



Board Report

File #: 2018-0562, **File Type:** Motion / Motion Response

Agenda Number: 8.

AD HOC CONGESTION, HIGHWAY AND ROADS COMMITTEE JANUARY 16, 2019

SUBJECT: I-10 EXPRESSLANES BUSWAY PILOT PROGRAM

ACTION: APPROVE RECOMMENDATION

RECOMMENDATION

AUTHORIZE the development of an implementation plan for the I-10 ExpressLanes Pilot Program.

ISSUE

This report is in response to Director Fasana's April 2018 Motion 43 amended by Director Solis (Attachment A), requesting that Metro staff work with Caltrans and other stakeholders to develop a pilot exclusively for the I-10 ExpressLanes that increases toll free occupancy requirements from HOV2/HOV3 to vanpools and transit, as a means of preserving the ExpressLanes as a fast, reliable travel option for transit users and all corridor travelers. The Motion requested that Metro Staff report back on:

1. Potential effects of implementing this pilot;
2. Key decision points and milestones for implementation; and
3. Solicitation of feedback and evaluation of potential impacts associated with this pilot, with focus on low-income commuters.

Please note that the Board Motion also mentioned outreach to SCAQMD, but in subsequent conversations with the Board Motion contributors' staffs, this was determined to have been included in error.

BACKGROUND

Historical Perspective

The I-10 ExpressLanes facility was originally built as a busway, and was subsequently opened to HOV3+ traffic for a limited period during a bus strike in 1974. The busway was formally opened to HOV3+ in 1976 to further reduce congestion on the freeway corridor. The ExpressLanes adopted existing occupancy requirements of HOV3+ during peak periods and HOV2+ during the off-peak at the time of opening.

Performance Challenges

The success of the ExpressLanes has resulted in increases in volume year over year since program inception in 2013. A more detailed look at the data for the I-10 reveals that in fiscal year 2018, there were over 15.9 million trips on the I-10 ExpressLanes—a 4.7% increase over the previous year and a 58% increase since 2014. Concurrently, morning commute

speeds have decreased by 12.5% between 2013 and 2018. When traffic density increases to the point that speeds fall below 45mph, the system goes into HOV-Only mode and only HOVs are allowed to enter the ExpressLanes. From 2014 to 2017, HOV-Only time increased by 250% before falling by 14% in 2018.

While the 2018 ExpressLanes Operations Performance Report indicates that 41% of the users of the I-10 ExpressLanes were HOV3+, that data is based on self-declaration. However, based on independent mode-split measurements conducted by Metro in 2018 and the most recent Caltrans Managed Lanes Report, mode split on the I-10 ExpressLanes during peak periods (as measured east of I-710) is:

- Single Occupant Vehicles: 65%
- Carpools with 2 persons: 20%
- Carpools with 3 persons: 4%
- Carpools with more than 3 persons: Less than 1%
- Vanpools: 2%
- Buses: 4%
- Clean Air Vehicles (may include above vehicle types as well): 6%

This data confirm the fact that a sizable proportion of ExpressLanes users mis-represent vehicle occupancy during peak, resulting in increased congestion in the ExpressLanes and increased tolls for those who are accurately reflecting vehicle occupancy.

Travel time reliability for transit vehicles on the I-10 ExpressLanes has also diminished in recent years, impacting on-time performance. Metro operations have had to modify the Silver Line schedules by including additional travel time to maintain a schedule that meets passenger demand. Up to 19% of Foothill Transit buses on I-10 operate behind schedule (varies by month), with the Silver Streak buses delayed by an average of 10 minutes during the AM Peak Hour (8-9 AM).

Enforcement Challenges

There are also enforcement challenges associated with the current exemption of HOV2 and HOV3+ travelers from tolls. This has resulted in a proportion of users on the I-10 ExpressLanes mis-representing their occupancy levels with the intent of improperly obtaining toll-free passage. When travelers mis-represent their vehicle occupancies, it undermines public trust in the ExpressLanes and constrains the ability to effectively manage demand and congestion in the lanes, as discussed in greater detail in Attachment B. While current CHP enforcement and technological solutions under development can be used to discourage this behavior, both of these strategies have limitations.

This proposed pilot is expected to mitigate this source of toll leakage and to therefore enhance fairness/equity across all users, as a product of:

- fewer opportunities for occupancy mis-representation therefore preventing toll rates from being inflated by SOVs declaring as HOVs,
- greater ease of enforcement, and
- a diminished dependency on occupancy detection systems.

DISCUSSION

Increasing the HOV threshold to the Original Requirement

Increasing the HOV occupancy requirement will align with the original intent/spirit of the ExpressLanes/Busway, and will help to mitigate the overutilization of existing ExpressLanes, particularly where capacity is more constrained (e.g., the one-lane segments of the I-10 ExpressLanes). Managing demand by raising HOV minimum occupancy requirements is supported by Caltrans and permitted per Title 23 Section 166 of the U.S. Code as a congestion mitigation strategy.

In response to the motion, this section includes discussion of the following: (1) Potential mobility effects, (2) Low-income commuter surveys, and (3) Inclusion of HOV5+ vehicles for toll exemption.

The key decision points and necessary milestones for implementing this pilot are: (1) obtaining concurrence from Caltrans and FHWA, (2) collecting and analyzing data needs, and (3) developing a formal implementation plan.

In an effort to assess the preliminary impacts of the proposed pilot, staff performed a micro-simulation analysis, conducted a survey of low-income commuters and evaluated the viability of toll free passage for vanpools.

Potential Mobility Effects of Implementing this Pilot

Using an integrated combination of simulation analysis, travel demand modeling, and dynamic toll modeling, the potential mobility impacts of this pilot program were evaluated. At this early stage, these should be interpreted as sketch-planning level results only. This operational impact analysis considered the AM Peak (6-9 AM) and PM Peak (4-7 PM) periods of a typical business day. Detailed analysis results are provided in Attachment B.

ExpressLanes-Specific Mobility Outcomes

- Increase in daily peak period person throughput by 600 persons (a 4% increase from current ExpressLanes throughput).
- Changes in average end-to-end travel times as follows:
 - Increase in Westbound AM Peak by 0.3 minutes.
 - Decrease in Westbound PM Peak by 0.1 minutes.
 - No change to Eastbound AM Peak
 - Increase in Eastbound PM Peak by 1.8 minutes due to queueing at the east end where the ExpressLanes merge back into the general-purpose lanes.
- Increase in average delay cost to ExpressLanes users of \$0.18 per person-trip. This is a result of some queueing at the end of the ExpressLanes where they merge back into the general purpose lanes.
- Transit impacts were found to be negligible with respect to average travel time performance. Because simulation models are not designed to directly capture reliability impacts, these could not be evaluated.

General Purpose Lane Mobility Outcomes

- Overall increase in average end-to-end travel times by four minutes. Currently corridor-wide travel times rise above their average levels by as much as 26 minutes from day to day during peak periods due to random variations in traffic. When focusing specifically on the PM Peak eastbound direction, the average projected travel time increase is 21 minutes.

Corridor-wide Mobility Outcomes

- Overall mobility benefit of approximately \$3.7 million per day in time/delay cost savings corridor-wide.
- Provision of a more long-term sustainable toll strategy that is less susceptible to congestion-especially congestion caused by vehicles that mis-represent occupancy.

Interpretation

This pilot could potentially achieve the stated goals of reducing ExpressLanes travel times for transit and is anticipated to increase person throughput. The new proposed toll policy also affords other tangible mobility benefits that, while outside the scope of the current analysis, are important to note qualitatively:

- Substantial improvement in travel time reliability when using the ExpressLanes, as the modification of criteria for toll-exempt trips would allow the toll system to manage congestion far more effectively. Travel time reliability is a measure of the predictability and consistency of travel times on the corridor. As travel time reliability improves, travelers benefit by not having to include as much schedule buffer in their travel plans.

- Faster response times for emergency vehicles and Freeway Service Patrol vehicles, which results in faster clearing of incidents and reduced delays.
- Minimizing opportunities for mis-representation of occupancies to avoid payment.

Low-income Commuter Surveys

The 2018 ExpressLanes Customer Survey found the majority of respondents did not support changes to the current toll structure on the I-10 ExpressLanes, though 25% of survey respondents expressed interest in joining vanpools if that were required for toll-free travel. It should be noted that this survey was distributed to current customers only, and is not necessarily a representative sample of all corridor users.

At outreach events targeting low-income commuters along the corridor, feedback was collected from 479 participants regarding the changes being proposed under this pilot. The researchers attempted to target participation by various ethnic groups according to the racial distribution of the population around I-10. ExpressLanes users constituted 51% of the survey sample and completed an average of 3.8 trips per week on the I-10 ExpressLanes. The major findings were:

- Very few have ever used a vanpool on the I-10 ExpressLanes.
- Approximately 41% of current ExpressLanes users would continue to use the ExpressLanes alone or as a carpool while 23% would shift to general purpose lanes under the proposed policy.
- Approximately 56% of non-ExpressLanes users would continue to use the general purpose lanes while 18% would shift to the ExpressLanes under the proposed policy.

Inclusion of HOV5+ Vehicles for Toll Exemption

Federally registered vanpool programs require that the vehicle itself be leased from the program by one of the occupants for reporting and tracking purposes, and that the vehicle have a minimum seating capacity of 7 persons (minimum occupancy requirements vary by program). This requirement can be a deterrent to participation. As a result, Metro ExpressLanes staff is recommending an alternative approach wherein toll-free travel is offered not only to registered vanpools, but also to any vehicles carrying enough passengers to have otherwise qualified as a vanpool based on occupancy.

Based on a review of other ExpressLanes facilities across the country which offer toll-free passage to vanpools, staff found that the majority of the surveyed facilities had a minimum vanpool occupancy requirement of 5 persons. Attachment B provides additional information regarding the treatment of Vanpools in other ExpressLanes facilities throughout the country. Therefore, staff recommends that the occupancy threshold for toll-free passage be set to 5 persons per vehicle.

Key Decision Points and Necessary Milestones for Implementing this Pilot

This section outlines major milestones and key decision points associated with further advancing and implementing this policy, along with progress made in each of these areas to date.

Obtain concurrence from Caltrans and FHWA

Caltrans District 7 indicated support for an HOV5+ occupancy requirement for toll-exempt travel on the I-10 ExpressLanes from the outset. Metro and Caltrans worked collaboratively to submit a formal request from Caltrans seeking FHWA's concurrence regarding the proposed policy change. FHWA recently approved implementation of a pilot program with the condition of submittal of an Implementation Plan for their review prior to deployment. Additionally, FHWA requested inclusion of a before/after study as well as involvement in public outreach activities associated with the pilot.

Additional Data and Analysis

Additional data collection and analysis is needed to support the successful planning and implementation of this pilot. The anticipated timeframe for completing this milestone is Fall 2019. This would include:

1. a more detailed examination of the potential effects of this policy on transit operations;
2. additional market research regarding barriers to toll lane, transit, and vanpool usage among commuters, including

- economically disadvantaged stakeholders;
3. a more detailed examination of impacts of the policy on ExpressLanes usage by low-income customers; and
 4. a comprehensive assessment of the optimal method for incentivizing HOV5+ and vanpool formation, and for handling the associated toll exemptions through a third party provider.

Develop a Formal Implementation Plan

Results from the additional data collection and analysis activities will inform the development of a more robust, comprehensive implementation plan with additional specificity regarding the various aspects associated with deployment of this pilot project. The anticipated timeframe for completing this milestone is 12-15 months. The implementation Plan would be submitted for approval by FHWA. The plan would include:

- identifying any additional resources required for successful implementation including operational, public engagement/educational, and staffing.
- a detailed cost estimate and schedule,
- a strategy for third-party mobile app integration with the ExpressLanes Back Office System to confirm occupancy and designate toll-exempt trips,
- a comprehensive outreach and education plan, and
- a detailed framework for the Before/After Study.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The FY18 I-10 ExpressLanes Pilot Program aligns with Strategic Goal 1: Provide high quality mobility options that enable people to spend less time traveling. ExpressLanes provides drivers with the option of a more reliable trip while improving the overall operational efficiency of the freeway network.

FINANCIAL IMPACT

Funding for support activities including collaborating with other transit providers, conducting additional market research, further assessment of low-income customer impacts, performing additional investigation into optimal methods for handling vanpool/higher occupancy carpool toll-free passage as well as development of an implementation plan is anticipated to be \$1.4 million. Funds to initiate these efforts are available in the FY19 budget in cost center 2220. Because this is a multi-year program, the cost center manager and the Executive Officer of the Congestion Reduction department programs will be responsible for budgeting for future years.

Impact to Budget

The funding for this action will come from toll revenues generated from the Metro I-10 ExpressLanes operations. No other funds were considered for this activity.

ALTERNATIVES CONSIDERED

The Board could choose not to implement the pilot. This alternative is not recommended since, based on current analysis, the pilot can increase overall person throughput, assure travel time reliability for transit vehicles, and address current enforcement challenges related to scofflaws, revenue leakage and HOV only minutes.

NEXT STEPS

Upon Board approval, staff will continue development of the I-10 ExpressLanes Pilot Program through the following steps: 1) Begin data collection and establish Before/After Study criteria, 2) Utilize existing consultant resources to conduct market research inclusive of low income communities, 3) Prepare statement of work for development of the implementation plan including a public outreach/education and marketing research plan, staff resources, identification of necessary changes to the back office and roadside systems and signage, and development of program cost estimates; and 4) return to the Board as necessary regarding progress.

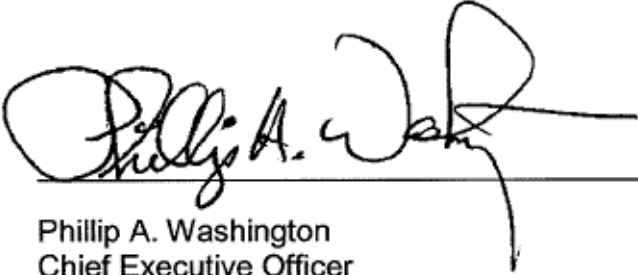
ATTACHMENTS

Attachment A - Motion 43

Attachment B - I-10 ExpressLanes/Busway Pilot Preliminary Assessment

Prepared by: Alice Tolar, Manager, Transportation Planning, Congestion Reduction, 213.418.3334
Robert Campbell, Manager, Transportation Planning, Congestion Reduction,
213.418.3170

Reviewed by: Shahrzad Amiri, Executive Officer, Congestion Reduction, 213.922.3061



Phillip A. Washington
Chief Executive Officer