



Metro

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA

Board Report

File #: 2023-0296, File Type: Program

Agenda Number:

EXECUTIVE MANAGEMENT COMMITTEE MAY 18, 2023

SUBJECT: EXPRESSLANES PAY-AS-YOU-GO PILOT EVALUATION

ACTION: APPROVE RECOMMENDATIONS

RECOMMENDATION

CONSIDER:

- A. RECEIVING AND FILING the ExpressLanes Pay-As-You-Go Pilot evaluation methodology and findings;
- B. AUTHORIZING the Pay-As-You-Go Program permanent, eliminate the \$25 penalty for notice of toll evasion, and adjust the Program's "processing fee" (which replaces the former penalty amount) from \$4 to \$8 to align processing costs and fees;
- C. AUTHORIZING the Chief Executive Officer or their designee to conduct an annual audit to confirm the fee amount and make downward or upward adjustments to the fee as appropriate to keep costs and fees aligned, consistent with the Fee Adjustment Policy (Attachment D); and
- D. AUTHORIZING the Chief Executive Officer or their designee to make the necessary changes to the ExpressLanes Toll Ordinance, as required.

ISSUE

The Pay-As-You-Go (PAYG) Pilot was approved by the Board in January 2019 as a time-limited pilot to evaluate the effects of reducing the penalties associated with using the ExpressLanes for drivers without FasTrak transponders. At the time of approval, Metro staff committed to conducting an evaluation of the Pilot's impacts and to report back to the Board at the conclusion of the Pilot period with findings. This Board Report addresses the impacts of the Pilot, and its associated recommendation regarding the future of the PAYG Program.

BACKGROUND

The PAYG pilot reduced the cost of using the ExpressLanes without a FasTrak transponder by temporarily removing the \$25 violation penalty and replacing it with a significantly lower \$4

processing fee for non-FasTrak trips. This \$4 fee was designed and intended to match the costs of processing each PAYG notice, thereby keeping the PAYG pilot cost-neutral. For PAYG trips, the Roadside Toll Collection System captures photos of the vehicles as they traverse toll points, and the registered vehicle owners receive notices by mail to pay the tolls and fees due. These PAYG notices can be paid through the ExpressLanes website, over the phone, at neighborhood Pay-Near-Me locations (participating 7-Eleven locations), or in person at an ExpressLanes service center (Torrance and El Monte).

California Streets and Highways Code 149.9 and the Ordinance for Enforcement of Toll Violations ("Toll Ordinance") jointly establish the requirement that all vehicles in the Metro ExpressLanes carry FasTrak transponders. As part of the PAYG Pilot, CHP stopped issuing citations for those driving the ExpressLanes without a transponder as of January 2020; if the Board elects to make this Pilot permanent, CHP would continue to follow this course of action with respect to transponders moving forward. Consistent with ExpressLanes regulatory requirements, under the new PAYG Pilot anyone using the ExpressLanes without a FasTrak transponder still receives a PAYG Notice of Toll Evasion Violation that includes the toll amount for the trip and a \$4 processing fee as opposed to the original \$25 penalty. If the balance due on a PAYG notice is not paid by the date indicated on the notice, it incurs penalties for delinquency as shown in Attachment A.

The Board approved the PAYG Pilot in January 2019 and subsequently approved the necessary changes to the Toll Ordinance to enact the Pilot in January 2020. Public outreach and education about the PAYG Pilot was conducted primarily through the website and roadside signage along the I-10 and I-110 ExpressLanes corridors, due to the targeted nature of those communications and the constraints imposed by the COVID-19 pandemic at the time. The Pilot was initially intended to have a duration of one year, effective as of January 5, 2020. However, in 2021 the Pilot period was extended to allow sufficient time for the disruptive and unprecedented effects of the COVID-19 pandemic on ExpressLanes traveler behaviors, traffic patterns, and revenue trends to subside before conducting the Pilot evaluation.

The evaluation specifically seeks to address the following questions regarding the PAYG Pilot's impact:

1. How effective was the Pilot at making the ExpressLanes available to more drivers?
2. How effective was the Pilot at reducing the fees/penalties paid by non-FasTrak users to offer more opportunities for access to the ExpressLanes?
3. How effective was the Pilot at reducing revenue losses associated with non-payment of notices for non-FasTrak trips?
4. How effective was the Pilot at opening up the ExpressLanes to occasional users?
5. What effect did the pilot have on congestion/mobility in the ExpressLanes?

These questions are consistent with the stated objective of seeking "ways that the ExpressLanes can be made available to more drivers" as provided in the Board approved Motion #42 by Director Hahn as amended by Director Dupont-Walker (Attachment B) along with the considerations raised in the January 2019 Board Report that produced the authorization to proceed with the Pilot.

DISCUSSION

To assess the pilot's effectiveness at making the ExpressLanes available to more drivers, the evaluation considered the changes that occurred to ExpressLanes trip volumes by non-FasTrak transponder users (i.e., PAYG users) after the Pilot was implemented. In the "Before PAYG" period, 3.70% of all ExpressLanes trips were made by drivers without a FasTrak transponder. In the "With PAYG" period, this percentage increased to 5.98%. This difference was statistically significant at a 95% confidence level. Over the same period, FasTrak transponder trip volumes declined by 16.1% while non-FasTrak transponder trip volumes increased by 38.9%. This translates into an estimated 899,954 additional ExpressLanes trips as a result of the PAYG Pilot in the one-year "With PAYG" period. The data support the conclusion that the PAYG Pilot resulted in more ExpressLanes trips by drivers that did not have a FasTrak transponder, and suggest that the PAYG Pilot resulted in a 2.4% increase in ExpressLanes trip volumes.

To assess the Pilot's effectiveness at reducing the penalties paid by non-FasTrak users, the evaluation considered the changes that occurred to ExpressLanes trip revenue collected from non-FasTrak users after the Pilot was implemented. In the "Before PAYG" period, an estimated \$11.7 million in revenue was collected from non-FasTrak users of the Metro ExpressLanes across all Notice escalation stages prior to DMV hold, representing 18.6% of all revenues collected over that time period. In the "With PAYG" period, this percentage fell to 17.1%. Over the same period, FasTrak account revenue grew by 18.9%. Based on these data, the expected revenue in the "With PAYG" period would have been an estimated \$2.6 million higher in the absence of the PAYG Pilot, representing an approximate reduction in revenue of 3.8% as a result of the Pilot. Therefore, the data provides no evidence that the PAYG Pilot had any significant effect on the total revenue obtained from non-FasTrak trips in the ExpressLanes.

To assess how effective the Pilot was at reducing revenue losses associated with non-payment of notices for non-FasTrak trips, the evaluation considered the changes in on-time payment rates for non-FasTrak trips that occurred after the Pilot was implemented. In the "Before PAYG" period, non-FasTrak Notice payments that were submitted on time constituted 78.4% of all payments made at any Notice escalation stage prior to DMV hold. In the "With PAYG" period, this percentage decreased to 77.6%. Based on these data, the expected number of on-time payments in the "With PAYG" period would have been an estimated 6,620 higher in the absence of the PAYG Pilot. This difference was not statistically significant at a 95% confidence level (paired Student's t-Test, p-value 0.104). Therefore, the data provides no evidence that the PAYG Pilot had any meaningful effect on the relative frequency of on-time payments for non-FasTrak trips in the ExpressLanes.

To assess the pilot's effectiveness at opening up the ExpressLanes to occasional users, the evaluation considered changes in the number of non-FasTrak trips made by infrequent or occasional users of the ExpressLanes after the PAYG Pilot was implemented. In the "Before PAYG" period, 73% of non-FasTrak drivers made just one trip in the ExpressLanes, while in the "With PAYG" period this percentage declined to 63%. However, the number of non-FasTrak drivers in every other trip count bin increased in the "With PAYG" period. The average number of trips made per non-FasTrak driver increased from 2.5/year in the "Before PAYG" period to 3.7/year in the "With PAYG" period, with over 90% of non-FasTrak drivers using the ExpressLanes six times a year or fewer. The difference in the two distributions was statistically significant at a 95% confidence level. These findings indicate that the vast majority of non-FasTrak drivers typically use the lanes on an infrequent/occasional basis only, and that such users felt more comfortable continuing to use the ExpressLanes without FasTrak

following implementation of the PAYG Pilot.

To assess the effect of the Pilot on congestion and mobility in the ExpressLanes, the evaluation considered the changes in end-to-end travel times. The analysis revealed that the travel times decreased by an average of 2.6 minutes in the AM Peak and increased by an average of 4.2 minutes in the PM Peak, after controlling for pandemic-related effects. Note, however, that these results reflect the cumulative effect of all changes to the ExpressLanes between the “Before PAYG” and “With PAYG” periods, including transit service changes or roadway configuration changes that occurred over the same period. The data available for this analysis could not support isolating the specific impact of the PAYG Pilot alone.

The evaluation also considered the distribution of PAYG trips throughout the day and found that the greatest proportions of PAYG travelers use the ExpressLanes during off-peak periods, with 25.6% of all trips during the off-peak periods being PAYG trips, compared to 22.5% during the peak periods. These findings suggest that non-FasTrak drivers are having a proportionally greater influence on overall trip volumes during non-peak periods.

The full evaluation results and detailed findings, including charts and data tables, are provided in Attachment C. Unless otherwise noted in the analysis details, the “Before” period is September 2018 - August 2019, and the “After” period is September 2021 - August 2022.

Fee Adjustment Policy

The PAYG processing fee is designed to make the PAYG Program cost-neutral, such that it does not constitute a potential financial liability on the rest of the ExpressLanes program. Among other things, this helps protect the availability of funds for such things as net toll revenue grant reinvestments, which are used to fund transportation programs that promote more equitable outcomes on the corridors, such as investments in transit station improvements, bicycle infrastructure, Complete Streets programs, and first/last mile connections. When first calculated in 2018, the estimated processing cost per PAYG trip was \$4. This was calculated to cover the costs associated with processing PAYG notices, including: license plate image processing, notice printing, notice mailing, payment processing, customer service/support engagements, and back-end system management.

After collecting additional data over the course of the PAYG Pilot on revenue associated with non-pursuable PAYG notices (e.g., vehicles with no license plates), PAYG non-payment rates, and processing costs (including the effects of inflation since 2018), an updated PAYG processing fee of \$8 is recommended to sufficiently cover PAYG Program costs. This accounts for the joint effects of inflation, PAYG trip non-payment rates, and non-pursuable PAYG trip rates, which collectively reflect a fee increase of 92% (calculation details are provided in Attachment D). A breakdown of costs is provided below, with additional detail available in Attachment E.

- \$1.20 for equipment, software, and communications for license plate capture
- \$0.58 for manual verification and QA/QC of license plate images as required
- \$3.69 for customer service (phone support, in-person support, mail handling)
- \$2.50 for printing, postage, envelopes, DMV lookup, and credit card fees
- Total: \$7.97, rounded to \$8 in accordance with Attachment D.

Furthermore, to allow for ongoing coverage of PAYG Program costs moving forward, this fee would be subject to an annual audit to determine any downward or upward adjustments to the fee as appropriate to keep costs and fee aligned, consistent with the Fee Adjustment Policy (Attachment D).

For added interpretive support with respect to this fee increase through an equity lens, the equity analysis found that ZIP codes with lower EFC concentrations had relatively higher PAYG utilization rates whereas ZIP codes with higher EFC concentrations had relatively lower PAYG utilization rates. Additional detail is provided in the Equity Platform section.

Prior to PAYG, a \$25 penalty of notice of toll evasion was assessed. During the pilot, this penalty was suspended. If PAYG is made permanent, the \$25 penalty for toll evasion is eliminated. Per the Toll Ordinance, if a PAYG Notice is not paid within 30 days, it escalates to a “Past Due Notice” and incurs an additional “Past Due Penalty” on top of the previous balance due. The current Past Due Penalty is \$21, meaning that the total amount due at the Past Due Notice escalation stage is the toll plus \$25 in fees and penalties (i.e., the sum of the \$4 processing fee and the \$21 Past-Due Penalty). As part of the Fee Adjustment Policy as described in Attachment D, any changes to the processing fee will be accompanied by corresponding adjustments to the Past-Due Penalty to keep their sum fixed at \$25. For example, if the PAYG processing fee were increased from \$4 to \$8, the Past Due Penalty would be adjusted from \$21 to \$17 such that the total amount due at the Past Due Notice stage remains the toll plus \$25 in fees and penalties.

For added context, an \$8 fee is still the lowest out of all such fees among other Express Lanes operators in the state, which range from \$10 to \$40 and are \$25 on average (see Attachment A for a complete comparison table). Metro continues to be a national leader in this regard as more facilities across the country start to evaluate their own programs to make it easier for occasional, infrequent, or inadvertent users to access their lanes.

Any such changes to the PAYG fee would require corresponding updates to the Toll Ordinance, which was last updated on January 5, 2020, to include the current \$4 PAYG fee. When updates to the Toll Ordinance are limited to routine PAYG fee amount adjustments only, as defined in Attachment D, they will be communicated to the Metro Board by official Board Correspondence at least 30 days in advance, and will subsequently be publicly announced through the website and/or other communications channels consistent with the existing customer notification practice.

Interpretive Support for Revenue Findings

Although the PAYG processing fee is specifically designed such that the added costs of supporting the PAYG Program are recovered by the fee, there are nevertheless additional revenue impacts to the ExpressLanes program associated with PAYG given that it reduced the former \$25 violation fee for non-FasTrak trips to a lower \$4 processing fee instead. This translated into reduced revenue for the ExpressLanes program as compared to the pre-PAYG period by an estimated 3.8%, which lowers the amount of funding available.

No portion of a PAYG notice is designed to function as a revenue generator for ExpressLanes. The

toll portion of the PAYG notice that is posted on the lanes is set according to the price needed to keep the lanes moving, and is a function of road capacity and demand at any given time. The fee portion of the PAYG notice is a function of processing/handling costs, and is designed specifically to cover those program expenses ; it is not designed to be punitive. While any non-zero fee amount would also act as a financial disincentive to some extent, this is not the intent of the fee portion of the PAYG notice; rather, the purpose of PAYG is to minimize this disincentivizing effect by lowering the PAYG fee to the minimum level necessary to cover processing costs. Finally, the penalty portion of the PAYG notice is triggered only if the user does not pay the balance owed by the due date, and is designed to be a deterrent to encourage timely payment of the amount due.

It should be noted that while non-FasTrak user revenues declined between the pre-implementation and post-implementation data used for this analysis, these reductions in violation revenue were more than offset by broader revenue increases program-wide that resulted from growing demand for the ExpressLanes - particularly in the PM Peak period-and a corresponding rise in toll rates necessary to effectively manage that increasing demand during those peak times. More precisely, program-wide revenue increased overall by 4.8% between the “Before PAYG” and “With PAYG” periods, though the analysis suggests that revenue growth would have been 3.8% higher over the same period in the absence of the PAYG Pilot.

Signage Considerations

During the Pilot period of the program, modifications to the static roadside signage were not incorporated. As PAYG now transitions into a permanent program, staff will adjust ExpressLanes signage to reflect the new policy as allowed by existing law, CA-MUTCD, Caltrans, California Traffic Control Devices Committee (CTCDC), and other applicable authorities.

DETERMINATION OF SAFETY IMPACT

This recommended action is not anticipated to have an impact on the safety of Metro's patrons or employees.

FINANCIAL IMPACT

The toll revenue and fees collected are recognized as ExpressLanes revenues. The toll revenue will fund the existing and future ExpressLanes operations. The PAYG fees will cover the program expenses such as processing/handling costs.

Impact to Budget

No impact to FY23 Budget. If approved, the change in fees/fares will be factored into future year budgets. The Toll revenues are eligible only for activities (operation/capital) within the toll regions.

EQUITY PLATFORM

The ongoing PAYG Pilot would continue to reduce the costs of using the ExpressLanes without

FasTrak by as much as 68% by lowering the fee portion of such trips from \$25 (i.e., the original pre-Pilot fee amount that would be reinstated if the PAYG Program were discontinued) to \$8. This benefit therefore necessarily extends to drivers that may have inadvertently entered the lanes without intention of doing so as well. Other ExpressLanes programs already exist to target other equity-related issues, such as emissions reductions (i.e., the Carpool Loyalty Program and Transit Rewards Program), and improved transit access (i.e., the incremental transit service funding program).

When considering the utilization rates of the PAYG Pilot, ZIP codes with the lowest EFC concentrations had the highest relative PAYG utilization rates (4.87% of all trips made), whereas ZIP codes with the highest EFC concentrations had the lowest relative PAYG utilization rates (2.62% of all trips made). PAYG utilization is defined as a ZIP code's total count of PAYG trips paid before escalation, normalized by the total trip count for that ZIP code. The focus on trips paid before escalation is necessary to account for the fact that the PAYG Pilot only modified that fee level of the escalation process (i.e., reducing it from \$25 to \$4). Additional detail is available in Attachment E: Pay-As-You-Go Equity Analysis.

It is also notable that for frequent ExpressLanes travelers with low incomes that want to avoid the PAYG processing fees entirely, there is the option of opening Low Income Assistance Plan (LIAP) accounts with Metro ExpressLanes instead. Eligible households that meet the income requirements for LIAP accounts receive initial credits of \$25 each upon account activation and have the monthly \$1 account maintenance fees waived on an ongoing basis. As of August 2022, there were 17,060 active LIAP accounts with an estimated 8,018 (47%) living in EFCs (see Attachment E). Recent data analysis by staff has offered strong evidence that having access to LIAP accounts effectively addresses the cost-related barriers to use of the ExpressLanes among low-income households.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The ongoing PAYG Pilot supports Strategic Goal 1, providing high-quality mobility options that enable people to spend less time traveling, by reducing the costs of accessing the ExpressLanes for non-FasTrak users. Over the past 12 months, the ExpressLanes have offered travelers an average time savings of 32% and an average travel time reliability improvement of 54% when compared to the adjacent general purpose lanes on I-10 and I-110 in the weekday peak periods and directions. Since the ExpressLanes first opened in 2012, they have cumulatively saved users an estimated 26.6 million hours of time.

The ongoing PAYG Pilot supports Strategic Goal 2, delivering outstanding trip experiences for all users of the transportation system, by reducing the costs of accessing the ExpressLanes for non-FasTrak users. When traffic shifts from the general-purpose lanes to the ExpressLanes, that can help free up additional capacity in the general-purpose lanes and achieve performance improvements for those travelers as well.

ALTERNATIVES CONSIDERED

As an alternative to this recommended action, the Board may instead elect not to continue the PAYG Program. This is not recommended, as the PAYG Pilot has generated significant tangible benefits for the traveling public by making the lanes more accessible to infrequent and occasional users, and by

increasing on-time payment rates among non-FasTrak users of the ExpressLanes.

NEXT STEPS

Upon Board approval of this recommended action, staff will update customer materials and messaging to indicate that the PAYG Program and its associated benefits are now a permanent feature of the Metro ExpressLanes, will make updates to the Toll Ordinance and PAYG Notice fee as described in the Fee Adjustment Policy, and will take additional action as needed on the backend systems to make the PAYG Program permanent. To further promote awareness about the PAYG Program among non-FasTrak users of the I-10 and I-110 corridors, staff will also implement a billboard strategy to educate freeway users about the new policy. Staff will also investigate what options are available for ExpressLanes signage updates to reflect the new policy as allowed by CA-MUTCD, Caltrans, and other applicable regulations and authorities.

ATTACHMENTS

Attachment A - Violation Fees and Timeframes Among FasTrak Operators

Attachment B - Board Motion 42

Attachment C - Analysis Findings

Attachment D - Fee Adjustment Policy

Attachment E - Processing Fee Breakdown

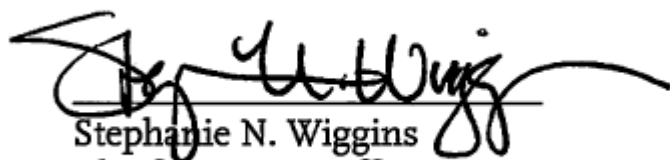
Attachment F - Pay-As-You-Go Equity Analysis

Prepared_by

Prepared by: Robert Campbell, Sr. Manager, Transportation Planning, (213) 418-3170
Mark Linsenmayer, Deputy Executive Officer, (213) 922-5569
Shahrazad Amiri, Deputy Chief Operations Officer, (213) 922-3061

Reviewed_By

Reviewed by: Conan Cheung, Chief Operations Officer (213) 418-3034



Stephanie N. Wiggins
Chief Executive Officer

ATTACHMENT A:

among FasTrak Operators

	Metro ExpressLanes	SANDAG Express Lanes	91 Express Lanes	RCTC Express Lanes	TCA Toll Roads ¹	Golden Gate Bridge ¹	BATA Express Lanes	BATA State-Owned Bridges ¹
First Violation Notice Fee/Penalty ²	\$4	\$40	\$25	\$25	\$57.50	\$25	\$10	\$5
First Violation Notice Due After ³	30 days	24 days	30 days	30 days	30 days	30 days	30 days	30 days
Second Violation Notice Fee/Penalty ²	\$21	\$60	\$30	\$30	\$42.50	\$45 ⁴	\$20 ⁴	\$10 ⁴
Second Violation Notice Due After ³	30 days	24 days	60 days	60 days	30 days	30 days	30 days	30 days
Third Violation Notice Fee/Penalty ²	\$30	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Third Violation Notice Due After ³	60 days	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eligible for DMV Registration Hold ⁵	After deadline for 3 rd notice	After deadline for 2 nd notice	After deadline for 2 nd notice	After deadline for 2 nd notice	After deadline for 2 nd notice	After deadline for 2 nd notice	After deadline for 2 nd notice	After deadline for 2 nd notice

TABLE NOTES:

- For single-plaza toll facilities (i.e., bridges and toll roads), a Notice of Toll Evasion Violation is sent out after a short pre-violation stage (2–5 days) wherein customers can alternatively pay the toll amount online by license plate. This functionality is not supported for trip-based toll facilities (i.e., all Express Lanes facilities).
- Amounts are in addition to the toll amount and any fees/penalties associated with prior notices.
- Timeframes are an approximate guideline only. Refer to violation notice for precise due date associated with a given violation.
- If the second violation notice is paid within the first 15 days, the second violation notice penalty is waived (i.e., only the toll and penalty from the first violation notice are due).
- Some agencies may also send violations to collections at this stage depending on the circumstances.

SOURCES:

- Metro ExpressLanes:
 - Web Site Frequently Asked Questions: <https://www.metroexpresslanes.net/frequently-asked-questions/#elementor-tab-content-da4151b> (accessed 2022-11-28)
- SANDAG:
 - Web Site Frequently Asked Questions: <https://www.myfastrak.511sd.com/en/learn/faq> (accessed 2022-11-28)
 - Conversation with SANDAG Customer Service Representative at (888) 889-1515 on 2022-11-28.
 - Email conversation with SANDAG Express Lanes staff at [email addresses withheld] on 2022-12-01.
- OCTA (91 Express Lanes):
 - Web Site Frequently Asked Questions: <https://www.91expresslanes.com/faqs/> (accessed 2022-11-28)
 - Ordinance No. 2020-01 Amending Ordinance No. 201-01 Relating to the Administration of Tolls and the Enforcement of Toll Violations for OCTA
 - Conversation with 91 Express Lanes Customer Service Representative at (800) 600-9191 on 2022-11-28.
- RCTC:
 - Ordinance No. 19-001 Amending and Restating the RCTC Ordinance Relating to the Administration of Tolls and the Enforcement of Toll Violations for the RCTC Express Lanes
 - Conversation with RCTC Express Lanes Customer Service Representative at (855) 951-1500 on 2022-11-28.
- TCA:
 - Web Site Frequently Asked Questions: <https://www.thetollroads.com/help/faqs/what-is-the-penalty-for-a-toll-road-violation/> (accessed 2022-11-28)
 - Conversation with TCA Customer Service Representative at (949) 727-4800 on 2022-11-28.
- Golden Gate Bridge and BATA:
 - Web Site Frequently Asked Questions: <https://www.bayareafastrak.org/en/support/tv-general-information-faq1.shtml> (accessed 2022-11-28)
 - Conversation with BATA Customer Service Representative at (877) 229-8655 on 2022-11-28.

Metro

Los Angeles County
Metropolitan Transportation
Authority
One Gateway Plaza
3rd Floor Board Room
Los Angeles, CA



Board Report

File #: 2018-0194, **File Type:** Motion / Motion Response

Agenda Number: 42.

**REGULAR BOARD MEETING
APRIL 26, 2018**

Motion by:

HAHN as amended by DUPONT-WALKER

Metro ExpressLanes officially began with a US Department of Transportation Grant in April 2008, which would convert existing High Occupancy Vehicle (HOV) lanes into dynamically-priced high-occupancy toll (HOT) lanes. This initial congestion pricing pilot project was specifically designed to reduce congestion along two of the Los Angeles region's most impacted freeways: the I-110 and I-10. Metro ensures the ExpressLanes maintain traffic flow, prevent them from being overloaded, and maintain a federally mandated minimum speed of 45 miles per hour.

Many of Metro's goals - expanding the rail and bus network, investing in active transportation, and connecting us throughout the Los Angeles region, aim to achieve some level of reduced congestion and fewer vehicle miles traveled. Metro is now looking at expanding the ExpressLanes to the I-105 Freeway.

I believe that Metro should continue to review the Express Lanes program and ensure it continues to meet its commitment to ease freeway congestion and improve the quality of life for Los Angeles County residents. Metro should also study toll systems in other large jurisdictions, giving priority to those with similar demographics; and explore ways that the Express Lanes can be made available to more drivers.

**SUBJECT: MOTION BY HAHN AS AMENDED BY DUPONT-WALKER
FEASIBILITY STUDY ON EXPRESSLANES**

APPROVE Motion by Hahn as amended by Dupont-Walker that the CEO report back in 180 days to the Board on:

- A. The current performance of the ExpressLanes;
- B. A comparison of the Metro ExpressLanes system to other major congestion-pricing toll systems in the country; and
- C. The viability of Metro ExpressLanes implementing a "Pay-as-You-Use" model for all drivers.

ATTACHMENT C:

Quantitative Evaluation of Pay-As-You-Go Pilot

This data analysis considers the quantitative impact of the Pay-As-You-Go (PAYG) Pilot in six areas:

1. End-to-End Travel Times in the ExpressLanes
2. Flow fractions for Non-transponder Trips by time of day
3. Volume of ExpressLanes Trips by Non-FasTrak Users
4. ExpressLanes Revenue
5. On-Time Payments for Trips by Non-FasTrak Users
6. ExpressLanes Access by Infrequent or Occasional Users

END-TO-END TRAVEL TIMES IN THE EXPRESSLANES

In this section, we consider changes in end-to-end travel times on the ExpressLanes.

Data Source: Caltrans Performance Measurement System (PeMS) 5-minute traffic data for all detectors that were at least 70 percent observed (i.e., less than 30 percent imputed in a given aggregation interval). Data were collected for all weekdays in calendar year 2019 and calendar year 2022, with 2019 constituting the “Before PAYG” period and 2022 constituting the “With PAYG” period. These periods were selected to compare the most recent year of data available against the comparable period before the PAYG pilot was implemented in January 2020. Data were collected for the I-10 ExpressLanes between I-605 and Alameda Street. There were insufficient data available in PeMS for the I-110 ExpressLanes to support this analysis, so only I-10 travel times were evaluated.

Additional data were collected from the HOV lanes on the following corridors to function as experimental controls for the I-10 ExpressLanes:

- SR 91 between I-110 (Abs PM 0.5) and I-605 (Abs PM 11)
- I-210 between I-605 (Abs PM 36.71) and SR 57 (Abs PM 44.77)
- I-210 between SR 134 (Abs PM 25) and I-605 (Abs PM 36.71)
- SR 60 between I-605 (Abs PM 11.84) and SR 57 (Abs PM 25.67)

I-105 between I-110 (Abs PM 7.34) and I-605 (Abs PM 18) was also considered as a candidate control corridor, but was found to have insufficient data available in PeMS and subsequently excluded.

Method: In this analysis, travel times are estimated from point measurements along a given corridor (e.g., from inductive loop data) by simulating the progress of virtual vehicles from one end of the corridor to the other. In the case of this analysis, these vehicles are dispatched from the upstream end of the corridor every 5 minutes and their progress is re-evaluated every 45 seconds or every 30 feet along the corridor—whichever occurs first. The time between successive re-evaluations is called the simulation time-step. Generally, the distance threshold will govern, and vehicle progress will be re-evaluated every 30 feet. However, if traffic speeds drop very low, the time threshold of 45 seconds will be reached first, and progress will be re-evaluated after that amount of time. This is included as a protection to ensure that time steps do not grow excessively long when speeds are particularly low. At the start of each simulation time-step, the speed of the vehicle is calculated using the exact location and timestamp of the vehicle at that moment, using linear interpolation between the nearest 5-minute detector data in time and space. The vehicle is then assumed to proceed at that speed for the duration of the simulation time-step.

Due to the expected interaction and correlation between congestion patterns on the I-10 ExpressLanes and one or more of the other managed lanes on nearby parallel routes, a predictive model for I-10 ExpressLanes travel times is built using a linear regression model where the response variable is the end-to-end travel time on the I-10 ExpressLanes in either the eastbound or westbound direction at any given time, and candidate input variables are the travel times on a combination of the control corridors in the same direction as the response variable at that same time. Only data from the “Before PAYG” period were used for model training. Additionally, only data from the peak periods (5-9 AM for westbound travel, 4-7 PM for eastbound travel) were used for model training, to allow for more targeted performance in the area of peak period travel time predictions on the I-10 ExpressLanes—which is specifically what this model will be used for. Model specification was performed by first including all applicable control variables, then incrementally removing those with counterintuitive signs (i.e., those exhibiting an apparent inverse correlation), then incrementally removing those that were not significant at a 95% level starting with the least significant variable, and finally testing all combinations of the remaining significant variables to identify the set that minimizes the Adjusted R-Squared value of the model.

The resultant travel time prediction models for the I-10 ExpressLanes in each direction are specified below.

$$y_{10e} = 5.669 + 0.270x_{210e1} + 0.396x_{60e}$$

$$y_{10w} = 4.165 + 0.305x_{91w} + 0.230x_{210w2} + 0.298x_{60w}$$

where:

y_{10e} = Predicted end-to-end travel time on eastbound I-10 ExpressLanes (weekdays 4–7 PM)

y_{10w} = Predicted end-to-end travel time on westbound I-10 ExpressLanes (weekdays 5–9 AM)

x_{91w} = Calculated travel time on westbound SR 91 HOV lane between I-110 and I-605.

x_{210e1} = Calculated travel time on eastbound I-210 HOV lane between I-605 and SR 57.

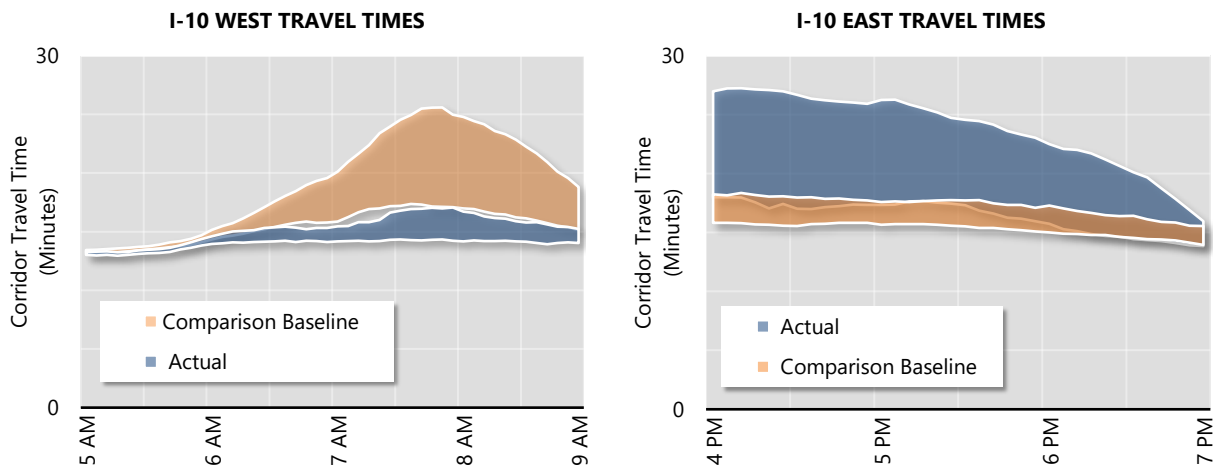
x_{210w2} = Calculated travel time on westbound I-210 HOV lane between SR 134 and I-605.

x_{60e} = Calculated travel time on eastbound SR 60 HOV lane between SR 57 and I-605.

x_{60w} = Calculated travel time on westbound SR 60 HOV lane between SR 57 and I-605.

With these models, it was possible to predict the counter-factual (comparison baseline) travel times in the “With PAYG” period based on the observed performance on the applicable control corridors over the same period. The Adjusted R-Squared value for the westbound AM Peak model is 0.580 (n=10,140), and the Adjusted R-Squared value for the eastbound PM Peak model is 0.230 (n=7,296).

Findings: Observed travel times in the “With PAYG” period were an average of 4.18 minutes higher than the comparison baseline for the eastbound I-10 ExpressLanes between 4 PM and 7 PM, whereas observed travel times were 2.63 minutes lower than the comparison baseline for the westbound I-10 ExpressLanes between 5 AM and 9 AM. Time-of-day distributions are shown in the charts below, represented as inter-quartile ranges for every 5-minute aggregation interval across the applicable peak period for the direction indicated.



Trends in the deviations between the predicted and observed travel times on the I-10 ExpressLanes are attributed to localized changes to the I-10 corridor, including but not limited to the institution of PAYG. These differences may also be influenced by other corridor-specific factors that occurred during the analysis period such as:

- The recent extension of the I-10 HOV lanes east of I-605.

- Changes to transit service along I-10 (i.e., Silver Line, Metrolink) since 2020.
- Pandemic-related changes to commuter patterns that affected the employment centers and industries along I-10 (e.g., downtown LA) differently than employment centers and industries along the control corridors (e.g., Pasadena, West LA, South Bay).

Also note that the eastbound regression model had relatively low prediction accuracy (Adjusted R^2 value of 0.23), indicating that the eastbound results are not as reliable as the westbound results.

Assumptions: Travel times calculated using spot speed measurements from PeMS detector data are a valid approximation of actual travel times on the corridor.¹

¹ Margulici, J.D; Ban, X. Benchmarking travel time estimates. *Intelligent Transport Systems*, IET, Vol 2, #3, Sept. 2008, p228–237.

In this section, we consider time-of-day patterns in the flow fractions for non-transponder trips in the ExpressLanes to gain insight into the times of day where PAYG travelers are having the greatest proportional impact on trip volumes in the ExpressLanes.

Method: Trip records are aggregated by hourly bin according to the trip start time. Each is categorized as either a transponder-based trip or a non-transponder trip. Results are examined separately by corridor and direction.

The figure consists of four line charts, each representing a different highway segment. The y-axis for all charts is 'Non-Transponder Trips Flow Fraction' ranging from 0% to 50%. The x-axis represents time from 12 AM to 8 PM, with labels every 4 hours. Each data point is represented by a blue circle connected by a blue line.

- I-10 WEST:** The flow fraction starts at approximately 45% at 12 AM, peaks at 50% at 1 AM, then drops sharply to about 20% by 4 AM. It remains relatively stable between 20% and 25% until 10 AM, then gradually increases to about 40% by 8 PM.
- I-10 EAST:** The flow fraction starts at about 25% at 12 AM, rises to a peak of approximately 40% at 3 AM, then declines to about 20% by 8 AM. It remains relatively stable between 20% and 25% until 4 PM, then slightly increases to about 28% by 8 PM.
- I-110 NORTH:** The flow fraction starts at about 25% at 12 AM, rises to a peak of approximately 30% at 3 AM, then declines to about 20% by 6 AM. It remains relatively stable between 20% and 25% until 8 PM, then slightly increases to about 28% by 9 PM.
- I-110 SOUTH:** The flow fraction starts at about 25% at 12 AM, rises to a peak of approximately 30% at 1 AM, then declines to about 20% by 4 AM. It remains relatively stable between 20% and 25% until 8 PM, then slightly increases to about 28% by 9 PM.

DATA TABLE

Hour	Transponder Trip Counts				Non-Transponder Trip Counts			
	I-10 East	I-10 West	I-110 North	I-110 South	I-10 East	I-10 West	I-110 North	I-110 South
12 AM	14,504	5,138	39,058	31,690	6,344	4,479	12,402	12,133
1 AM	6,062	3,042	21,129	15,581	3,468	2,944	7,211	6,389
2 AM	4,432	3,137	11,709	13,976	2,480	2,609	4,327	4,895
3 AM	3,255	14,547	13,254	23,092	2,260	4,648	5,275	6,662
4 AM	6,814	132,422	51,663	64,763	5,085	31,670	17,752	17,829
5 AM	19,123	397,899	270,629	160,136	11,676	110,277	79,405	42,196
6 AM	40,158	520,096	534,378	318,511	21,075	146,308	143,488	91,571
7 AM	88,239	560,692	619,670	540,771	36,324	156,746	155,986	159,346
8 AM	108,881	474,946	511,819	458,345	44,687	154,578	150,697	138,988
9 AM	76,325	368,865	444,732	289,321	34,593	123,312	139,677	85,818
10 AM	91,355	241,345	382,753	269,331	35,780	92,513	127,592	78,439
11 AM	126,452	172,394	338,015	292,454	48,718	73,463	122,448	88,935
12 PM	204,290	153,354	336,713	344,746	75,952	66,649	121,371	108,730
1 PM	337,306	144,401	358,039	414,816	120,007	62,563	126,375	135,348
2 PM	490,113	133,524	408,888	550,563	157,106	63,060	145,113	174,432
3 PM	566,454	131,018	432,930	637,376	172,857	63,718	150,147	198,175
4 PM	571,108	135,358	456,705	690,035	172,515	68,383	155,945	199,522
5 PM	566,483	171,070	464,024	673,369	170,322	83,173	158,833	189,897
6 PM	444,222	138,163	374,915	534,404	147,762	66,650	132,910	160,390
7 PM	266,428	69,542	249,743	343,471	88,612	34,486	90,500	103,913
8 PM	159,674	53,417	171,286	216,686	53,488	26,823	59,968	63,929
9 PM	106,699	45,238	140,329	171,888	37,680	22,508	46,198	50,332
10 PM	82,834	25,881	103,757	150,681	28,975	14,956	35,544	46,003
11 PM	43,991	12,270	69,343	81,321	17,602	8,399	23,902	27,756

Assumptions: Non-transponder trip patterns are a reasonable proxy for non-FasTrak trip patterns.

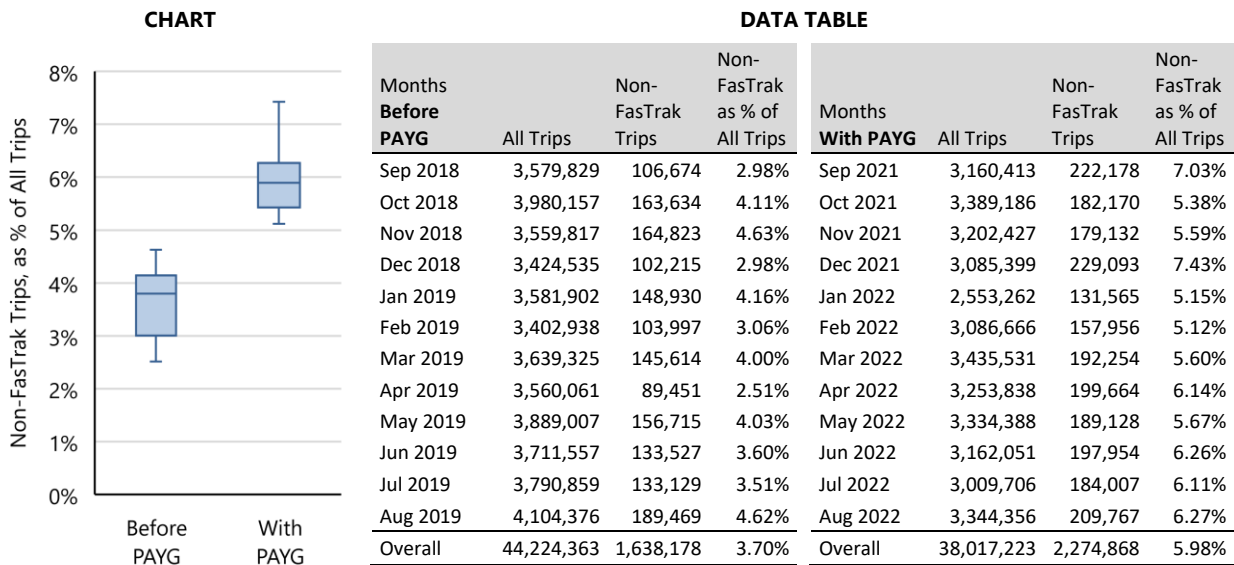
VOLUME OF NON-FASTRAK TRIPS

In this section, we consider changes in trip volume for drivers that do not have FasTrak.

Data Source: Monthly ExpressLanes trip records. The 12 months between September 2018 and August 2019 constitute the “Before PAYG” period. The 12 months between September 2021 and August 2022 constitute the “With PAYG” period. These periods were selected to compare the most recent year of data available against the comparable period before the PAYG pilot was implemented in January 2020.

Method: Data are binned by month, allowing for an evaluation of variance in the overall percentages of non-FasTrak trips before and after the PAYG Pilot began. To control for pandemic-related effects on overall trip volumes, the non-FasTrak trips are reported as a percent of all trips.

Findings: In the “Before PAYG” period, 3.70% of all ExpressLanes trips were made by drivers without FasTrak. In the “With PAYG” period, this percentage increased to 5.98%. This difference was statistically significant at a 95% confidence level (Student’s t-Test, p-value 0.000). Over the same period, FasTrak trip volumes declined 16.1% while non-FasTrak trip volumes increased 38.9%. This translates into an estimated 899,954 additional ExpressLanes trips as a result of the PAYG Pilot in the one-year “With PAYG” period. The data support the conclusion that the PAYG Pilot resulted in more ExpressLanes trips by drivers that did not have FasTrak, and suggest that the PAYG Pilot resulted in a 2.4% increase in ExpressLanes trips.



Assumptions: In the absence of the PAYG Pilot, non-FasTrak trip volumes would have exhibited the same percent change as observed FasTrak trip volumes between the “Before PAYG” and “With PAYG” periods.

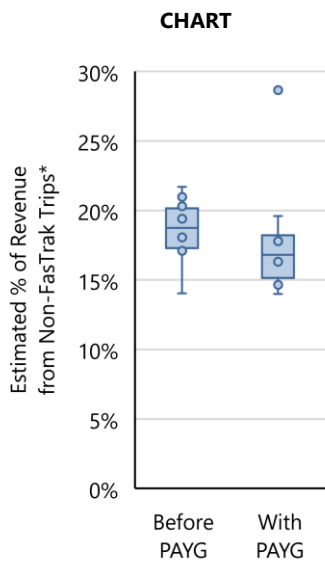
REVENUE IMPACTS

In this section, we consider changes in ExpressLanes revenue that occurred after the PAYG Pilot was implemented, and fees for using the ExpressLanes without FasTrak were reduced from \$25/trip to \$4/trip.

Data Source: Monthly ExpressLanes accounting records. The 12 months between September 2018 and August 2019 constitute the “Before PAYG” period. The 12 months between September 2021 and August 2022 constitute the “With PAYG” period. These periods were selected to compare the most recent year of data available against the comparable period before the PAYG pilot was implemented in January 2020. Supplemental data from FY2018 were used to estimate the revenues associated specifically with all stages of notice escalation prior to DMV hold.

Method: Data are binned by month, allowing for an evaluation of variance in the overall percentages of non-FasTrak trip revenue before and after the PAYG Pilot began. To control for pandemic-related effects on overall program revenues and trip volumes, the revenues originating from non-FasTrak trips paid at any Notice of Toll Evasion Violation escalation stage prior to DMV hold are reported as a percent of all revenues for the program.

Findings: In the “Before PAYG” period, an estimated \$11.7 million in revenue was collected from non-FasTrak users of the Metro ExpressLanes across all Notice escalation stages prior to DMV hold, representing 18.6% of all revenues (\$63.0 million) collected over that time period. In the “With PAYG” period, this percentage fell to 17.1%. Based on these data, the expected revenue in the “With PAYG” period would have been an estimated \$2.6 million higher in the absence of the PAYG Pilot, representing an approximate reduction in revenue of 3.8% as a result of the Pilot. This difference was **not** statistically significant at a 95% confidence level (Student’s t-Test, p-value 0.399). Therefore, we conclude that the data provide no evidence that the PAYG Pilot had any meaningful effect on the total revenue obtained from non-FasTrak trips in the ExpressLanes.



DATA TABLE

Months Before PAYG	Total ExpressLanes Program Revenue	Estimated % of Revenue from Non-FasTrak Trips*
Sep 2018	\$4,483,562	14.0%
Oct 2018	\$6,250,025	17.3%
Nov 2018	\$5,119,624	19.7%
Dec 2018	\$4,758,430	19.4%
Jan 2019	\$4,771,775	21.7%
Feb 2019	\$5,176,398	17.3%
Mar 2019	\$5,075,955	18.1%
Apr 2019	\$5,677,222	17.1%
May 2019	\$5,561,893	17.4%
Jun 2019	\$5,399,991	20.3%
Jul 2019	\$5,024,651	21.0%
Aug 2019	\$5,746,192	19.6%
Overall	\$63,045,718	18.6%

Months With PAYG	Total ExpressLanes Program Revenue	Estimated % of Revenue from Non-FasTrak Trips*
Sep 2021	\$5,422,808	19.6%
Oct 2021	\$6,061,228	16.8%
Nov 2021	\$6,678,266	15.1%
Dec 2021	\$6,108,344	16.3%
Jan 2022	\$3,751,527	28.7%
Feb 2022	\$4,643,542	18.3%
Mar 2022	\$6,546,837	15.2%
Apr 2022	\$5,409,238	16.8%
May 2022	\$6,380,040	14.7%
Jun 2022	\$4,754,852	17.8%
Jul 2022	\$4,395,368	18.0%
Aug 2022	\$5,913,661	14.0%
Overall	\$66,065,711	17.1%

*Includes revenues from all Notice escalation stages prior to DMV hold.

Assumptions: In the absence of the PAYG Pilot, the revenue for non-FasTrak trips would have experienced the same percent change as the observed revenue for FasTrak trips/accounts between the “Before PAYG” and “With PAYG” periods. Also, PAYG revenue impacts would not have affected other program revenue aspects outside of the payments made during notice escalation across all stages prior to DMV hold.

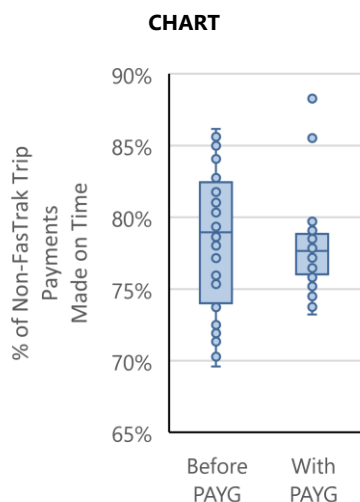
TIMELY PAYMENTS FOR NON-FASTRAK TRIPS

In this section, we consider changes in on-time payments for non-FasTrak trips that occurred after the PAYG Pilot was implemented, and fees for such trips were reduced from \$25 per trip to \$4 per trip.

Data Source: Weekly ExpressLanes payment records. The 53 weeks between 8/26/2018 and 8/31/2019 constitute the “Before PAYG” period. The 53 weeks between 8/29/2021 and 9/3/2022 constitute the “With PAYG” period. These periods were selected to compare the most recent year of data available against the comparable period before the PAYG pilot was implemented in January 2020. Supplemental data from FY2018 were used to estimate the payment volumes associated specifically with all stages of notice escalation prior to DMV hold in 2018 and 2019, as those disaggregate data were not immediately available.

Method: Data are binned by week, allowing for an evaluation of variance in the overall percentages of non-FasTrak trip payments received on time, before and after the PAYG Pilot began. For the purposes of this analysis, an “on time” payment is defined as one that occurred before the notice/fees escalated. To control for pandemic-related effects on non-FasTrak trip volumes and payments, the volume of on-time payments for non-FasTrak trips are reported as a percent of all non-FasTrak trip payments made at any Notice of Toll Evasion Violation escalation stage prior to DMV hold.

Findings: In the “Before PAYG” period, non-FasTrak Notice payments that were submitted on time constituted 78.4% of all payments made at any Notice escalation stage prior to DMV hold. In the “With PAYG” period, this percentage decreased to 77.6%. Based on these data, the expected number of on-time payments in the “With PAYG” period would have been an estimated 6,620 higher in the absence of the PAYG Pilot. This difference was **not** statistically significant at a 95% confidence level (paired Student’s t-Test, p-value 0.104). Therefore, we conclude that the data provide no evidence that the PAYG Pilot had any meaningful effect on the relative frequency of on-time payments for non-FasTrak trips in the ExpressLanes.



DATA TABLE

See full data table at end of this section

Assumptions: In the absence of the PAYG Pilot, the volume of on-time payments made for non-FasTrak trips as a proportion of all non-FasTrak trip payments received would have remained unchanged between the “Before PAYG” and “With PAYG” periods. Additionally, any potential influence of the PAYG Pilot on the total number of non-FasTrak trip payments received in the “With PAYG” period (i.e., 823,401) was assumed to be negligible. Finally, the proportion of payments that occurred after escalation to DMV hold in the “Before PAYG” period is assumed to be consistent from week to week.

DATA TABLE

Weeks Before PAYG, by Start Date	Non- FasTrak Trips Paid*	On-Time Non- FasTrak Trip Payments	Weeks Before PAYG, by Start Date	Non- FasTrak Trips Paid*	On-Time Non- FasTrak Trip Payments	Weeks With PAYG, by Start Date	Non- FasTrak Trips Paid*	On-Time Non- FasTrak Trip Payments	Weeks With PAYG, by Start Date	Non- FasTrak Trips Paid*	On-Time Non- FasTrak Trip Payments
8/26/18	1,625	1,285	3/3/19	7,795	6,082	8/29/21	12,022	9,190	3/6/22	16,228	12,603
9/2/18	6,696	4,661	3/10/19	7,786	5,928	9/5/21	16,802	12,914	3/13/22	15,934	12,402
9/9/18	10,056	7,078	3/17/19	6,388	5,244	9/12/21	18,053	13,858	3/20/22	16,935	13,068
9/16/18	10,576	7,634	3/24/19	3,702	3,189	9/19/21	17,378	13,239	3/27/22	14,259	12,586
9/23/18	11,200	8,119	3/31/19	6,093	4,768	9/26/21	18,056	13,624	4/3/22	16,463	12,749
9/30/18	10,031	7,558	4/7/19	6,520	5,158	10/3/21	17,803	13,619	4/10/22	17,123	13,305
10/7/18	10,030	7,395	4/14/19	8,297	6,443	10/10/21	17,588	13,368	4/17/22	17,267	13,750
10/14/18	12,074	8,951	4/21/19	10,803	8,362	10/17/21	17,760	13,372	4/24/22	16,195	12,920
10/21/18	12,138	8,965	4/28/19	9,793	7,886	10/24/21	18,099	13,552	5/1/22	18,872	14,979
10/28/18	11,711	8,399	5/5/19	10,175	8,585	10/31/21	17,055	12,586	5/8/22	14,983	11,940
11/4/18	9,295	6,533	5/12/19	10,363	8,597	11/7/21	17,503	12,907	5/15/22	13,129	10,378
11/11/18	8,861	6,440	5/19/19	10,354	8,708	11/14/21	18,160	13,527	5/22/22	15,632	12,301
11/18/18	8,549	6,098	5/26/19	7,975	6,812	11/21/21	16,005	11,860	5/29/22	15,036	11,807
11/25/18	10,239	7,401	6/2/19	9,136	7,503	11/28/21	16,659	12,198	6/5/22	15,279	12,083
12/2/18	10,244	7,367	6/9/19	11,933	9,716	12/5/21	17,734	13,483	6/12/22	15,432	12,298
12/9/18	11,466	8,467	6/16/19	10,484	8,572	12/12/21	20,108	15,621	6/19/22	14,452	11,366
12/16/18	11,543	8,765	6/23/19	8,750	6,952	12/19/21	15,171	12,975	6/26/22	15,505	12,212
12/23/18	8,387	6,775	6/30/19	7,734	6,399	12/26/21	9,804	7,422	7/3/22	13,380	10,629
12/30/18	7,457	6,338	7/7/19	8,423	6,996	1/2/22	10,061	7,666	7/10/22	14,121	11,145
1/6/19	8,115	6,176	7/14/19	10,694	9,035	1/9/22	9,424	7,085	7/17/22	15,040	11,739
1/13/19	7,113	5,514	7/21/19	10,933	9,359	1/16/22	10,870	8,240	7/24/22	15,177	11,752
1/20/19	5,714	4,629	7/28/19	10,684	9,009	1/23/22	12,508	9,447	7/31/22	15,202	11,733
1/27/19	5,271	4,074	8/4/19	11,123	9,533	1/30/22	14,181	10,855	8/7/22	16,242	12,649
2/3/19	6,934	5,474	8/11/19	10,618	8,927	2/6/22	17,357	13,542	8/14/22	17,263	13,521
2/10/19	8,982	7,126	8/18/19	11,280	9,183	2/13/22	17,741	13,927	8/21/22	16,831	13,306
2/17/19	10,272	8,077	8/25/19	10,748	8,635	2/20/22	16,493	12,785	8/28/22	7,612	6,009
2/24/19	9,068	6,996				2/27/22	13,414	10,505			

*Includes Notices paid at all escalation stages prior to DMV hold. Numbers are approximate for 2018-2019.

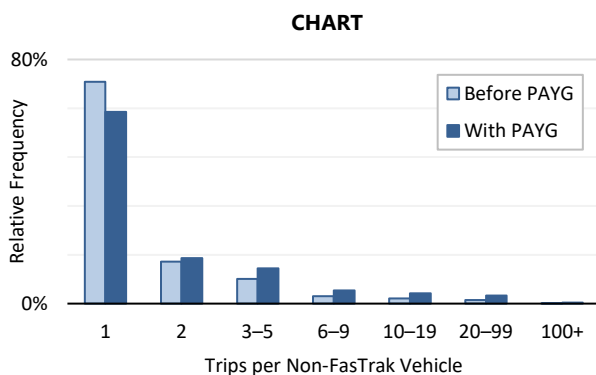
EXPRESSLANES ACCESS BY INFREQUENT OR OCCASIONAL USERS

In this section, we consider changes in the amount of non-FasTrak trips made by infrequent or occasional users of the ExpressLanes after the PAYG Pilot was implemented, and fees for such trips were reduced from \$25 per trip to \$4 per trip.

Data Source: Trip records for the period between 9/1/2018 and 8/31/2019 (constituting the “Before PAYG” period), and trip records for the period between 9/1/2021 and 8/31/2022 (constituting the “With PAYG” period). These periods were selected to compare the most recent year of data available against the comparable period before the PAYG pilot was implemented in January 2020.

Method: Data consider the number of trips made for each non-FasTrak vehicle that appeared at least once in the ExpressLanes during the “Before PAYG” and “With PAYG” analysis periods. These data are aggregated into bins as shown in the “Findings” section. To control for pandemic-related effects on overall ExpressLanes trip volumes, the number of trips made by each vehicle are reported as relative frequencies.

Findings: In the “Before PAYG” period, 73% of non-FasTrak drivers made just one trip in the ExpressLanes, while in the “With PAYG” period this percentage declined to 63%. However, the number of non-FasTrak drivers in every other trip count bin increased in the “With PAYG” period. The average (arithmetic mean) number of trips made per non-FasTrak driver increased from 2.5 in the “Before PAYG” period to 3.7 in the “With PAYG” period. The difference in the two distributions was statistically significant at a 95% confidence level (Chi-Squared Test, p-value 0.000). These findings indicate that non-FasTrak drivers were more likely to continue using the ExpressLanes without setting up FasTrak accounts in the “With PAYG” period compared to the “Before PAYG” period. Conversely, drivers in the “Before PAYG” period were more likely to set up FasTrak accounts or stop using the ExpressLanes altogether after their first trips as compared to the “With PAYG” period.



DATA TABLE

Trips Per Non-FasTrak Vehicle	Vehicle Count Before PAYG	Vehicle Count With PAYG	Relative Frequency Before PAYG	Relative Frequency With PAYG
1	443,473	420,018	72.7%	62.9%
2	83,975	99,449	13.8%	14.9%
3-5	49,309	77,084	8.1%	11.5%
6-9	14,757	29,165	2.4%	4.4%
10-19	10,323	22,828	1.7%	3.4%
20-99	7,367	17,465	1.2%	2.6%
100+	831	2,057	0.1%	0.3%

Assumptions: In the absence of the PAYG Pilot, the distribution of trip counts per non-FasTrak driver in the ExpressLanes would have remained unchanged between the “Before PAYG” and “With PAYG” periods.

ATTACHMENT D:

Fee Adjustment Policy for Pay-As-You-Go Program

Background

Board Report 2018-0703, Attachment E, established a baseline unit cost estimate for processing Pay-As-You-Go (PAYG) notices of \$4 per notice. This was based on the known or forecasted costs associated with supporting the PAYG program that were available at that time, including but not limited to: postage, manual image review, customer service labor, payment processing, and other accounting/logistics. That Board Report attachment also indicated that the fee amount would need to be reassessed after one year, with the intention of ensuring that it remains appropriately set to sufficiently cover the PAYG program's costs on an ongoing basis.

Purpose

This fee adjustment policy more precisely establishes the framework that will be used to make such adjustments to the PAYG fee periodically over time in an effort to ensure it remains properly aligned with the program's costs. This policy is designed to include appropriate adjustments to account for the effects of inflation, economic climate conditions, an evolving labor/wage landscape, and other factors that contribute to the program's costs. It also takes into consideration the proportion of violations that have gone unpaid (i.e., the non-recovery rate).

Method

The formula below An annual audit will be used/performed to calculate the base updated fee amount (x_{n+1}) based on the existing fee (x_n) as established on a given reference date, and the degree of inflation (i_n) that occurred between that reference date and the date of processing cost (x) per non-FasTrak trip in the ExpressLanes using the most recent inflation data available:

$$x_{n+1} = (1 + \max(0, i_n))x_n \text{ for } n = 1, 2, 3 \dots$$

The \max operator in the formula above protects against the influence of transient deflationary effects that can arise in more volatile or unpredictable economic periods.

Furthermore, a one-time revaluation data. This cost will then be made upon initial adoption of this fee adjustment policy adjusted to account for the non-recovery rate, which is a fundamental factor affecting cost recovery for PAYG notices that was not considered when calculating the original \$4 fee in 2018 (x_0). This one-time revaluation amount (x_1) will jointly account for inflation to date (i_0) and the current prevailing non-recovery rate (r_0) according to the following formula to calculate the final processing fee amount (x^*) as follows.

$$x_1 = \left(\frac{1 + i_0}{1 - r_0} \right) x_0$$

Inflation is evaluated according to the monthly data published by the US Bureau of Labor Statistics on Consumer Price Index for all Urban Consumers reported for the Los Angeles area. Non-recovery rate is calculated based on PAYG data between January 2020 (i.e., the start of the program) and July 2022 (i.e., the latest available data at the time of policy adoption).

$$x^* = \left(\frac{x}{1 - r_0} \right)$$

Formatted: Normal, Space After: 8 pt

When an update to the fee becomes warranted as described in this policy, the new fee amount will be rounded up to the nearest dollar to simplify messaging to users while also ensuring that it remains sufficient to cover the ongoing costs of the program.

Escalation Considerations

Per the ExpressLanes Ordinance for Enforcement of Toll Violations, if a Pay-As-You-Go (PAYG) Notice is not paid within 30 days, it escalates to a “Past Due Notice” and incurs an additional “Past Due Penalty” on top of the previous balance due. If a Past Due Notice is not paid within 30 days, it escalates further to a “Delinquent Notice” and incurs an additional “Delinquent Penalty” on top of the previous balance due. As of January 5, 2020, the escalation penalty structure is as follows.

NOTICE ESCALATION STAGE	TOTAL AMOUNT DUE
Initial PAYG Notice	Toll + \$4 Processing Fee
Past Due Notice	Toll + \$4 Processing Fee + \$21 past-due penalty
Delinquent Notice	Toll + \$4 Processing Fee + \$21 past-due penalty + \$30 delinquent penalty

Altogether, the total amount due at the Past Due Notice escalation stage is the toll plus \$25 in fees and penalties, while the total amount due at the Delinquent Notice escalation stage is the toll plus \$55 in fees and penalties.

As the PAYG processing fee is adjusted in accordance with the procedures described above, the past-due penalty will be adjusted down by an equivalent amount such that the total amount due at the Past Due Notice stage remains the toll plus \$25 in fees and penalties, and the total amount due at the Delinquent Notice stage remains the toll plus \$55 in fees and penalties.

Escalation Example

When the PAYG processing fee is increased from \$4 to \$8 in accordance with the procedures above, the Past Due Penalty would be adjusted from \$21 to \$17 so that the total amount due at the Past Due Notice stage remains the toll plus \$25 in fees and penalties, and the total amount due at the Delinquent Notice stage would remain the toll plus \$55 in fees and penalties. The table below summarizes the new escalation penalty structure in this example.

NOTICE ESCALATION STAGE	TOTAL AMOUNT DUE IN THIS EXAMPLE
Initial PAYG Notice	Toll + \$8 Processing Fee
Past Due Notice	Toll + \$8 Processing Fee + \$17 past-due penalty
Delinquent Notice	Toll + \$8 Processing Fee + \$17 past-due penalty + \$30 delinquent penalty

Processing Fee Breakdown

The table below disaggregates the Pay-As-You-Go processing fee into its major cost components and their corresponding risk-adjusted amounts, using the latest available volume data for Pay-As-You-Go trips. The cost values reflect the forecasted effects of CPI changes through July 2023, when the new processing fee is assumed to take effect following Board Approval in May 2023 and a 30-day notice period of the planned fee change.

COST	COST CATEGORY
\$1.20	Roadside Systems Maintenance , including: <ul style="list-style-type: none"> • Provision and maintenance of license plate cameras, including health monitoring systems. • Automated license plate image extraction software/licenses. • Trip construction system licensing and maintenance for assembling license plate transactions into trips. • Provision and maintenance of high-bandwidth communications needed to transmit high-resolution license plate images from roadside locations.
\$0.58	Manual Review of License Plate Images , including: <ul style="list-style-type: none"> • Manual license plate image review platform and labor. • QA/QC audit/verification systems for license plate processing. • Transaction costs accrued for each individual trip segment traveled for a given trip.
\$3.69	Customer Service Costs , including: <ul style="list-style-type: none"> • Labor costs for in-person PAYG notice support. • Labor costs for over-the-phone PAYG notice support. • Labor costs for handling/processing of PAYG payments/responses returned by postal mail. • Maintenance costs for web payment systems and chat-based support for PAYG notices. • Incremental costs of back-end support systems and infrastructure for customer service functions for PAYG.
\$2.50	Printing, Postage, Third Party fees, and Other Costs , including: <ul style="list-style-type: none"> • Notice printing and other bundled instructions. • DMV registered vehicle owner lookup system. • Credit card fees and other third party payment processor fees. • Envelope, postage, and return envelope.
\$7.97	Total Processing Cost per notice
\$8.00	Processing Cost (rounded in accordance with Attachment D)

Pay-As-You-Go Equity Analysis

This analysis uses ZIP code data to examine the association between PAYG utilization and equity-focus communities in Los Angeles County.

Data:

The data sources used are:

1. Metro Equity Focus Communities (EFCs) shapefile data.
2. ExpressLanes PAYG trip counts by ZIP code, between September 1, 2021 and August 31, 2022.
3. ExpressLanes total trip counts by ZIP code, between September 1, 2021 and August 31, 2022.

Note that the total trip counts used here is the sum of all PAYG trips and all trips made by Metro ExpressLanes account holders.

Calculation of Pay-As-You-Go Utilization

Only Non-FasTrak trips that were paid at the \$4 notice escalation level were considered to be utilizing the new PAYG policy. Non-FasTrak trips that were paid at later escalation levels were not considered to be taking advantage of the new PAYG policy, since the fees at those stages are equivalent to the escalation levels already in place before the PAYG policy was implemented.

To account for the fact that ZIP codes closer to the corridors are expected to produce more ExpressLanes trips in general, the number of trips utilizing the new PAYG policy in any given ZIP code was normalized by the total number of ExpressLanes trips made by that ZIP code. The resultant percentage is referred to as the "PAYG Utilization Rate" for that ZIP code.

Assigning EFC Values by ZIP Code

Because trip data are available only at the ZIP code spatial aggregation level, whereas EFC data are available on a finer spatial resolution, the overall analysis is done at the ZIP code level. To accommodate this, the EFC tract data had to be translated into ZIP code areas. The process used to perform this conversion was as follows:

1. Assign a numeric EFC value between 0 and 1 for each EFC tract:
 - a. "Very Low Need" areas = 0.00
 - b. "Low Need" areas = 0.25
 - c. "Moderate Need" areas = 0.50
 - d. "High Need" areas = 0.75
 - e. "Very High Need" areas = 1.00
2. Calculate the area of each EFC tract (by area) that falls within a given ZIP code, and multiply that area by the EFC's numeric value from (1) above. This constitutes that tract's proportional EFC contribution to the ZIP code.
3. Sum the contributions from (2) for all of the tracts within a given ZIP code to obtain a composite EFC value, which we will refer to as the "EFC Concentration" for the ZIP code.

As illustrative conceptual examples of the above procedure:

- a ZIP code composed entirely of "very high" EFC tracts would receive an overall EFC concentration value of 1.00 or 100%.
- a ZIP code composed of an even split of "high" and "low" EFC tracts by area would receive an overall EFC concentration value of 0.50 or 50%.

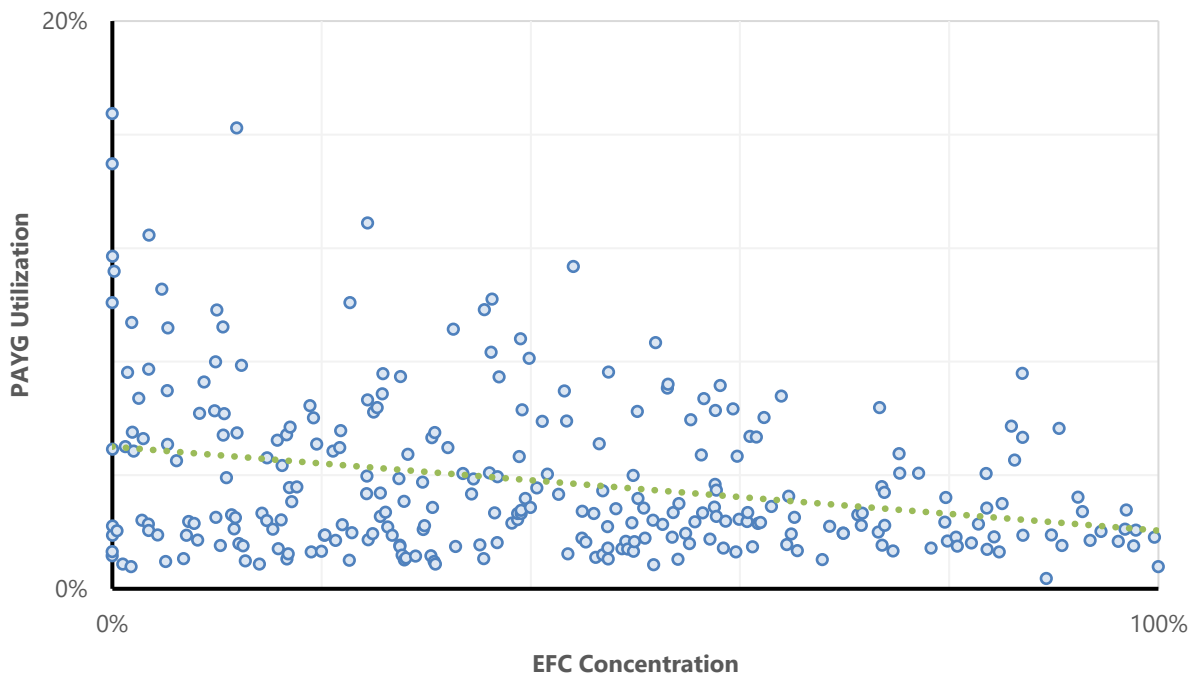
- a ZIP code comprised of entirely “very low” EFC tracts would receive an overall EFC concentration value of 0.00 or 0%.

Because EFCs are only defined for Los Angeles County, any portions of ZIP codes that extended beyond the LA County border were truncated at the county line. Trip counts for those ZIP codes were reduced according to the proportion of the total ZIP code’s area that was within LA County.

Findings

Once each ZIP code was assigned an “EFC Concentration” value, it was possible to explore the quantitative correlation between that value and PAYG trip utilization on a ZIP-code basis. A chart showing the relationship between these two variables is shown below. ZIP codes with less than 1,000 trips were excluded from the analysis due to low sample sizes. Out of 321 ZIP codes, only 44 had to be excluded as a result of this filtering criterion.

Figure 1: PAYG Utilization and EFC Status by ZIP code



A linear regression revealed a slightly negative correlation between the two variables:

$$y = -0.0396x + 0.0501$$

where:

x = the ZIP code’s EFC concentration value

y = the ZIP code’s PAYG utilization rate

The correlation was very weak, however, with an R^2 value of 0.080. These results also assume that all the prerequisite conditions for linear regression are satisfied by the underlying data.

The table below provides PAYG Utilization averages by ZIP code, according to the ZIP code’s EFC Concentration value.

EFC Concentration Range for ZIP Code	EFC Equivalent Label	Total ZIP Codes*	Average PAYG Utilization Rate (averaged across all ZIP codes)
0-20%	Very Low Need	77	4.87%
20-40%	Low Need	72	3.94%
40-60%	Moderate Need	62	3.45%
60-80%	High Need	36	2.91%
80-100%	Very High Need	30	2.62%

**After filtering out ZIP codes with fewer than 1,000 trips, as explained earlier.*

METRO EXPRESSLANES

Pay-As-You-Go Pilot Evaluation

MAY 18, 2023



Metro



ExpressLanes Background

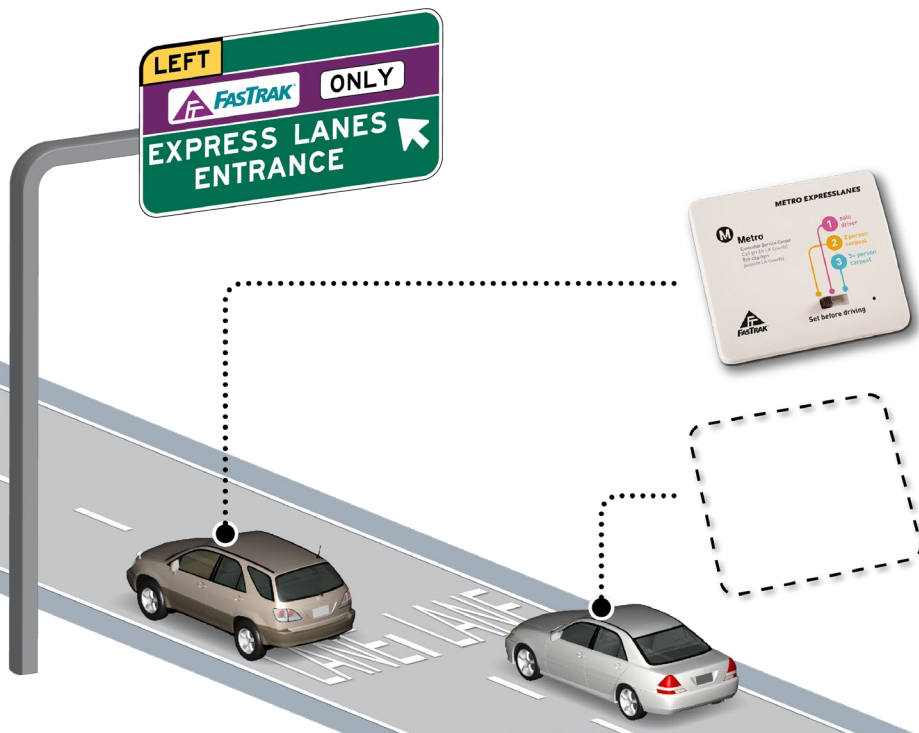
- ExpressLanes are about improving mobility and congestion.
- Converted the underutilized HOV lanes in 2012 (I-110) and 2013 (I-10) into ExpressLanes.
 - HOVs continue traveling toll-free.
 - Others can use spare capacity for a toll.
 - Offers a fast, reliable option for all.
- All drivers are required by law to have FasTrak.
 - HOVs must have switchable transponders (FasTrak Flex) to travel toll-free.
 - Before the Pay-As-You-Go program, violations for using ExpressLanes without FasTrak included the toll and a \$25 penalty.



Pay-As-You-Go Background

Objectives based on Board Motion by Hahn as amended by Dupont-Walker:

- Make ExpressLanes available to more drivers—including occasional users—without adversely impacting congestion/mobility.
- Reduce fees paid by non-FasTrak users.



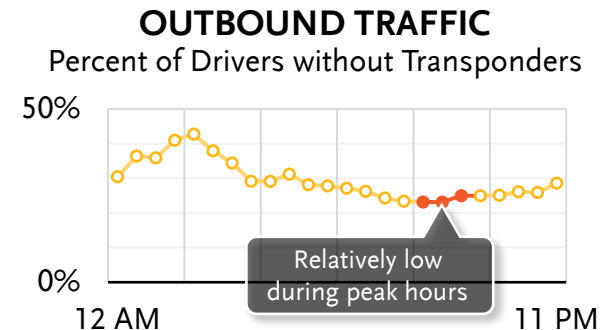
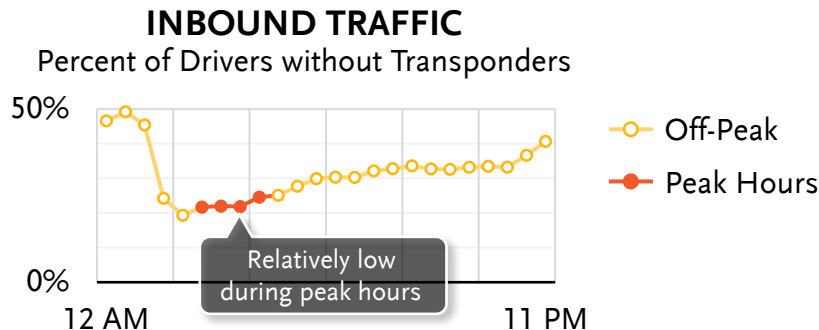
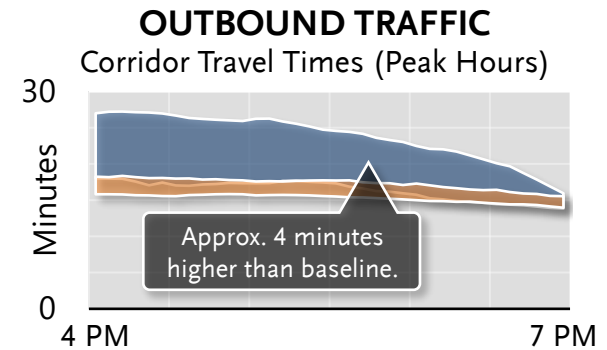
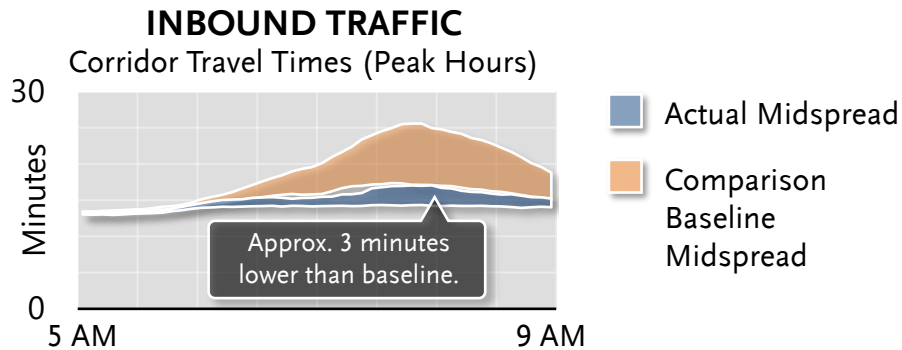
FasTrak Account Holder?

- Toll debited automatically from account.
- Eligible HOVs travel for free with FasTrak Flex.
- No processing fee.

No FasTrak? Pay As You Go

- Registered vehicle owner gets notice by mail.
- Includes toll and processing fee.
- No HOV discount possible. HOV declaration requires switchable transponder.

Pay-As-You-Go: Congestion and Mobility Impacts



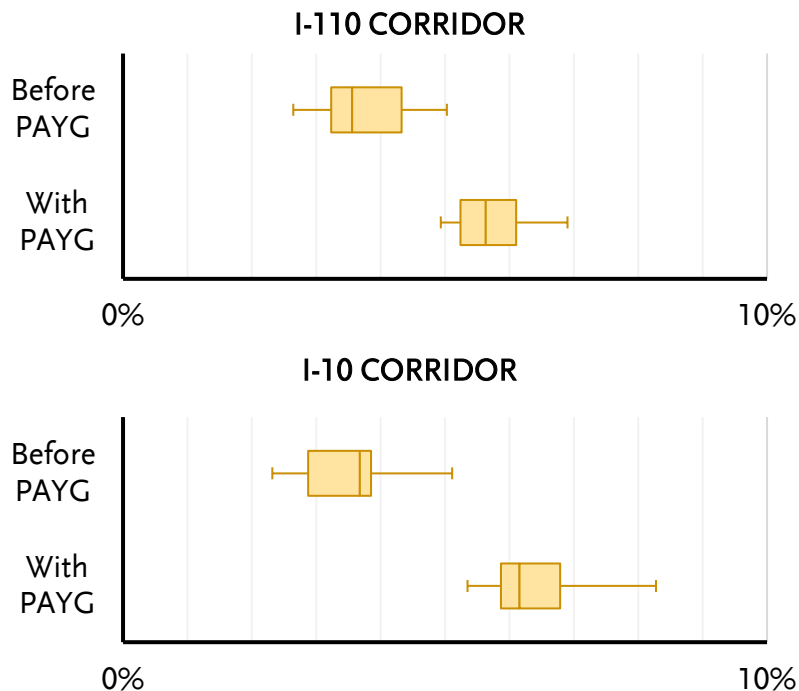
Key Takeaway: Congestion improved in the AM Peak and got worse in the PM Peak. However, Pay-As-You-Go trips are more prevalent during off-peak periods, and are contributing relatively little to peak period traffic and congestion.

Analysis Notes: Controlling for pandemic-related impacts required data from nearby control corridors, which were not available in the case of I-110. Therefore, the above results reflect outcomes for I-10 only. Travel times are also affected by localized corridor changes that occurred during the analysis period (e.g., transit service changes, roadway configuration changes, commuter pattern changes).

Pay-As-You-Go: Outcomes

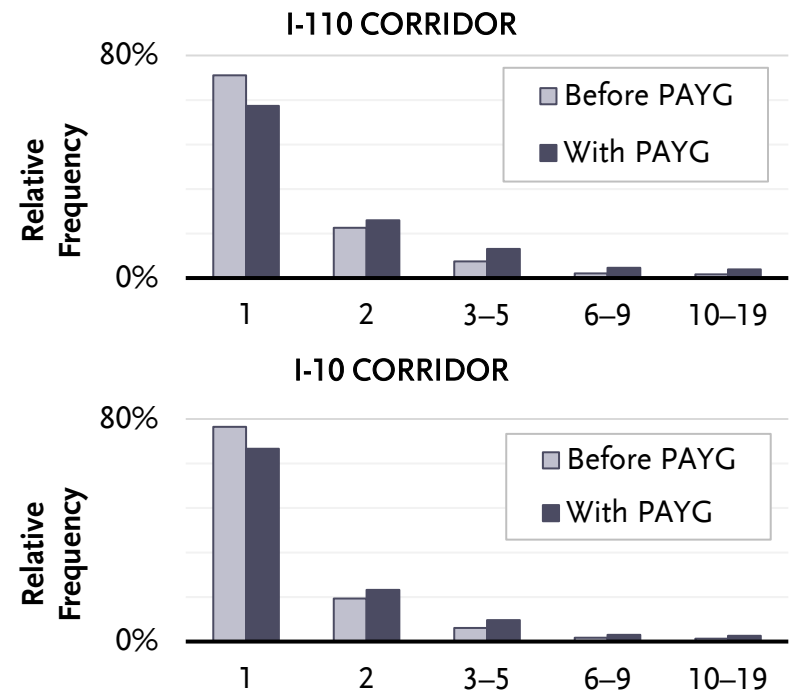
Non-FasTrak Trip Volumes

As Percent of All Trips



Trips per Non-FasTrak Vehicle

On an Annual Basis



Non-FasTrak trip volumes grew by 900,000 over one year.

Non-FasTrak drivers use the ExpressLanes more with PAYG.

Other analysis outcomes:

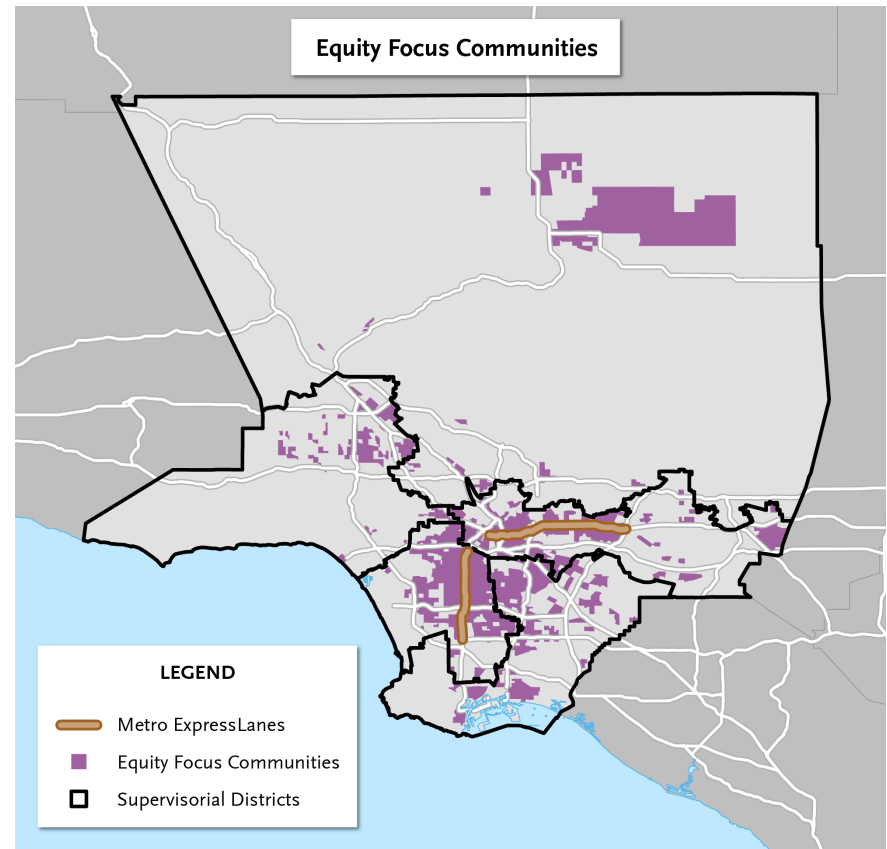
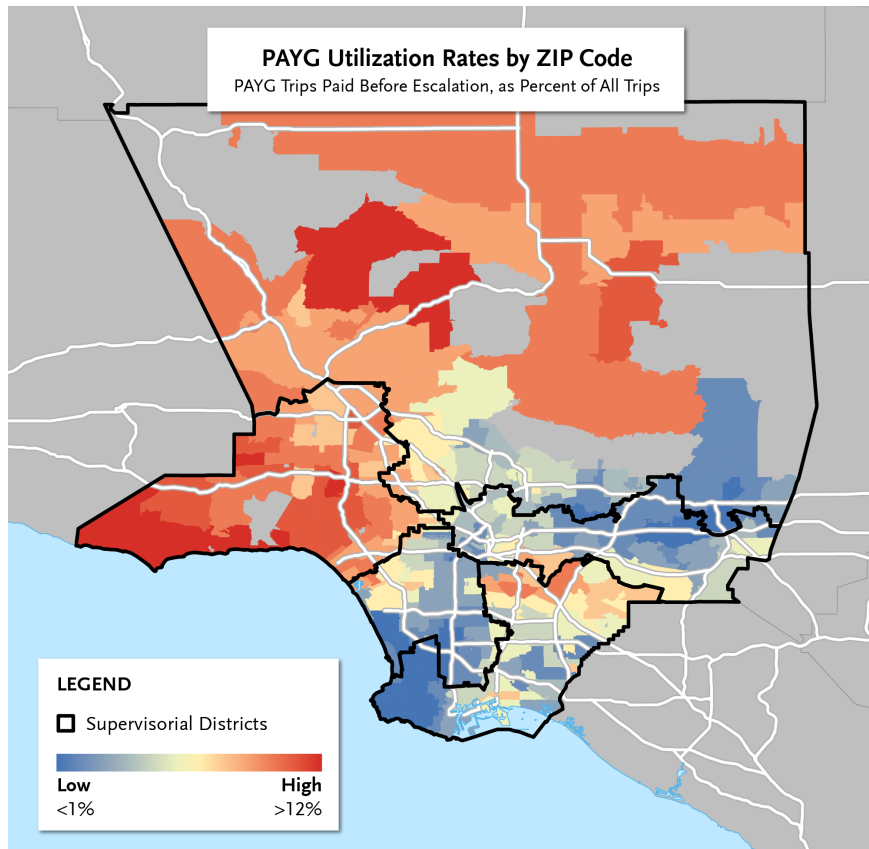
- Revenue from non-FasTrak drivers exhibited no statistically significant change.
- On-time payments for non-FasTrak trips exhibited no statistically significant change.

Pay-As-You-Go: Processing Fee

- Purpose: cover costs of processing PAYG notices and ensures efficient operations.
- Removes the \$25 violation penalty and replaces it with a significantly lower \$8 processing fee for non-FasTrak trips.
- Allows ExpressLanes to provide additional services, including Low-Income Assistance Program
- Fee calculation considerations:
 - \$1.20 for equipment, software, and communications for license plate capture
 - \$0.58 for manual verification and QA/QC of license plate images as required
 - \$3.69 for customer service (phone support, in-person support, mail handling)
 - \$2.50 for printing, postage, envelopes, DMV lookup, and credit card fees
 - Total: \$7.97, rounded to \$8 in accordance with fee policy.
- Lowest fee of all Express Lanes in CA. Minimizes cost to non-FasTrak users. Fee subject to annual audit.
- Past-Due (Second Notice) Penalty for late payments will be lowered as the processing fee is increased, so that the total remains a constant \$25.

	Metro ExpressLanes	SD Express Lanes	91 Express Lanes	RCTC Express Lanes	Bay Area Express Lanes
First Notice Fee/Penalty	\$8	\$40	\$25	\$25	\$10
Second Notice Penalty	\$17	\$60	\$30	\$30	\$20
Final Notice Penalty	\$30	(second notice is the last chance to pay at all other agencies)			

Pay-As-You-Go Trip Rates in Equity Focus Communities



On average, ZIP codes with the lowest EFC concentrations had the highest relative PAYG utilization rates (**4.87% of all trips made**), whereas ZIP codes with the highest EFC concentrations had the lowest relative PAYG utilization rates (**2.62% of all trips made**).

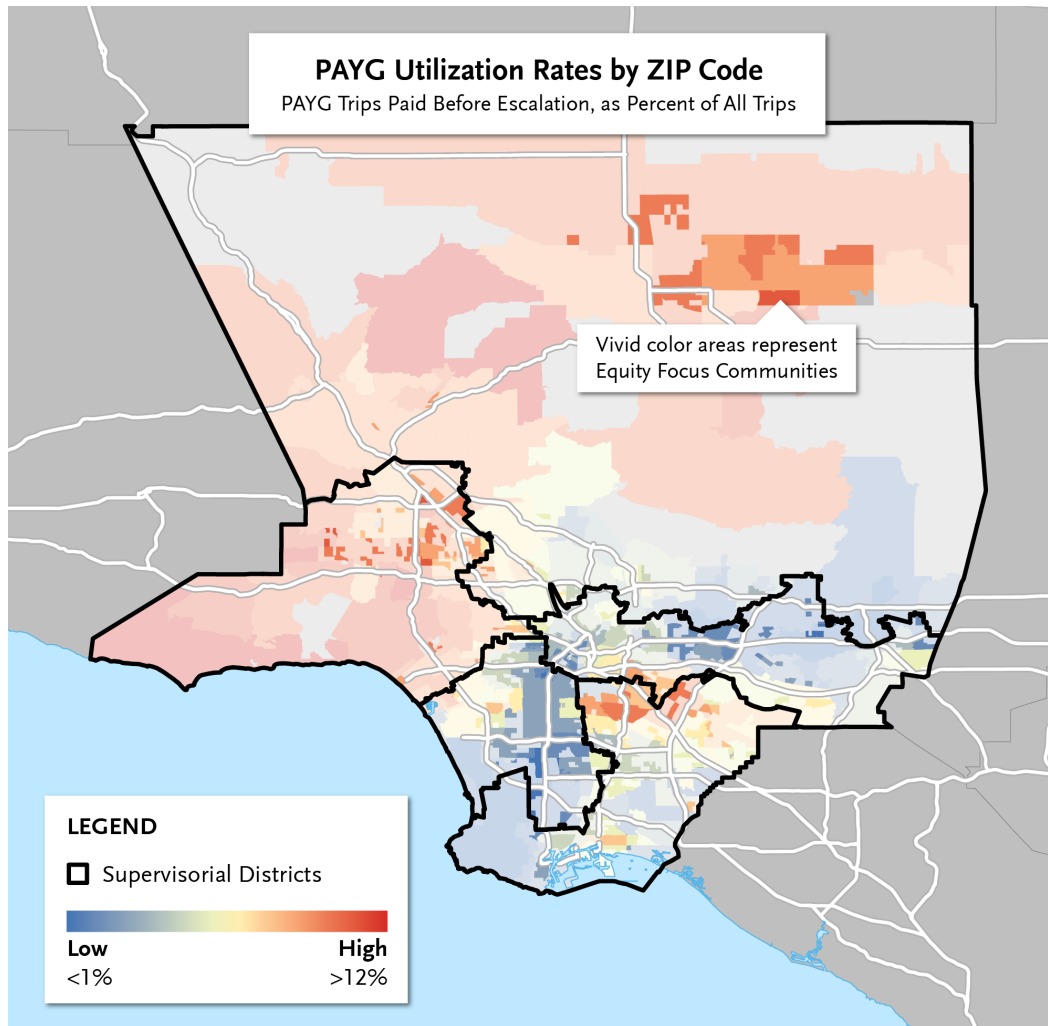
Recommendation

- A. RECEIVE AND FILE the ExpressLanes Pay-As-You-Go Pilot evaluation methodology and findings.
- B. AUTHORIZE the Pay-As-You-Go Program to be permanent, eliminate the \$25 penalty for notice of toll evasion, and adjust the Program's "processing fee" (which replaces the former penalty amount) from \$4 to \$8 to align processing costs and fees;
- C. AUTHORIZING the Chief Executive Officer or their designee to conduct an annual audit to confirm the fee amount and make downward or upward adjustments to the fee as appropriate to keep costs and fee aligned, consistent with the Fee Adjustment Policy (Attachment D);
- D. AUTHORIZING the Chief Executive Officer or their designee to make the necessary changes to the ExpressLanes Toll Ordinance, as required.

Appendix

- A. Pay-As-You-Go Trip Rates in Equity Focus Communities
- B. Enforcement Trends During Pay-As-You-Go Pilot
- C. Pay-As-You-Go Outreach

Pay-As-You-Go Trip Rates in Equity Focus Communities



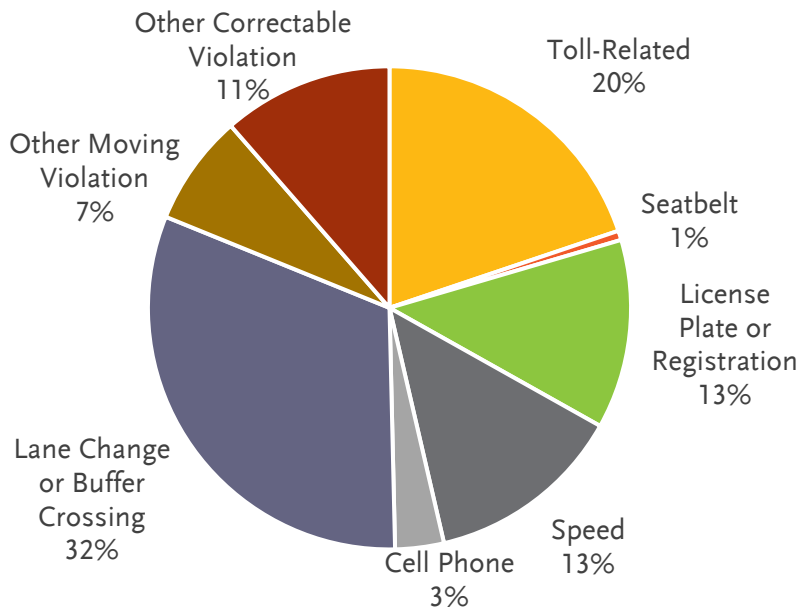
PAYG Utilization by Supervisorial District

District	PAYG Utilization Rate	Annual PAYG Trip Count
1	1.8% of all trips	537,557
2	1.7%	740,977
3	5.7%	136,856
4	2.1%	301,568
5	2.4%	216,109

Enforcement Trends During Pay-As-You-Go Pilot

- Note that CHP enforcement was reduced during 2021-2022 due to the COVID-19 pandemic.

CHP Citations by Type
September 2021 to August 2022



CITATION TYPE	COUNT	SPECIFIC CITATION EXAMPLES
Lane Change or Buffer Crossing	2,564	Crossing the double-white lines to enter/exit ExpressLanes.
Toll-Related	1,613	Transponder switch setting incorrectly set.
Speed	1,077	Unsafe speed, exhibition of speed.
License Plate or Registration	1,031	Obstructed license plate, or no license plate.
Other Correctable	928	Brake lamp not functional.
Other Moving Violation	605	Following too closely, reckless driving.
Cell Phone	265	Texting, using phone without hands-free setup.
Seatbelt	51	Not wearing seat belt.

Pay-As-You-Go Outreach

- Targeted messaging via billboards near the ExpressLanes corridors.
- Overhead electronic message signs on the ExpressLanes.
 - Other roadside signage options are limited due to public road signage regulations.
- Engagement with COGs, other partners.
- Details on web site front page, which gets 200,000 visitors per month.

