle information systems to advise motorists of pricing levels and alternatives. Equally important will be automated enforcement and data archiving systems. Given existing and future commitments to many of these ITS technologies and their deployment in the state, Florida is well-placed to develop and implement value pricing.

3.5 Public Acceptance

The final issue area for Florida to consider encompasses all the previous areas. For a successful approach to value pricing, it is paramount to educate and involve the public. While Florida has a long tradition of tolling for transportation facilities, there are many who consider that taxes pay for highways, so tolls amount to some form of double taxation. For others, there are real issues of equity and the ability to pay. Some sections of the media and, indeed, the transportation community, refer to HOT lanes as "Lexus" lanes, implying they are a luxury item for the exclusive benefit of those who can afford them. While a factor in the design of value-pricing initiatives may be driven by a desire to raise revenues, the overriding objective must be travel demand management (TDM) to mitigate congestion.

Education and outreach will be a key factor in the public acceptance of value pricing. This may be challenging, given the legal, policy, design, and technology considerations that must be conveyed to a broad audience with differing interests. The FDOT should consider utilizing its public information officers (PIOs) to develop strategies for outreach and education related to this sensitive area. Further, the FDOT should seek specific expertise and inputs from the FHWA team that has led the national development of value pricing.

4. Recommendations

This *Technical Memorandum* has reviewed the status of various value-pricing initiatives underway in Florida and nationally. Through the Lee County project, Florida is already at the leading edge of one initiative of national significance.

Given the relative newness of value pricing in the United States, and the potential challenges that its advocates face, the road map for moving forward over the coming three years is emerging slowly. However, it is clear that the growth in traffic levels will continue, creating greater congestion overall and on key facilities in particular. Consequently this is an area worthy of continued close monitoring by the FDOT in terms of legal, policy, technical design, technology, and public acceptance considerations.

Specifically, it is recommended that the FDOT pursue the following two initiatives related to value pricing over the next several years:

- Initiate a review of the feasibility of value pricing across the state in terms of the traffic management benefits that may be derived from such pricing under a variety of circumstances, such as estuarial river crossings, HOT lanes in metropolitan areas, and other key facilities. Such a review should investigate potential legal and technical issues related to implementation, and law enforcement operational issues related to violations. Much of the source material for this review should probably be derived from previous and ongoing initiatives, both within Florida and across the nation.

- Establish a multiagency task force to develop more detailed value-pricing concepts, highlight potential statewide policy and legislative requirements, and seek input from legislators, local agencies, organizations, and the traveling public. While the previous recommendation addresses the need to gather objective evidence on value pricing, the development of specific value-pricing initiatives will probably require a consistent approach across the state, and the need to engage such potential partners as toll agencies and the Florida Highway Patrol (FHP). If, as a result of the value-pricing feasibility review, the FDOT thinks there may be use for value pricing, it should establish a multiagency task force to develop more detailed concepts that can guide value-pricing projects in Florida.