

Metro ExpressLanes Project

Draft Final Low-Income Assessment



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Executive Summary

As required by state law (SB 1422, 2008), this report presents the results of an analysis of the impact on low-income commuters of the Los Angeles County Metropolitan Transportation Authority (Metro) congestion pricing demonstration project. This project will convert carpool lanes on the I-10 (from I-605 to Alameda Street) and I-110 (from Adams Blvd. to Artesia Transit Center/182nd Street) freeways to high-occupancy toll (HOT) lanes, called ExpressLanes, which solo drivers will be able to access by paying a toll. As mentioned above, the enabling state legislation for the project requires an analysis of the project's effect on low-income commuters.

While concerns about the impact of road pricing on low-income drivers are common, they often decrease as drivers gain actual experience with pricing. They also decrease when toll revenues are used to enhance transit services along the same routes or corridors, thus providing more choices for low-income travelers (and others). The priced lanes themselves also increase the options available to low-income drivers, since there may be occasions when the cost of a HOT lane trip would be lower than the cost of delay (for example, arriving late to work or to a child-care center).

Metro intends to enhance transit service substantially along the ExpressLanes corridors in advance of the lane conversion and during the demonstration period using federal grant funds. Metro will reinvest toll revenues in the respective corridors in transit and carpool lane improvements as required by the statute. In addition, Metro is considering offering a toll credit in the form of a toll account setup fee waiver for low-income households. Metro has also considered offering a transit credit, possibly transferable to toll accounts, for transit riders meeting ride frequency criteria on the ExpressLanes corridors.

This report presents the work conducted by Network Public Affairs (NPA), a consulting firm retained by Metro to meet this requirement. Following is a summary of the findings and recommendations of this assessment:

Findings

- Low-income threshold: NPA derived a recommended threshold for defining "low-income" with reference to guidance in the authorizing statute, as well as to existing thresholds in use, or being adopted, in LA County programs. NPA evaluated a "low-income" threshold of \$35,000 per year (2009 \$), along with a potential alternative threshold about \$10,000 higher.¹

¹ The recommended threshold is based on levels that represent annual income for a household size of 3, which is close to the Los Angeles County average. While many low-income programs use threshold

- Estimate of net project benefits: The overall estimate of project costs and benefits shows a substantial net benefit for the project when the value of time savings on both corridors is considered (see Table ES 1). The table includes the potential transit credit, even though Metro may not offer this credit because the value of transit service enhancements would make the credit unnecessary.

Note: The data in this table may be revised, but these revisions are not expected to change the conclusions drawn in the report.

Table ES 1. Summary of Project Costs and Benefits*

Corridor	Toll Credit† (-)	Transit Service Operations Cost*** (-)	Transit Credit†† (-)	Value of Time Savings** (+)	Net Benefit (Cost)
Without Credits					
I-10	--	\$30,850,000	--	\$41,290,720	\$10,440,720
I-110	--	\$24,950,000	--	\$78,857,428	\$53,907,428
Total	--	\$55,800,000	--	\$120,148,149	\$64,348,149
With Credits					
I-10	\$800,536	\$30,850,000	\$2,370,900	\$41,290,720	\$7,269,284
I-110	\$1,107,483	\$24,950,000	\$2,002,800	\$78,857,428	\$50,797,145
Total	\$1,908,018	\$55,800,000	\$4,373,700	\$120,148,149	\$58,066,431

* Toll revenues have been omitted from this analysis until a final revenue estimate is established. These revenues, when included, will increase the net benefit. Transit revenue increase from additional service and toll/transit credit administration cost are not estimated.

** Value of time savings predicted by TOM model run by ECONorthwest. Results are for Case 1 (vehicle volumes as predicted by model).

† Toll credit estimates based on proposed low-income threshold of \$35,000 per year in household income. The higher threshold yields a total toll credit estimate of just over \$3 million for both corridors – about \$1.1 million more than the lower threshold.

*** Transit service operations costs for program year provided by Metro as of March 26, 2009.

†† Metro could reconsider the need for this credit.

- Effects on low-income drivers: This analysis found that low-income solo drivers would be unlikely to choose to use the ExpressLanes on a regular basis, but that there might be urgent situations where they would choose to use the lanes. The availability of a toll account setup fee waiver (or credit), which Metro plans to offer, might also make a difference for these drivers.
- Transponders and toll accounts: Many tolling systems require account holders to provide a credit card or bank account, but low-income households, which are prevalent in Los Angeles County, are more likely not to have either one. A

definitions that vary according to household size, for administrative simplicity a single threshold is proposed for this demonstration program.

successful tolling system in Puerto Rico, which has a large proportion of “unbanked” residents, is examined as a possible model.

Recommendations

- Toll policies: Metro may wish to consider accommodating the needs of low-income commuters with respect to its policies for:
 - waiving account setup fees for low-income commuters;
 - the distribution network for transponders;
 - minimum account balances and the consequences of going below them;
 - minimum monthly usage charges for low-activity accounts.
- Performance measures: The following operational performance measures are suggested and further defined in the text:
 - Number of low-income commuters (including percentage of Transit Access Pass (TAP) users) who sign up for a transponder.
 - Number of peak-period low-income users of HOT lanes (and percentage of overall HOT lane users).
 - Usage of HOT lane credits for low-income drivers (credit redemptions).
 - Mode choice of low-income drivers (carpool vs. single-occupant vehicle), compared with mode choice before the project is implemented.
 - Performance of transit service in the ExpressLanes corridors during the demonstration period.
 - General-purpose lane speeds during the demonstration period.
 - Account balance problems of low-income commuters, compared with non-low-income.
 - Share of time savings by low-income ExpressLanes drivers in comparison with the share of tolls and transponder costs they pay.
 - Trends in trip distance and trip time by low-income commuters, compared with non-low-income.
 - Toll revenue reinvestment.

I. Introduction

Using federal funding and as permitted by state authorizing legislation (Senate Bill 1422, 2008; see Appendix A), the Los Angeles County Metropolitan Transportation Authority (Metro) is undertaking a demonstration project to convert two area carpool lanes to “HOT” lanes: high-occupancy toll lanes that may be used by solo drivers who pay a toll. Portions of the carpool lanes (also called high-occupancy vehicle or HOV lanes) on I-110 and I-10 will be converted to “ExpressLanes” in a one-year demonstration project. A project Fact Sheet is included in Appendix B.

Because one of the project’s key goals is to increase vehicle occupancy and transit ridership (see Toll Policy in Appendix B), federal grant funds will be dedicated to substantial improvements in transit and vanpool service on both corridors (see Table 1). Bus Rapid Transit will be enhanced serving the two corridors, and downtown connections will be streamlined (see Table 2). Additional station parking will be provided along I-10 and enhanced security at stations along I-110. Off-board fare payment and signal synchronization are also planned to enhance the level of service for transit riders.²

Table 1. Summary of Transit Operational and Facility Expenditures (\$000’s)

Transit Operations		
Metro	Procurement 41 Buses	\$ 28,400
Metro	Operating Subsidy for Demo	\$ 6,300
Foothill Transit	Procurement 12 Buses	\$ 7,500
Foothill Transit	Operating Subsidy for Demo	\$ 3,200
Torrance Transit	Procurement 4 Buses	\$ 2,800
Torrance Transit	Operating Subsidy for Demo	\$ 1,200
Gardena Transit	Procurement 2 Buses	\$ 1,200
Gardena Transit	Operating Subsidy for Demo	\$ 600
LADOT	Transit Signal Priority	\$ 1,000
Metro	Facility O&M	\$ 3,300
Metro	Vanpools	\$ 400
	Subtotal Transit Operations	\$ 55,900
Transit Facilities		
Metro	El Monte Transit Center	\$ 45,394
Metro	Patsaouras Plaza Connector	\$ 14,806
Metro	Harbor Transitway Improvements	\$ 3,900
Metrolink/SCRRA	Pomona Metrolink Station	\$ 5,600
	Subtotal Transit Facilities	\$ 69,700

Source: Los Angeles County Metropolitan Transportation Authority.

² Draft Project Report, Los Angeles Congestion Reduction Demonstration Project, November 2009.

Table 2. Summary of Proposed Corridor Transit Service Enhancements

Operator	Routes	Service Levels (headways in minutes)		
		Morning Peak	Afternoon Peak	Base (Off-Peak)
Harbor Transitway - Before	Various	12	12	60
Harbor Transitway - After	Various	6	6	10
El Monte Busway - Before	Various	5	5	15
El Monte Busway - After	Various	3	3	8
Reallocation of resources to feeder lines	Local portions of the lines being used to form the BRT - Before	12	12	60
	Local portions of the lines being used to form the BRT - After	7	7	15

Source: Los Angeles County Metropolitan Transportation Authority.

In addition, as required by the statute, Metro intends to reinvest project revenues in each corridor in more transit and carpool lane improvements.

A frequent concern in tolling, often expressed with respect to HOT lanes, is that low-income commuters may find it a burden to pay the tolls. For example, a 2006 Federal Highway Administration (FHWA) report observes that “[s]ome critics have dubbed HOT-lanes ‘Lexus lanes’ out of concern that the wealthy disproportionately benefit from these facilities.”³ A recent paper published by the Transportation Research Board (TRB) observes that “Unlike most other issues initially raised with regard to tolling and pricing, such as privacy and the reliability of technology, issues of fairness and equity continue to be raised...as often today as they were 10 years ago.”⁴

³ AECOM Consult, “Issues and Options for Increasing the Use of Tolling and Pricing to Finance Transportation Improvements,” 2006, Final Report, Work Order 05-002; prepared for Federal Highway Administration, Office of Transportation Policy Studies.

<http://www.ncppp.org/resources/papers/tollissuesreport606.pdf>

⁴ Ungemah, D., “This Land Is Your Land, This Land Is My Land: Addressing Equity and Fairness in Tolling and Pricing,” Transportation Research Record: Journal of the Transportation Research Board, No. 2013, Washington, D.C., 2007, pp. 13-20.

In response to requirements of SB 1422, Network Public Affairs (NPA) has been retained by Metro to analyze the impact of the ExpressLanes demonstration project on low-income commuters in the two affected corridors. The purpose of the analysis is to address the requirements of the authorizing law in this regard and to identify the potential for mitigating impacts on low-income travelers.

A literature search conducted in the first phase of this work⁵ indicates that while concerns about the impact of road pricing on low-income drivers are common, they often decrease as drivers gain actual experience with pricing. They also decrease when toll revenues are used to enhance transit services along the same routes or corridors, thus providing more choices for low-income travelers (and others). The priced lanes themselves also increase the options available to low-income drivers, since there may be occasions when the cost of a HOT lane trip would be lower than the cost of delay (for example, arriving late to work or to a child-care center).

To evaluate project impacts on low-income commuters, it is helpful to refer to a framework for equity that has been proposed in the transportation arena.⁶ This framework considers equity along three dimensions: individual equity; group equity (among groups of people); and geographic equity (among different areas). While geographic equity is a frequent concern in transportation funding, the relevant dimension for this work, as defined by the authorizing statute, is group equity: ensuring that low-income commuters as a group are not disadvantaged by the ExpressLanes implementation or, if they are, that mitigation is provided.

This framework also distinguishes between market equity, opportunity equity, and outcome equity. Market equity refers to having shares of benefit in proportion to taxes or other charges paid. Opportunity equity refers to each group having an equal share of the resources devoted to transportation, while outcome equity seeks for each group to have an equal share of the resulting mobility. Again given the guidance of the authorizing legislation, the most relevant dimension for this work is market equity for all groups, including low-income commuters on the two ExpressLanes corridors. Additional relevant considerations are group equity of opportunity (not “pricing out” low-income drivers from tolled lanes) and individual market equity (ensuring tolls do not exceed the value of time savings).

⁵ See “Low-Income Impact Assessment Methodology Memorandum, Los Angeles County Congestion Reduction Demonstration Project” (“methodology memo”), prepared by NPA for Los Angeles County Metro, dated May 15, 2009. This memo is included in Appendix C.

⁶ Taylor, B. D. and Norton, A.T., “Paying for Transportation: What’s a Fair Price?,” forthcoming publication in *Journal of Planning Literature*, 2010.

Considerations of equity lead to examination of which groups would be better off and which could be worse off under the ExpressLanes project. The following groups of commuters are served by the two proposed ExpressLanes corridors:

- Carpools (2+ on I-110, 3+ on I-10) and Vanpools (both corridors): Can expect to see lower average speeds (45-55 mph vs. up to 65 mph) but greater travel time reliability with ExpressLanes. Must obtain a FasTrak transponder.
- 2-Person Carpools on I-10: Can pay for access to higher speeds and improved reliability in ExpressLanes during peak commute hours; may experience higher speeds and improved reliability in general-purpose lanes. Must obtain a FasTrak transponder.
- Transit Riders (both corridors): Will see increased service frequency and improved reliability. I-10 riders will see additional parking at stations and I-110 riders will see upgraded stations with bicycle lockers and security improvements.
- Solo drivers (both corridors): Can pay for access to higher speeds (45-55 mph) and improved reliability in ExpressLanes at any time; may experience higher speeds (35 mph on I-10, 25 mph on I-110) and improved reliability in general-purpose lanes. Must obtain a FasTrak transponder.

As summarized above, each of these groups in general would be better off under the ExpressLanes project. Literature on road pricing^{7,8} indicates HOT lanes create fewer equity concerns than other types of pricing schemes, and indeed most low-income members of these groups would likewise be better off under the ExpressLanes project. The possible exceptions are solo drivers on either corridor or 2-person carpoolers on I-10, where the requirement to obtain a transponder and the price of a toll could present an economic challenge for low-income commuters.

Metro asked NPA to evaluate providing credits to offset the costs of tolls for low-income commuters, and to consider ways to address the potential burden of obtaining a transponder. Based on the literature and other research, NPA began by recommending a threshold for “low-income,” proposed to be \$35,000 in annual household income (2009 \$). This “low-income” eligibility threshold was then used to estimate the potential pool of low-income users of the two corridors, and further, to estimate the net impact on project revenues of potential credits.

⁷ Safirova et al., “Welfare and Distributional Effects of Road Pricing Schemes for Metropolitan Washington, DC,” October 2003, Resources for the Future Discussion Paper 03-57. A note on the report cover says “Discussion papers are research materials circulated by their authors for purposes of information and discussion. They have not necessarily undergone formal peer review or editorial treatment.”

⁸ Ecola and Light, “Equity and Congestion Pricing: A Review of the Evidence,” 2009, RAND Corporation (sponsored by Environmental Defense Fund).

The analysis also evaluated the likelihood that low-income solo drivers would avail themselves of the opportunity to use the ExpressLanes. This analysis was based on the value of time of low-income drivers (as indicated by the literature on this topic and federal guidance), as well as on project modeling of toll rates on the two corridors.

The analysis conducted by NPA focused on the project impacts on low-income commuters, as specified by the implementing law. In this, it differs from an environmental justice analysis in that it did not evaluate other types of project impacts, such as air quality benefits, on low-income and other disadvantaged populations in the vicinity of the project. These impacts are being evaluated as part of the project environmental document being prepared by Caltrans.⁹

II. Defining “Low-Income”

The authorizing law, SB 1422, requires that drivers eligible for “low-income” toll credits be eligible for certain specified state and local aid programs. Thus, the threshold adopted for Metro’s HOT lane program must be no lower than the levels specified in these programs. These levels are summarized, and the full details of the analysis provided, in the initial memorandum prepared by Network Public Affairs for this project, which is included as Appendix C.

Metro also sought to adopt a threshold at least as high as the relaxed eligibility limits for food stamps and other assistance programs adopted in Spring 2009 by the Los Angeles County Supervisors in light of the current economic downturn. The Supervisors’ motion defined qualifying individuals and families as those at or below 50% of area median income. Los Angeles County’s median annual income as of 2007 was \$53,494¹⁰, translating to an eligibility level of \$26,747 in 2007 dollars (or \$27,439 in 2009 dollars).

Metro’s Rider Relief Program for low-income transit users also offered a guide in selection of a threshold. The program offers monthly transit fare subsidies to households that meet eligibility criteria, which start at \$25,000 in annual income for a household of one and include \$33,300 for a household of three (see Appendix C, p. 8).¹¹ A related benchmark of low-income eligibility comes from the San Francisco County Transportation Authority (SFCTA),

⁹ The Congestion Reduction Demonstration Project Congestion Mitigation/Air Quality Analysis (prepared by the Better World Group, Inc., January 27, 2009) found that all pollutants examined (reactive organic gases, nitrogen oxides, carbon monoxide, particulate matter 10 microns and smaller, and particulate matter 2.5 microns and smaller) would decrease as a result of the component parts of the project.

¹⁰ Los Angeles County QuickFacts, U.S. Census Bureau, <http://quickfacts.census.gov/qfd/states/06/06037.html>, accessed 4/16/2009.

¹¹ See http://www.metro.net/projects_studies/rider_relief/default.htm.

which is evaluating the potential for congestion charges in the central core of the city. SFCTA, which serves a metropolitan area with similar levels of transportation and housing affordability to Los Angeles, is working with a threshold definition of \$37,000.

In light of these considerations, NPA recommends that Metro begin with a low-income threshold definition of \$35,000 in current (2009) dollars. NPA also included a sensitivity analysis in which an additional threshold is examined, approximately \$10,000 higher.

Here is how the proposed threshold of \$35,000 in current dollars relates to other thresholds and data sources:

- It is higher than any of the legislatively prescribed eligibility levels listed in Table 1 of Appendix C, page 7.
- It is higher than the County Supervisors' recently adopted eligibility level.¹²
- It is higher than Metro's Rider Relief eligibility thresholds for households of three persons or less.
- It is approximately equivalent to 200% of the federal poverty threshold¹³ as calculated by the Southern California Association of Governments (SCAG) based on the 2000 U.S. Census data. Two hundred percent of federal poverty is the low-income threshold used by a 2005 Fast And Intertwined Regular (FAIR) lanes study in Alameda County, California.¹⁴
- It is slightly higher than the income stratification in the travel demand model used for this project.
- It is equal to an income stratification used in the Metro HOT lanes license plate survey completed June 2009.
- It falls between two income levels used in the Metro HOT lanes stated preference survey (\$30,000 and \$50,000).
- It is below the levels used in the 2008 General Public and Environmental Justice surveys (one conducted on each corridor) for the Metro HOT lanes project.¹⁵

¹² Los Angeles County Board of Supervisors, Statement of Proceedings, April 7, 2009, http://file.lacounty.gov/bos/sop/cms1_131074.pdf, pp. 10-12, accessed 4/16/09.

¹³ Levels are published annually at this web site: <http://aspe.hhs.gov/POVERTY/>. The 2009 threshold for a household size of 3, which is closest to the Los Angeles County average, is \$18,310.

¹⁴ Parsons Brinckerhoff et al., "HOT Credit Lanes Feasibility Study," prepared for Alameda County Congestion Management Agency, August 2005.

¹⁵ Parsons Brinckerhoff et al., "Congestion Pricing Operating Plan for Los Angeles County: Los Angeles County General Public and Environmental Justice Surveys," and "Congestion Pricing Operating Plan for Los Angeles County: San Gabriel Valley General Public and Environmental Justice Surveys," prepared for Los Angeles County Metropolitan Transportation Authority, 8/5/08 (draft). According to the sampling plan described in Sec. 2.2 of each of the two Parsons Brinckerhoff survey reports, the lower

If Metro elects to continue the ExpressLanes implementation past the demonstration period, and continues to offer mitigations for low-income travelers, the agency may wish to consider defining the future eligibility threshold as twice the current year's federal poverty threshold for performance measurement purposes and to avoid having to re-evaluate the figure each year.

III. Estimated Low-Income Users of ExpressLane Corridors

Estimation of Potential Low-Income Users

There is no direct way to determine the income levels of potential users of the ExpressLanes Corridors. Four different data sources were examined to estimate the potential for low-income commuters to use the corridors. The estimates were used, in turn, to estimate the potential value of credits that could be earned under the schemes initially proposed by Metro.

One data source consulted was a summary of Southern California commuting modes by income group prepared by SCAG based on the 2000 Census.¹⁶ This analysis indicated that of commuters who drive alone, just under 21% are in the lowest two-fifths of the region's income distribution¹⁷, while of carpoolers, 27.5% are in that group. (If commuting behavior were proportionally distributed by income, 40% of these commuters would be in this income group.) By contrast, just over 49% of transit users are in this lower income group (omitting those who ride the Metrolink commuter rail system, where fares are relatively high). When both auto modes are combined (driving alone and carpooling), 22% of the region's commuters are in the lowest two-fifths of the income distribution. Nearly 80% of the region's solo drivers are in the upper three-fifths of the income distribution, while less than 51% of the regular transit riders are in this higher-income group (52.5% when Metrolink is included).

A second potential indicator of the income levels of Southern California's transportation corridor users comes from SCAG's State of the Commute survey, last conducted in 2005 (results

income brackets were determined as defined by the Federal Highway Administration Uniform Act. These limits for 2009 are given in the document at http://www.huduser.org/Datasets/ura/ura09/map/CA_URA.pdf and begin at \$44,400 for a household of one person in Los Angeles County.

¹⁶ Analysis by Frank Wen & Hsi-Hwa Hu of SCAG based on 2000 Census data and Public Use Microdata Samples (PUMS).

¹⁷ Below \$46,513 (2009 \$), which corresponds to the higher potential "low-income" threshold.

published in 2006).¹⁸ This statistically representative telephone survey of over 2,800 households throughout the six-county SCAG region¹⁹ indicated that 25% fell into income brackets below \$35,000 per year, and 40% below \$50,000 per year. In that this survey is directed at full-time workers, these percentages may be a fairly accurate indicator of the income levels of those who use the transportation system regularly, but they are not specific to the ExpressLanes Corridors.

A third source of information, more specific to potential ExpressLanes corridor users, is the income levels indicated by respondents to the CRD project license plate survey.²⁰ The aggregate results for these respondents showed that 18% were below \$35,000 and 30% below \$50,000 in household income. The detailed demographic profile of respondents is shown in Table 3.

Table 3. Summary of License Plate Survey Results

	I-10 General Purpose	I-10 HOV	I-110 General Purpose	I-110 HOV
Below \$35,000	17%	21%	11%	25%
Below \$50,000	30%	33%	24%	34%

Source: License Plate Survey Draft Report (see Footnote 20).

However, several characteristics of the sample of households that actually received a survey (also called a “sampling frame”) should be understood.²¹ First, the sample was designed to represent about 70% peak users and 30% off-peak users, since the opinions of peak-period users are more relevant to the proposed tolling program. Second, the sample was designed to be split about evenly between HOV users and general purpose lane users, again because the opinions of HOV users are so relevant to the addition of tolls. In reality, a far smaller percentage of corridor drivers use the HOV lanes. Finally, there is a “non-response bias,” meaning that the characteristics of those who actually chose to respond to the survey may not be statistically representative. For example, 95% of the surveys returned were English-language surveys, while only 5% were Spanish-language surveys.

¹⁸ SCAG, “State of the Commute Report 2006,” December 2006, p. 3-5, http://www.scag.ca.gov/publications/pdf/2007/2006_StateoftheCommute_Report.pdf, accessed June 19, 2009.

¹⁹ Imperial, Los Angeles, Orange, Riverside, San Bernardino, Ventura.

²⁰ Parsons Brinckerhoff et al., “Congestion Pricing Operating Plan for Los Angeles County, License Plate Survey Draft Report,” prepared for Los Angeles County Metropolitan Transportation Authority, June 22, 2009.

²¹ Personal communication with Mark McCourt, Redhill Group, July 17, 2009.

A final estimation method was based on travel modeling conducted for the project. Parsons Brinckerhoff provided model results indicating the distribution of trip origins through the corridors (by providing the TAZ²² of trip origins during the morning peak, as these are the trips likeliest to originate from home). This was combined with SCAG demographic data on household income at the TAZ level. The income distributions in these zones could be indicative of the incomes of corridor users (see Table 3). However, this method suffers from “ecological fallacy”: drawing conclusions about individuals in an area on the basis of overall characteristics in that area. Indeed, the estimated percentages of low-income commuters on the ExpressLanes by this method are higher than indicated by all the foregoing methods. The Census data and survey results summarized above indicate that regular commuters are likely to be in higher income brackets.

Table 4. Aggregate Demographic Characteristics of Areas of Corridor Trip Origins

	Interstate 10			Interstate 110		
	General Purpose Lanes	HOV Lanes	Total	General Purpose Lanes	HOV Lanes	Total
Low-Income Threshold						
Up to 200% of poverty level*	36%	34%	35%	41%	37%	40%
Two lowest income quintiles**	45%	43%	45%	50%	46%	49%

Source: NPA analysis based on SCAG demographic data for 2008 Regional Transportation Plan and PB travel demand model results for AM peak trip origins.

* Corresponds to the proposed \$35,000 low-income threshold.

** Corresponds to the higher potential threshold of \$46,513.

In summary, the four data sources differ as to the likely percentage of corridor users that would qualify as low-income. The direct demographic analysis (Table 4) suggests an upper bound, but is likely to overestimate the percentage of low-income commuters, since not all of the residents of any area of trip origins may be corridor users. The license plate survey is derived from actual, current corridor users, but has several intentional sampling biases as described above. However, the Census data, which is presumably free of sampling biases, falls in a similar range. The State of the Commute survey results fall between the others and represent the characteristics of full-time workers, which may most closely resemble the population regularly using the I-10 and I-110 corridors. However, these regional percentages cannot be differentiated between the two corridors, or between carpoolers and solo drivers.

For purposes of the remainder of the analysis, the estimates from the license plate survey (shown in Table 3) will be used. These percentages, while on the low side, are

²² TAZ stands for Transportation Analysis Zones, a level of geography used in the regional travel demand model.

supported by the SCAG Census data analysis of commuting patterns by income group and can be differentiated by corridor and by solo drivers vs. carpoolers.

Driver Demand

Since low-income drivers could experience economic effects from the tolling, Metro is considering offering some type of toll credit for this group. Based on the percentages of low-income corridor users presented above, the potential number of ExpressLane drivers who could be eligible for mitigation measures can be estimated. Figures for the estimated number of unique user accounts were provided by Parsons Brinckerhoff and the resulting estimates are summarized in Table 5. Estimated user account figures were provided for qualifying carpools and for paying vehicles. The demographic characteristics of HOV lane users (as shown in Table 3) were applied to the carpool numbers and the demographic characteristics of General Purpose lane users were applied to the paying vehicle numbers.

Table 5. Estimated Pool of "Low-Income" Driver Demand in ExpressLanes Corridors

Corridor	Estimated Unique Accounts	Pool 200% Pov	Pool Q1+Q2*
I-10			
General Purpose Lanes	107,000	18,190	32,100
HOV Lanes	84,000	17,640	27,720
Total All Lanes	191,000	35,830	59,820
I-110			
General Purpose Lanes	77,000	8,470	18,480
HOV Lanes	154,000	38,500	52,360
Total All Lanes	231,000	46,970	70,840

Source: Account data provided by Parsons Brinckerhoff; demographics based on license plate survey.

* Corresponds to household income below \$50,000 per survey category, slightly higher than sum of two lowest income quintiles (\$46,513).

The monetary value of the potential demand for toll credits is discussed in Section V.

Transit Demand

Data on current transit (bus) ridership in the ExpressLanes corridors for commuting days was provided by Parsons Brinckerhoff and Metro (see Table 6). Metro has considered offering a credit to all "frequent" transit riders (defined below), regardless of income level (although many transit riders are low-income). If they ride sixteen round trips using their Transit Access Pass (TAP, or electronic fare card) within 60 days, they would be eligible for a \$5 credit toward either the transit fare or the toll every 30 days. Thus within the one-year demonstration period each rider could be eligible for up to \$60 in transit or toll credits. The

credits would default to the rider’s TAP card, though the rider could elect to have the credit go to their toll transponder account instead.

Table 6. Transit Ridership in ExpressLanes Corridors

Transit Ridership Summary - Estimated FY08	Avg. Weekday
Harbor Freeway (I-110):	
MTA Bus	16,564
Municipal Operators	16,816
Total Harbor Freeway Bus:	33,380
El Monte Busway (I-10):	
MTA Bus	18,876
Municipal Operators	20,639
Total El Monte Busway:	39,515

Source: Parsons Brinckerhoff and Metro.

The monetary value of the potential demand for transit credits is discussed in Section V. However, as illuminated by the equity discussion in Section I, transit users of all income levels would be better off under the ExpressLanes project due to the extensive enhancements of transit service before and during the demonstration period. As summarized earlier, Metro is investing \$55.9 million in transit operations and \$69.7 million in transit facilities (see Table 1). Thus Metro could consider eliminating the transit credit option.

Assessing Equity Based on Spatial Distribution

The RAND study²³ suggested that HOT lanes could prove inequitable to low-income users with longer commutes if the costs of the trip were greater than the value of time saved. Based on the data available for this study, NPA could not estimate the value of time savings by income group. However, NPA examined the poverty levels for the various counties of trip origins, and for both corridors found that the highest levels of poverty among corridor users were in Los Angeles County (see Table 7). Hence long-distance commuters coming from inland counties (primarily San Bernardino along the I-10 corridor) are less likely to be low-income than Los Angeles County commuters. (This analysis is based on the modeling runs and SCAG demographic data summarized in Table 4, which give higher estimates of overall poverty levels than other methods.)

²³ Ecola and Light, “Equity and Congestion Pricing: A Review of the Evidence,” 2009, RAND Corporation (sponsored by Environmental Defense Fund).

Table 7. Counties of Origin of Corridor Trips

County	I-10			I-110		
	Number of AM Peak Trips	Share of AM Peak Trips	Below Poverty Threshold	Number of AM Peak Trips	Share of AM Peak Trips	Below Poverty Threshold
LA	70,754	89.2%	37%	90,306	94.7%	41%
Or	286	0.4%	22%	4,254	4.5%	21%
Riv	1,657	2.1%	28%	150	0.2%	26%
SB	6,045	7.6%	25%	559	0.6%	25%
Ven	546	0.7%	13%	106	0.1%	14%

Source: NPA analysis of model data provided by PB and demographic data from SCAG.

IV. Impact to Low-Income Commuters

This section assesses the likelihood that low-income drivers would choose to use the ExpressLanes. This evaluation is based on project modeling that estimates toll values, as well as on the presumed value of time to low-income drivers.

The performance of the proposed HOT lanes for various toll levels has been modeled in a two-step process. Overall choices of the region’s commuters are modeled by Parsons Brinckerhoff using a regional travel demand model. The toll level is then analyzed by ECONorthwest via an economic model. This toll optimization model, or TOM, is set to optimize (i.e., minimize) the total cost of travel time in each corridor, not to maximize revenue.

From these model results, the behavior of low-income commuters when faced with the option of paying a toll to use the ExpressLane can be inferred. In theory, such decisions are based on the driver’s (or vehicle’s) value of time: a driver will opt to pay the toll if it is lower than his or her value of time on that occasion. The TOM model computes the “marginal value of time,” which can be interpreted as the value at which the driver is indifferent between staying in the free lane or entering the ExpressLane.²⁴ Thus for driver values of time in excess of the marginal value of time (MVOT), it can be assumed that drivers will choose the ExpressLane; below it, they will stay out. Examples of the average MVOT for these corridors are derived below and compared with low-income values of time.

²⁴ The model estimates a marginal value of time per vehicle, which is the same across all vehicle classes. For an SOV, the vehicle and driver values of time are equivalent since there is only one occupant in the vehicle. For an HOV (carpool), the occupants’ value of time is higher, and the vehicle may be more likely to use the toll lane since occupants can share the cost of the toll.

A body of literature has developed regarding the value of travel time. In general, time spent driving for personal reasons (including commuting) is less valuable than time spent driving for commercial reasons (e.g., driving while on business, or driving a commercial vehicle such as a truck). Business driving can fairly be valued at the wage rate, although the U.S. Department of Transportation (DOT) offers guidance suggesting that it can be valued anywhere from 80-120% of wage rate.²⁵ Personal travel by surface modes can be valued at 35-60% of wage rate, according to DOT, for local travel, and 60-90% for intercity travel.

For purposes of initial estimation of travel behavior during commutes on the ExpressLane corridors, NPA has used 60% of the wage rate. For a person at the proposed low-income threshold of \$35,000, a single hour of work time would be worth \$16.83, assuming 2080 hours per year of paid work time, and thus the value of travel time would be \$10.10 per hour using the 60% figure. (Values of time at the higher alternative threshold of \$46,513 would be \$13.42 for a solo driver and \$24.42 for a low-income two-person carpool.) However, it is critical to note that the value of time for any person, low-income or not, is highly variable. At any given time, under specific circumstances, a low-income person might exhibit a substantially higher value of time – for example, when running late for work, or for other reasons. The value-of-time estimates used for economic analysis are just for that purpose and do not reflect the instantaneous value of time for any person, much less the intrinsic value of any person's time to himself or to others.

The figure of \$10.10 for value of time would apply to a single-occupant vehicle (SOV). For a carpool (high-occupancy vehicle or HOV) of two people, the value of time in this study is assumed to be 1.82 times the value of time for an SOV.²⁶ Hence (assuming both occupants are low-income) the value of time for a two-person carpool evaluating whether to pay a toll on the 10 corridor would be \$18.38 at 60% of the wage rate. (Values of time have been computed for other vehicle classes modeled in this study, but they are not relevant to the toll payment choices of low-income drivers on these corridors.)

The low-income vehicle values of time – \$10.10 for a solo driver and \$18.38 for a low-income two-person carpool – can be compared to the corresponding vehicle marginal values of time predicted by the TOM model and summarized in Table 8. The model computes a distinct MVOT for each small segment of the roadway (some as short as a tenth of a mile); therefore, the

²⁵ U.S. DOT, Office of the Secretary of Transportation, "Revised Departmental Guidance: Valuation of Travel Time in Economic Analysis," February 11, 2003, http://ostpxweb.dot.gov/policy/Data/VOTrevision1_2-11-03.pdf.

²⁶ This is the ratio of HOV-2 value of time to SOV value of time as used in the regional travel demand model initially run by Parsons Brinckerhoff. A refined model used ratios based on a partial sample of data from the project's stated preference survey, but since this survey was not completed, the earlier value was used.

values in Table 8 have been weighted according to the vehicle miles traveled on each segment. Each value is a mean (average) value and is subject to great variability according to the specific place or moment in time. Moreover, the ExpressLanes will use dynamic pricing, meaning that the tolls themselves would change frequently in response to levels of traffic congestion.

Table 8. Marginal Value of Time from Toll Optimization Model (\$/hr)

Marginal Value of Time		SOV	HOV2*
I-10 Choice of HOT Lane		VMT Weighted Average	VMT Weighted Average
EB	AM	\$67.78	\$67.78
	PM	\$46.56	\$46.56
WB	AM	\$28.39	\$28.39
	PM	\$30.79	\$30.79
I-110 Choice of HOT Lane			
NB	AM	\$24.95	
	PM	\$34.38	
SB	AM	\$40.82	
	PM	\$27.93	

Source: NPA analysis of MVOT estimates from TOM model runs provided by ECONorthwest.

* HOV2 values are shown only for I-10 since these vehicles would be tolled during peak commute hours. On I-110, HOV2 would not be charged a toll. MVOT values from the model are per vehicle and do not vary with vehicle class.

As indicated in Table 8, there is no situation in which the average MVOT falls below the low-income values of time indicated above. However, the model-predicted MVOT values are highly variable and there may be situations where a low-income solo driver would find the HOT lanes attractive. If the value of time were assumed to be 120% of the wage rate, and a toll credit were offered, there could be situations where even at average MVOT, the HOT lanes would be attractive to these drivers.

Notably, it is necessary to assume the availability of a toll credit to find situations in which low-income drivers might find the HOT lanes attractive, based on examination of average MVOT. One reason that predicted marginal values of time are so high is that this analysis includes the minimum peak-period corridor toll equivalent of \$3 adopted by the Metro board.²⁷ This toll policy was adopted to prevent the peak-period toll from being lower than the bus fare on the same corridor – a situation that would provide an unintended incentive to drive alone rather than use transit. ECONorthwest observes that “the \$3 minimum toll is relatively

²⁷ This is the toll equivalent resulting from the business rule that minimum peak tolls shall be no less than 150% of MTA transit fare on the ExpressLanes (see Appendix B for toll policy).

high, and is generally greater than the cost-minimizing toll.”²⁸ This implies that predicted optimal tolls – and thus the marginal value of time – might be lower in the absence of a minimum toll.

V. Estimate of Program Costs and Benefits

As described above, Metro is contemplating mitigating the impacts of charging for HOV lane use by offering flexible toll or transit credits to corridor users as follows:

- Low-income drivers, according to the adopted eligibility threshold, who register for a transponder would be eligible for a one-time per-household account set-up fee waiver equal to the value of the transponder. For purposes of this analysis, this waiver or credit is assumed to have a value of \$25, which would be credited to the transponder account at the time of distribution. The waiver would be available only to Los Angeles County residents during the demonstration period and would be re-evaluated if the project continues beyond that period.
- Frequent transit riders (many of whom are low-income) could be eligible for a credit of \$5 every thirty days, or a maximum of \$60 for the demonstration period, by meeting ride frequency criteria. To earn the credits, transit riders must be enrolled for an electronic transit pass known as TAP. The credits so earned could be used for transit fares or against tolls (if the rider also obtains a transponder). However, Metro could reconsider the need for this credit because transit riders would benefit far more from the planned enhancements to transit service, and moreover would not be made worse off by the project.

Transit Credit Demand

If Metro implements the transit credits, they would be available to all riders, not just those with low income. The potential ridership demand was provided in Section III (see Table 6). The potential maximum cost of transit credits is summarized in Table 9 per 60-day crediting period, per month, and for the full year of the demonstration program. If the credits are offered, toll revenues would be used to repay transit operators for the cost of credits. However, as indicated above, the transit credit may not be needed since transit riders would be made better off by the project’s transit service enhancements.

²⁸ Parsons Brinckerhoff et al., “Congestion Pricing Operating Plan for Los Angeles County: I-10 and I-110: Revised Tolling Analysis Results using the Updated Regional Model,” August 2009.

Table 9. Potential Value of Transit Credits

	Potential Cost at \$5 Credit/30 days		
	Per 60 days	Per Month	Program Year
I-110 Harbor Freeway:			
MTA Bus	\$165,640	\$82,820	\$993,840
Municipal Operators	\$168,160	\$84,080	\$1,008,960
Total Harbor Freeway Bus:	\$333,800	\$166,900	\$2,002,800
I-10 El Monte Busway:			
MTA Bus	\$188,760	\$94,380	\$1,132,560
Municipal Operators	\$206,390	\$103,195	\$1,238,340
Total El Monte Busway	\$395,150	\$197,575	\$2,370,900
Program Total	\$728,950	\$364,475	\$4,373,700

Source: NPA analysis based on transit ridership figures provided by Parsons Brinckerhoff and Metro.

Toll Credit Demand

Metro is contemplating providing each qualifying low-income transponder registrant a one-time per-household account setup fee waiver of \$25 (the anticipated value of the transponder), which would be credited to the transponder account. NPA used the low-income corridor user figures derived in Section III (see Table 5) to estimate the maximum potential demand for these credits (summarized in Table 10). Since each ExpressLanes user, whether paying or not, must have a transponder, both general purpose lane and HOV lane users could be eligible for this credit. The percentage of trips originating in Los Angeles County (see Table 7) was also applied to each corridor, since only County residents would be eligible for the waiver.

Table 10. Estimated Toll Waiver Demand for Low-Income Users

Corridor	Weekly Usage	200% Pov	Q1+Q2	Potential Cost of One-Time \$25 Credit	
				200% Pov	Q1+Q2
I-10					
General Purpose Lanes	107,000	18,190	32,100	\$406,412	\$717,198
HOV Lanes	84,000	17,640	27,720	\$394,124	\$619,337
Total All Lanes	191,000	35,830	59,820	\$800,536	\$1,336,535
I-110					
General Purpose Lanes	77,000	8,470	18,480	\$199,710	\$435,731
HOV Lanes	154,000	38,500	52,360	\$907,773	\$1,234,571
Total All Lanes	231,000	46,970	70,840	\$1,107,483	\$1,670,302

Source: NPA analysis based on corridor demand figures for unique accounts provided by Parsons Brinckerhoff.

* Corresponds to household income below \$50,000 per survey category, slightly higher than sum of two lowest income quintiles (\$46,513).

Summary of Project Revenues & Costs

A preliminary summary of project revenues and costs is given on the next page (see Table 11). The summary reflects estimated program costs and revenues for a single program year, and is constructed from a social cost-benefit perspective: that is, all operating costs and benefits are included. (Capital costs have not been included.)

The following are quantified:

- Toll credits (program cost): The maximum potential values are used, as derived above. Credit amounts are shown for the proposed low-income threshold of \$35,000 per year in household income (200% of the federal poverty threshold).
- Transit service operations (program cost): Per estimates provided by Metro for the project budget as of March 26, 2009. At this time capital costs are not included; only the operating costs for the program year are considered. These values are the same with or without credits.
- Transit credit (program cost): As estimated above. Since this credit may not be offered, net program values could be higher. Section I includes a discussion of equity that indicates transit users would benefit from enhanced service as part of the project.
- Value of time savings (program benefit): This substantial positive benefit is estimated for each corridor by the ECONorthwest toll model.

Toll revenues are estimated by ECONorthwest using the toll optimization model in a mode that optimizes travel time savings, not toll revenues. These revenues have been omitted from the summary cost-benefit analysis until a final toll revenue estimate is established. As a program benefit, once added, these revenues would increase the net benefit of the project.

Note: The data in this table may be revised, but these revisions are not expected to change the conclusions drawn in the report.

Table 11. Summary of Project Costs and Benefits*

Corridor	Toll Credit† (-)	Transit Service Operations Cost*** (-)	Transit Credit†† (-)	Value of Time Savings** (+)	Net Benefit (Cost)
Without Credits					
I-10	--	\$30,850,000	--	\$41,290,720	\$10,440,720
I-110	--	\$24,950,000	--	\$78,857,428	\$53,907,428
Total	--	\$55,800,000	--	\$120,148,149	\$64,348,149
With Credits					
I-10	\$800,536	\$30,850,000	\$2,370,900	\$41,290,720	\$7,269,284
I-110	\$1,107,483	\$24,950,000	\$2,002,800	\$78,857,428	\$50,797,145
Total	\$1,908,018	\$55,800,000	\$4,373,700	\$120,148,149	\$58,066,431

* Toll revenues have been omitted from this analysis until a final revenue estimate is established. These revenues, when included, will increase the net benefit. Transit revenue increase from additional service and toll/transit credit administration cost are not estimated.

** Value of time savings predicted by TOM model run by ECONorthwest. Results are for Case 1 (vehicle volumes as predicted by model).

† Toll credit estimates based on proposed low-income threshold of \$35,000 per year in household income. The higher threshold yields a total toll credit estimate of just over \$3 million for both corridors – about \$1.1 million more than the lower threshold.

*** Transit service operations costs for program year provided by Metro as of March 26, 2009.

††Metro could reconsider the need for this credit.

In particular, it appears that projected corridor revenues would be sufficient to pay for the potential demand for toll and transit credits, should both be implemented. Moreover, when the value of travel time savings is considered, the project has an overall net social benefit.

VI. Transponder Issues

Metro’s policy is that a transponder will be required on any vehicle using the ExpressLanes. Some studies, including the 2009 RAND report on equity and congestion

pricing²⁹ and a 2005 Transportation Research Board study,³⁰ have observed that the cost of a transponder, as well as account setup, can be a barrier for the low-income driver. Some toll system operators accept only credit cards or checks as payment for opening an account, and some charge extra for transponders if a credit card is not provided for the account.³¹ The ExpressLanes authorizing legislation requires that toll customers be able to pay with credit cards or cash.

In 2008 the Pew Charitable Trusts reported that 12 percent of California households lack a checking account,³² compared to a national rate of 7.9% of households that lack a transaction account of any type.³³ Not surprisingly, households in lower income strata are less likely to have a bank account. Nationwide statistics from the 2007 Survey of Consumer Finances indicate that 25.1% of households in the lowest income quintile (lowest 20%) lack a transaction account, while in the next highest income quintile, 9.9% lack an account.³⁴ While specific banking rate data could not be located for Los Angeles, a three-city survey (Washington, DC, Chicago, and Los Angeles) conducted in 2004 indicated that 41.4% of households with income below \$10,000 were unbanked, 25.5% of households with incomes between \$10,000 and \$14,999 were unbanked, and 24.7% of households with incomes between \$15,000 and \$24,999 were unbanked. A far lower percentage, 6.5%, of households with incomes between \$25,000 and \$34,999 were unbanked.³⁵

It is more difficult to estimate the percentage of households in the Los Angeles area that lack a credit card. According to CreditCards.com, an on-line credit card marketplace, 78 percent of

²⁹ Ecola and Light, "Equity and Congestion Pricing: A Review of the Evidence," 2009, RAND Corporation (sponsored by Environmental Defense Fund).

³⁰ Parkany, E., "Environmental Justice Issues Related to Transponder Ownership and Road Pricing," Transportation Research Record: Journal of the Transportation Research Board, No. 1932, Washington, D.C., 2005, pp. 97-108.

³¹ *Ibid.*

³² The Pew Charitable Trusts, "Converting Basic Financial Services Fees Into Prosperity: An Untapped Opportunity for Consumers and Banks," 2008, http://www.pewtrusts.org/our_work_detail.aspx?id=634, accessed August 18, 2009.

³³ Bucks, B., et al., "Changes in U.S. Family Finances from 2004 to 2007: Evidence from the Survey of Consumer Finances," <http://www.federalreserve.gov/pubs/bulletin/2009/pdf/scf09.pdf>, accessed August 18, 2009. A "transaction account" includes checking, savings, and several types of money market and brokerage accounts.

³⁴ *Ibid.*

³⁵ Center for Financial Services Innovation, "A Financial Services Survey of Low- and Moderate-Income Households," July 2005, http://www.cfsinnovation.com/managed_documents/threecitysurvey.pdf, accessed August 18, 2009.

American households had at least one credit card at the end of 2008.³⁶ The U.S. Census Bureau’s 2009 Statistical Abstract reports that in 2004, 71.5 percent of families had at least one general purpose credit card, but that as few as 31.5% of families with incomes below \$10,000 have a card (see Table 12). Lower-income families may also have a greater propensity to maintain a balance rather than pay off credit card debt (see Table 12).

Table 12. Summary of Credit Card Usage by U.S. Families

Family Income	Percent having a general purpose credit card	Percent who almost always pay off the balance	Percent who sometimes pay off the balance	Percent who hardly ever pay off the balance
Less than \$10,000	31.5%	50.9%	17.3%	31.9%
\$10,000 to \$24,999	48.6	49.9	17.0	33.1
\$24,000 to \$49,999	71.2	46.9	20.3	32.8
\$50,000 to \$99,999	88.2	56.1	22.0	21.8
\$100,000 and more	96.6	71.1	20.2	8.7

Source: Table 1149, Usage of General Purpose Credit Cards by Families: 1995 to 2004, U. S. Statistical Abstract for 2009, <http://www.census.gov/compendia/statab/tables/09s1149.pdf>.

Beyond simply having basic financial resources, obtaining a transponder also requires (1) awareness of availability; (2) understanding of (and agreement to) the prepayment requirements and other conditions of use, including minimum account charges for infrequent use; and (3) a decision to use the HOT lane more than once, or on a regular basis. In other words, a low-income user of the HOT lanes must plan in advance to use the lanes by obtaining a transponder. If a solo driver should decide on the spur of the moment to use the HOT lane, he or she will have 72 hours to open a transponder account or risk a notice of violation.³⁷

Consistent with the authorizing state law, the toll operator will be directed to accept cash, credit cards, and checks. Also, Metro is developing a range of transponder account plans and distribution methods. A key intended policy is to offer low-income commuters an account setup credit equivalent to the expected cost of the transponder. This fee waiver, which is currently estimated at \$25, would be credited to the accounts of qualifying low-income commuters, one credit per household.

Another issue of potential concern for low-income commuters using the toll lanes is the minimum required account balance. Nothing would stop any driver from entering the ExpressLanes with a small balance at any time, but if a driver “goes negative” during a trip, they would be billed for the balance due. Maintaining a required minimum account balance is

³⁶ <http://www.creditcards.com/credit-card-news/credit-card-industry-facts-personal-debt-statistics-1276.php#ownership>, accessed August 18, 2009.

³⁷ Archive of Metro web chat July 7, 2009, http://www.metro.net/news_info/2009_0707_archive.htm.

an issue for all accounts, but low-income commuters, whether regular or intermittent users, are probably much more likely to keep a minimal balance in their accounts.

Toll account rules on the I-15 and SR-91 HOT lanes each require a minimum balance, and provide for deactivation of the transponder if the minimum is not met. The I-15 rules³⁸ require a \$10 minimum balance for all accounts, while SR-91 requires a \$10 minimum for credit-card accounts and \$25 for accounts replenished by cash, check, or money order.³⁹ Metro may wish to consider whether it wants to enforce a higher minimum balance for customers who may find it more difficult to maintain one (i.e., cash customers). Metro may also wish to consider its policies for situations where an account holder fails to keep the minimum balance. Both I-15 and SR-91 tolling agreements provide that toll transactions will count as violations under law if the minimum account balances are not maintained. The SR-91 agreement refers to penalties up to \$100 for the initial violation, \$250 for a second one in the same calendar year, and \$500 for subsequent violations in the same year.

Moreover, typical users may connect their toll accounts to credit cards or bank accounts in order to enable automatic replenishment of account funds. This approach may not be possible for some low-income drivers, as described above. Some toll system operators levy a surcharge on accounts that are not opened using a credit card; Metro may wish to avoid such a policy.⁴⁰ Metro intends to ensure that accounts can be loaded through a variety of means, including via cash and perhaps through check-cashing outlets. Metro may wish to consider arranging with participating check-cashing outlets to automatically or directly feed a portion of a cashed check to the customer's toll account (or transit access pass account if transit credits are implemented).

A related issue is whether Metro will institute a minimum monthly charge on toll accounts. Low-income users might be infrequent users, and thus could incur minimum or low-activity charges with some frequency. The I-15 rules call for a \$4.50 minimum charge per month for an account with a single transponder⁴¹, while Standard Plan accounts on the SR-91 toll corridor are subject to a \$7 per transponder monthly minimum toll requirement.⁴² Metro may wish to consider waiving or reducing its minimum monthly fees for low-income commuters.

³⁸ I-15 FasTrak Application and License Agreement, <http://fastrak.511sd.com/PDFs/April2909LicenseandAgreementFinal.pdf>, accessed August 18, 2009.

³⁹ 91 Express Lanes Account Agreement, <https://www.91expresslanes.com/signup/agreementpopup.html>, accessed August 18, 2009.

⁴⁰ Parkany, *op. cit.* (see footnote 30)

⁴¹ FasTrak Schedule of Fees, 5/1/2007.

⁴² 91 Express Lanes Account Agreement, <https://www.91expresslanes.com/signup/agreementpopup.html>, accessed August 18, 2009.

Finally, Metro is considering distribution of transponders through a variety of institutional outlets, both public and commercial. Distribution should be available at varied hours, beyond typical government office business hours. Metro may wish to consider developing a distribution network that is coordinated with or similar to that used to distribute TAP cards, which are sold at Metro Customer Centers and a variety of check cashing outlets and supermarkets.⁴³

An example of a tolling system used in an area where 42% of residents do not have checking accounts⁴⁴ can be found in Puerto Rico's AutoExpreso electronic tolling system. (This is a hybrid system that currently also accepts cash toll payments.) Transponders are sold at about 210 retail and gas station locations in a country with a population just under 4 million and a land area not much bigger than Rhode Island or Delaware. They are also sold in lanes at the toll plazas.⁴⁵ In addition to a transponder, each customer receives a corresponding card with a magnetic stripe, which is used as the means of account replenishment.⁴⁶ Accounts can be reloaded at nearly all the retail locations and in the toll lanes using cash, debit cards, or common credit cards. Accounts are opened for \$20 including a transponder and \$10 in prepaid tolls. The minimum account balance requiring replenishment is \$5 for manually replenished accounts and \$30 for automatic replenishment.⁴⁷

The following points summarize considerations for Metro in designing a tolling system responsive to the needs of low-income commuters:

- Implement the intended policy of crediting the accounts of qualifying low-income households for setup fees.
- Consider requiring lower minimum account balances for accounts that are not linked to a credit card.
- Provide a wide, neighborhood-based network of locations to obtain transponders and replenish accounts.
- Consider arranging with check-cashing outlets and banks to direct a portion of customer paychecks to TAP or transponder accounts.

⁴³ Per Metro web site, http://www.metro.net/riding_metro/riders_guide/paying_fare-02.htm.

⁴⁴ Parkany, *op. cit.* (see footnote 30)

⁴⁵ https://www.autoexpreso.com/static_web/WebFaq.html.

⁴⁶ AutoExpreso Introductory Booklet,

https://www.autoexpreso.com/static_web/Booklet_English_WEB_Version.pdf, accessed August 21, 2009.

⁴⁷ Puerto Rico Highway Transportation Authority Prepaid Toll Program Account Application, https://www.autoexpreso.com/static_web/ApplicationFormv3.1_Final.pdf, accessed August 21, 2009.

- Consider waiving or reducing any minimum monthly account charges (e.g., low- or no-activity fees) for low-income account holders.

VII. Performance Measures

To ensure that public policies achieve their goals, it is important to evaluate their effects through the identification of performance measures. For example, transportation agencies (including Metro) track congestion levels and traffic bottlenecks over time to help direct future system investments or reallocate resources from one mode to another.

A number of potential performance measures for the ExpressLanes are proposed in this section. Some can be implemented during the demonstration year, while others would apply following the demonstration. Some are dependent on operational data from the toll collection system, while others can be gauged from public opinion surveys Metro may conduct. For each measure below, it is defined, the data source is described, and the implications are discussed.

Operational Metrics

Metric: Number of low-income commuters (including percentage of TAP users) who sign up for a transponder.

What is it? The metric is self-explanatory. It could be tracked separately for each corridor as well as in total. Also, it could be noted when current TAP users avail themselves of a transponder as a low-income user.

How is it determined? From data reported to Metro through the toll operator, including data collected by Metro itself on transponder distribution, and from TAP program records.

What does it indicate? It can indicate the attractiveness of the toll lane option and the attractiveness of the preliminary toll credit (account setup fee waiver).

When can it be applied? It could be tracked for various time periods, e.g., in advance of the demonstration period, during the first quarter, and throughout the demonstration year. In addition, trends over time could be tracked.

Metric: Number of peak-period low-income users of HOT lanes (and percentage of overall HOT lane users).

What is it? Self-explanatory; this metric can be tracked on a daily/weekly/monthly basis, as well as in terms of trends or patterns over time, for both project corridors.

How is it determined? From transponder records from ExpressLanes operations.

What does it indicate? The data can be used to calculate the frequency of usage of the ExpressLanes by low-income solo drivers. It can also be used to calculate the overall (rolling & periodic) percentage of HOT lane users that are low-income. Metro could decide to adjust credit policies or other operational parameters depending on the rate of usage by low-income commuters, or trends in the rate of usage. (see also next metric)

When can it be applied? During the project demonstration period.

Metric: Usage of HOT lane credits for low-income drivers (credit redemptions).

What is it? Low-income HOT lane users would be eligible to start with a one-time toll credit equal to the value of the transponder, initially estimated to be \$25. If they are also regular TAP users during the demonstration period, they may be able to accumulate and redeem additional toll credits if Metro implements the flexible credits initially contemplated. This metric would track the number and total value of redemptions of the initial one-time credit, and could also track the accrual and redemption of credits to transponder accounts from TAP users, if implemented. This metric could also include assessment of the percentage of low-income TAP users that choose to direct their credits to their toll account (vs. their TAP account) if this option is implemented, and the rates at which they accrue and redeem the toll credits.

How is it determined? From transponder account records from ExpressLanes operations, and from TAP account records.

What does it indicate? Accrual and usage rates of credits would indicate how low-income corridor travelers are most comfortable using the options available to them.

When can it be applied? During and possibly for a period following the demonstration period, depending on the administrative policies for TAP accounts and toll account balances.

Metric: Mode choice of low-income drivers (carpool vs. single-occupant vehicle), compared with mode choice before the project is implemented.

What is it? Frequency with which low-income transponder users choose to drive alone in toll lanes versus pursuing no-toll carpooling option. It would be helpful to have “before” data on mode choice to determine the impact of the ExpressLanes project.

How is it determined? Transponder account records from ExpressLanes operations.

What does it indicate? This would indicate only what it says: the frequency with which enrolled low-income transponder users choose to pay a toll. It would not indicate how many otherwise eligible drivers choose to stay out of the toll lanes altogether or why (i.e., they never obtain a transponder). It also may not indicate when low-income commuters choose to take a vanpool or transit through these corridors, although transit users may be identifiable if they are registered TAP users and the TAP and transponder account records are coordinated. Overall, mode choice information for low-income commuters will be limited in scope for the ExpressLane corridors.

When can it be applied? This metric can be tracked during and following the demonstration period, particularly assuming new vanpool and transit service remains in place. Metro may wish to consider ways it can track mode choice of low-income commuters more completely, perhaps via survey or other means.

Metric: Performance of transit service in the ExpressLanes corridors during the demonstration period.

What is it? A number of performance metrics can be tracked for transit operations in the ExpressLanes corridors. Most basic are the average speed, trip time, time savings, and trip reliability of transit buses in the corridors during the demonstration period.

How is it determined? Transit operations data for the two ExpressLanes corridors.

What does it indicate? The project's up-front and continued investment in enhanced transit service in the two ExpressLane corridors is one of the most attractive aspects to many low-income transit-dependent commuters. Thus it will be essential to ensure that opening up excess HOV lane capacity to solo drivers does not have a detrimental effect on transit service. For this reason, these performance measures may be particularly critical to program success (and not only for low-income commuters).

When can it be applied? These measures can be tracked and reported daily, weekly, monthly, and showing trends over time. Ideally, they could be deployed in advance of the demonstration period, during it, and following it to give a full comparison of traveler benefits (or disbenefits) as a result of the toll demonstration.

Metric: General-purpose lane speeds during the demonstration period.

What is it? Speed and other performance metrics (time savings, trip variability) can be monitored in the general purpose lanes.

How is it determined? Operational data from Metro and/ or Caltrans.

What does it indicate? The effect of HOT lanes on traffic in the general-purpose lanes is of concern to all drivers. It is argued that low-income commuters who decide not to set up a transponder account would still benefit by improved congestion levels in the general purpose lanes. Thus the project's performance on this measure will be important in judging the overall impact on low-income commuters.

When can it be applied? These measures can be tracked and reported daily, weekly, monthly, and showing trends over time. Ideally, they could be deployed in advance of the demonstration period, during it, and following it to give a full comparison of traveler benefits (or disbenefits) as a result of the toll demonstration.

Metric: Account balance problems of low-income commuters, compared with non-low-income.

What is it? Data on the rate at which registered low-income commuters encounter problems with maintaining a required minimum balance in their transponder accounts, compared with other users.

How is it determined? Operational data from Metro's toll operator.

What does it indicate? Low-income commuters may have a variety of reasons for failure to maintain a required minimum balance. They may actually lack the funds, or they may find it inconvenient or difficult to take the necessary steps to replenish their account sufficiently. A high rate of difficulties maintaining a minimum balance for low-income commuters – perhaps compared with the rate for non-low-income users – may indicate a need to adjust policies.

When can it be applied? This measure could be tracked throughout the demonstration period, including trends over time, particularly if policies are modified.

Metric: Share of time savings by low-income ExpressLane drivers in comparison with the share of tolls and transponder costs they pay.

What is it? A measure of program equity that compares the cost to a group with the benefits enjoyed by that group. Ideally, the share of time savings should be roughly in line with the share of costs paid. This could be done as a separate calculation for I-10 and for I-110, as well as a combined calculation for the two corridors.

How is it determined? Project operational data would indicate usage of the HOT lanes by qualifying low-income drivers who have enrolled for transponders, and any transponder or start-up costs paid by these drivers would also be known. Travel time information and toll payment information can be obtained from data collected at the exit and entry points for vehicles with transponders registered to low-income drivers. Metro would also be tracking travel times in the general purpose lanes so that time savings can be computed. In order to compare the share of overall time savings, it would be necessary to aggregate travel time savings for all vehicles using the ExpressLanes from the electronic travel data collected. Overall toll revenues would also be tracked.

What does it indicate? If low-income drivers' share of toll payments is higher than the share of time savings, this finding could trigger research into the reasons for the disparity. The two corridors might differ in this metric.

When can it be applied? This comparison can be made during the project demonstration period, and can be made for various periods of time – a month, a quarter or longer. It can also be applied in the aggregate for the program (by corridor and total) following the demonstration year.

Metric: Trends in trip distance and trip time by low-income commuters, compared with non-low-income.

What is it? The metric is self-explanatory.

How is it determined? From project operational data for transponders registered to low-income users.

What does it indicate? If low-income drivers show trends toward shorter or longer trips during the demonstration period, this could indicate that the tolls are affecting their travel choices, residence locations, or employment locations. It might be illuminating to compare these trends to those for non-low-income commuters.

When can it be applied? This comparison can be made periodically during the project demonstration period.

Metric: Toll revenue reinvestment.

What is it? Tracking and reporting of actual reinvestment uses of project toll revenues – i.e., performance reports on the revenue spending plan to be adopted by Metro.

How is it determined? From Metro accounting records and reports.

What does it indicate? Whether project revenues are being invested in the program corridor services as intended.

When can it be applied? Periodically 2-4 times during the demonstration period and after it, for the overall program year.

Survey-Based Metrics

To investigate aspects of the congestion pricing demonstration project that are more subjective, Metro could consider deploying a targeted survey to registered low-income corridor users. The survey could be deployed once each during and following the demonstration period, and could include the following types of questions:

- user perceptions of comparative congestion levels before and during the demonstration period
- user perceptions of congestion levels in the general purpose and HOT lanes
- ease of use of account and payment options
- understandability of road signage
- if Metro considers discontinuing the pricing system following the demonstration, whether users would prefer it stayed in place.

These would also be good questions for a general user survey. Metro could consider deploying the survey to a sample of users, while seeking a proportional or greater representation of low-income users to assure feedback from this group. Metro could also consider doing other types of outreach, such as focus groups or additional targeted surveys, by leveraging the membership of the Corridor Advisory Groups. This approach might help get

feedback from those who never sign up for a transponder but are still part of the group of interest.

The results of surveys or related types of community outreach could indicate where user perceptions differ from the indications of operational data and metrics. Metro could then design public education or other information dissemination strategies as needed, or make policy changes to address public perceptions.

Appendix A: Text of Senate Bill 1422

BILL NUMBER: SB 1422 CHAPTERED
BILL TEXT

CHAPTER 547
FILED WITH SECRETARY OF STATE SEPTEMBER 28, 2008
APPROVED BY GOVERNOR SEPTEMBER 28, 2008
PASSED THE SENATE AUGUST 30, 2008
PASSED THE ASSEMBLY AUGUST 28, 2008
AMENDED IN ASSEMBLY AUGUST 25, 2008
AMENDED IN ASSEMBLY AUGUST 22, 2008
AMENDED IN SENATE APRIL 7, 2008

INTRODUCED BY Senator Ridley-Thomas
(Principal coauthor: Assembly Member Nunez)

FEBRUARY 21, 2008

An act to add Section 149.9 to the Streets and Highways Code,
relating to transportation.

LEGISLATIVE COUNSEL'S DIGEST

SB 1422, Ridley-Thomas. High-occupancy toll (HOT) lanes.

Existing law authorizes a regional transportation agency, in cooperation with the Department of Transportation, to apply to the California Transportation Commission to develop and operate high-occupancy toll (HOT) lanes, including administration and operation of a value-pricing program and exclusive or preferential lane facilities for public transit. Existing law requires the commission to review these applications and submit an eligible application to the Legislature for approval or rejection. Existing law requires approval to be achieved by enactment of a statute. Existing law prohibits approval of an application on or after January 1, 2012.

This bill would authorize a value-pricing and transit development demonstration program involving HOT lanes to be conducted, administered, developed, and operated on State Highway Route 110 and Interstate 10 in Los Angeles County by the Los Angeles County Metropolitan Transportation Authority (LACMTA). The bill would require the LACMTA and the Department of Transportation to implement the program pursuant to a cooperative agreement that addresses specified matters in connection with the program and to establish appropriate traffic flow guidelines, as specified. The bill would authorize the LACMTA to establish, collect, and administer the toll and to use the revenues for administrative costs, as specified. The bill would require the LACMTA and the department to report to the Legislature by December 31, 2012, on the demonstration program. The bill would make findings and declarations in this regard.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares all of the following:

(a) For two decades, the Los Angeles region has led the nation in traffic congestion and has been identified as the region with the worst air quality and congestion in the United States.

(b) The region's population is expected to increase by another 2.4 million by 2030, while the number of registered vehicles in the county has surpassed 7 million.

(c) The population growth and economic demands on the region will only continue to deteriorate the air quality and transportation infrastructure within Los Angeles County.

(d) The Los Angeles region must find innovative ways to use its current transportation infrastructure in a manner consistent with trying to reduce vehicle miles traveled, and must help the state meet its greenhouse gas reduction goals and air quality improvement goals while increasing its investment in public transportation.

(e) The United States Department of Transportation has entered into a memorandum of understanding with the Los Angeles County Metropolitan Transportation Authority (LACMTA) and the Department of Transportation to award \$210.6 million in federal transit funding for the purpose of enabling LACMTA to carry out a demonstration program where high-occupancy vehicle lanes on selected freeways in Los Angeles County would be converted into high-occupancy toll lanes during the demonstration period.

(f) Value-pricing is an important tool that will allow the Los Angeles region to use its current highway system more efficiently by allowing solo commuters to use designated high-occupancy vehicle lanes on State Highway Route 110 and Interstate 10 where capacity exists to absorb added commuters.

(g) Nothing in this act shall be construed to require the Department of Transportation to take any action that is inconsistent with any applicable federal law.

(h) It is the intent of the Legislature that the Department of Transportation, in implementing this act and to the extent not inconsistent with any other law, shall consider measures to maximize vehicular travel on Interstate Highway 10 in the vicinity of the El Monte Expressway. These measures may include, but are not limited to, restriping the highway to add an additional lane in both directions of the highway.

(i) It is the intent of the Legislature that the LACMTA, to the extent consistent with the purposes of this act, shall use a portion of the tolls collected on Interstate Highway 10 pursuant to this act to fund a bus maintenance facility in El Monte.

SEC. 2. Section 149.9 is added to the Streets and Highways Code, to read:

149.9. (a) Pursuant to Section 149.7 and the memorandum of understanding between the Los Angeles County Metropolitan Transportation Authority (LACMTA), the United States Department of Transportation, and the department, as adopted on July 24, 2008, and any subsequent, mutually agreed upon changes to that memorandum, the LACMTA may operate a value-pricing and transit development demonstration program involving high-occupancy toll (HOT) lanes to be conducted, administered, developed, and operated on State Highway Route 110 and Interstate Highway 10 in Los Angeles County by the LACMTA.

(b) The LACMTA may implement the program in cooperation with the

department pursuant to a cooperative agreement that addresses all matters related to design, construction, maintenance, and operation of state highway system facilities in connection with the value-pricing and transit program. With the assistance of the department, the LACMTA may establish appropriate traffic flow guidelines for the purpose of ensuring optimal use of the express lanes by high-occupancy vehicles without adversely affecting other traffic on the state highway system.

(c) The LACMTA and the department may implement the demonstration program under the following conditions:

(1) The value-pricing program may be operated on State Highway Route 110 and Interstate 10 in Los Angeles County on designated high-occupancy vehicle (HOV) lanes.

(2) (A) Single-occupant vehicles, or those vehicles that do not meet minimum occupancy requirements, may be authorized to enter and use the HOV lanes in the identified corridors, under conditions as determined by the LACMTA.

(B) The LACMTA may not change the vehicle occupancy requirement for access to the HOV lanes in the identified corridors during the demonstration period that is authorized under this section.

(3) As part of the demonstration program, each proposed HOT lane shall have nontolled alternative lanes available for public use in the same corridor as the proposed HOT lanes.

(4) The LACMTA shall implement a public outreach and communications plan in order to solicit public input into the development of the demonstration program.

(5) In implementing the program, the LACMTA shall identify the affected communities in the respective corridors and work with those communities to identify impacts and develop mitigation measures.

(6) The amount of the toll shall be established by the LACMTA, and collected and administered in a manner determined by the LACMTA. The LACMTA shall conduct a public hearing 30 days prior to setting or increasing the toll.

(7) The LACMTA shall assess the impacts of the program on commuters of low income and shall provide mitigation to those impacted commuters. Mitigation measures may include, but are not limited to, reduced toll charges and toll credits for transit users. Eligible commuters for reduced toll charges or toll credits for transit users shall meet the eligibility requirements for assistance programs under Chapter 2 (commencing with Section 11200) or Chapter 3 (commencing with Section 12000) of Part 3 of, Part 5 (commencing with Section 17000) of, or Chapter 10 (commencing with Section 18900), Chapter 10.1 (commencing with Section 18930), or Chapter 10.3 (commencing with Section 18937) of Part 6 of, Division 9 of the Welfare and Institutions Code.

(8) Toll paying commuters shall have the option to purchase any necessary toll paying equipment, prepay tolls, and renew toll payments by cash or by using a credit card.

(9) The LACMTA may operate the demonstration program until January 15, 2013, during which time it may not issue bonds for the demonstration program.

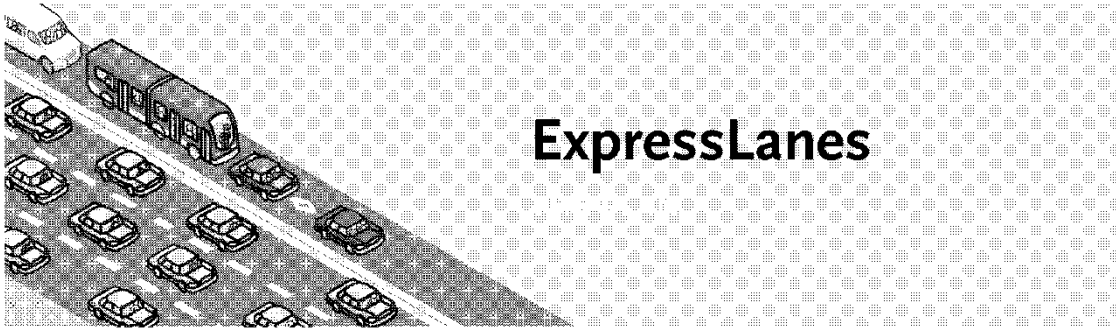
(10) The LACMTA and the department shall report to the Legislature by December 31, 2012. The report shall include, but not be limited to, a summary of the demonstration program, a survey of its users, the impact on carpoolers, revenues generated, how transit service or alternative modes of transportation were impacted, any potential effect on traffic congestion in the HOV lane and in the neighboring

lanes, the number of toll paying vehicles that utilized the HOT lanes, any potential reductions in the greenhouse gas emissions that are attributable to congestion reduction resulting from the HOT lane demonstration project, and a description of the mitigation measures on the affected communities and commuters in this demonstration program.

(11) Pursuant to Section 149.7, the revenue generated from the program may be available to the LACMTA for the direct expenses related to the maintenance, administration, and operation, including collection and enforcement, of the demonstration program. Administrative expenses shall not exceed 3 percent of the revenues.

(12) All remaining revenue generated by the demonstration program shall be used in the corridor from which the revenue was generated exclusively for preconstruction, construction, and other related costs of high-occupancy vehicle facilities and the improvement of transit service in the corridor, including, but not limited to, support for transit operations pursuant to an expenditure plan adopted by the LACMTA.

Appendix B: ExpressLanes Fact Sheet and Toll Policy



ExpressLanes

WHO?

Los Angeles County Metropolitan Transportation Authority (Metro) and Caltrans, along with local mobility partners: Foothill Transit Agency, Gardena Transit, Los Angeles Department of Transportation, Southern California Regional Rail Authority (Metrolink) and Torrance Transit.

WHAT?

A one-year demonstration project of converting High-Occupancy Vehicle (HOV) lanes on I-10 (Alameda St to I-605) and I-110 (Adams Bl to Artesia Transit Center) to High-Occupancy Toll (HOT) lanes – we call them **ExpressLanes**.

WHEN?

December 31, 2010

WHERE?

On I-10 El Monte Busway between Alameda St and I-605. *The general purpose lanes on I-10 will not be tolled.*
On I-110 Harbor Transitway between Adams Bl and Artesia Transit Center. *The general purpose lanes on I-110 will not be tolled.*

WHY?

These facilities need reduced congestion and greenhouse gas emissions, increased travel time savings, and better trip reliability. The US Department of Transportation has awarded a \$210 million grant for the demonstration project.

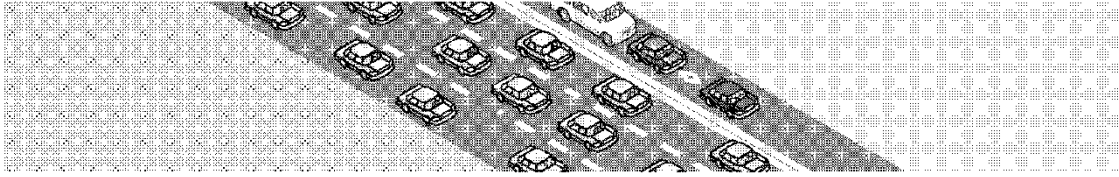
HOW?

CONGESTION PRICING

- > With dynamic pricing, tolls are continually adjusted according to traffic conditions to maintain a free-flowing level of traffic on the ExpressLanes
- > General purpose lanes are not tolled
- > Prices increase when the ExpressLanes get relatively full and decrease when the ExpressLanes get less full
- > In the I-110 ExpressLanes, Single Occupancy Vehicles will pay a fee; HOV of two or more people are free
- > In the I-10 ExpressLanes, Single Occupancy Vehicles will pay a fee at all hours; HOV of two people will pay a fee during peak hours (5am – 9am; 4pm – 7pm); HOV of two people are free during off-peak hours. HOV of three or more people are free at all hours.



June 2009



ROADWAY IMPROVEMENTS

- > Re-stripe of enforcement buffer between I-605 and I-710 on I-10 El Monte Busway to create a second ExpressLane
- > Widen Adams Bl and re-stripe I-110 Adams off-ramp to create a second right-hand turning lane
- > Create new ExpressLanes access transition lanes between I-110 ExpressLanes and I-110 general purpose lanes to smooth the flow of traffic into and out of the ExpressLanes

INCREASED TRANSIT SERVICE AND EXPANDED VANPOOL PROGRAM

- > Purchase of 57 alternative fuel buses for ExpressLanes
- > Increase transit service on I-10 and I-110 ExpressLanes
- > Form 100 new vanpools on I-10 and I-110 ExpressLanes

TRANSIT STATION IMPROVEMENTS: I-10 EL MONTE BUSWAY EXPRESSLANES

- > Expand El Monte Transit Center, including addition of bike lockers
- > Build direct connection at Patsaouras Plaza
- > Expand Pomona Metrolink Station parking lot and platform

TRANSIT STATION IMPROVEMENTS: I-110 HARBOR TRANSITWAY EXPRESSLANES

- > Add Sheriff substation and bike lockers at the Artesia Transit Center
- > Add lighting, CCTV, and other enhancements at Park/Ride Lots along the Harbor Transitway and at new bus stops

EXPRESSPARK

- > Implement demand-based parking rates at meters in Downtown LA



EXPRESSLANES TOLL POLICY

Los Angeles County Congestion Reduction Demonstration Project
Metro Approved 7/23/09

Goals

- Provide a safe, reliable, predictable commute for the ExpressLanes
- Reinforce the MTA's ongoing efforts to increase vehicle occupancy rates and transit ridership
- Optimize vehicle throughput at free flow speeds through dynamic pricing
- Generate sufficient revenue to sustain the financial viability of the ExpressLanes

Toll Rates

- Minimum Toll per Mile \$0.25
- Maximum Toll per Mile \$1.40

Business Rules

- Toll free travel for vehicles that meet minimum vehicle occupancy requirement, motorcycles, and privately operated buses; all existing carpools would continue to be able to access the lanes without charge.
- Trucks are not allowed (other than 2-axle)
- Minimum peak tolls shall be no less than 150% of MTA transit fare on the ExpressLanes
- Every vehicle is a customer. All vehicles are required to have a transponder.
- Toll/Transit Credits available to frequent ExpressLanes transit riders
- Tolling will shutdown (i.e. no toll users will be permitted to enter the ExpressLanes) when travel speeds fall below 45 mph for more than 10 minutes.
- Emergency vehicles may use the ExpressLanes when responding to incidents.

Key Performance Measures

- Arriving at your destination in less time in either the ExpressLanes or general purpose lanes (travel time savings, average vehicle speed)
- Change from driving alone to car pooling, riding transit, and or MTA vanpool (mode shift)
- Increase in efficiency by moving more people on the ExpressLanes in a specified period of time (person throughput)
- Improved transportation access for the low income commuter (public surveys; credit redemption)

Appendix C: Low-Income Impact Analysis Methodology Memorandum



Low-Income Impact Assessment
Methodology Memorandum
Los Angeles Congestion Reduction Demonstration Project

Prepared for:

**Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012**

Prepared by:

**Network Public Affairs, LLC
444 West Ocean Blvd., Suite 800
Long Beach, CA 90802**

Nancy Pfeffer, President

May 15, 2009

Low-Income Impact Assessment Methodology Memorandum
Los Angeles Congestion Reduction Demonstration Project

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I. Executive Summary

Network Public Affairs (NPA) has prepared this memorandum to describe the proposed methodology to assess the impact of Metro's HOT lane demonstration project on low-income commuters, as required by the authorizing state legislation. The work will also include evaluation and recommendation of mitigation strategies for low-income users of the HOT lanes.

The next section of this memo summarizes some of the literature and published reports on this topic. In general, there are perceptions and frequent concerns that introducing road charges of any type will place burdens on low-income drivers. The literature seems to show that public support for tolling or road pricing grows with actual experience with such systems. Furthermore, even low-income drivers appear to support tolling schemes when they are able to make a choice about whether to pay the toll.

The third section of the memo presents the work done to derive a recommended definition or threshold of eligibility for "low-income" users of the HOT lanes. The eligibility requirements in authorizing legislation, recent action by Los Angeles County supervisors, examples from Metro's Rider Relief program and examples from other areas were all considered in developing a recommended "low-income" threshold of \$35,000 (in 2009 dollars). A sensitivity analysis is also recommended involving at least one other (higher) threshold.

Finally, the last section of the memo presents the initial recommended methodology for the assessment of impact and development of effective mitigation measures. Data available from surveys and other sources will be used to identify the potential demand for mitigations such as toll credits. A wide range of possible mitigation measures will be surveyed, including enhanced transit investments (to which Metro has already committed), various types of credit schemes, and other strategies. An agreed set of mitigation measures will then be analyzed in terms of their estimated costs and benefits, and recommended measures will be selected on this basis. Future work in this project will also result in the recommendation of performance measures so that the mitigations' effectiveness can be judged.

II. Are HOT Lanes Inequitable to Low-Income Commuters?

In response to federal funding and as permitted by state authorizing legislation (Senate Bill 1422, 2008), the Los Angeles County Metropolitan Transportation Authority (Metro or LACMTA) is undertaking a demonstration

project to convert two area carpool lanes to “HOT” lanes (high-occupancy toll lanes that may be used by solo drivers who pay a toll). Portions of the carpool lanes on I-110 and I-10 will be converted in a one-year demonstration project beginning December 2010.

A frequent concern in tolling, often expressed with respect to HOT lanes, is that low-income commuters may find it a burden to pay the tolls. For example, a 2006 Federal Highway Administration (FHWA) report observes that “[s]ome critics have dubbed HOT-lanes ‘Lexus lanes’ out of concern that the wealthy disproportionately benefit from these facilities.” (AECOM Consult 2006)

Indeed, the lawmakers authorizing Metro to undertake this demonstration project felt that the question was sufficiently important to include explicit direction in the statute:

“The LACMTA shall assess the impacts of the program on commuters of low income and shall provide mitigation to those impacted commuters. Mitigation measures may include, but are not limited to, reduced toll charges and toll credits for transit users.” (Chaptered as California Streets and Highways Code Section 149.9(c)(7))

In addition, equity is one of the evaluation criteria to be applied to Metro’s project by the federal funders. It is thus the intention of Metro to offer at least three types of mitigation to low-income users of the HOT lanes before and during the demonstration project:

1. Enhancing transit and vanpool service along the corridors before the demonstration project begins, using federal grant funds, so as to immediately broaden the travel options of low-income commuters;
2. Using revenues from the HOT lanes during the demonstration period to continue transit and vanpool service enhancements; and
3. Offering HOT lane credits for low-income users of the HOT lanes or for transit users in the HOT lane corridors.

An initial review of related literature and published studies indicates that concerns about the equity of road pricing in general and tolling on HOT lanes in particular are mainly theoretical. One academic paper on the political acceptability of congestion pricing (Giuliano 1992) cites early studies going back to the 1970’s and even the 1950’s that expressed concerns about the fairness of road tolling schemes.

Opinion surveys also frequently illuminate these concerns. A 2008 Transportation Research Board (TRB) Compilation of Public Opinion Data on Tolls and Road Pricing (Zmud and Arce 2008) examined several domestic and overseas public opinion surveys related to different types of road pricing schemes. Here are a few examples:

- “Some [focus group members] were concerned that those with lower incomes would have to use the regular lanes, with wealthier travelers using the express lanes.” (Miami, Florida, 2001-2002)
- “Higher-income commuters (\$100,000+) were found to show higher approval of variable tolls, as well as of toll financing in general, compared with other groups.” (Orange and Los Angeles Counties, 1999)
- “Several participants in each [focus] group voiced a concern that lower-income drivers would not be able to afford the cost of using the HOT lanes.” (Denver, Colorado, 2003)

Early surveys conducted for this Metro project in Los Angeles County and in the San Gabriel Valley found that this perception also was generally present (Parsons Brinckerhoff 2008a, 2008b). Indeed, this was the only critical public issue that was found by surveys in both areas.

Studies of actual usage of tolled roads, including HOT lanes, find users across all income categories and public opinion generally supportive of the projects. For example, 1999 surveys of the express lanes on State Route 91 in Orange County showed that 19% of peak period users had household incomes below \$40,000 and 21% had household incomes over \$100,000 (Sullivan 2000). A 2001 study of the I-15 HOT lanes in San Diego, conducted after the lanes had been in operation for over five years, found that “Equity concerns within the [focus] groups (i.e., fairness of tolls for lower-income drivers) dissolved and support for the project strengthened when participants received clarifying information on ... the BRT [bus rapid transit] component (85% of each group supporting). That the lanes would ease congestion for everyone on the main lanes was viewed as a balancing force in the ‘equity equation.’” (Zmud and Arce 2008)

These findings suggest that experience with usage of tolled or HOT lanes can modify public opinion over time. A cordon pricing scheme in Stockholm enjoyed higher public support (more city residents in favor than opposed) following a seven-month trial than before the trial (when more than half of county residents opposed the plan). (Zmud and Arce 2008) The I-15 HOT lanes in San

Diego County enjoyed increased usage – perhaps the best indicator of growing public support – and generally positive opinion survey feedback after implementation of Phase I (flat monthly fee for HOT lanes) and Phase II (variable charging) in the late 1990’s. (SANDAG 1999)

One of the key distinctions seems to be choice: low-income drivers, when faced with a HOT lane, can choose instead to use the untolled lanes, arrange to carpool or vanpool, take public transit, or (in some cases) travel at another time – but they also have the option to pay the toll in exchange for a quick, uncongested trip. At times, they may be able to make an instantaneous trade-off between the value of money and the value they place on their time. According to the Victoria Transport Policy Institute, “disadvantaged people may benefit from policies that help them drive, but they can benefit even more overall from policies and programs that increase total travel options.” (Litman 2007)

When considering the full range of public opinion findings, the TRB compilation concluded that “When public opinion is measured in the context of a specific project, ...road pricing is perceived of as a ‘choice’ rather than as punishment. This is the likely reason that low-income individuals generally support tolling and road pricing. Regardless of their economic circumstances, they appreciate having the choice of paying to use uncongested lanes or roadways.” (Zmud and Arce 2008)

The drafters of the authorizing state law recognized that it is possible to implement tolling while addressing concerns about low-income effects. Accordingly, the law directs Metro to study the issue and to pursue the development of mitigation measures. This paper represents the first step in that process.

III. Defining “Low-Income”

Authorizing Legislation

According to SB 1422,

“Eligible commuters for reduced toll charges or toll credits for transit users shall meet the eligibility requirements for assistance programs under Chapter 2 (commencing with Section 11200) or Chapter 3 (commencing with Section 12000) of Part 3 of, Part 5 (commencing with Section 17000) of, or Chapter 10 (commencing with Section 18900), Chapter 10.1 (commencing with Section 18930), or Chapter 10.3 (commencing with Section 18937) of Part 6 of, Division 9 of the Welfare and

Institutions Code.” (Chaptered as California Streets and Highways Code Section 149.9(c)(7))

The programs identified above are known by the following more common names:

- California Work Opportunity And Responsibility To Kids Act (CalWORKS)
- State Supplementary Program For Aged, Blind And Disabled
- County Aid and Relief To Indigents
- Food Stamps
- Food Assistance Program For Legal Immigrants
- Cash Assistance Program For Aged, Blind, And Disabled Legal Immigrants

Table 1 summarizes eligibility requirements for these programs for household sizes up to 4 persons.¹

Table 1. 2009 Annual Income Eligibility Requirements for State Assistance Programs Referred to in SB 1422

Household Size	CalWORKS	County General Relief (Los Angeles County)	Assistance Programs for Aged, Blind, Disabled	Food Stamps and Food Assistance
1	\$6,384	\$7,440	\$10,680	\$13,524
2	\$10,464	\$9,276	\$18,528	\$18,204
3	\$12,960	\$10,188		\$22,884
4	\$15,384	\$12,396		\$27,564
Source	(1)	(2)	(3)	(4)

- (1) <http://www.dss.cahwnet.gov/research/res/pdf/MAP-MBSAC.pdf>
- (2) Annual limits derived from monthly Earned Income Disregard per General Relief policy GR 44-114.2 of the Los Angeles County Department of Public Social Services, http://www.ladpss.org/dpss/general_relief/pdf/GRPolicy_Jan_2009.pdf, and information provided by ECONorthwest, Inc.
- (3) http://www.disabilitybenefits101.org/ca/programs/income_support/ss_disability/ssi/program.htm
- (4) http://www.foodstampguide.org/?page_id=42 (gross income limits = 130% of federal poverty guideline for household without a disabled resident)

In April 2009 the Los Angeles County Supervisors voted² to relax income eligibility limits for food stamps and other assistance programs in light of the current economic recession. The Supervisors’ motion defined qualifying

¹ Since 2002 average household size in Los Angeles County has been 3.1 persons, according to data from the Southern California Association of Governments.

² Los Angeles County Board of Supervisors, Statement of Proceedings, April 7, 2009, http://file.lacounty.gov/bos/sop/cms1_131074.pdf, pp. 10-12, accessed 4/16/09.

individuals and families as those at or below 50% of Area Median Income. Los Angeles County’s median annual income as of 2007 was \$53,494³, translating to an eligibility level of \$26,747 in 2007 dollars (or \$27,439 in 2009 dollars, which is the basis of all the figures shown in Table 1).⁴

Metro also maintains a Rider Relief Program for low-income transit users.⁵ The program offers monthly fare subsidies to households that meet the following eligibility criteria (per the program web site; levels assumed to be in 2008 dollars):

Persons in Household	Annual Income
1	\$25,000
2	\$29,600
3	\$33,300
4	\$37,000

Income Characteristics of Study Corridors

The Southern California Association of Governments (SCAG) compiles regional demographic data including household income levels according to two grouping methods, both presented here. One grouping is relative to the federal poverty threshold, while the other is by income quintile; each is further detailed below. These data were obtained for the most recent (2008) Regional Transportation Plan and mapped to show the general demographic make-up of the communities surrounding both HOT lane corridors (I-110, South Central Los Angeles, and I-10, East Los Angeles and the western San Gabriel Valley).

The SCAG data are based on the 2000 U.S. Census and show the income and poverty distributions prevalent as of that year. These distributions will not be updated until the next census in 2010. The data are at the level of Transportation Analysis Zones (TAZ), local geographic units similar to census tracts but not the same as census tracts. The TAZ’s are used by SCAG in travel demand modeling.

Both corridors are home to high concentrations of low-income households. Along almost the entire length of the I-110 study corridor, the TAZ’s have a

³ Los Angeles County QuickFacts, U.S. Census Bureau, <http://quickfacts.census.gov/qfd/states/06/06037.html>, accessed 4/16/2009.

⁴ Inflation adjustments were made using CPI Inflation Calculator from Bureau of Labor Statistics: http://www.bls.gov/data/inflation_calculator.htm.

⁵ See http://www.metro.net/projects_studies/rider_relief/default.htm.

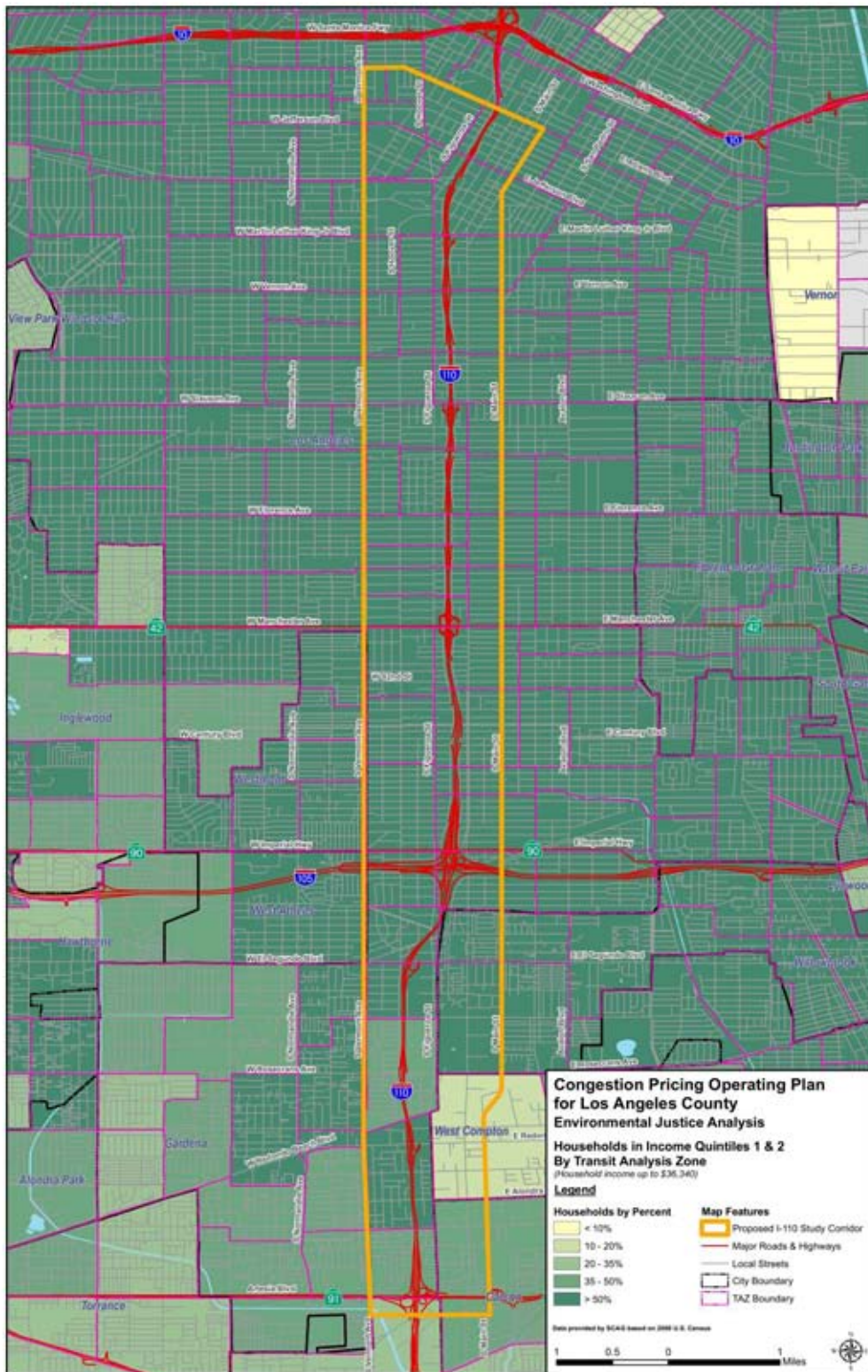
concentration of more than 50% of households in the two lowest income quintiles (i.e., the lowest 40% of households ranked by income; see Figure 1). Data from SCAG shows that as of 2008, of 53,779 households in the proposed study area, 58.4% had household incomes at or below twice the federal poverty threshold (see Table 2). Since the income data come from the 2000 Census, they represent 1999 dollars; 100% of the poverty threshold is \$13,880 in that year's dollars.

Communities along the I-10 study corridor are slightly more affluent, but still about half the TAZ's in the area have a concentration of more than 50% of households in the two lowest income quintiles (see Figure 2). East Los Angeles, Rosemead, and El Monte/South El Monte each have concentrations of lower-income households. Overall in the proposed study corridor, 43.7 percent of the 70,576 households are at or below twice the federal poverty threshold (see Table 2).

SCAG also calculates household incomes by quintile, where Quintile 1 is the lowest 20% of households ranked by annual income and Quintile 5 is the highest 20%. Each of the study areas shows a higher concentration of the lower income quintiles, although the distribution is more skewed towards the lower quintiles in the I-110 corridor than in the I-10 corridor (see Table 3 and Figure 3).

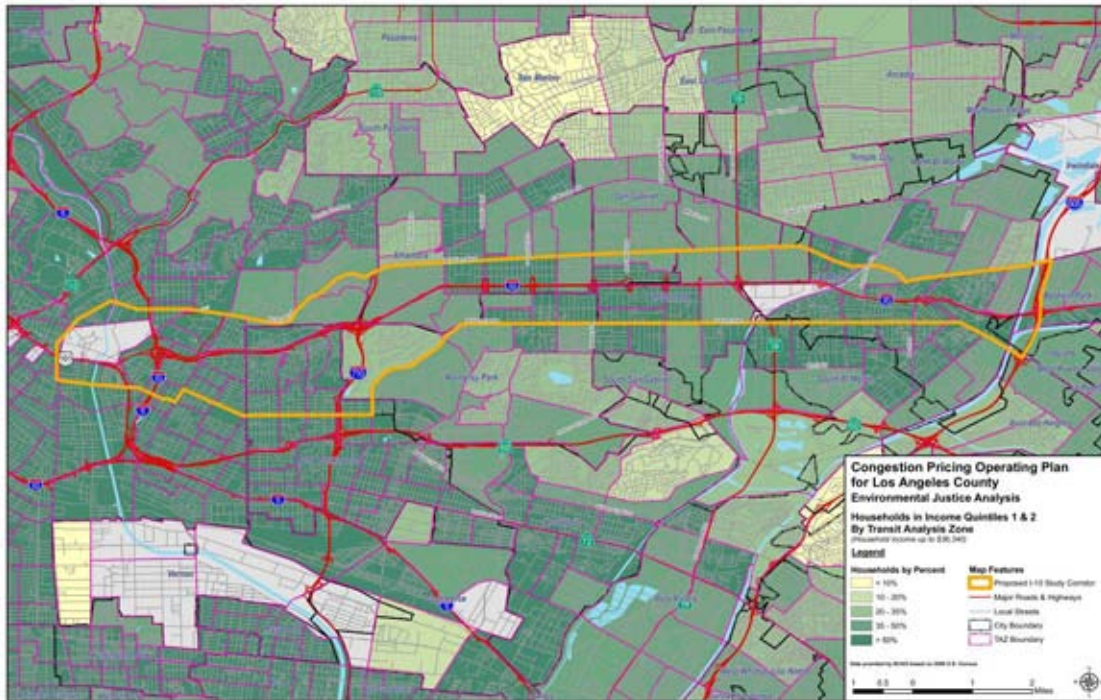
It is important to note that users of the two HOT lane corridors will come not only from within these study areas but from many other parts of the Los Angeles region, including from outside the County. Thus it will be necessary to examine travel demand modeling results, in addition to corridor demographics, to fully determine the impact of the HOT lane charges and credits on low-income commuters.

Figure 1. Household Income Levels in Proposed I-110 Study Corridor



Map provided by PB Americas.

Figure 2. Household Income Levels in Proposed I-10 Study Corridor



Map provided by PB Americas.

Table 2. Income Characteristics of Proposed HOT Lanes Study Corridors

Study Corridor	Total Population	Total Households (HH)	(a) HH Percentage Below Federal Poverty Threshold	(b) HH Percentage Between 100%-150% of Federal Poverty Threshold	(c) HH Percentage Between 150%-200% of Federal Poverty Threshold	(a) + (b) + (c) Cumulative up to 200% of Poverty Threshold
I-10	296,763	70,576	19.2%	12.8%	11.8%	43.7%
I-110	208,193	53,779	33.2%	13.7%	11.5%	58.4%

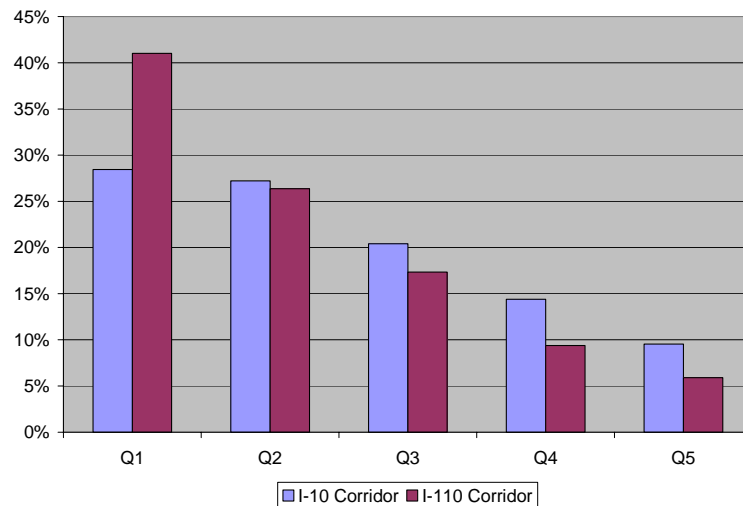
Source: Southern California Association of Governments, 2008 Regional Growth Forecast; income distribution based on 2000 U.S. Census (household incomes in 1999\$). The poverty threshold in 1999\$ is \$13,880. Data for study corridors extracted by PB Americas.

Table 3. Households in Proposed Study Corridors by Income Quintile

Study Corridor	Percent in Quintile 1	Percent in Quintile 2	Percent in Quintile 3	Percent in Quintile 4	Percent in Quintile 5	Sum in Quintiles 1 and 2
I-10	28.4%	27.2%	20.4%	14.4%	9.5%	55.7%
I-110	41.0%	26.4%	17.3%	9.4%	5.9%	67.4%

Source: Southern California Association of Governments, 2008 Regional Growth Forecast; income distribution based on 2000 U.S. Census (household incomes in 1999\$). The income quintiles in 1999\$ are as follows: Q1: up to \$19,360; Q2: \$19,361 up to \$36,340; Q3: \$36,341 up to \$57,323; Q4: \$57,324 up to \$91,402; Q5: \$91,403 and up. Data for study corridors extracted by PB Americas.

Figure 3. Household Income Distribution by Quintile in HOT Lanes Study Corridors



Source: Data from SCAG; income distribution based on 2000 U.S. Census.

Threshold Recommendation

For purposes of assessing the impacts of the toll demonstration project on low-income commuters, devising credits, and evaluating performance, it is Metro’s goal to establish a threshold (or definition of “low-income”) below which HOT lane users will be eligible for the type of credit selected. In choosing such a threshold, it is necessary to comply with the requirements of SB 1422 as summarized in Table 1; in other words, the threshold should not be lower than any of these eligibility levels. In addition, for practical enforcement purposes, it is advisable to pick a single threshold rather than one that varies by household size, since that information will not be available to Metro for users of the HOT lanes.

Metro also wishes to be responsive to the County Supervisors' concerns regarding the particularly difficult economic climate. Accordingly, the threshold should be no lower than 50% of area median income, or \$27,439 in 2009 dollars.

The income thresholds used by Metro's Rider Relief program also offer a guide. A related benchmark of low-income eligibility comes from the San Francisco County Transportation Authority (SFCTA), which is evaluating the potential for congestion charges in the central core of the city. One of the local transit operators maintains a "lifeline" low-income program whose income threshold is \$37,000. However, the Authority's work with environmental and low-income advocacy groups indicates that \$50,000 in annual household income may represent a more workable threshold for many families.

A threshold for the Metro HOT lanes project could be similar to that used in the Bay Area. Household income levels must be considered in the context of a region's affordability, and in that respect the Los Angeles and San Francisco metropolitan areas are not much different. Both are near the top of a 2009 list of "Severely Unaffordable Housing Markets," with the Bay Area having a "median multiple" (ratio of median house price to median annual household income) of 8.0 and Southern California a multiple of 7.2, based on data for the third quarter of 2008.⁶ Taking a broader view of affordability, the non-profit Center for Neighborhood Technology and the Brookings Institution have calculated the total spent by working families on housing and transportation: 63% in the Bay Area and 59% in the Los Angeles region.⁷

In light of all these considerations, it is NPA's recommendation that Metro begin with a low-income threshold definition of \$35,000 in current (2009) dollars. This would be equivalent to \$27,413 in 1999 dollars (this conversion is necessary in order to work with the SCAG data; this is also the year of the income breakpoints used by travel demand modeling for the Metro HOT lanes project). NPA further recommends that the assessment methodology include a sensitivity analysis in which at least one additional threshold is examined, perhaps \$5,000 or \$10,000 higher.

⁶ 5th Annual Demographia International Housing Affordability Survey, <http://www.demographia.com/dhi.pdf>, accessed 4/28/09. Data for 3rd quarter 2008.

⁷ PowerPoint presentation by Brookings Institution and Center for Neighborhood Technology, http://www.brookings.edu/~media/Files/events/2008/0409_housing/0409_housing.pdf, slide 23, accessed 4/28/09.

Here is how the proposed threshold of \$35,000 in current dollars relates to other thresholds and data sources:

- It is higher than any of the legislatively prescribed eligibility levels listed in Table 1.
- It is higher than the County Supervisors' recently adopted eligibility level (\$27,439; see page 7).
- It is higher than Metro's Rider Relief eligibility thresholds for households of three persons or less (see page 7).
- It is approximately equivalent to 200% of the poverty level as calculated by SCAG based on the 2000 U.S. Census data (\$27,760 in 1999\$). Two hundred percent of federal poverty is the low-income threshold used by a 2005 Fast And Intertwined Regular (FAIR) lanes study in Alameda County, California (Parsons Brinckerhoff et al. 2005).
- It is slightly higher than the \$25,000 (1999\$) income stratification used by the travel demand modeling on this project.
- It is equal to an income stratification used in the Metro HOT lanes license plate survey.
- It falls between two income levels used in the Metro HOT lanes stated preference survey (\$30,000 and \$50,000).
- It is below the levels used in the Fall 2008 Los Angeles County General Public and Environmental Justice surveys for the Metro HOT lanes project (Parsons Brinckerhoff 2008a, 2008b).⁸

Given these differences in income definitions and thresholds, analyses of the probable costs and benefits of various credit schemes, as described in the next section, will necessarily be approximate.

IV. Proposed Methodology

This section describes a proposed approach and methodology for assessing the impact of the HOT lane conversion on low-income commuters, as well as for evaluating potential mitigation measures including transit investments and credit schemes.

⁸ According to the sampling plan described in Sec. 2.2 of each of the two Parsons Brinckerhoff survey reports, the lower income brackets were determined as defined by the Federal Highway Administration Uniform Act. These limits for 2009 are given in the document at http://www.huduser.org/Datasets/ura/ura09/map/CA_URA.pdf and begin at \$44,400 for a household of one person in Los Angeles County.

Overall, the approach is to estimate the potential demand for low-income mitigation measures of all types and evaluate the likely cost, then use these comparisons to develop recommended mitigations for use during the demonstration period. The first step would be to use the income threshold derived above in conjunction with demographic data, both from SCAG and from project surveys, to estimate the potential “customer base” for HOT lane credits. Sensitivity to the income threshold can be tested at this point.

Concurrently, NPA will build on its initial survey of HOT and other tolling projects to compile a more complete list of potential mitigation measures, including examination of transit investments, credit schemes, and other potential measures. Following these first two steps will be an estimation of the costs and potential benefits of the various mitigation measures. This evaluation will form the basis of recommendations to the Metro board as to the best mitigations to incorporate in the demonstration project and will also suggest performance measures to assist in post-implementation evaluation.

Each of these steps is described in more detail below.

Identify Potential Demand from Eligible Commuters

In this step, NPA will apply the threshold recommended above (as agreed by Metro) to the demographic data available from SCAG and the project surveys to generate one or more estimates of the potential “customer base” (number of households eligible) for low-income mitigations. This effort may also require data from the travel demand modeling indicating the origins of trips through the HOT lane corridors (i.e., trips that do not necessarily originate within the corridor study areas). As an example, SFCTA has found that only about 5% of person trips in its study area are made by low-income drivers (below \$50,000).⁹

This step will also begin a sensitivity analysis in which at least one additional income eligibility threshold will be applied (again as agreed by Metro).

⁹ San Francisco County Transportation Authority public workshop presentation, http://www.sfcta.org/images/stories/Planning/CongestionPricingFeasibilityStudy/PDFs/maps_w_ksp2_preso_web.pdf, slide 7, accessed 4/28/09.

Identify Mitigation Measures

At this stage of the analysis, only a cursory survey of possible mitigation measures has been possible. Concurrently with the prior step, NPA will continue to work on researching and classifying potential mitigation measures in the following broad categories. The search will focus in particular on “lessons learned” and cases from other locations where road pricing is in use or being studied. The goal of this step will be to identify a full range of mitigation options, then work with Metro to agree on a specific group of mitigations to evaluate further as described below.

- Credits for HOT lane users or transit users in the corridors

As an example, SFCTA is considering an 80% discount of potential cordon charges for center city access for low-income (lifeline) drivers (among other discount types).¹⁰ Another example is a study of the so-called FAIR (Fast And Intertwined Regular) lanes concept done for the Alameda County Congestion Management Agency on two potential corridors in the Bay Area. This concept would allow users of the general purpose lanes to accrue credits toward the use of the HOT lanes or possibly toward other transportation services. (Parsons Brinckerhoff et al. 2005) (This crediting concept was studied, but has not been implemented.)

- Investments in transit service in the corridors

Metro has already committed to making several investments to enhance transit and vanpool service in the two HOT lane corridors. Both the Reason Foundation (Poole and Orski 2003) and the Environmental Defense Fund (Replogle 2006) have advocated the use of HOT lanes as BRT corridors, or as part of full BRT networks. NPA will look for lessons learned from these analyses and research other revenue investment examples that may not yet have been considered by Metro.

¹⁰ San Francisco County Transportation Authority public workshop presentation, http://www.sfcta.org/images/stories/Planning/CongestionPricingFeasibilityStudy/PDFs/maps_w_ksp2_preso_web.pdf, slide 14, accessed 4/28/09.

- Other types of mitigations

A Congressional Budget Office study on the use of pricing to reduce road congestion suggested offering low-income drivers tax credits as another way of offsetting tolls (CBO 2009). NPA will continue to research other potential mitigation measures that could be used to reduce burdens on low-income users of the HOT lane corridors.

Evaluate Potential Program Impact

This step will involve estimating the costs and benefits for each of the selected mitigation strategies. As in the first step, sensitivity analysis to a different “low-income” threshold may be tested. Some factors that could be estimated based on the analyses and tools available include:

- Toll revenues (from travel demand modeling)
- Effect of toll credit accrual rates (from travel demand modeling showing mode choice between driving, vanpool, carpool, and transit before and during tolling, to allow comparison of different accrual rates). This can be shown by income category, though the income data must be derived or imputed from vehicle class data and related value-of-time estimates used in modeling.
- Toll revenue reduction from credit schemes (from modeling, combined with “customer base” or demand estimate)
- Transit revenue increases related to corridor transit enhancements (from travel demand modeling)
- Cost of transit service enhancements (capital and operating)
- Capital and operating cost of transponder/toll collection system adjustments needed to implement credits (plus administrative costs)
- Time savings to HOT lane users and to general-purpose lane users (from travel demand modeling, by income category) – it is also possible to monetize this savings using a value-of-time estimate
- Public feedback (from surveys and public participation groups; may be qualitative or quantitative).

Recommend Mitigation Measures

This step will be based on the foregoing analysis, with the expectation that it will illuminate which mitigation measures will be most worthwhile to implement. For example, the evaluation of the FAIR lanes concept showed that

some credit accrual schemes had to be so limited (so as not to overload the HOT lanes) that they might not be worth the administrative and public relations effort (Parsons Brinckerhoff et al. 2005).

Recommend Performance Measures for Evaluation

As the foregoing steps are conducted, NPA will develop a list of suggested performance measures for post-implementation evaluation. These measures could involve surveying HOT lane users as well as selecting certain objective data points to monitor, such as actual low-income and transit credit accrual and usage rates, time savings, and revenue trends.

V. References

Web links to reports are provided where readily available and are accurate as of May 1, 2009.

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