

Evaluation of Road Pricing Needs in the Bay Area and Best Practices for Implementation

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Recent road pricing projects across California prove that congestion management and revenue generation are possible through innovative toll collection. Priced roads provide motorists predictable travel times and a comfortable congestion-free ride; these roads can also generate needed revenue while managing travel demand. Despite successful road pricing projects in Southern California, the Bay Area has seen more pricing projects fail than succeed. This paper examines the need for road pricing projects in the Bay Area and suggests “best practices” for their conception, planning, and implementation.

The Bay Area’s transportation system is facing intense congestion, a growing population, and increasing financial stress. The Texas Transportation Institute (2005) reported the cost of congestion in the Bay Area is the second highest in the nation, with traffic levels second only to Los Angeles in California. Congestion will continue to worsen with the Bay Area’s growing population, which will bring increased travel demands that will strain the transportation infrastructure. California is projected to have a population of 46 million people by 2025, a 61% increase over 2000; 36% of this growth will be in the Bay Area alone (MTC-ABAG, 2003). While this growing population will increase the revenue generated for transportation in the form of fuel and sales taxes, the amount of revenue generated by these methods will not be enough to offset the needs to maintain, operate, and expand current facilities. The declining purchasing power of the fuel tax, the largest segment of California’s transportation revenue contributing to 30% of California’s transportation budget in 2003, indicates that California’s transportation system will be unable to withstand the new pressures of its growing population (Wachs, 2003). While congestion is mounting, limited expansion potential in the Bay Area and a

constrained transportation budget have shifted the funding solution to the collection of user fees that have the capability to manage demand and raise needed revenue.

Bay Area residents have a record of strongly supporting transportation projects. Santa Clara and Alameda Counties have the longest histories of successful local option sales tax measures devoted to transportation improvements in the state (West, 2005). John Ristow (2005) of the Santa Clara Valley Transportation Authority (VTA) believes that Santa Clara and other parts of the Bay Area are beginning to support pricing projects because motorists are increasingly aware that other alternatives are unavailable given development patterns and traveler preferences. While the need for transportation changes is clear to residents of the Bay Area, new projects which impose user fees in the form of tolls on motorists must be introduced cautiously. Dennis Fay (2005), Executive Director of the Alameda County Congestion Management Agency (ACCMA), describes the Bay Area as more resistant to change as Southern California, and also noted Californian's "Knee Jerk" negative reaction to tolling. Therefore, a successful project must have a pressing need and well defined goals clearly communicated to motorists.

The first step in the adoption of road pricing projects in the Bay Area is a shift from the term "congestion pricing" to "value pricing." The term "congestion pricing" has a long history in economics and a shorter history in transportation. While the concepts behind "congestion pricing" and "value pricing" are almost identical - both involve variable tolls which are higher during periods of peak congestion - the term "congestion pricing" has a negative connotation in the Bay Area. In the 1990s, the Bay Area Congestion Pricing Task Force proposed variable tolls for the Bay Bridge (Frick, 1996). This project was labeled as a congestion pricing project and described as a peak period

toll rather than an off-peak toll discount (Fay, 2005). The Task Force failed in its mission for a variety of reasons, including intense political opposition to the peak period tolls. This failure both cemented the punitive connotation of the term “congestion pricing” and eliminated the possibility that a project termed “congestion pricing” could be successful in the Bay Area. Furthermore, the Federal Highway Administration changed the name of the federally-funded “Congestion Pricing Pilot Program” to the “Value Pricing Pilot Program,” illustrating the shift towards a term that represents discount, and not punitive, pricing (Federal Highway Administration, 2006).

In the wake of variable pricing on the Bay Bridge and other failed Bay Area pricing projects, two innovative road pricing projects are currently proposed for the Bay Area. These are an area-wide pricing scheme, incorporating variable priced parking and road pricing based on an area bound by a cordon line, and a High Occupancy Toll (HOT) Lane, consisting of a High Occupancy Vehicle (HOV) Lane converted to allow Single Occupant Vehicles (SOV) to purchase capacity (Federal Highway Administration, 2006). Both pricing projects incorporate value pricing, which has the potential to raise revenue, provide enhanced options, and manage congestion through discounted tolls and parking charges for off-peak users. Differences in these two projects are instructive as to how value pricing in the Bay Area should be implemented.

Due to high levels of traffic congestion in certain areas of San Francisco and limited access points to the central business district, area-wide pricing has been proposed by the San Francisco County Transportation Authority and the San Francisco City and County Board of Commissioners (Federal Highway Administration, 2005). This proposal involves variable parking fees at price levels set to keep enough vacant street

parking spaces available during peak traffic times; this initiative will virtually eliminate traffic caused by cruising for parking (Kolozsvari, 2003). It further proposes an area-wide tolling region to manage congestion in certain neighborhoods and raise funds for transportation improvements (Federal Highway Administration, 2005). The opposition to area pricing and the fact that this would be the first area pricing project in the United States present implementation challenges. Area-wide pricing has the potential to severely decrease congestion in the priced area, demonstrated by the successful projects in London and Singapore (Ion, 2005). However, an area-wide toll eliminates the option of a congested trip that is free of charge, introducing the issue of social equity and fairness for those who cannot or would choose not to pay a toll to decrease their time in congestion. Because the area-wide pricing projects abroad are labeled “congestion pricing,” the punitive nature of the term congestion pricing includes a lack of social equity as well. Although a preliminary study for this area-wide pricing project was funded under the Value Pricing Pilot Program, its potential in the Bay Area is questionable due to the issue of social equity and the stigma of “congestion pricing” (Federal Highway Administration, 2005).

High congestion levels, the availability of an extensive HOV Lane network, and the importance of a pricing project maintaining an adjacent free facility has turned the future of road pricing in the Bay Area to HOT Lanes. The Metropolitan Transportation Commission (MTC) is currently planning a regional HOT Lane network with variable tolls for the Bay Area, with the goal of congestion management and regional mobility (MTC, 2005). Currently, traffic is stalled on stretches of HOV facilities in the Bay Area during the peak period. These segments have oversubscribed HOV lanes, even with a

three-person per vehicle occupancy requirement, and this is certainly related to the overcrowded mixed flow lanes. Despite crippling traffic levels, the implementation of HOT Lanes in certain portions of the Bay Area is highly controversial, because occupancy levels would need to be increased on HOV Lanes to create available capacity. While this would free capacity and contribute to regional mobility, this change in occupancy requirements would hurt the carpoolers while benefiting the SOVs who could purchase the new excess capacity (Lem, 2005). Even though the MTC has benefited by a federal amendment allowing them to change these requirements, the public opposition will be a challenge to the completion of a Bay Area HOT Lane network.

The I-680 SMART Carpool Lanes will be the Bay Area's first section to be implemented of the MTC's proposed HOT Lane network. Perhaps fortuitously, this corridor used to be one of the highest trafficked corridors in the Bay Area, yet traffic has decreased dramatically since this project was proposed due to the change in employment patterns in Santa Clara County. With less congestion the HOV Lane occupancy requirements do not need to be raised, contributing to public approval; in fact, a public opinion survey performed by the ACCMA found that public acceptance for the project was as high as 83% when carpool lanes were preserved (Fay, 2005). Fay further states that a HOT Lane on a corridor that is not severely congested will have a better chance for success because the managing agencies will have the opportunity to make adjustments as needed without having an unbearable impact on traffic. The relationship between congestion and HOT Lane success is questioned, however, because high traffic levels are consistently noted as a key to success for pricing projects (Sullivan, 2000). John Ristow (2005) believes traffic volumes on I-680 will rise to again make this corridor one of the

most highly congested corridors again, and the HOT Lane will be ready to manage this congestion.

Tolled facilities nationwide are projected to increase in both number and revenue generation in the coming years. As the Bay Area experiences growing congestion, tolls provide necessary revenue to support an increasing number of trips; value pricing generates revenue while also controlling this growing congestion. Because fuel taxes will eventually become obsolete, pricing is the only known policy that will make a serious dent in congestion and transportation revenue generation. The future of pricing in the Bay Area involves any project that maintains options, does not take away current liberties of the driver, and is introduced as a value proposition for using transportation facilities off-peak. Value pricing and tolling in the Bay Area also represent a revitalization of user fees which is what is needed to raise transportation revenue and keep the system operational in the future.

References

- Fay, Dennis. Personal Interview. November 16, 2005.
- Federal Highway Administration. 2005. *FY 2005 Value Pricing Pilot Program Proposal Summaries*. Retrieved on March 21, 2006 from <http://knowledge.fhwa.dot.gov/>
- Federal Highway Administration. 2006. *Value Pricing Pilot Program*. Retrieved on March 21, 2006 from <http://www.fhwa.dot.gov/policy/otps/valuepricing.htm>
- Frick, K. et al. 1996. "Bay Bridge Congestion-Pricing Project: Lessons Learned to Date." *Transportation Research Record*, Issue 1558, National Academy of Sciences.
- Ion, S. and T. Rye. 2005. "Implementing Road User Charging: The Lessons Learnt from Hong Kong, Cambridge and Central London." *Transport Reviews*, Vol. 25, No. 4, pp. 451-465.
- Kolozsvari, Douglas and Donald Shoup. 2003. "Turning Small Change into Big Change." *Access*, Fall, No. 23, pp. 2-7.
- Lem, Lewison. Personal Interview. November 20, 2005.
- Metropolitan Transportation Commission. 2005. *Planning: High-Occupancy-Vehicle (HOV) and High-Occupancy/Toll (HOT) Lanes*. Retrieved on March 25, 2006 from <http://www.mtc.ca.gov/planning/hov/>
- Metropolitan Transportation Commission - Association of Bay Area Governments (ABAG). 2003. *Census 2000 SF1, SF3, DP1-DP4, 2004 American Community Survey*. Retrieved on March 25, 2006 from <http://www.bayareacensus.ca.gov>
- Ristow, John. Personal Interview. November 18, 2005.
- Sullivan, E. C. (2000). *Continuation Study to Evaluate the Impacts of the SR 91 Value-Priced Express Lanes: Final Report*. Sacramento: California Department of Transportation. Retrieved on February 25, 2006 from http://ceenve.calpoly.edu/sullivan/SR91/final_rpt/FinalRep2000.pdf
- Texas Transportation Institute. 2005. *2005 Urban Mobility Study*. Retrieved on March 21, 2006 from <http://mobility.tamu.edu/ums/>
- Wachs, Martin. 2003. "Improving Efficiency and Equity in Transportation Finance." Washington: Brookings Institution, *Transportation Reform Series*, pp. 1-19.
- West, Sarah. Personal Interview. August 11, 2005.