I-5 North HOT Lanes Equity Assessment

Deliverable 2 – Final Report

Prepared for

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

Prepared by

Network Public Affairs, LLC
444 West Ocean Boulevard, Suite 800
Long Beach, CA 90802
Nancy Pfeffer, President

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Executive Summary

The Los Angeles County Metropolitan Transportation Authority (MTA) is evaluating implementation of a high-occupancy/toll (“HOT”) lane on the I-5 North corridor near Santa Clarita, CA. Northbound and southbound lanes would be added between State Route 14 in the south and Parker Road in the north; the lanes would be free to qualifying carpools, and solo drivers could pay a toll to use the lanes. The toll revenue will enable provision of the additional capacity fifteen to twenty years sooner than if no tolls were collected.

Proposals to price roadways frequently raise concerns about fairness to low-income residents. The purpose of this equity assessment is to address these concerns with regard to the proposed HOT lane on the I-5 North corridor. The structure of the assessment was based on a review of pertinent current literature on equity and tolling. The assessment began by identifying low-income populations along the I-5 North corridor, then examined how the project will be financed and what benefits or negative impacts might be experienced by low-income commuters on the corridor.

Overall, the assessment found that in nearly all respects, low-income commuters would be better off with the HOT lanes than if the tolled lane were not implemented. The most salient benefit is the projected cumulative time savings that would be enjoyed by all corridor users with provision of the HOT lanes by about 2018. Compared to waiting until about 2035 for an untolled HOV lane, travelers on the corridor would save an estimated 35-60 million total hours of vehicle travel time. Even if low-income travelers are using the untolled lanes, they will experience a share of these time savings. This is because in congested directions of travel, the HOT lanes are projected to result in speed increases ranging up to 20 miles per hour in the general purpose lanes, compared to the projections with HOV lanes.

The assessment also found that using tolls to help finance the project is more equitable to low-income residents than using only sales taxes, which are the alternative. All households pay a share of sales taxes, whether they use the roadway or not, while the toll, which is optional, is a direct user fee paid by someone who receives a direct benefit: an uncongested trip. Based on their estimated value of time, low-income commuters are not likely to choose to use the HOT lane regularly. However, they will have it as a new option in cases of need, and they will have it far sooner with implementation of tolling than without.

The project will improve safety for passenger cars by separating trucks into their own lanes. Emissions of most pollutants are projected to decrease from current levels. Particulate matter emissions are projected to increase, but the HOT lane scenario emissions are projected to be slightly lower than for the HOV lane scenario. One potential negative impact is that low-
income households may find it burdensome to obtain a transponder, which they will be required to have if they wish to use the lanes as a solo driver or carpooler. The assessment thus recommends that MTA adopt the same Equity Program provisions for the I-5 North corridor as were adopted for the I-10 and I-110 ExpressLanes demonstration project.

**Introduction and Background**

Network Public Affairs, LLC, (NPA) has been asked to conduct an equity assessment for the I-5 North corridor near Santa Clarita in North Los Angeles County.\(^1\) The Los Angeles County Metropolitan Transportation Authority (MTA) is evaluating implementation of a high-occupancy/toll (“HOT”) lane on this corridor as one element of an Accelerated Regional Transportation Improvement project, which will be developed as a public-private partnership.

A HOT lane allows a solo driver to access the carpool lane by paying a toll. Qualifying carpools may continue to use the lanes without paying a toll. The original plan for the I-5 North corridor was to implement, in addition to truck climbing lanes, a high-occupancy vehicle (HOV) lane without a toll option. The HOV alternative was evaluated in a 2009 Environmental Impact Report (EIR) conducted by Caltrans that resulted in a Finding of No Significant Impact (FONSI).\(^2\) MTA is now re-evaluating the project with the proposed inclusion of a HOT lane, and Caltrans has prepared a Supplemental EIR.\(^3\) Truck climbing lanes remain part of the project, and are under construction as of early 2013. Revenues anticipated from the HOT lane would be used to accelerate delivery of the project substantially, and would allow for provision of an additional southbound truck lane.

Road pricing, particularly when introduced on existing corridors that have never been priced, often raises concerns about the impacts on low-income travelers. It is this question that is the focus of the equity assessment for the I-5 corridor. Beginning in 2012, MTA has implemented HOT lanes, called ExpressLanes, on the I-110 and I-10 corridors in Los Angeles County, for a one-year demonstration period. In response to equity concerns, MTA implemented an Equity Program to alleviate cost burdens on low-income commuters on those

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1 The project corridor boundaries are from State Route 14 in the south to Parker Road in the north.
3 I-5 HOT Lane Project Draft Supplemental Environmental Impact Report/Environmental Reevaluation (SEIR/ER), State of California Department of Transportation, March 2013.
NPA conducted a low-income assessment for the ExpressLanes that was used in the development of the Equity Program.\(^4\)

The I-5 North HOT lane is dissimilar from the ExpressLanes in several ways. The ExpressLanes involved conversion of HOV lanes to HOT lanes on a demonstration basis, while the I-5 North project involves permanently adding capacity in the form of a high-occupancy lane and truck lanes. The purpose of toll collection on the ExpressLanes is for congestion management, while on the I-5 North corridor, toll revenues will be used to enable and accelerate project delivery. A key difference affecting perceptions of equity is that in the case of the ExpressLanes, substantial upfront investments in transit service were integral to the project. Low-income commuters generally benefit from such improvements in transit service. No similar transit investments are contemplated for the I-5 North corridor.

The goals of the I-5 North HOT lane equity assessment are to:

- Identify low-income commuters who could be affected by the implementation of the HOT lane;
- Identify the ways in which low-income commuters may be made better off or worse off with the HOT lanes;
- Suggest options for MTA to alleviate negative impacts, if any, on low-income commuters.

**Literature Review**

Because the field of equity in tolling is relatively new and developing quickly, NPA reviewed published literature on the subject. This was done to ensure that the I-5 North equity assessment could be based on the latest scholarship and thinking. A similar review conducted in 2009 as part of NPA’s low-income assessment for the Metro ExpressLanes found that:

- HOT lanes are often initially perceived as being unfair to low-income drivers. However, these perceptions soften as drivers gain experience with projects once implemented.

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Surveys of operating HOT lanes find that drivers across all income levels are users of the lanes and are supportive of the projects.

Projects that increase the choices available to travelers are helpful to low-income residents.

As more roadway pricing projects begin operation in various parts of the United States, a few studies are beginning to address the emerging methodology for assessing impacts according to various dimensions of equity. However, to date few pricing projects have been implemented and even fewer have been evaluated. Some of the most relevant studies are summarized in Appendix A.

A comprehensive 2011 report by the Transportation Research Board titled “Equity of Evolving Transportation Finance Mechanisms” includes a concise yet powerful list of questions that policy makers should consider in an equity analysis for a transportation project or a transportation finance policy. These questions were used to guide and structure the I-5 North equity assessment, since they are based on the best current research.

Structure of Equity Assessment

Even if low-income travelers may not be willing to pay a toll on a regular basis, they could benefit from reduction of congestion in general purpose lanes. They also benefit from having the option to pay for an uncongested trip on occasions when it is important to them—a benefit they do not have now. Additional benefits may include greater driver safety in both tolled and general purpose lanes, stemming mainly from the separation of trucks from passenger vehicles through the provision of truck lanes.

The equity assessment is designed to identify potential low-income users of the corridor and the ways in which they may be better off or worse off as a result of the implementation of HOT lanes. The following major elements of the equity assessment were derived from the literature search summarized above, with particular emphasis on the TRB report “Equity of Transportation Finance Mechanisms.”

- Who is affected, whether positively or negatively?
- Who makes direct payments?
- What project benefits and impacts will be experienced?
- Are there viable travel alternatives?

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Each of these questions is discussed in detail in succeeding sections of this report.

**Comparisons relevant to equity considerations**

In evaluating whether and how low-income commuters may be better off or worse off with the implementation of HOT lanes, several comparisons may be relevant. The HOT lanes could in theory be compared to implementation of an HOV lane; to “no-build” conditions in which neither type of lane is provided while traffic continues to grow; or to current conditions. For purposes of equity assessment, comparisons to “no-build” conditions are arguably the least relevant, since this hypothetical comparison is primarily used to aid decision makers in choosing whether to undertake the project and which alternative to select.

Comparisons between current conditions and future build conditions are relevant, since they can indicate whether corridor users and residents will be better off or worse off when the project is implemented. In the particular case of equity assessment, comparisons between HOT and HOV lanes are arguably the most relevant, since they hinge precisely on the difference between charging and not charging for roadway usage.

Even though more than one of these comparisons could be relevant to the equity assessment, not all are possible in this case. In fact, given the various types of benefits and impacts that could be experienced by corridor users, different comparisons have been made in the underlying project analyses. For example, air quality changes have been evaluated with respect to current conditions, to future “no-build” conditions, and comparing HOT to HOV in the same horizon years, while projected congestion relief benefits compare HOT to HOV only.

Ideally, policy makers should have the most information possible at their disposal in making decisions about road pricing. To that end, all relevant available comparisons are discussed in the sections that follow.

**Who Is Affected? Definition of “Low-Income”**

In order to conduct an equity analysis of the impact of HOT lanes on low-income commuters, it is necessary to define “low-income.” In the case of the I-10 and I-110 ExpressLanes, state authorizing legislation (SB 1422, 2008) specified certain guidelines to be considered in defining “low-income.” Based on a review of these guidelines and recommendations by NPA, MTA adopted a low-income threshold of $37,060 (twice the 2011 federal poverty level) for its Equity Program. Residents in the study areas for I-10 and I-110 were skewed towards lower incomes, with almost 44% of households near I-10 and over 58% of households near I-110 having incomes below two times the federal poverty threshold.
NPA obtained median household income and poverty rate data for 2008 from Caltrans’ subconsultant Cambridge Systematics and from the Southern California Association of Governments (SCAG) for the transportation analysis zones (TAZ) located in the I-5 North project study area (as delineated in the Traffic Technical Report). TAZ are similar in area, but not identical, to census tracts. The household income data are in 2009 dollars.

The project study area is a relatively high-income area, compared with other parts of Los Angeles County, whose overall median income was $55,811 (in 2010 dollars). The 2008 median household income in all zones of the I-5 North study area is higher than the ExpressLanes Equity Program threshold. The lowest zone has a median income of $39,985 (see Table 1); by definition one-half of the 88 households in that zone have annual incomes below this figure, which is close to the ExpressLanes low-income threshold. Overall in the I-5 North study area, 15 percent of households have incomes below two times the federal poverty threshold (the ExpressLanes threshold).

With assistance from LSA, another Caltrans consultant, these data were mapped for the study area. Maps showing the percentage of households below two times the federal poverty level and median household income by study area TAZ are provided at the end of this report (see Figures 1 and 2). As can be seen in Figure 1, some of the zones with the highest percentages of low-income households (a total of three zones ranging from 36% to 38% low-income and with median incomes ranging from $41,247 to $41,878) are located immediately along the I-5 corridor.

Table 1. Summary of Income Data by Transportation Analysis Zone, 2008

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<tr>
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<th>Median Household Income</th>
<th>Percentage of Households Below 2x Federal Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Study Area</td>
<td>$69,992</td>
<td>15.1%</td>
</tr>
<tr>
<td>Highest Zone in Area</td>
<td>$130,924</td>
<td>37.6%</td>
</tr>
<tr>
<td>Lowest Zone in Area</td>
<td>$39,985</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Source: Cambridge Systematics; Southern California Assoc. of Govt’s; summary by NPA

It is important to recognize that users of the I-5 North corridor will not necessarily share the same demographic profile as residents of the study area. Commuters, who by definition are traveling to jobs, can be expected to have a higher-income profile than residents, who may include many individuals without jobs. For the I-10 and I-110 ExpressLanes, several potential methods of estimating the percentage of low-income commuters on the corridors were examined. While no method gave a definitive answer, the results of a license plate survey
conducted along both corridors were determined to be the most accurate, and were corroborated by a regional commuter survey and by Census data. These results indicated that overall, 18% of corridor users (aggregated from both corridors) had household incomes below $35,000. This can be compared with 15% of households below two times the poverty level in the I-5 North study area, describing residents as opposed to corridor users. The ExpressLanes license plate survey also identified that (in the aggregate) 30% of those corridor users had household incomes below $50,000, compared with 38% of residents in the I-5 North study area.

A full discussion of those affected by the I-5 North HOT lanes would require a select-link travel modeling analysis to identify the zones of origins and destinations of trips on the corridor. While study area residents may appear to be the ones most affected by the implementation of HOT lanes, and in practice they may be, anyone traveling on the corridor from any destination should be counted among those with a potential benefit or cost from the HOT lane project. An area-specific license plate survey would also be helpful in clarifying the demographics of actual corridor users, as distinguished from study area residents.

It is NPA’s recommendation to use the same “low-income” threshold of two times the federal poverty threshold ($37,060 for 2011) as was adopted for the ExpressLanes. Even though the local demographics of the I-5 corridor study area differ from those near the ExpressLanes, commuters likely to use the I-5 North HOT lanes experience the same regional economic conditions. Use of the same threshold would also offer administrative convenience to MTA and help to build a consistent county-wide approach to equity concerns as future HOT lanes are implemented.

**Who Makes Direct Payments? Project Finance Plans**

Studies summarized in the literature review indicated that, when considering equity questions, it is important to compare tolling with traditional transportation project finance mechanisms. According to MTA, preliminary project finance plans call for the I-5 North corridor project (including HOT lanes and truck climbing lanes) to be financed by a combination of tolls and traditional sources as follows. These percentages are preliminary, approximate, and subject to change, but are nonetheless helpful for discussing equity issues.

- Los Angeles County Sales Tax Measure R: 60-70%
- Los Angeles County Sales Tax Proposition C: 9-12%
- Toll revenue: 20-30%
These estimates indicate that the majority of the project will be financed through sales tax revenues (Measure R and Proposition C). Sales taxes are regressive – that is, they consume a higher share of income for a low-income household than for a high-income household. They also are not inherently related to the provision of transportation infrastructure, except as agreed and directed by the County’s voters.

The estimates indicate that approximately one-quarter of the project cost could be covered by toll revenues from the HOT lane. The effect of the tolling will be to enable accelerated delivery of the project, whose congestion relief benefits are summarized in the next section. The tolls are a form of user fee, in that those who pay them will receive the direct benefit of an uncongested, and presumably reliable, trip. Importantly, the tolls will be optional on the I-5 North corridor; the general purpose lanes will remain toll-free at all times, just as they are now. Also, qualifying carpools will continue to be able to use the HOT lane without paying a toll, although transponders for electronic toll collection will be required for all vehicles using the lanes.

A 2008 study of the financing for optional toll lanes on State Route 91 in Orange County found that “as a group low-income residents, on average, pay more out-of-pocket with sales taxes” than they do with tolls. The paper observes that “Using sales taxes to fund roadways creates substantial savings to drivers by shifting some of the costs of driving from drivers to consumers at large…” The study also noted that “Low-income drivers as individuals save substantially if they do not have to pay tolls,” and indeed, the tolls on the I-5 North corridor will be optional. These findings suggest that the use of tolls (user fees) to finance a portion of the I-5 North corridor HOT lane will make the project more equitable for low-income residents than if the project were funded entirely through traditional sales taxes. To the extent that the project is financed through user fees, low-income residents’ sales tax burden will be commensurately reduced.

Benefits and Impacts for Low-Income Commuters

Congestion relief

A key motivation for implementing the I-5 North corridor project is to relieve congestion. While drivers who can afford to do so may opt to travel in the tolled lanes on a regular basis, low-income commuters may often choose the untolled lanes to avoid the cost.