



BAY AREA EXPRESS LANES



MTC Express Lanes Quarterly Report 1st Quarter, January - March, 2021

Submitted: July 2021

BAIFA
BAY AREA INFRASTRUCTURE
FINANCING AUTHORITY



METROPOLITAN
TRANSPORTATION
COMMISSION

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I. PROGRAM HIGHLIGHTS

The purpose of this report is to summarize the progress of delivering Metropolitan Transportation Commission (MTC) Express Lanes. The report covers the first quarter of 2021, January 1 to March 31.

The California Transportation Commission (CTC) approved MTC’s application to implement and operate its 270-mile express lane network on October 27, 2011. Soon thereafter, work began to environmentally clear the first phase of express lane conversion projects and produce a Concept of Operations describing how the Express Lanes will operate. The first of MTC’s express lanes opened in October 2017 on I-680 in Contra Costa County and the second opened in October 2020 on I-880 in Alameda County. Several additional projects are at varying stages of development.

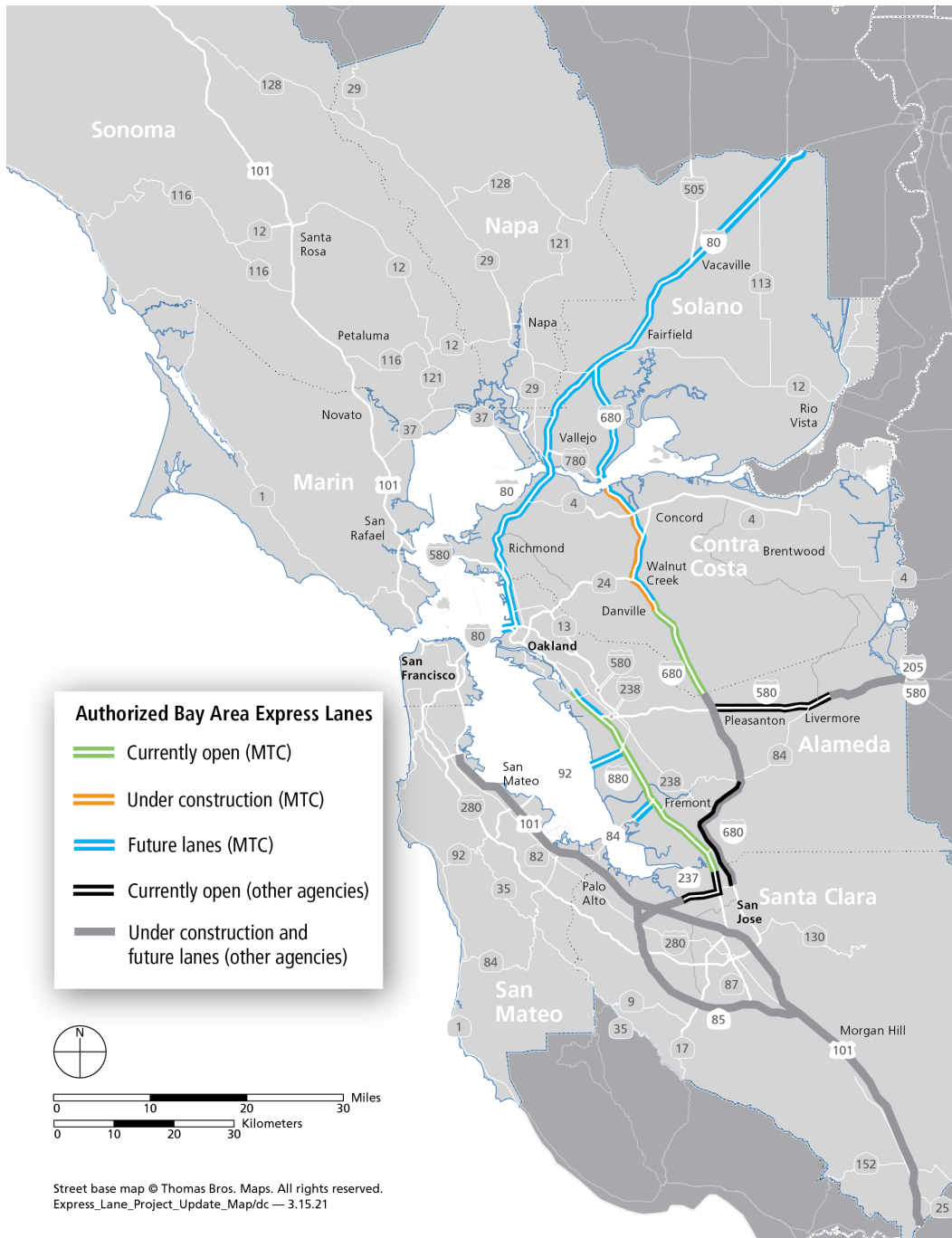
Project Development & Construction	1 st Quarter CY2021 Highlights	Current Activities
I-880 Alameda (ALA-880) San Leandro to Milpitas <i>Hegenberger Road/Lewelling Boulevard to Dixon Landing Road</i>	<ul style="list-style-type: none"> See Appendix D for performance highlights. 	<ul style="list-style-type: none"> Project complete; see Appendix B for archived summary.
I-680 Contra Costa Southern Segment (CC-680 South) Walnut Creek to San Ramon <i>Livorna Road/Rudgear Road to Alcosta Boulevard</i>	<ul style="list-style-type: none"> See Appendix C for performance highlights. 	<ul style="list-style-type: none"> Project complete; see Appendix B for archived summary.
I-680 Contra Costa Northern Segment Southbound (CC-680 North SB) Martinez to Walnut Creek <i>Marina Vista Boulevard to Rudgear Road/SR 242</i>	<ul style="list-style-type: none"> Civil construction was substantially complete for all stages of contract work as of December 2020. 	<ul style="list-style-type: none"> Civil contractor is addressing punchlist items; only minor items at a limited number of locations remain. The toll system integrator will pull cable to energize and test two pricing signs recently installed north of Highway 24. The toll system integrator will begin Site Commission Testing, starting with the north most toll tag read point near the Benicia Bridge. Since completing repairs of the Backhaul fiber, the toll system integrator has begun connecting toll sites north of SR-24 into the Backhaul trunkline.
I-80 Solano (SOL-80) Fairfield to Vacaville <i>Red Top Road to I-505</i>	<ul style="list-style-type: none"> Staff continued working with the Solano Transportation Authority (STA) to prepare for construction. 	<ul style="list-style-type: none"> STA will revalidate the environmental clearance approval. BAIFA is coordinating with STA to update design documents. BAIFA is coordinating on funding strategies to backfill Regional Measure 3 Express Lane Program, to be reported in next quarterly report. BAIFA is negotiating terms for delivery of the toll system with the Toll System Integrator. Staff is re-engaging with AT&T to confirm the original design for fiber and network equipment.

Project Development & Construction	1 st Quarter CY2021 Highlights	Current Activities
Program Management	<ul style="list-style-type: none"> Staff held internal technical discussions to develop a draft design concept for how the FasTrak START Pilot, which will provide a means-based toll discount to low-income drivers on BAIFA's I-880 Express Lanes, could operate. 	<ul style="list-style-type: none"> Staff will finalize the customer education strategy for the start of tolling on I-680 North Southbound. Staff will get feedback from stakeholders on the draft concept for the FasTrak START Pilot. Staff will convene focus groups with potential pilot customers.
Toll System	<ul style="list-style-type: none"> The toll system integrator fine-tuned the toll system in preparation for I-880 operational acceptance. 	<ul style="list-style-type: none"> The toll system integrator continues to fine-tune the toll system in preparation for I-880 operational acceptance.

B. Operating Authority

MTC and the Bay Area Toll Authority (BATA) have formed a joint powers authority to develop and operate MTC Express Lanes. The joint powers authority, known as the Bay Area Infrastructure Financing Authority (BAIFA), is composed primarily of representatives of the three counties where the express lanes are located: Alameda, Contra Costa and Solano. BAIFA is responsible for policy and operational decisions such as toll rates, project phasing and use of revenue. BAIFA will also operate the toll system on US-101 in San Mateo County under contract to San Mateo County transportation agencies, which are responsible for project delivery, operational policy and use of revenue.

The map below highlights MTC’s portion of state-authorized Bay Area Express Lanes and shows where lanes will be converted from HOV lanes and where new lanes will be added.



C. MTC Express Lane Project Funding

MTC is using existing funding to convert existing HOV lanes to express lanes and to conduct environmental studies and design on some gap closure projects, so they are “shelf-ready” should construction funding become available. This will allow MTC to open as much of its 270-mile network as quickly as possible.

The table below lists the projects that comprise MTC Express Lanes according to current funding status.

County	Route	Project	Geographical Limits	Miles	Environmental	Design	Construction
NEAR-TERM CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS							
ALA	880	I-880 Alameda	Between San Leandro and Milpitas <i>Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.</i>	51	●	●	●
					<i>Project completed 2020</i>		
CC	680	I-680 Contra Costa Southern Segment	Between Walnut Creek and San Ramon <i>Livorna Rd./Rudgear Rd. to Alcosta Blvd.</i>	23	●	●	●
					<i>Project completed 2017</i>		
CC	680	I-680 Contra Costa Northern Segment Southbound	Martinez to Walnut Creek <i>Marina Vista Blvd. to Rudgear Rd.</i>	11	●	●	●
SOL	80	I-80 Solano	Fairfield to Vacaville <i>Red Top Rd. to I-505</i>	36	●	●	●
MID-TERM CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS							
ALA/ CC	80	I-80 and Westbound Approaches to the Bay Bridge	Between Crockett and Bay Bridge <i>Cummings Skyway to Bay Bridge; I-80, I-580, I-880 and West Grand approaches to Bay Bridge</i>	44	◐	○	○
ALA/ SM	84	Dumbarton Bridge Western Approach	Fremont/Newark <i>I-880 to Dumbarton Bridge</i>	3	●	○	○
ALA/ SM	92	San Mateo Bridge Westbound Approach	Hayward <i>I-880 to San Mateo Bridge</i>	3	●	○	○
CC	680	I-680 Contra Costa Northbound Express Lane Completion	Walnut Creek to Benicia <i>North Main St. to Marina Vista Blvd.</i>	9	●	○	○

KEY

● Funded ◐ Partially Funded ○ Unfunded

ALA = Alameda,

CC = Contra Costa,

SM = San Mateo,

SOL = Solano

III. CAPITAL DELIVERY

A. Schedule

The schedule summary below reflects the “open to traffic” dates of the original “baseline” schedule, and the current completion forecast for the projects that are fully funded.

Project	Baseline Opening	Forecast Opening	Confidence Level	Detail Page
I-880 Alameda (ALA-880) San Leandro and Milpitas <i>Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.</i>	Spring 2019	Fall 2020 Actual	●	A-7
I-680 Contra Costa Southern Segment (CC-680 South) Walnut Creek and San Ramon <i>Livorna Rd./Rudgear Rd. to Alcosta Blvd.</i>	Fall 2016	Fall 2017 Actual	●	A-5
I-680 Contra Costa Northern Segment Southbound (CC-680 North SB) Martinez to Walnut Creek <i>Marina Vista Blvd. to Rudgear Rd.</i>	Fall 2018	Mid-2021	●	13

KEY

- Within schedule shown.
- Identified potential risks that may significantly impact schedule if not mitigated. See *Section III.D Risk Management Plan* for further discussion of schedule risk.
- Known impact to schedule, changes forthcoming.

B. Capital Costs

The cost summary below shows: 1) the costs of each express lane [corridor or segment] including planning, design and construction of the civil infrastructure, and installation and integration of the backhaul communications and toll system, and 2) program-wide costs including planning and design, and implementation of centralized elements of the backhaul network and toll system. The total cost estimate includes the full estimated cost to complete MTC Express Lanes. The approved Expenditure Plan fully funds the first three projects listed below, the environmental and design phases for the I-80 projects in Solano County, and the environmental phase for the westbound approaches to the San Mateo and Dumbarton Bridges. MTC's Finance Section reports financial information to BAIFA about one quarter in arrears, which does not fit with the production timeline for this Quarterly Report. As a result, the expended-as-of amounts shown below represent the unaudited amount of BATA Express Lane funds expended through the previously reported quarter; percent complete amounts are reported through the previously reported quarter for consistency. The confidence level assessment reflects potential risks to each project budget; for more information, see Section III.D Risk Management Plan.

Project ⁽¹⁾	Total Cost Estimate ⁽²⁾	Cost Estimate, Funded Phases ⁽³⁾	Regional Measure 2 Funds (allocated)	Other Funding (allocated)	BAIFA Express Lane Funds ⁽⁴⁾			Percent Complete as of 12/31/20 ⁽⁵⁾	Confidence Level ⁽⁶⁾
					July 2018 Amendment	Sept. 2018 Amendment	Expended as of 12/31/20		
NEAR-TERM CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS									
<i>Costs shown in millions of escalated dollars</i>									
I-880 Alameda	139.1	139.1			135.5	139.1	124.6	99%	●
I-680 Contra Costa Southern Segment	54.0	54.0			55.6	54.0	52.5	99%	●
I-680 Contra Costa Northern Segment Southbound ⁽⁷⁾	127.4	127.4	19.4	54.3	51.3	53.6	39.2	90%	●
I-80 Solano	274.9	32.5	14.4		19.0	18.1	11.7	20%	●
Centralized Toll System	32.4	32.4			33.6	32.4	24.2	95%	●
Program Planning, Coordination & Management	28.4	28.4			28.4	28.4	23.8	90%	●
Program Contingency	6.1	6.1			5.1	2.9			●
Capitalized Start-up O&M	16.0	16.0			16.0	16.0	5.0		●
MID-TERM CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS									
I-80 Alameda/Contra Costa and Westbound approaches to the Bay Bridge (I-80, I-580, I-880, West Grand)	193.0	5.0	5.0						
Dumbarton Bridge Westbound Approach (SR-84)	9.0	0.3			0.3	0.3	0.3	5%	
San Mateo Bridge Westbound Approach (SR-92)	10.0	0.4			0.4	0.4	0.4	5%	
I-680 Contra Costa Northbound Express Lane Completion ⁽⁸⁾	390.0	21.5	1.5	20.0				5%	
Centralized & Program Costs & Start-Up O&M - Gap Closures & Future Conversions	TBD								
TOTALS	1,280.3	463.1	40.3	74.3	345.2	345.2	281.7	87%	

⁽¹⁾ Other Gap Closure and Extension projects not shown: ALA-880 extension northbound from Lewelling to Hegenberger; SOL-80 gap closure from Carquinez Bridge to Red Top Road; SOL-80 extension east of I-505; SOL-680 gap closure from Benicia to Cordelia

⁽²⁾ Total Cost Estimate represents current estimated cost to complete each project.

⁽³⁾ Cost Estimate, Funded Phases represents current estimated cost to complete phases that are funded for each project.

⁽⁴⁾ BAIFA Express Lane Funds represent the funds that have been allocated from the BATA budget and transferred to the BAIFA budget.

⁽⁵⁾ Percent completes shown are based on the achievement of major milestones, whether those milestones were completed using BAIFA funds or other funds. Projects that have completed milestones using other funds include I-680 Contra Costa Northern Segment Southbound and I-80 Solano.

⁽⁶⁾ ● = Within budget, ● = identified potential risks that may significantly exceed budget if not mitigated, ● = Known impacts to budget - changes forthcoming.

⁽⁷⁾ Cost represents the total for HOV Completion and Conversion to Express Lanes. Other funds committed to the HOV Completion portion include Measure J (\$38.7m) and STIP (\$15.6m).

⁽⁸⁾ Represents completion of HOV lane through Walnut Creek to SR-242 and conversion of existing HOV lane north of SR-242, which were previously listed separately.

C. Change Management

The change management process captures the changes in the program that have an impact on the approved scope, schedule and budget baselines. There were no changes recorded in the first quarter of CY2021.

D. Risk Management Plan

MTC manages risk at both the program and contract level by identifying risks that could negatively impact the program’s cost and schedule, and assigning responsibility to the person best positioned to manage each risk. Risks managed at the contract level are associated with contingency funding authorized by BAIFA for specific contracts. Risks managed at the program level would draw upon the program contingency line item in the Express Lanes Expenditure Plan. Staff regularly review the risk exposure and mitigation plans at both the contract and program level.

Chart #1 shows the median risk exposure for the program-level risks using Monte Carlo analysis. As of March 31, 2021, the risk exposure stands at \$1.7 million, significantly lower than as reported last quarter. Overall, cost and schedule risks associated with the I-880 corridor were mostly retired, with operations running smoothly. Only one risk remains, which is related to a permitting delay for backhaul communications installation. Furthermore, a couple of risks regarding backhaul connections and toll system testing for I-680 North have been closed out. With the next phase of toll system testing scheduled to begin in the second quarter of CY2021, the team will continue to track the remaining scheduling impacts regarding toll system installation and testing, backhaul communications issues, and the potential for adverse impacts related to COVID-19.

Chart #2 tracks the program’s cost forecast and risk exposure as compared to the authorized program budget. Consistent with the amendment to the Expenditure Plan that was adopted on September 26, 2018, the amount of BATA Express Lanes Funds allocated to specific express lanes projects is \$342.3 million, plus program contingency, for a total authorized budget of \$345.2 million.

The current program contingency of \$2.9 million exceeds the current risk exposure of \$1.7 million. While there are few individual risks with major cost impacts, there are many risks with minor cost impacts. Staff remain diligent in managing cost and risk while seeking new funding opportunities.

The top contributors to the program-level risk exposure and the associated mitigation strategies are as follows:

I-880 Alameda

- The remaining risk, a delay in AT&T communication network connections, is still being tracked. This quarter, work has been slightly delayed as AT&T and BAIFA await the permit required for the completion of the fiber installation. Work is estimated to be complete in the second quarter of CY2021. MTC is using wireless communications in lieu of a permanent fiber communications line.

Chart #1: Median Risk Exposure (\$M)

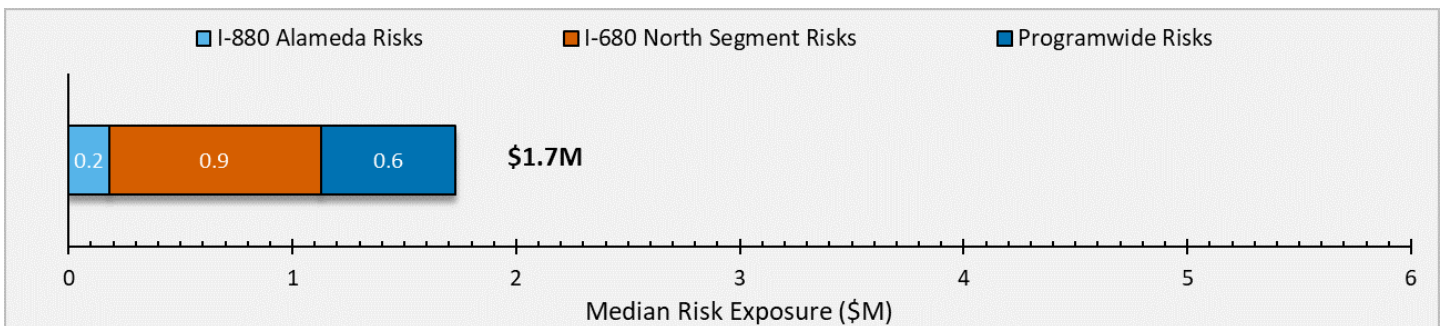


Chart #1 shows the contribution of each project’s risks toward the total program risk exposure. Risk exposure is calculated using Monte Carlo simulation.

I-680 Contra Costa Northern Segment Southbound

- In the first quarter of CY2020, BAIFA found project construction to be an essential government function based on Governor Newsom’s identification of critical infrastructure sectors, allowing construction to continue in compliance with Contra Costa County public health directives. As state and local health mandates related to COVID-19 continue to evolve, the team will continue to track potential impacts on the completion of the I-680 corridor. At this time, the project is ahead of schedule and work has progressed without significant impacts.
- This past quarter, one of the significant schedule risks regarding complications with the toll system integrator’s installation and testing sequences was retired. The project’s toll zone configuration overlaps with the toll zones in the existing I-680 South express lanes. To fully test trip building, the toll system needed to be reconfigured before the new project is ready to open. The potential impact was two-fold: existing I-680 customers could be confused by the change in toll zone boundaries, and there could be a temporary reduction in revenue. With the successful reconfiguration in the first quarter, this risk has been retired and the next phase of toll system testing has begun. There is the potential for schedule risk until toll system testing is complete.

- A risk regarding the delivery and installation of LED panels for pricing signs is still being tracked. Last quarter, an issue regarding the overhead structures missing required connection points was reported. This quarter, the new structural members have been received and installed. Although the new panels are up, the potential for schedule impacts still remains, as the panels have yet to be tested. MTC will continue to track this risk until more is known.
- In addition to the retirement of risk from the toll system integrator’s installation and testing sequences, the decrease in exposure this quarter is due to the resolution and retirement of two risks regarding lateral connections to the backhaul and the condition of the existing backhaul trunkline from SR-24 to the Benicia Toll Plaza.

Programwide Risks

- This quarter, the risk of underground power conflicts with other corridor construction projects has been retired. Toll system communications risk continues to be tracked, with mitigation measures remaining the same: ensure as-built and GIS files are properly documented in the project closeout phases so that future projects can properly identify and locate BAIFA’s existing underground assets.

Chart #2: Program Cost Forecast and Risk Exposure vs. Authorized Budget (\$M)

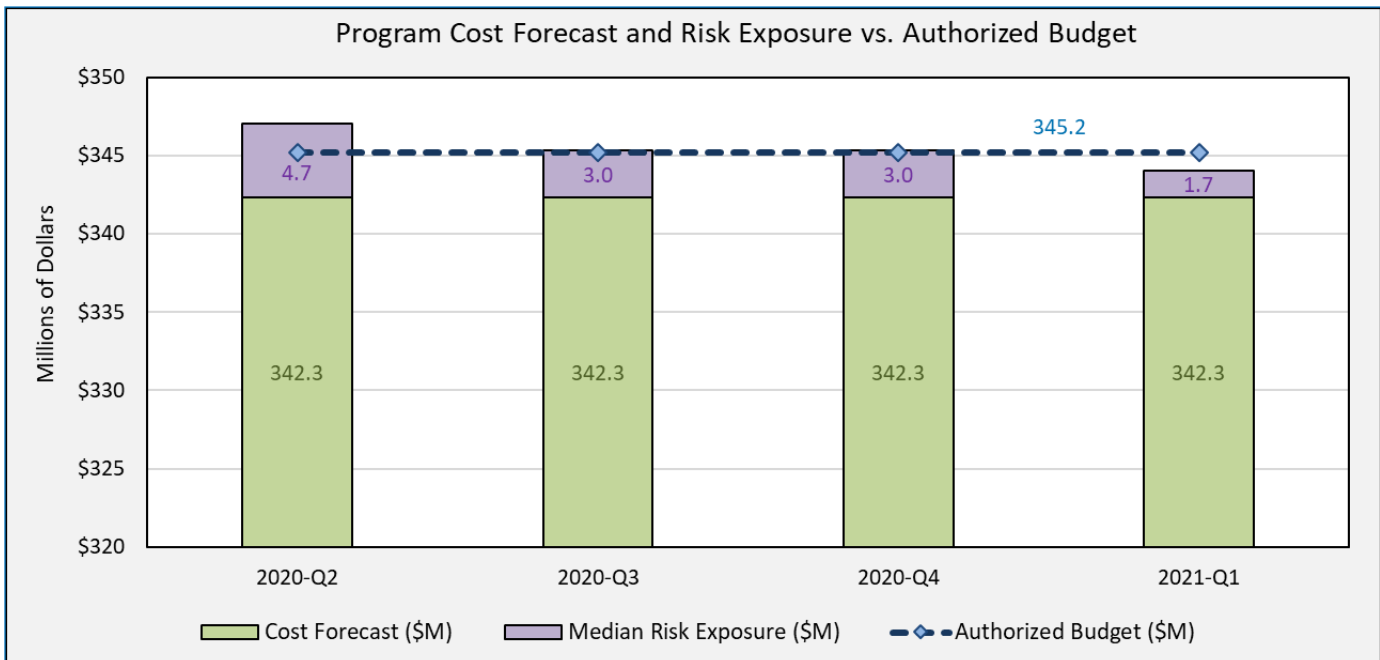


Chart #2 shows the program cost forecast and risk exposure as compared to the authorized program budget.

E. Active Capital Project Summaries

Centralized Functions

Toll System and Program Management, Planning and Regional Coordination

Total Estimated Cost

\$32.4 million for the Centralized Toll System
\$28.4 million for Program Planning, Coordination and Management

Schedule

Centralized Toll System was ready for the opening of the I-680 Contra Costa Southern Segment on October 9, 2017.

Program Planning, Coordination and Management is ongoing through the opening of the funded projects.

Project Description

The Centralized Toll System includes the elements of the toll system that are needed to toll all the express lanes, as well as the backhaul communications network components, such as fiber optic cable and leased line services, that transport toll data from MTC lanes to host and toll operations data centers. Centralized toll system work includes designing and implementing the hardware and software for dynamic toll setting and trip building, integration with the FasTrak® Customer Service Center, and acquiring spare parts.

Program management, planning and regional coordination tasks include managing the expenditure plan, cost, schedule and risk; developing the express lane business rules and toll ordinance; conducting customer education and outreach; building out the Regional Operations Center and developing operating procedures; planning for future express lanes; and coordinating with partner agencies to offer a seamless experience for drivers.

Program Management Highlights and Progress

- Staff held internal technical discussions to develop a draft concept for how the FasTrak START Pilot could work, and got feedback from BAIFA on its plan to engage potential customers in pilot design.

Current Program Management Activities

- Staff will finalize the customer education strategy for the start of tolling on the I-680 North Southbound.
- Staff will get feedback from stakeholders on the draft concept for the FasTrak START Pilot. Staff will enter into a contact for focus group services and convene focus groups with potential pilot customers.

Toll System Highlights and Progress

- The toll system integrator contract was awarded in June 2014.
- Buildout of the Regional Operations Center was finished in March 2017.
- The toll system went live to the public on October 9, 2017.
- In December 2018, the toll system integrator contract was extended to June 2023 to include the I-680 Northern Segment. The change removed the I-80 Solano express lanes from the contract. It will be added back when construction funding is secured.
- The I-680 Southern Segment Operations Test concluded in April 2019. Operations testing is a system acceptance test. The Operations & Maintenance (O&M) phase, which includes a one-year warranty period, began in May 2019.
- The toll system integrator went live with lane-side equipment software to finalize the 6C enhancements. The system began tolling 6C tags on October 8, 2019.
- In March 2020, the express lane Host system began sharing toll rate information with MTC's 511 Traveler Information System.
- In June 2020, the toll system integrator began manual image review for low-confidence license plate images to improve trip building.
- In July 2020, the toll system integrator launched the trip building software upgrade to improve system efficiencies and the lane-transaction filter to allow for I-880 testing in the live Host system.



Close-up of toll system equipment under sign (enforcement beacons, reader antennae and laser trigger)

Photos courtesy of Noah Berger



Overhead hours of operation sign and toll system equipment on the I-680 Express Lanes

Current Toll System Activities

- The toll system integrator continues to fine-tune the toll system in preparation for I-880 operational acceptance.



Overhead pricing sign on the I-680 Express Lanes

I-680 Northern Segment Southbound (CC-680 North SB)

Martinez to Walnut Creek

Benicia Bridge to Rudgear Road

Total Cost Estimate

\$127.4 million (\$53.6 million to be funded by BAIFA)

Scheduled Open Date

Mid-2021

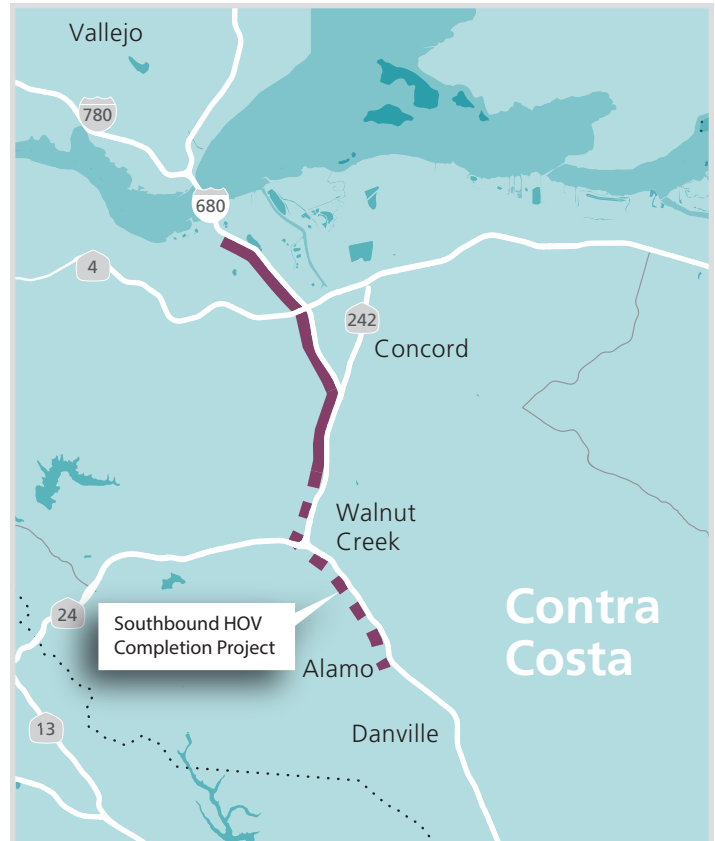
Project Description

The project will convert 11 miles of the existing HOV lane on southbound I-680 from just south of Marina Vista Avenue in Martinez to North Main Street in Walnut Creek into an express lane. It also includes express lane elements for the I-680 Southbound HOV Completion Project. Once complete, I-680 will have a continuous southbound express lane from Martinez to the Alameda County line.

Civil construction will be delivered by the Contra Costa Transportation Authority (CCTA). MTC will install toll and communications equipment and will operate the express lanes.

Project Highlights and Progress

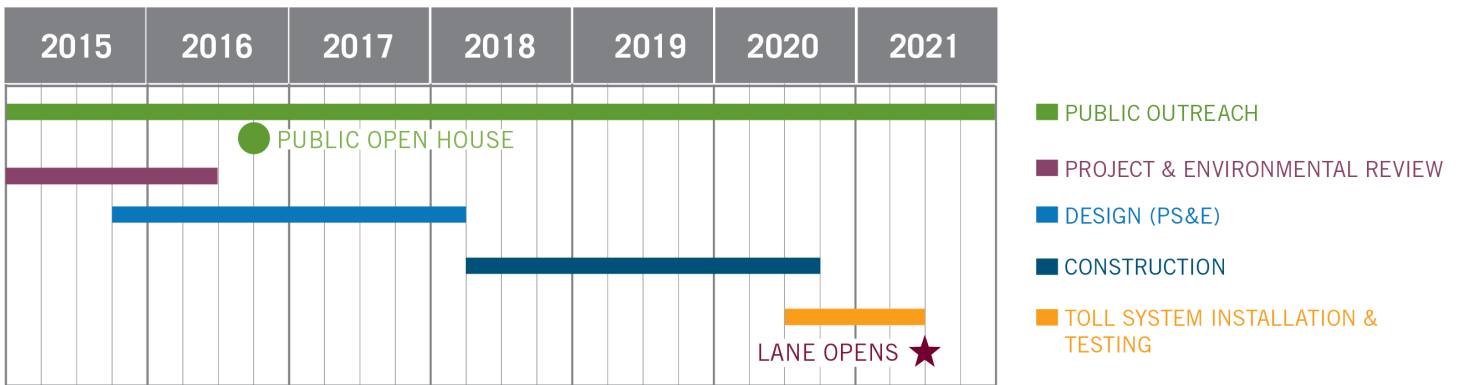
- Caltrans signed the environmental document in December 2016 and approved the Project Report in August 2017. Caltrans completed a revalidation in September 2017.
- A contract to remove trees along southbound I-680 in Walnut Creek between South Main Street and Livorna Road was awarded in October 2017, and work was completed in December 2017.
- All utility relocations were completed as of August 2018.
- Construction started October 1, 2018, and a ground-breaking event was held October 3, 2018.
- In December 2018, the toll system integrator contract was extended to June 2023 to include I-680 North SB.
- In May 2019, the backhaul contractor successfully rerouted the backhaul fiber between SR-24 and Livorna Road in Walnut Creek to allow for lane widening, and the toll system integrator participated in switching the live toll equipment from the old to the new fiber.
- In June 2019, CCTA and Caltrans executed an amendment to incorporate Caltrans oversight of landscape work and the first year of plant establishment into their cooperative agreement.
- In September 2019, BAIFA and Caltrans executed a cooperative agreement for Caltrans to review and approve the toll system design package, issue an encroachment permit and review site installation (as needed).
- Caltrans concurred with the replacement planting design in February 2020.
- Caltrans issued the encroachment permit for toll system installation in April 2020.
- In the second quarter of CY2020, the project team developed a strategy to open the new lane capacity between North Main Street and Rudgear Road as an HOV 2+ lane prior to tolling.
- The civil contractor completed highway widening activities in August and the new southbound lane capacity opened to HOV 2+ traffic on August 24, 2020.
- Civil construction was substantially complete for all stages of contract work as of December 2020.



Current Project Activities

- Civil contractor is addressing minor punchlist items at a limited number of locations.
- The toll system integrator will pull cable, energize and test two pricing signs recently installed north of Highway 24.
- The toll system integrator will begin Site Commission Testing on I-680 North Southbound in April 2021, starting with the north most toll tag read point near the Benicia Bridge. Site Commission Testing will be followed by Corridor Testing in June 2021.
- Since completing repairs of the Backhaul fiber, the toll system integrator has begun connecting toll sites north of SR-24 into the Backhaul trunkline.

Project Schedule by Phase



Project Cost

Total Cost Estimate ⁽¹⁾	Cost Estimate, Funded Phases ⁽²⁾	Regional Measure 2 Funds (allocated)	Other Funding (allocated)	BAIFA Express Lane Funds ⁽³⁾			Percent Complete ⁽⁴⁾ as of 12/31/20 ⁽⁴⁾
				July 2018 Amendment	Sept. 2018 Amendment	Expended as of 12/31/20	
127.4	127.4	19.4	54.3	51.3	53.6	39.2	90%

The cost estimate for this project includes planning, design, construction, utilities, backhaul communications and toll system integration.

Costs shown in millions of escalated dollars.

⁽¹⁾ Total Cost Estimate represents current estimated cost to complete each project.
⁽²⁾ Cost Estimate, Funded Phases represents current estimated cost to complete phases that are funded for each project.
⁽³⁾ BAIFA Express Lane Funds represent the funds that have been allocated from the BAIFA budget.
⁽⁴⁾ Percent complete shown is based on the achievement of major milestones whether those milestones were completed using BAIFA funds or other funds.

I-80 Solano (SOL-80)

Fairfield to Vacaville

Red Top Road to I-505

Total Cost Estimate

\$274.9 million

Scheduled Open Date

2024, subject to funding

Project Description

This project will convert the existing eastbound and westbound HOV lanes to express lanes between Red Top Road and Air Base Parkway in Fairfield. Conversion work includes striping lanes and installing sign gantries, signs, FasTrak® toll tag readers and traffic-monitoring video cameras.

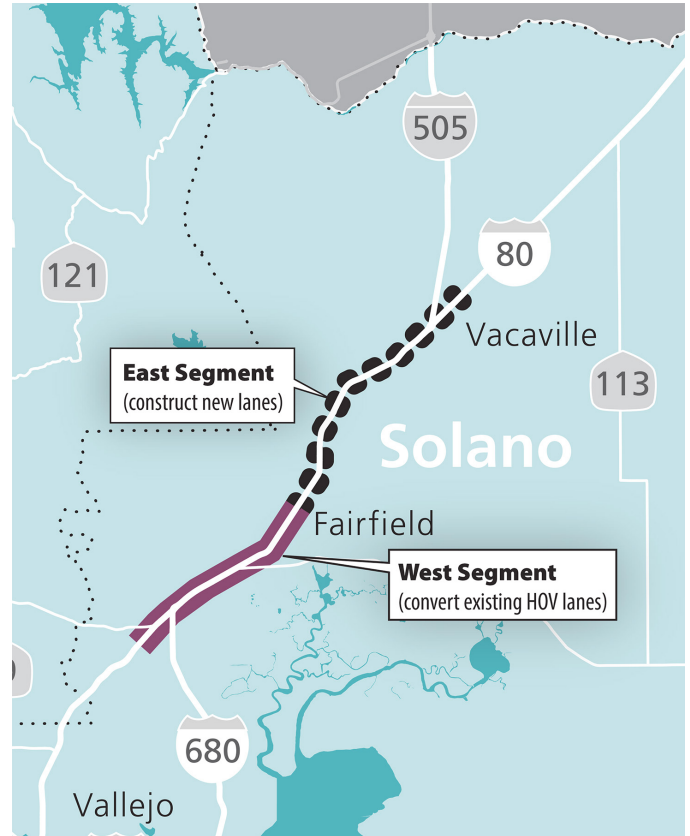
The project will also construct new eastbound and westbound lanes between Air Base Parkway and I-505 in Vacaville. In this section, the highway will be widened along with the installation of express lane striping, signage and equipment. The project will result in 36 miles of express lanes on I-80 in Solano County.

The Solano Transportation Authority (STA) is the lead agency for environmental clearance and civil design.

Caltrans will advertise and award the construction contract, and a blended Caltrans/STA team will administer construction. MTC will install toll and communications equipment and will operate the express lanes.

Project Highlights and Progress

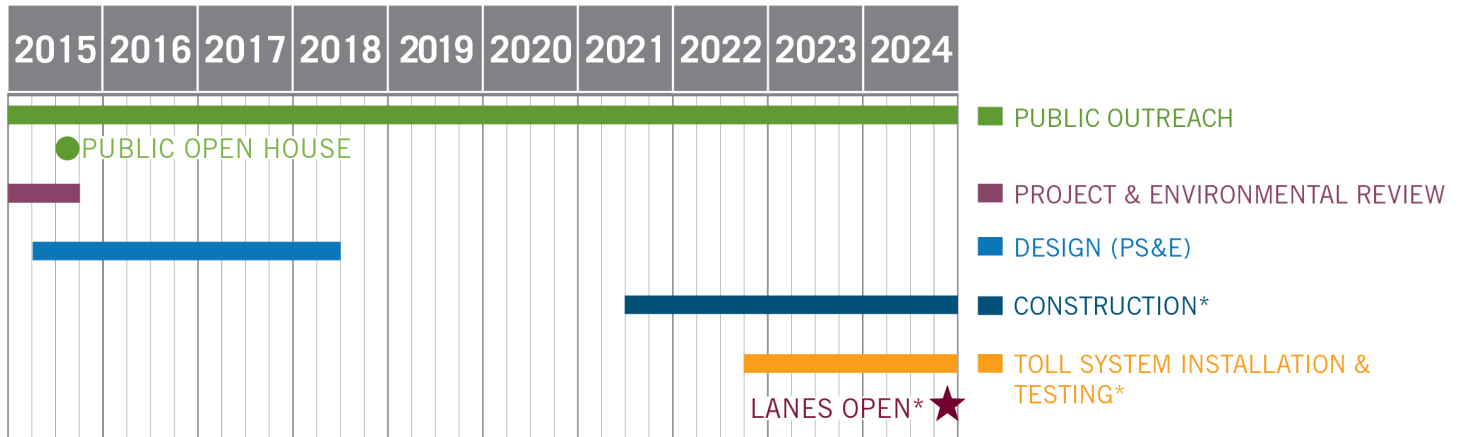
- A public open house was held in August 2015.
- The preliminary engineering report and environmental document were completed in December 2015.
- The final design document was approved by Caltrans in March 2018.
- The project reached the Ready-to-List milestone in April 2018.
- The California Transportation Commission awarded \$123 million of Senate Bill 1 competitive funds to the project in November 2020. The project funding plan is now complete, subject to the availability of \$85 million of Regional Measure 3 Express Lane Program funds pending litigation.



Current Project Activities

- The Solano Transportation Authority (STA) will revalidate the environmental clearance approval to coincide with the anticipated construction period.
- BAIFA is coordinating with STA to update design documents to reflect current standards for design elements and specifications for the toll collection system.
- BAIFA is coordinating on funding strategies to backfill Regional Measure 3 Express Lane Program funds in the budget.
- BAIFA is negotiating contractual terms with the Toll System Integrator for design, implementation, and operations & maintenance.
- Staff is re-engaging with AT&T to confirm the original design for fiber and network equipment to the Backhaul hubs in Fairfield and Vacaville.

Project Schedule by Phase



* Funding for these activities is not yet secured.

Project Cost

Total Cost Estimate ⁽¹⁾	Cost Estimate, Funded Phases ⁽²⁾	Regional Measure 2 Funds (allocated)	Other Funding (allocated)	BAIFA Express Lane Funds ⁽³⁾			Percent Complete as of 12/31/20 ⁽⁴⁾
				July 2018 Amendment	Sept. 2018 Amendment	Expended as of 12/31/20	
274.9	32.5	14.4		19.0	18.1	11.7	20%

The cost estimate for this project includes planning, design, construction, utilities, backhaul communications and toll system integration.

Costs shown in millions of escalated dollars.

- ⁽¹⁾ Total Cost Estimate represents current estimated cost to complete each project.
- ⁽²⁾ Cost Estimate, Funded Phases represents current estimated cost to complete phases that are funded for each project.
- ⁽³⁾ BAIFA Express Lane Funds represent the funds that have been allocated from the BAIFA budget.
- ⁽⁴⁾ Percent complete shown is based on the achievement of major milestones whether those milestones were completed using BAIFA funds or other funds.

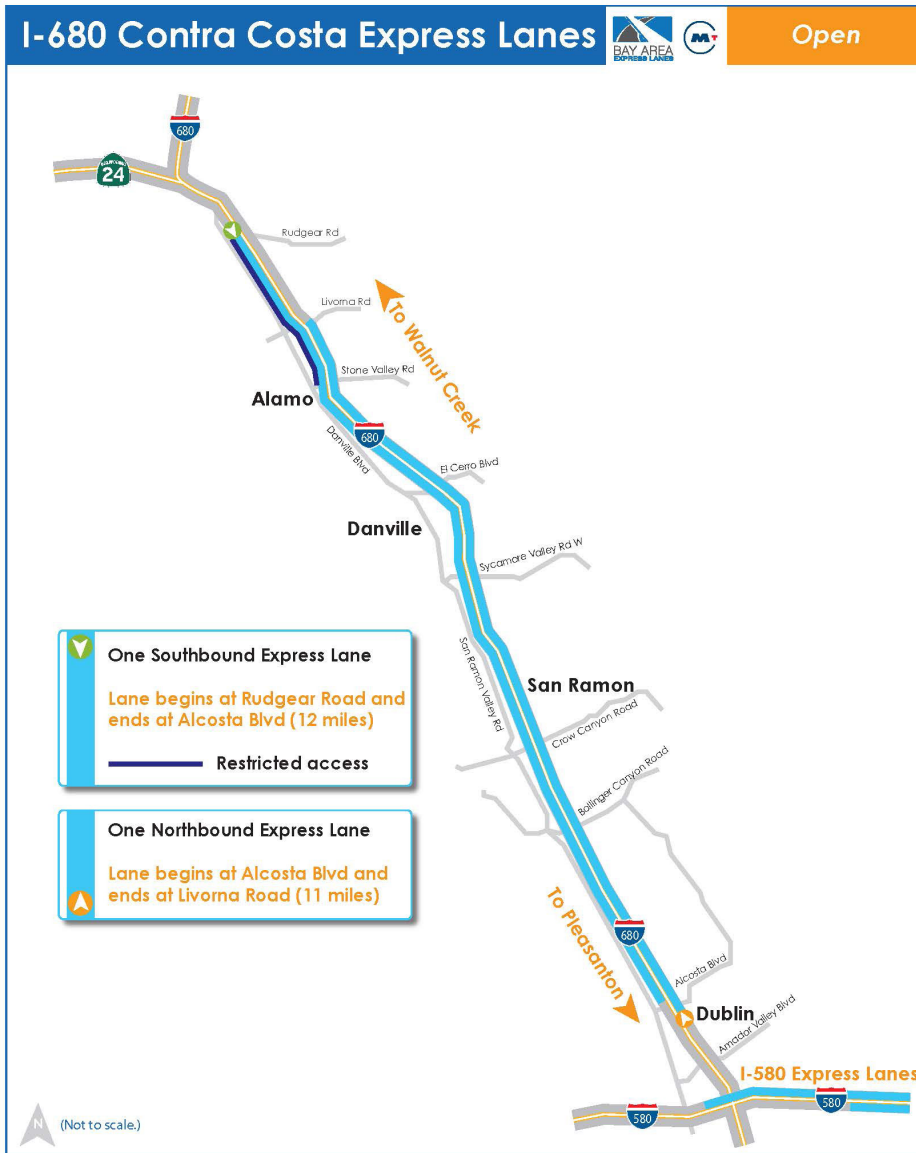
IV. OPERATIONS

I-680 Contra Costa Express Lanes

The I-680 Contra Costa Express Lanes opened October 9, 2017. The lanes run 11 miles northbound from Alcosta Boulevard to Livorna Road and 12 miles southbound from Rudgear Road to Alcosta Boulevard. Regional Operations Center staff monitor equipment and lane performance, make toll rate adjustments, and coordinate with the California Highway Patrol (CHP) and Caltrans on incident management. The FasTrak® Customer Service Center issues toll tags, handles toll invoicing and collections, and provides customer service. Toll tag and vehicle occupancy requirements are enforced automatically by the

toll system and manually by the CHP under contract to BAIFA. A ‘backhaul’ fiber network and supplemental leased-line services offer fast and secure transfer of tolling data. Roadway maintenance is also funded by the express lanes. Program and contractor staff perform public outreach and education, track and report on program performance and analyze traffic, and support operations in other ways as needed. Operating revenue and expenses are reported quarterly to BAIFA.

See **Appendix C** for a summary of this quarter’s express lanes performance.



Rules of the Road

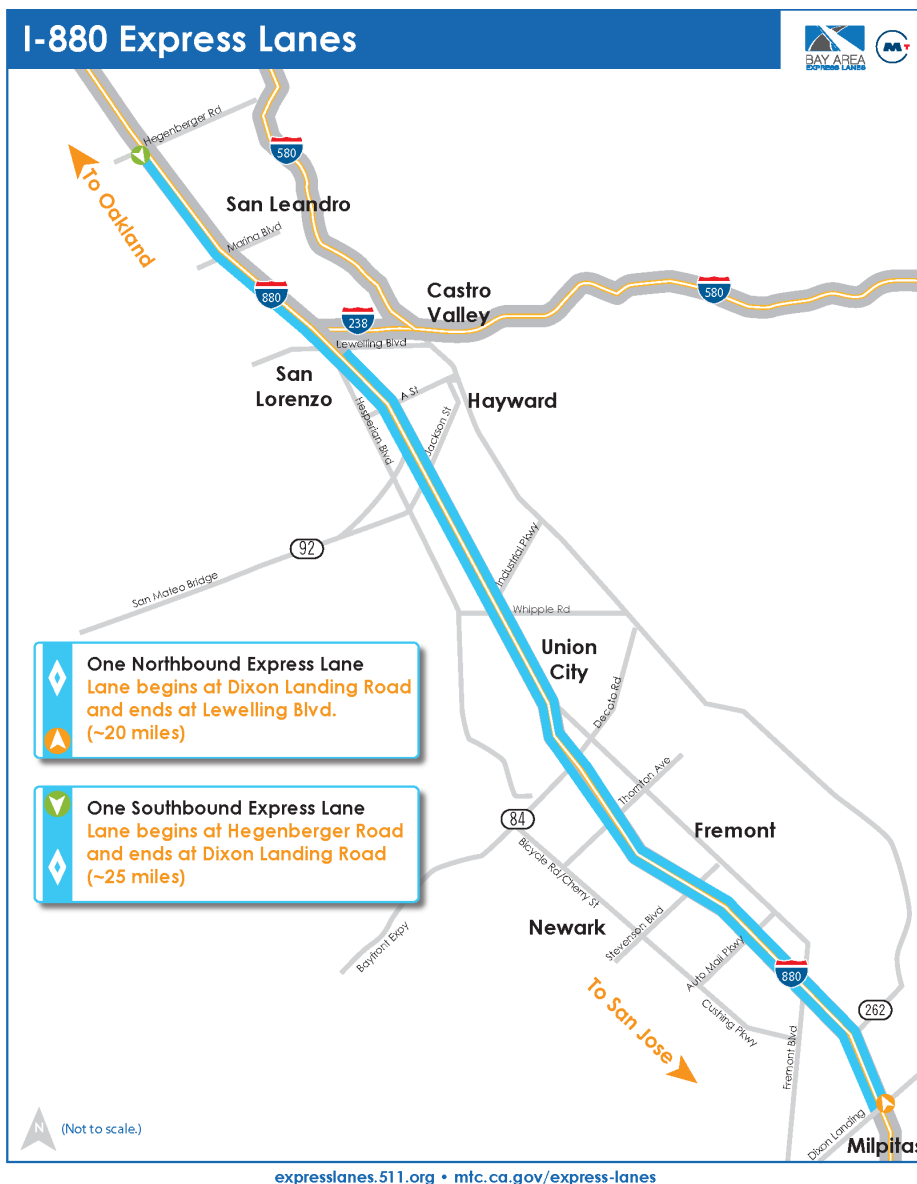
- Hours are Monday through Friday, 5 a.m. – 8 p.m.
- Tolls change based on traffic congestion; there is no maximum toll
- All vehicles in the express lane must use a FasTrak® or FasTrak Flex® toll tag
- Carpools of 2 or more people, eligible clean air vehicles, motorcycles and transit buses travel toll-free with a properly set FasTrak Flex® toll tag
- Learn more at expresslanes.511.org

I-880 Alameda Express Lanes

The I-880 Alameda Express Lanes opened October 2, 2020. The lanes run 20 miles northbound from Dixon Landing Road to Lewelling Boulevard and 25 miles southbound from Hegenberger Road to Dixon Landing Road. Regional Operations Center staff monitor equipment and lane performance, make toll rate adjustments, and coordinate with the California Highway Patrol (CHP) and Caltrans on incident management. The FasTrak® Customer Service Center issues toll tags, handles toll invoicing and collections, and provides customer service. Toll tag and vehicle occupancy requirements are enforced automatically

by the toll system and manually by the CHP under contract to BAIFA. A 'backhaul' fiber network and supplemental leased-line services offer fast and secure transfer of tolling data. Roadway maintenance is also funded by the express lanes. Program and contractor staff perform public outreach and education, track and report on program performance and analyze traffic, and support operations in other ways as needed. Operating revenue and expenses are reported quarterly to BAIFA.

See **Appendix D** for a summary of this quarter's express lanes performance.



Rules of the Road

- Hours are Monday through Friday, 5 a.m. – 8 p.m.
- Tolls change based on traffic congestion; there is no maximum toll
- All vehicles in the express lane must use a FasTrak® or FasTrak Flex® toll tag
- Carpools of 3 or more people, motorcycles and transit buses travel toll-free with a properly set FasTrak Flex toll tag
- 2-person carpools and eligible clean air vehicles (CAVs) pay a half-price toll with a properly set FasTrak Flex or FasTrak CAV toll tag, respectively
- Learn more at expresslanes.511.org

APPENDICES

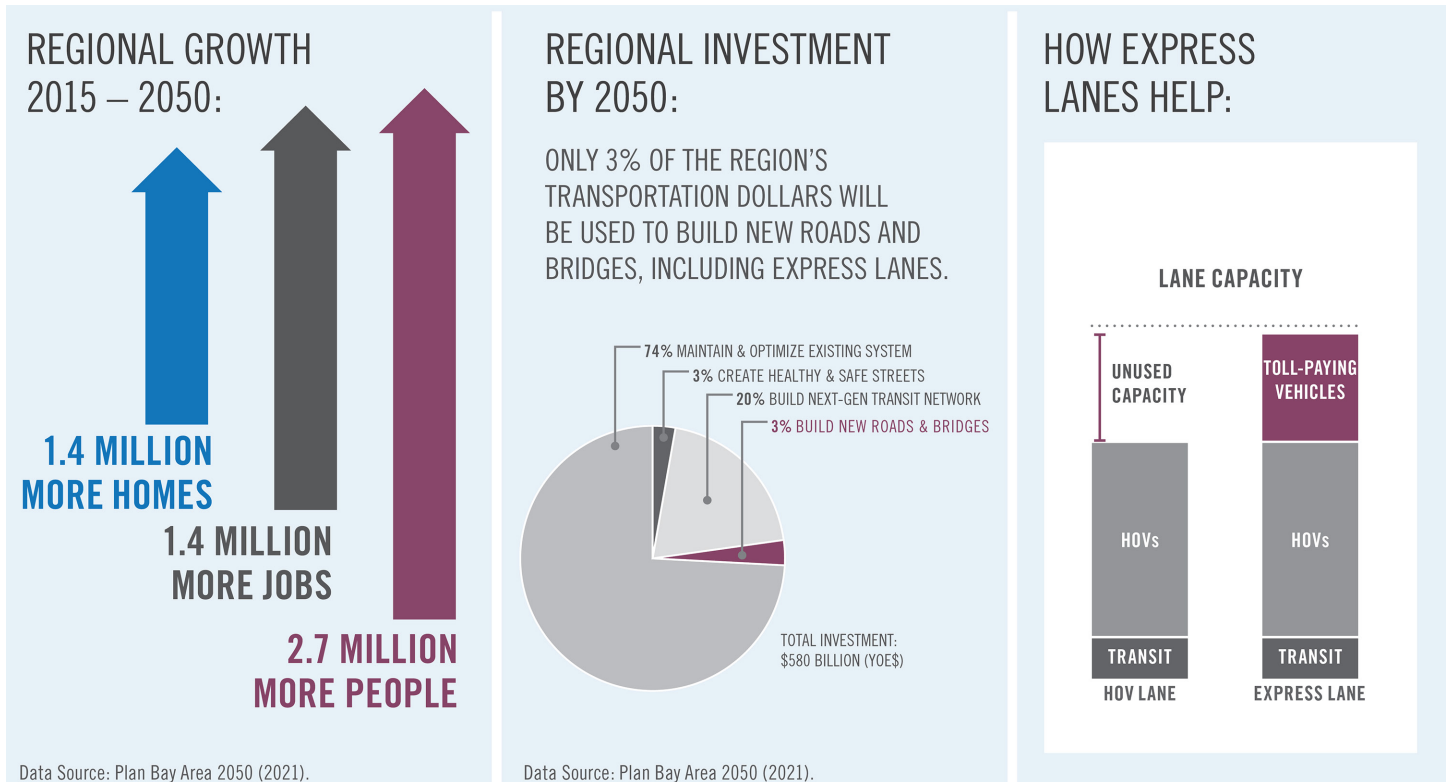
APPENDIX A

Express Lanes Overview

1. Why Express Lanes?

The Bay Area lacks the necessary transportation funding and land to build enough transportation capacity to keep up with regional growth. Bay Area Express Lanes maximize use of our highways by A) filling any empty space in existing HOV lanes,

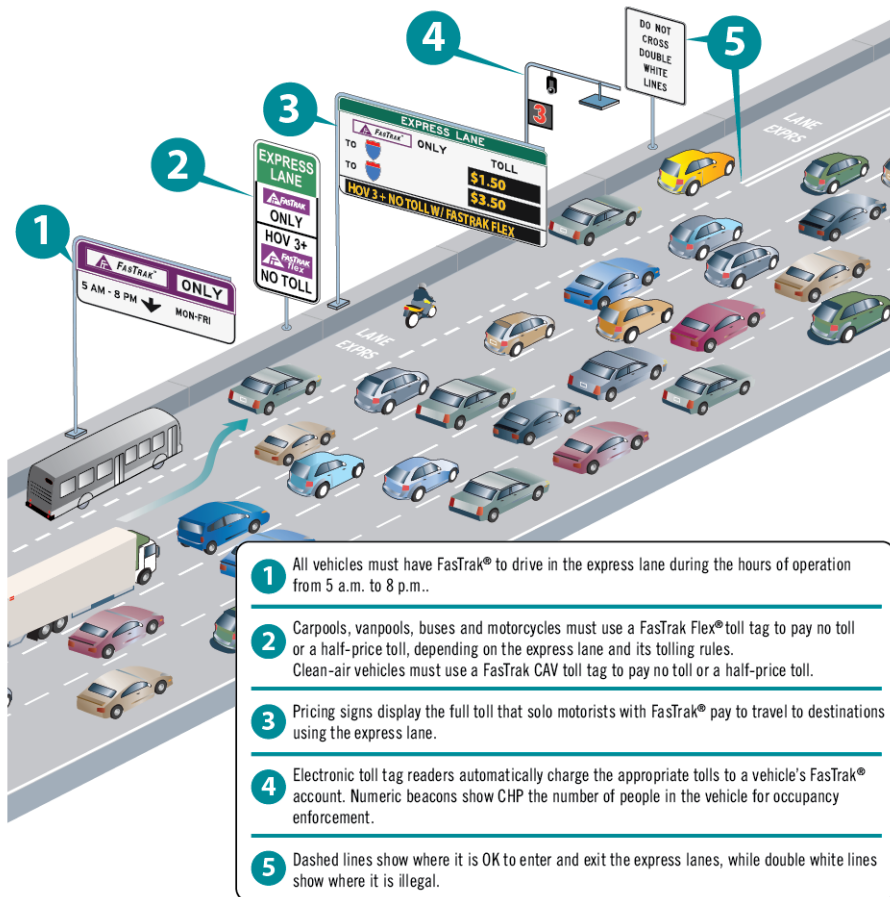
B) improving operations in existing HOV lanes through better carpool enforcement and strategies to prevent lane slowdowns, and C) filling gaps in the HOV lane system to encourage more carpooling.



2. How Express Lanes Work

MTC Express Lanes give everyone with FasTrak® the option for a more reliable and faster trip than regular highway lanes. Overhead electronic pricing signs display toll rates, which may change every few minutes with traffic. Tolls are collected electronically, the same as on Bay Area toll bridges.

Solo motorists pay tolls with either a standard FasTrak® toll tag or a FasTrak Flex® toll tag set to “1” person. Carpools, vanpools and buses must use a FasTrak Flex® toll tag set to “2” or “3+” people to pay no toll or a half-price toll, depending on the express lane and its tolling rules. Motorcycles must use a FasTrak Flex toll tag set to “3+” people to pay no toll. Qualifying clean air vehicles (CAVs) must use a FasTrak CAV toll tag set to the number of people in the vehicle to pay no toll or a half-price toll. Drivers should always set the switch before driving.



The figure to the left explains how to use Bay Area Express Lanes. MTC Express Lanes will be “open” access to the extent possible, meaning drivers will enter and exit the express lanes similar to how they enter and exit HOV lanes today. Areas prone to weaving or other safety concerns may have access restrictions to control entry and exit at these locations. Signage and lane striping will identify these entry and exit locations. Limiting access is a way to improve travel speeds in express lanes.

3. System Technology and Elements

MTC Express Lanes are implemented by overlaying communications equipment on new and existing freeway infrastructure. Express lanes implementation requires four discrete elements that are integrated through design, construction and operations, including:

Civil Infrastructure (Highway Modifications)

For lane conversions, the civil infrastructure consists of sign structures, sign panels, lane striping, and conduit work for power and communications. For gap closure and extension projects, the civil infrastructure includes highway widening to add lanes as well as the signage and communications equipment required for conversions.

The civil contractor will put in place the foundations and structures upon which the toll systems contractor will install the toll equipment. In addition, the civil contractor will construct the infrastructure necessary to provide power and communications to the toll system.

Toll System

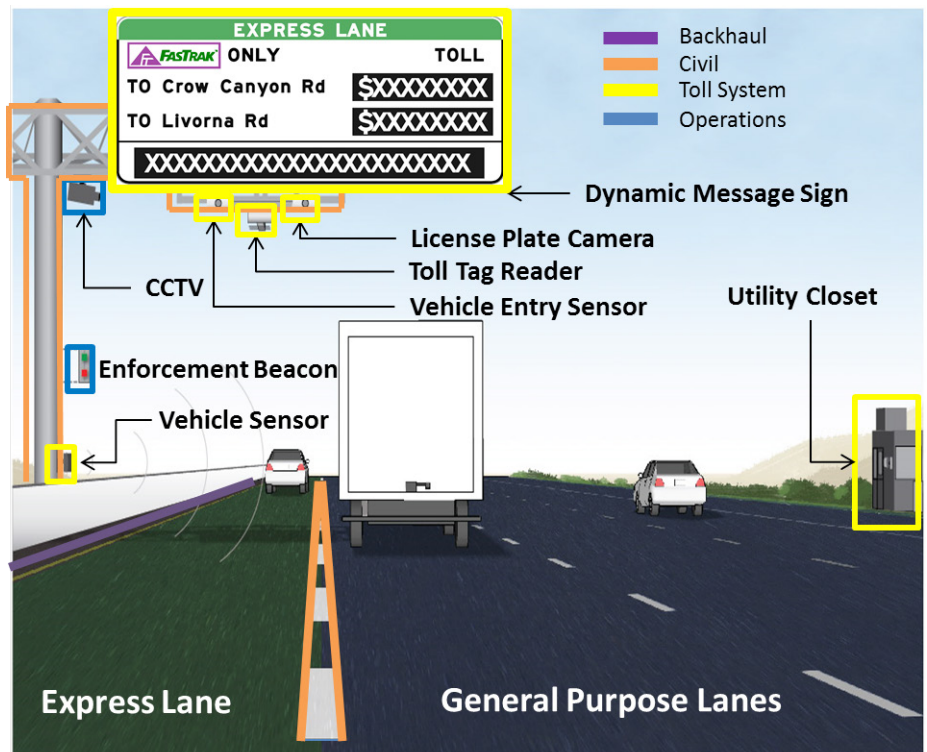
The toll system consists of two components, the in-lane system and the back-end "host" system. The lane system consists of all the equipment on the highway needed to operate the toll system including toll tag readers, cameras and vehicle detection. The host system serves as the brain of the toll system, which collects and processes all the data from the highway and sends it to the regional customer service center for billing.

Backhaul Communications Network

The backhaul network is the communication line along which data collected in the lanes is sent to the toll host system, operations center and regional customer service center. The backhaul contractor will install new conduit and communications fiber as well as utilize existing Caltrans, BART and other infrastructure to build the network. The backhaul network is being designed with the expectation that it will become part of a broader regional communications network.

Operations

The operations element consists of everything that is needed to successfully operate the express lanes including: an operations center, the regional customer service center, enforcement, public outreach, performance monitoring and ongoing maintenance. An express lanes Regional Operations Center has been established in the Bay Area Metrocenter building in San Francisco where operators actively monitor the condition of the lanes and coordinate with Caltrans and the California Highway Patrol to ensure that the lanes operate efficiently.



For illustrative purposes only

APPENDIX B

Completed Capital Project Summaries

I-680 Contra Costa Southern Segment (CC-680 South)

Walnut Creek to San Ramon

Livorna Road/Rudgear Road to Alcosta Boulevard

Total Program Estimate

\$55.6 million

Open Date

Fall 2017

Project Description

The project converts existing HOV lanes to express lanes on I-680 from Rudgear Road to Alcosta Boulevard in the southbound direction and from Alcosta Boulevard to Livorna Road in the northbound direction. It will result in 23 express lane miles through San Ramon, Danville, Alamo and southern Walnut Creek. No widening or additional lanes will be added to the freeway.

This conversion project includes striping lanes and installing sign gantries, signs, FasTrak[®] toll tag readers, and traffic monitoring video cameras. In addition, the project installs equipment and observation areas to help the California Highway Patrol enforce proper use of the lanes.

Project Highlights and Progress

- Public open house was held in March 2014.
- Preliminary engineering report and environmental document were completed in August 2014.
- Final design for both the backhaul communication network and the toll system were completed in December 2015.
- Final roadway design was completed in April 2015. Civil construction was completed in May 2017.
- Backhaul contractor completed installation of 26 miles of fiber optic cable in June 2017.
- Corridor Testing was completed in August 2017.
- Toll system equipment and software was finalized and tested in September 2017.
- Backhaul operations and maintenance started in October 2017.
- The toll system went live to the public on October 9, 2017.

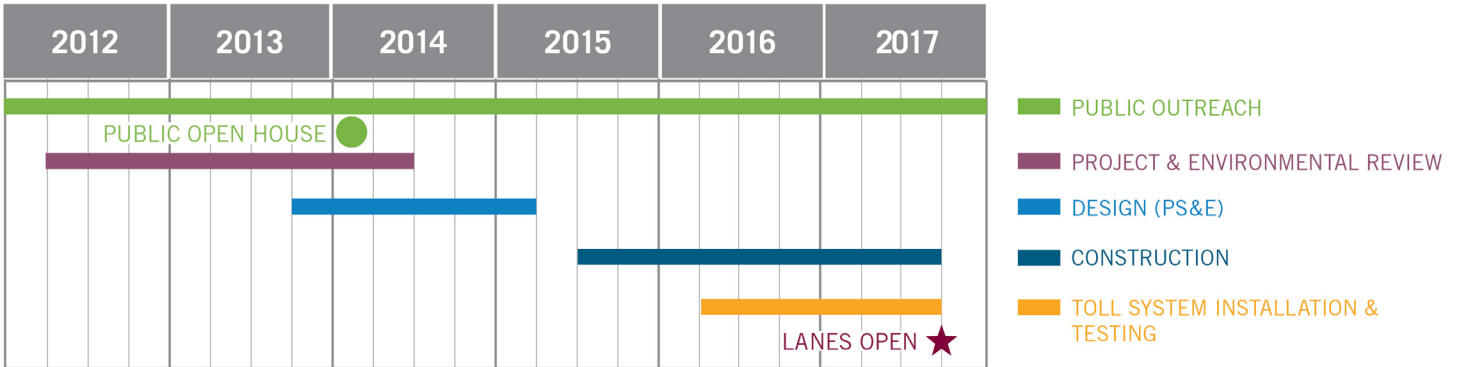


Current Project Activities

- The integrator is fine tuning field equipment and addressing punch list items in preparation for Operations Testing in summer of 2018. This test verifies the toll system meets all specifications and leads to the maintenance phase of operations.
- The Backhaul contractor completed project 'as-built' documentation and is performing ongoing operations of the communications network.
- Beginning in this Quarterly Report, since civil construction is complete and the express lanes are open, this capital project will be archived in Appendix B and no further updates will be made to the project summary.



Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	Regional Measure 2 Funds (allocated)	BAIFA Express Lane Funds ⁽³⁾			Physical % Complete ⁽⁴⁾
			Dec. 2015 Amendment	June 2017 Amendment	Expended through 3/31/18	
55.6	55.6		55.6	55.6	49.7	98%

The program estimate for this project includes planning, design, construction, utilities, backhaul communications and toll system integration.

Costs shown in millions of escalated dollars.

(1) Program estimate represents current estimated cost to complete each project.
 (2) Cost forecast represents current estimated cost to complete phases that are funded for each project.
 (3) BAIFA Express Lane Funds represent the funds that have been allocated from the BAIFA budget.
 (4) Physical percent complete shown is based on the achievement of major milestones whether those milestones were completed using BAIFA funds or other funds.

I-880 Alameda (ALA-880)

Oakland to Milpitas

Hegenberger Road/Lewelling Boulevard to Dixon Landing Road

Total Cost Estimate

\$139.1 million

Scheduled Open Date

Fall 2020

Project Description

The project converts the existing I-880 HOV lanes that run from Hegenberger Road to Dixon Landing Road in the southbound direction and from Dixon Landing Road to Lewelling Boulevard in the northbound direction to express lanes.

The conversion involves lane striping and installing sign structures, signs, FasTrak[®] toll tag readers, traffic monitoring video cameras, lighting, a data communications network and California Highway Patrol observation areas. The highway is also being widened in three locations to accommodate merge lanes into and out of the express lanes. It will result in 51 express lane miles between Oakland and Milpitas.

The express lanes conversion project was coordinated with a median barrier reconstruction project and a pavement resurfacing project, both led by Caltrans. The median barrier reconstruction project installed foundations and other infrastructure required for the express lanes for a large portion of the corridor.

Project Highlights and Progress

- Public open houses were held in March 2015.
- Preliminary engineering report and environmental document were completed in October 2016.
- The express lanes civil contractor began construction in September 2017.
- Caltrans approved the toll system design and issued the encroachment permit for the toll system integrator in March 2018.
- MTC's express lanes scope of work delivered through Caltrans' median barrier contract was completed in the second quarter of 2018, including barrier demolition, express lane sign structure foundations and light foundations.
- Caltrans completed its technical review to determine I-880 hours of operation (5am to 8pm, Monday through Friday) and high occupancy vehicle threshold (3 or more persons) in fall 2018.
- Caltrans finalized the design of fiber laterals to connect its freeway management equipment to the communications backhaul in December 2018. Construction work commenced on the Caltrans fiber laterals in October 2019.
- In March 2019, the civil contractor successfully removed two existing overhead sign bridge structures at the SR-92 interchange and installed two new ones.
- The backhaul contractor connected the backhaul corridor hubs to the toll system host and operations datacenters in Martinez, Oakland and San Francisco in October 2019. The toll system integrator approved the I-880 backhaul fiber in November 2019.

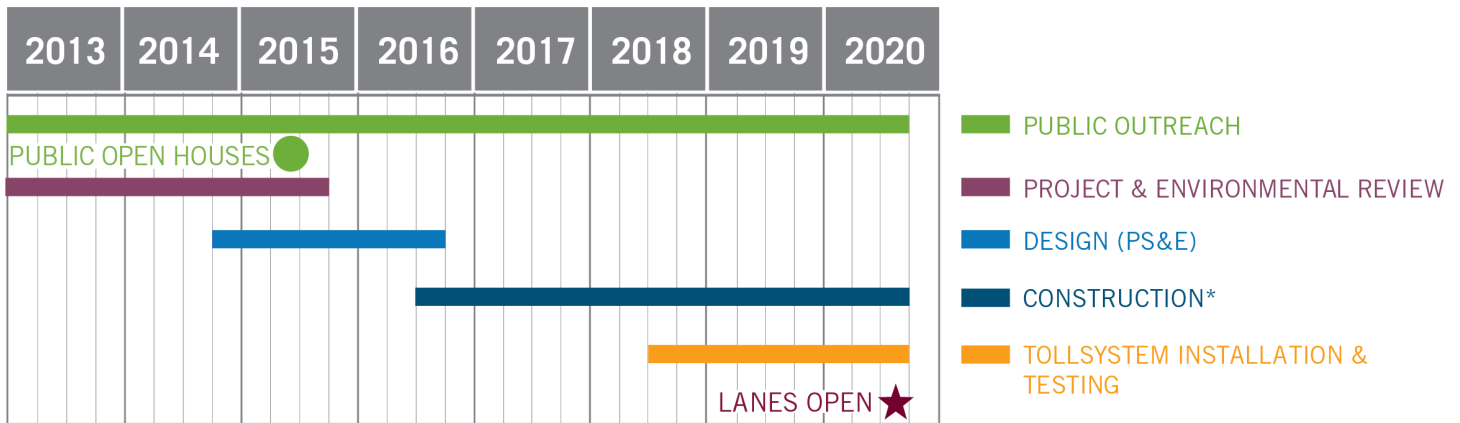


- All PG&E service connections are complete.
- In June 2020, the civil contractor completed new restricted access striping on the corridor and installed some signage. A public information campaign explained the changes.
- Final signing and pavement marking civil work to transition the HOV lanes to express lanes was completed in August and September. Until tolling begins, the lanes will function as HOV 2+ only lanes.
- The toll system integrator finished equipment installation in August 2020 and toll system testing in September 2020.
- At strategic points in the project timeline, staff performed outreach and education about I-880 design, construction and proposed operations including with members of low-income communities (2012); corridor city staff (2015 & 2019); and corridor elected officials (2017, 2019 & 2020).

Current Project Activities

- On October 2, 2020, BAIFA began tolling on the I-880 Express Lanes.
- Beginning the fourth quarter of 2020, since civil construction is complete and the express lanes are open, this capital project will be archived in Appendix B and no further updates will be made to the project summary.

Project Schedule by Phase



*Includes I-880 median barrier improvements.

Project Cost

Total Cost Estimate ⁽¹⁾	Cost Estimate, Funded Phases ⁽²⁾	Regional Measure 2 Funds (allocated)	Other Funding (allocated)	BAIFA Express Lane Funds ⁽³⁾			Percent Complete as of 9/30/20 ⁽⁴⁾
				July 2018 Amendment	Sept. 2018 Amendment	Expended as of 9/30/20	
139.1	139.1			135.5	139.1	119.0	99%

Costs shown in millions of escalated dollars.

- ⁽¹⁾ Total Cost Estimate represents current estimated cost to complete each project.
- ⁽²⁾ Cost Estimate, Funded Phases represents current estimated cost to complete phases that are funded for each project.
- ⁽³⁾ BAIFA Express Lane Funds represent the funds that have been allocated from the BAIFA budget.
- ⁽⁴⁾ Percent complete shown is based on the achievement of major milestones whether those milestones were completed using BAIFA funds or other funds.

The cost estimate for this project includes planning, design, construction, utilities, backhaul communications and toll system integration.

APPENDIX C

I-680 Contra Costa Express Lanes Operations Report

I-680 Contra Costa Express Lanes Performance 1st Quarter 2021: January - March



Bay Area Infrastructure Financing Authority

Submitted July 2021

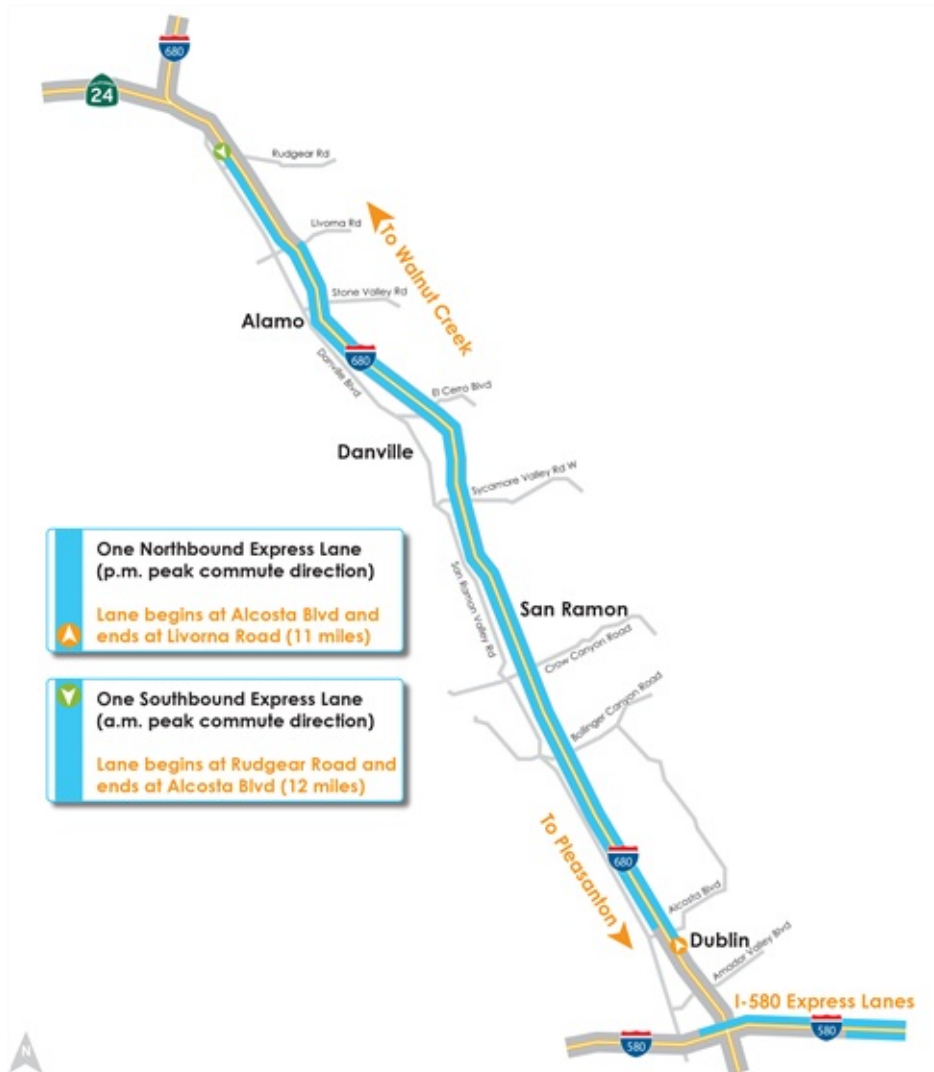


METROPOLITAN TRANSPORTATION COMMISSION

Rules of the Road

- Hours: 5 a.m. to 8 p.m. Monday - Friday
- FasTrak[®] required
- Carpools (2+) and motorcycles travel toll-free with FasTrak Flex[®] toll tags.
- Solo-drivers in eligible clean-air vehicles pay half-price tolls with FasTrak CAV toll tags.*

* Prior to October 1, 2020 all eligible clean air vehicle drivers traveled toll-free.



Summary of Performance Highlights

Trips & Revenue

- 1.2 million express lane trips were taken in Q1 2021. By the end of the quarter (March), express lane usage and tolls reached their highest points since the start of the COVID-19 pandemic. However, they are still considerably lower than Q1 2020 pre-COVID levels.
- The share of toll-free trips (carpools and non-revenue tags) was 37%, lower than the pre-COVID average of 41%. The share of toll violation trips (trips with no FasTrak account) was 11%, higher than the pre-COVID average of 6%, but lower than the prior two quarters.
- Q1 2021 toll revenue fell 63% from Q1 2020 due to an 18% decline in the number of paid trips and a 60% decline in average toll paid. Revenues grew 9% from Q4 2020 as average toll paid increased 9% even though paid trips fell 3%.



Speeds & Volumes

- Northbound peak hour (5 - 6 p.m) corridor-length average speed was up 9 mph in general purpose lanes and 8 mph in the express lane from a year ago. In the southbound peak hour (8 - 9 a.m.), it was up 11 mph in the general purpose lane and 12 mph in the express lane.
- At the most congested locations in the corridor, express lanes speeds were 45 mph or better on 80% of the days in the quarter NB and 97% SB. This is an improvement over the 48% of days in Q1 2020 due to COVID-19-induced lighter traffic.
- In the NB Livorna toll zone in the p.m. peak hour, which is the most congested location and time in the corridor, average maximum vehicle volume fell 33% in the express lane and 6% in the general purpose lanes from Q1 2020.

Tolls

- Monthly average tolls paid peaked at \$4.40 (northbound p.m.), while a.m. tolls did not exhibit peaking in either direction of travel. Peak hour average tolls were \$3.20 to \$5.00 lower than Q1 2020. Demand for northbound express lane travel increased over the quarter as evidenced by paid tolls which never reached \$10 in January, yet did so on half of tolling days in the second half of the quarter.
- About 3% of tolled trips paid \$10, while 89% paid \$2 or less. In Q1 2020, 11% of tolled trips paid \$10 tolls, while 60% paid \$2 or less.

Enforcement

- CHP made 723 enforcement contacts in Q1 2021, 19% of which resulted in HOV occupancy citations. BAIFA requested 41% fewer enforcement hours in Q1 2021 than in Q1 2020 due to COVID-19-related traffic decreases, and CHP filled 90% of the hours.

Lane Users

- In Q1 2021, about 300,000 unique vehicles made trips in the express lanes. Of these, about half (49%) carried FasTrak toll tags, while the other half (51%) did not, and their trips were captured by license plate reads. The share of vehicles without tags was an 8% greater share of express lane users than the 43% Q1 2020 share.
- Vehicles carrying FasTrak toll tags made an average of 4.7 trips per vehicle in the quarter, while vehicles identified by license plate made an average of 2.7 trips. As a result about 37% of trips were captured by license plate and 63% were captured by toll tag.

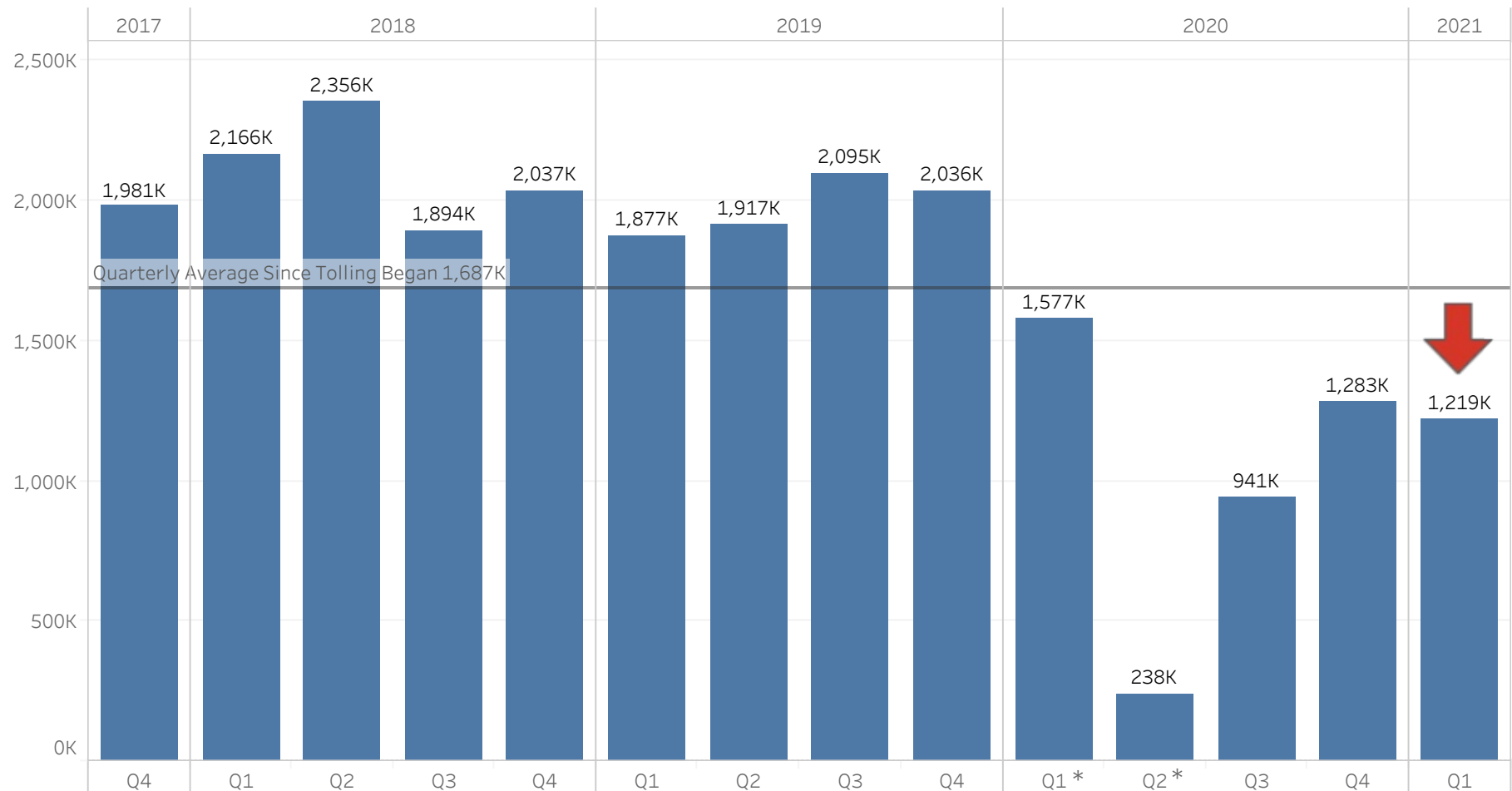


Express Lane Trips

In Q1 2021, about 1.2 million express lane trips were recorded, a 5% decline from Q4 2020. The first quarter of CY20 and CY19 also had fewer trips than their prior quarters (Q4 2019 and Q4 2018, respectively). Q1 2021 trips are down 23% from Q1 2020.

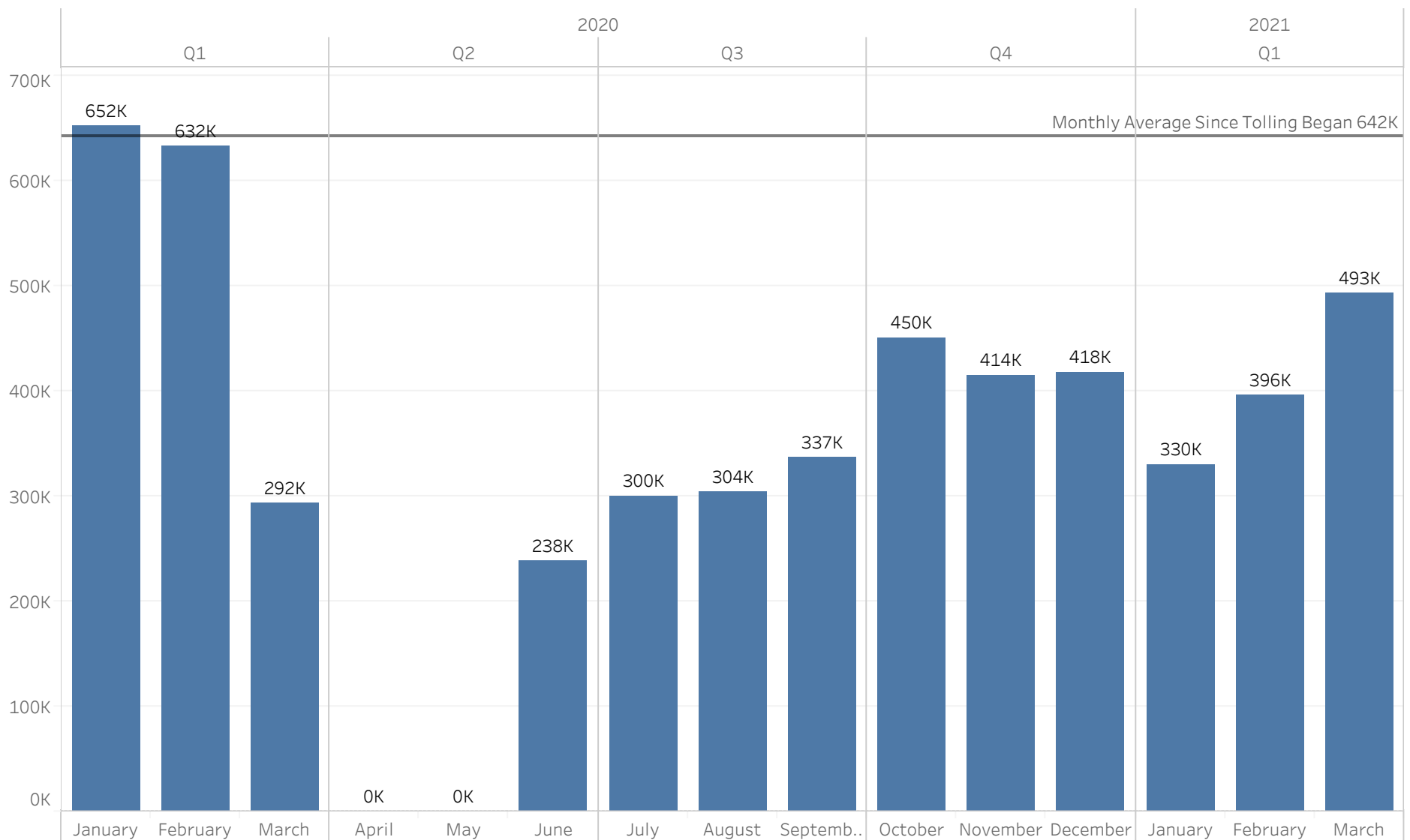
In Q1 2021, average daily express lane trips (ADT) were 19,000, down 41% from the pre-pandemic ADT average of 32,100 (October 2017 through March 19, 2020*), but up 11% from the pandemic ADT average of 17,100 (June 1, 2020* through March 31, 2021).

* Express lanes did not toll from March 20, 2020 through May 31, 2020 during the initial outbreak of COVID-19.

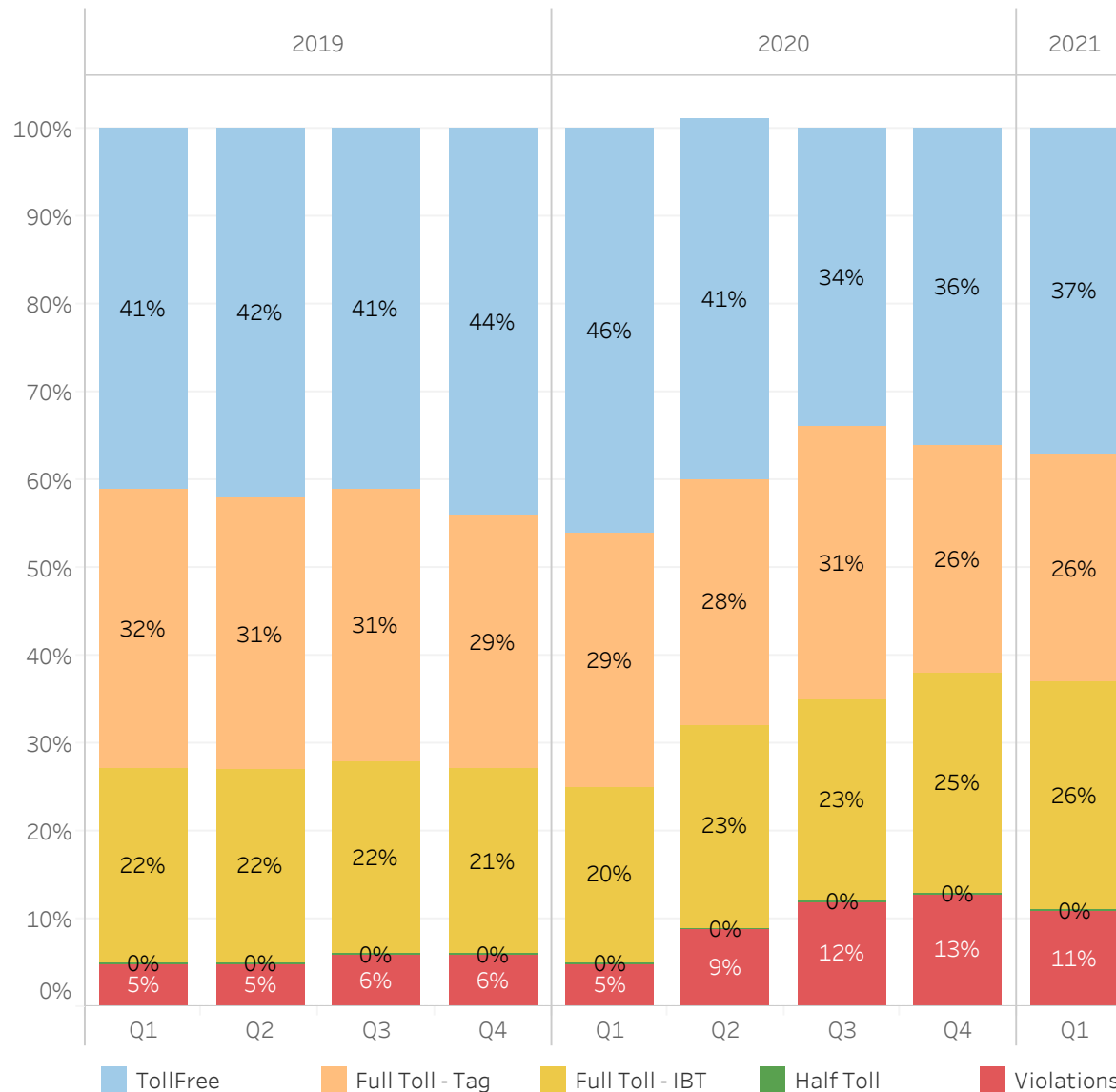


Express Lane Trips

March 2021 trips were higher than in any month since the pandemic began and were off less than 25% from trips in the pre-pandemic months.



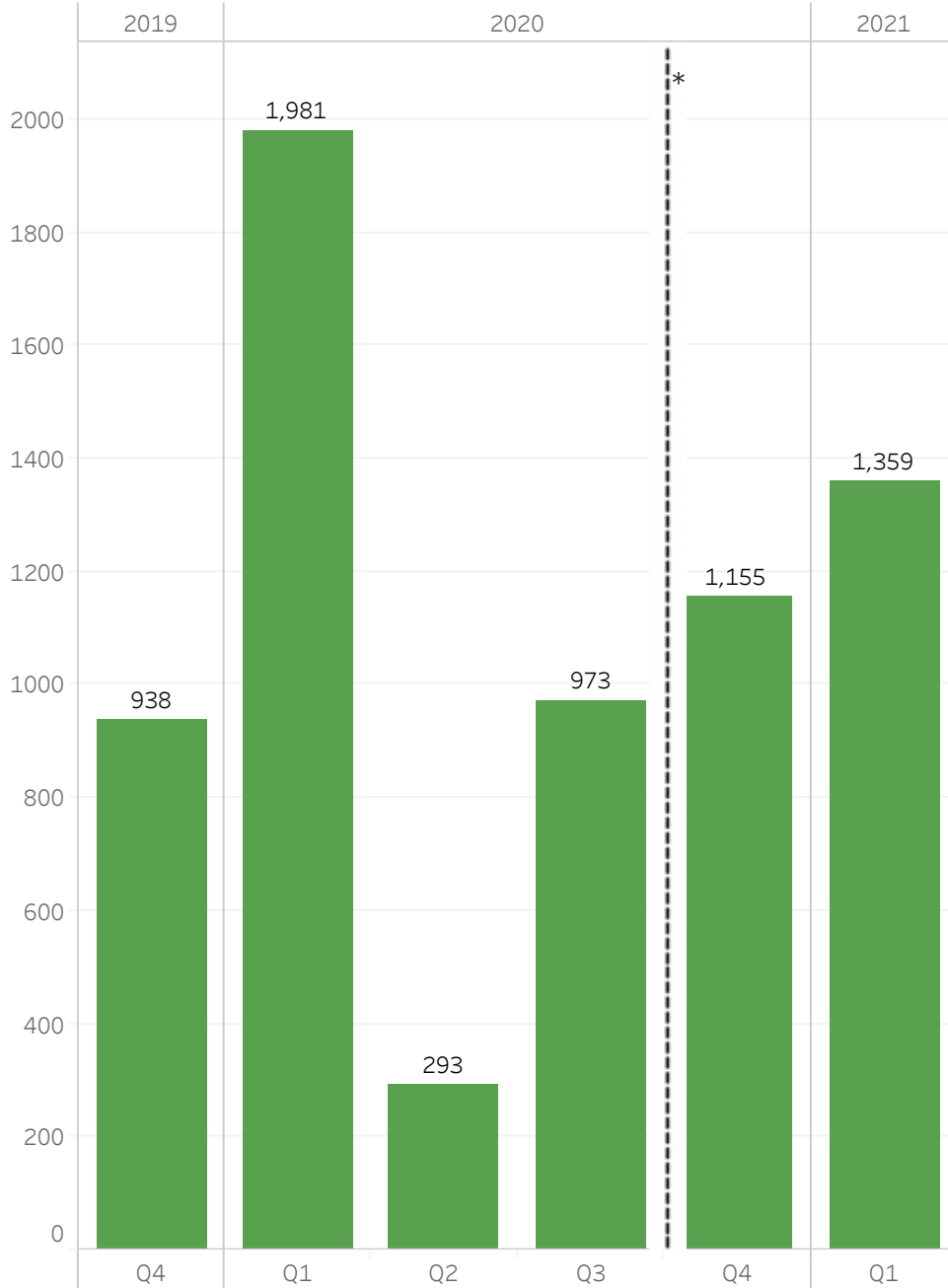
Express Lane Trip Types



- The share of toll-free trips made by carpools was 37% in Q1 2021; lower than the 41% pre-COVID average share.
- Full-toll trips were 52% of the express lane trips made this quarter - 26% by drivers with toll tags and 26% by drivers whose license plates were captured and matched to FasTrak accounts (Image-based Trips or IBT).
- Violations occur when image-based trips are not matched to FasTrak accounts. In Q1 2021, 11% of trips were violations, a slight improvement over the prior two quarters.
- Starting October 2, 2020, drivers of eligible Clean Air Vehicles were required to use FasTrak CAV tags. Set in the "1" position, solo CAV drivers pay half-price tolls. In Q1 2021, CAVs made fewer than 1% of trips. The number of CAV trips is shown in more detail on the following page.

"Toll Free" and "Full Toll-Tag" trips are recorded by toll tag settings. "Full Toll-IBT" trips are license plate images matched to FasTrak accounts. "Half-Toll" trips are recorded by CAV tags. CAV half-price tolling began October 2, 2020. "Violations" trips are license plate images not matched to FasTrak accounts.

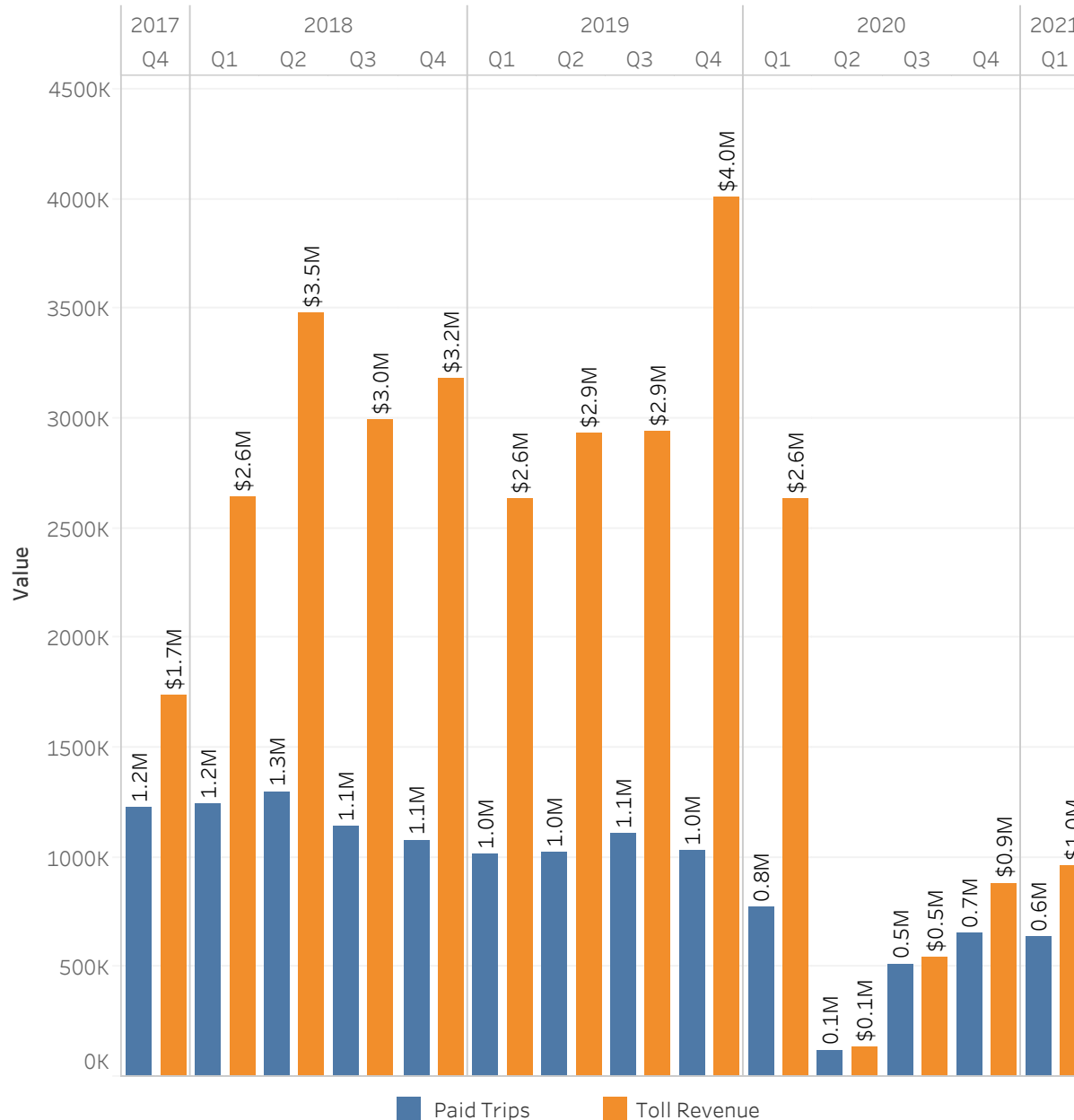
Express Lane Clean Air Vehicle Trips



In Q1 2021, about 1,360 FasTrak CAV tag trips were recorded. These tags could have been set in the 1, 2 or 3+ position.

FasTrak Clean Air Vehicle (CAV) toll tags were introduced in the Bay Area in Fall 2019. Their use on the I-680 Contra Costa express lanes became required as of October 2, 2020*, when toll policy changed to charge single-occupant CAVs half-price tolls. FasTrak CAV toll tags are necessary for successful implementation of the CAV toll policy.

Express Lane Toll Revenue & Paid Trips



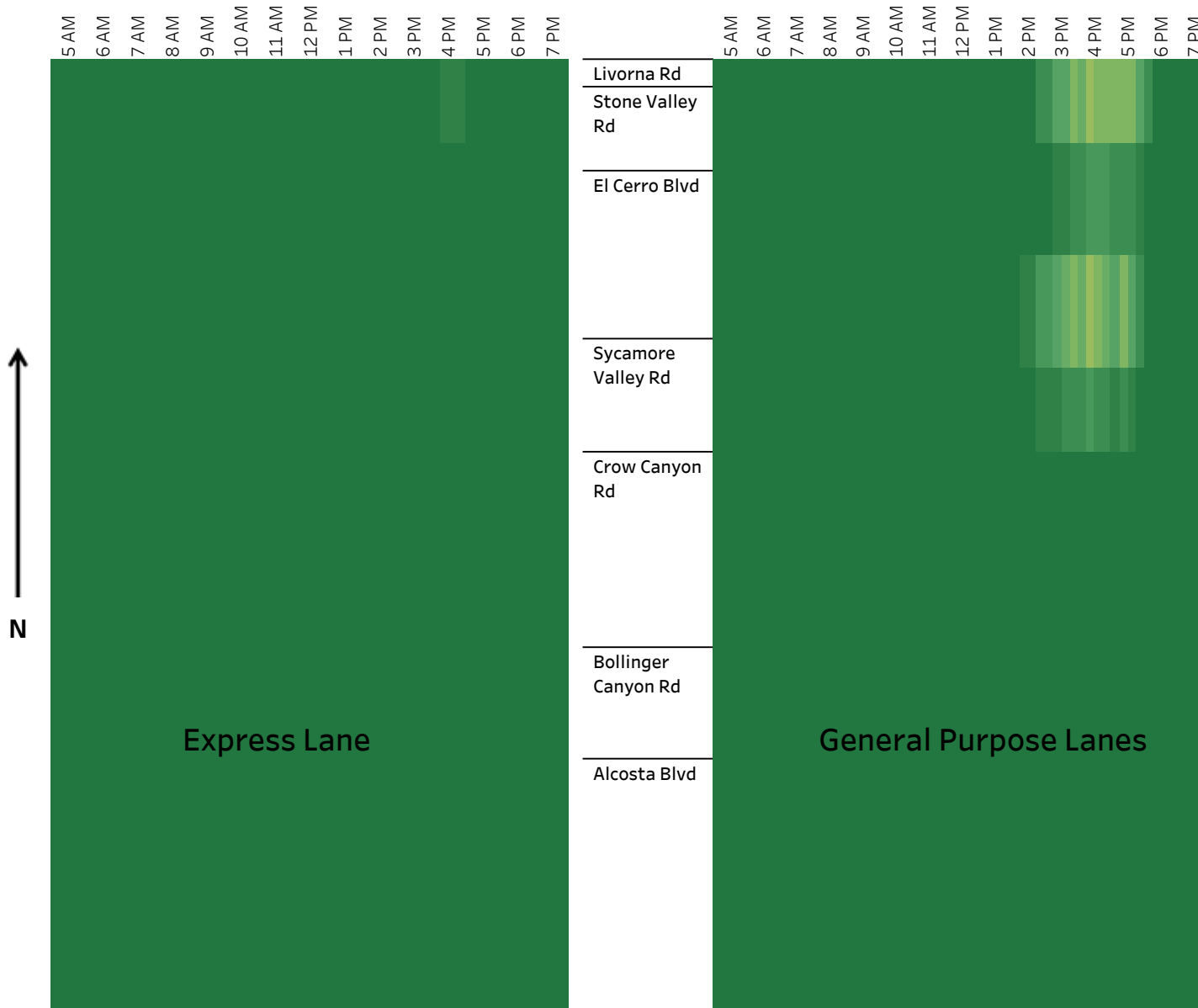
- Q1 2021 toll revenue was \$1.0M, a 63% decline from Q1 2020 due to an 18% decline in paid trips and a 60% decline in average toll paid.
- Q1 2021 toll revenue increased 9% from Q4 2020. Although paid trips fell 3%, average toll paid increased 9%.

Notes

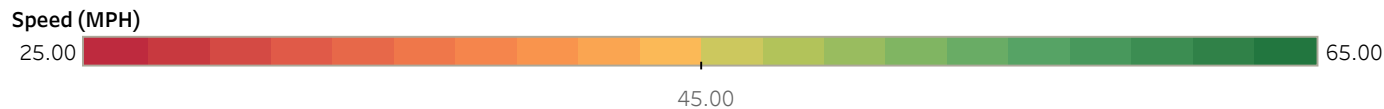
Toll revenue represents tolls collected and does not include violation fees.

Quarterly revenue reflects the date revenue was recorded in MTC's financial system, which can lag from the time the trip was made.

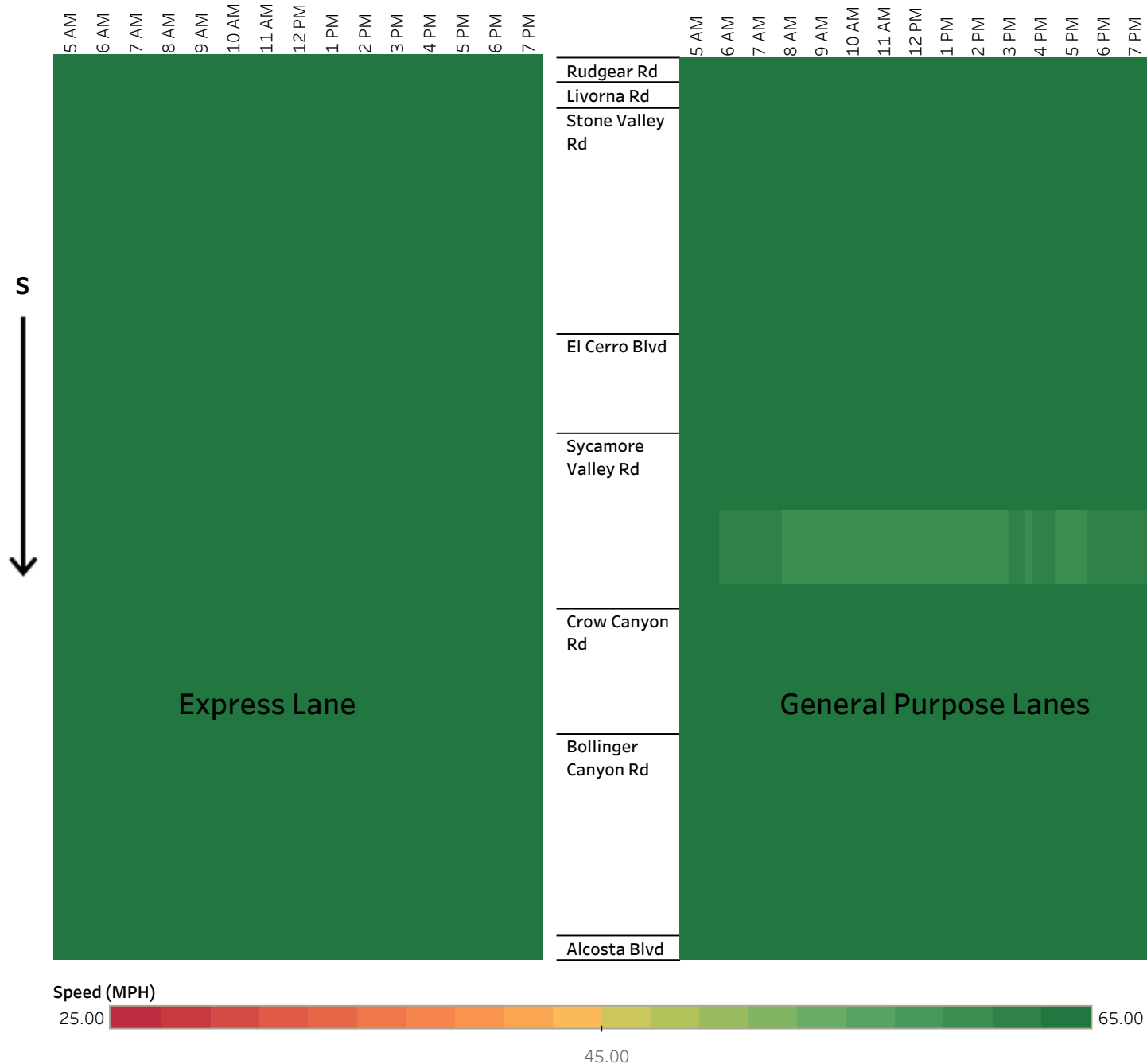
Northbound Speeds by Location & Time



In Q1 2021, northbound express lane average speeds were 65 mph or better from 5 a.m. to 8 p.m. at all corridor locations. Northbound, general purpose lane average speeds fell to lows of around 50 mph at the north end of the corridor in the afternoon.



Southbound Speeds by Location & Time



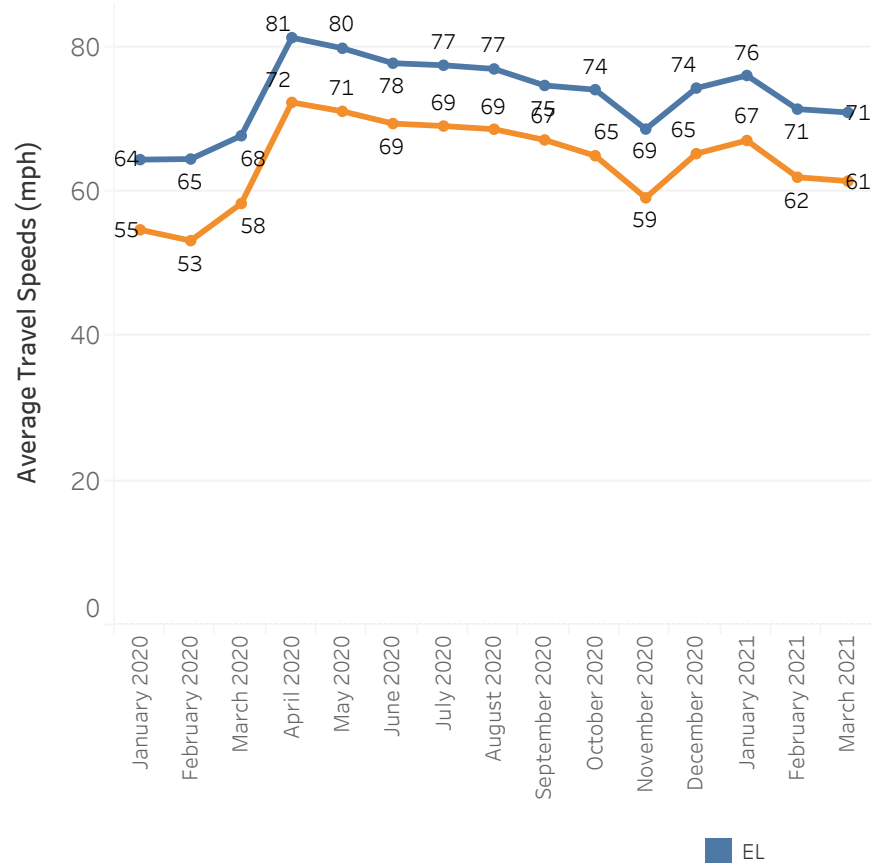
In Q1 2021, southbound express lane and general purpose lane average speeds were 65 mph or better from 5 a.m. to 8 p.m. at all corridor locations.

Peak Hour Average Corridor Speeds

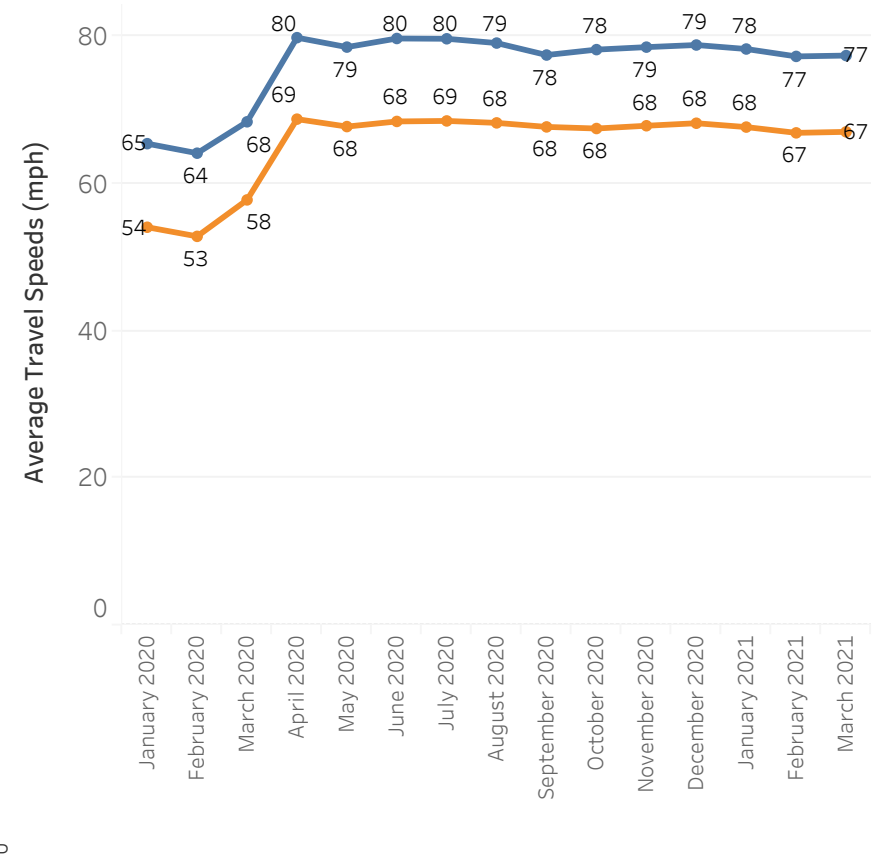
Peak-hour monthly average speeds for the length of the corridor spiked in April 2020 at the beginning of the COVID-19 pandemic. Northbound, speeds have been generally declining since their highs of 81 mph in the express lane and 72 mph in the general purpose lane. Southbound, speeds have remained relatively consistent since April 2020 at 67 to 69 mph in the GP lanes and 77 to 80 mph in the express lane.

The average historical peak hour speed differential between the express lanes and the general purpose lanes is 10 mph northbound and 11 mph southbound. In Q1 2020, the average differential was 9 mph northbound and 10 mph southbound.

Northbound P.M. Peak Hour (5 - 6pm) - Corridor



Southbound A.M. Peak Hour (8 - 9am) - Corridor



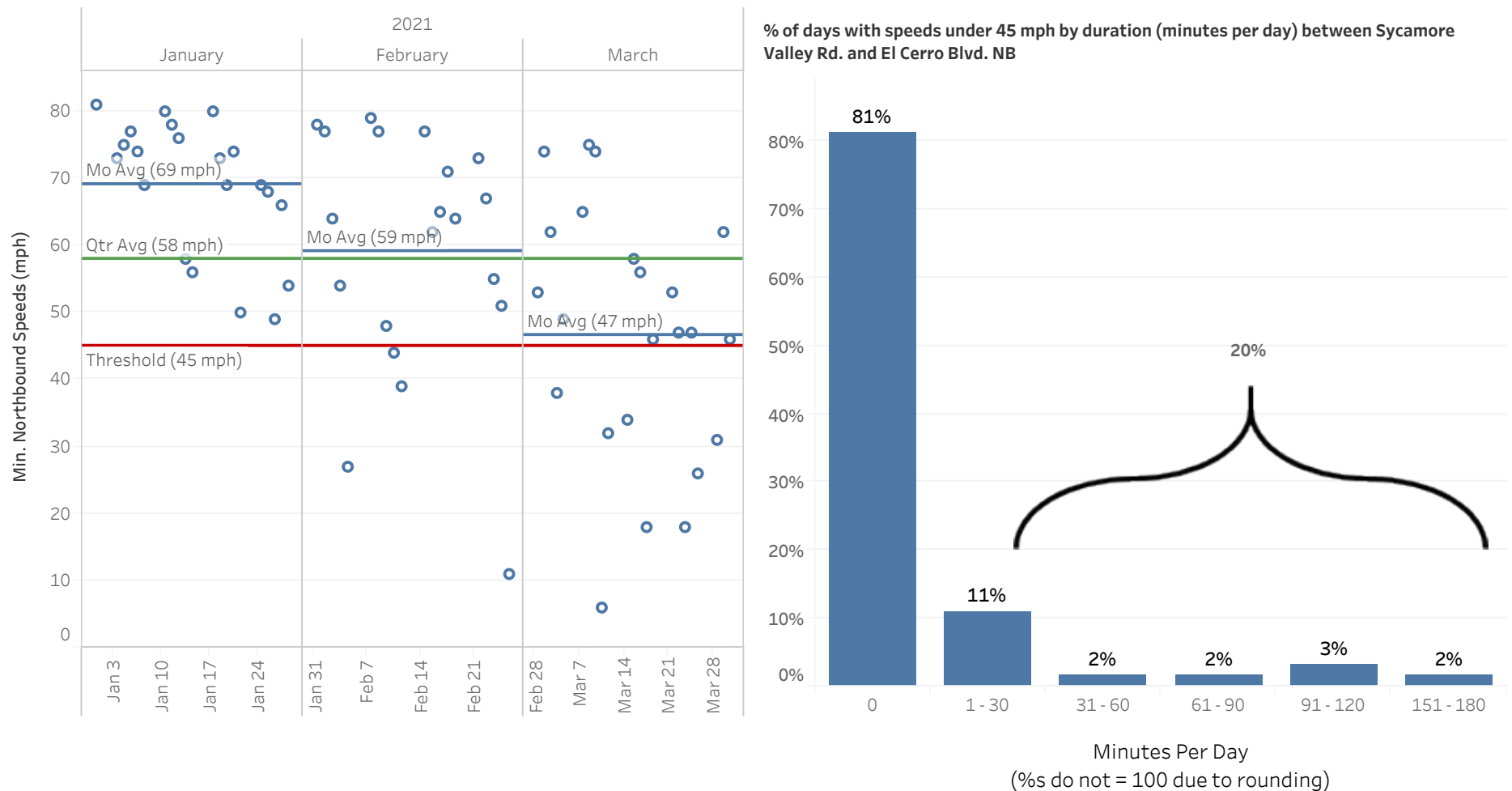
Speeds are averaged over the distance of the express lane. Peak hours are defined as the hours with lowest average corridor speeds across all lanes.

Lowest NB Exp Lane Speed - near El Cerro

Northbound express lane traffic speeds are typically slowest between Sycamore Valley Rd. and El Cerro Blvd. At this location, the lowest daily express lane speed averaged 58 mph for the quarter compared to 45 mph a year ago. It fell below 45 mph on 12 of the 64 days (19%) in the quarter (compared to 65% of Q1 2020 days).

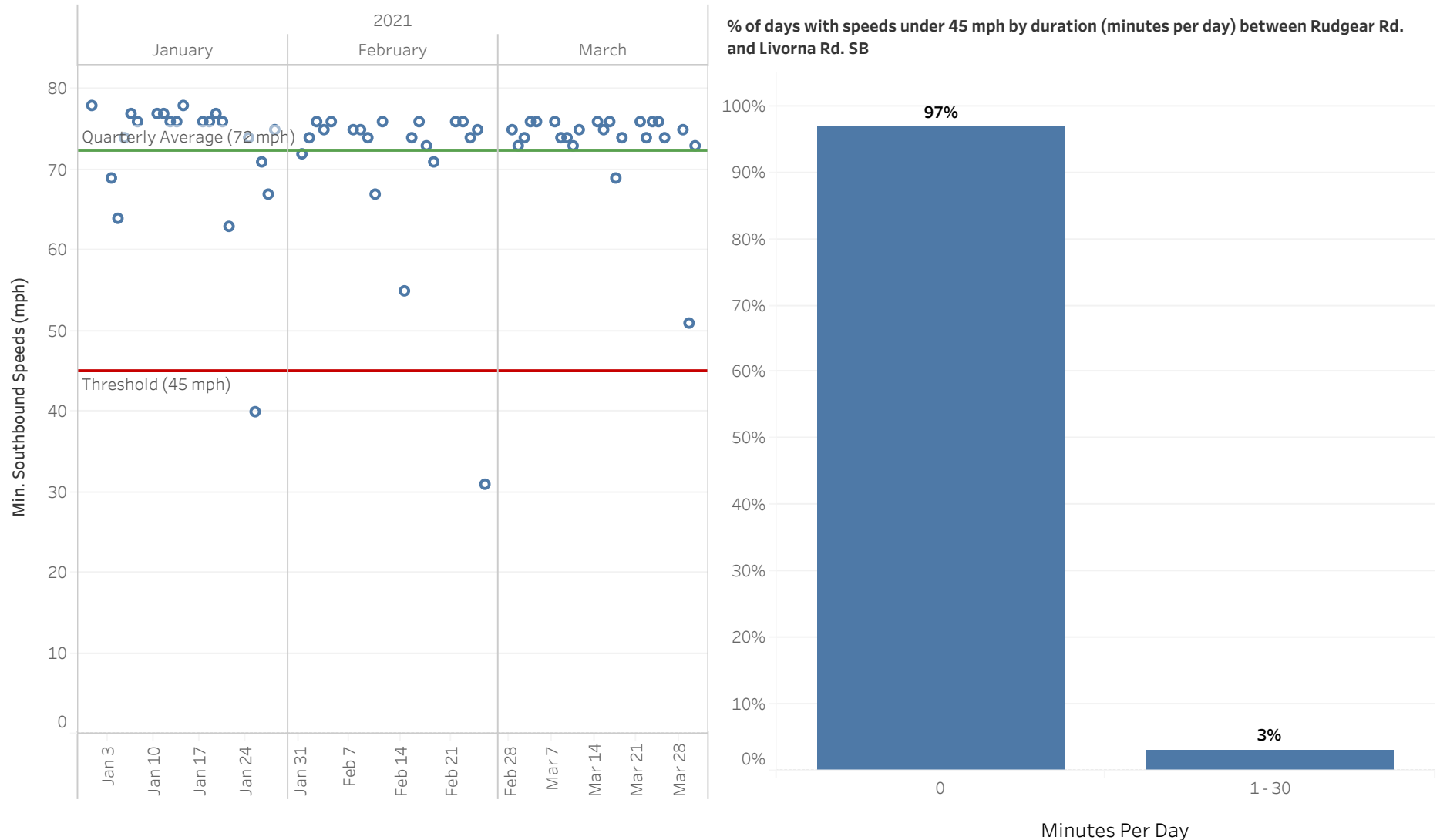
Express lane speed at this location slowed over the course of the quarter. In January, the lowest daily average speed was 69 mph; in March it was 49 mph. Speeds never fell below 45 mph in January, but did so on 8 days in March.

The duration of the slow speed incidences was short, with about 9% lasting longer than 30 minutes (compared to 32% lasting longer than 30 minutes in Q1 2020).



Lowest SB Exp Lane Speed - near Livorna

Southbound express lane traffic speeds are typically slowest between Rudgear Rd. and Livorna Rd. Southbound traffic remained light due to COVID-19, and the lowest daily speed at this location averaged 72 mph over the quarter (compared to 54 mph in Q1 2020) and fell below 45 mph on just 2 of the 64 days (3%) in the quarter (compared to 52% of days in Q1 2020). Q1 2021 slow speeds were due to traffic incidents and lasted 1 to 30 minutes.



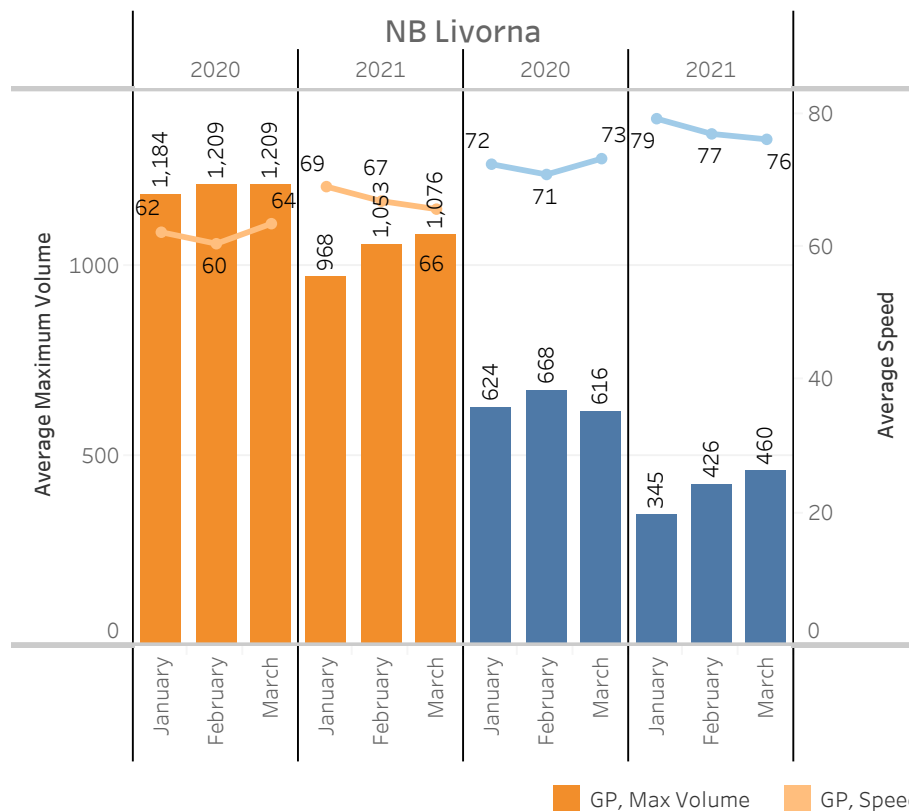
COVID-19 Traffic Impacts - a.m. peak hour

The graphs below explain traffic changes from Q1 2020 to Q1 2021 in the AM peak hour (8 - 9 a.m) in the two busiest zones - NB Livorna on the left and SB Crow Canyon on the right. Bars show average maximum vehicle volumes and lines show average speeds.

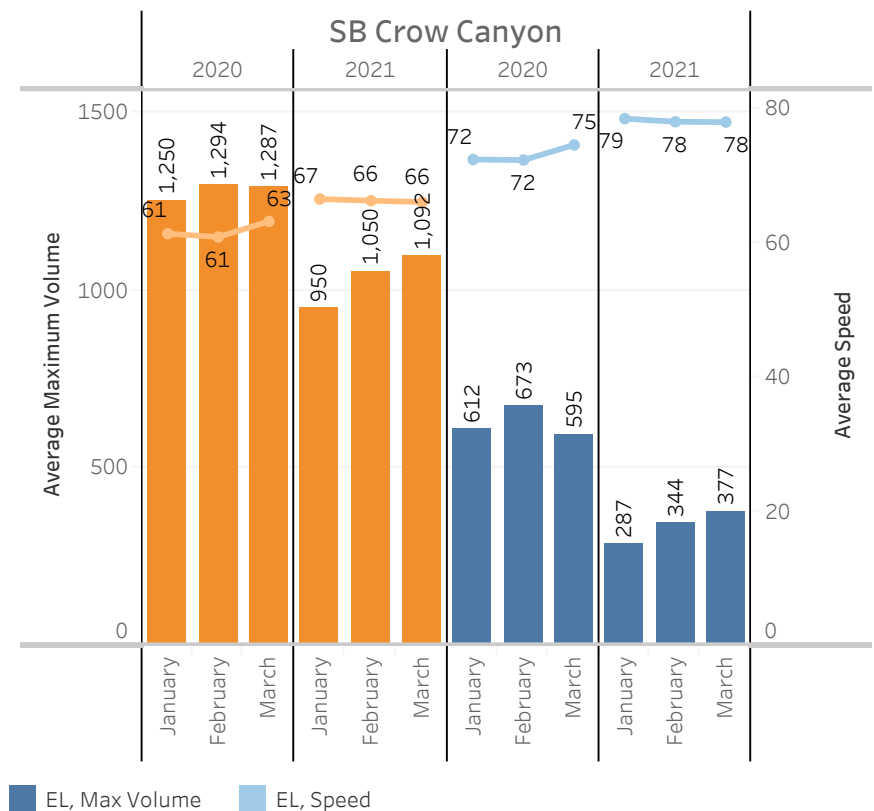
In the NB Livorna Zone, general purpose lane average maximum volume fell 14% (orange bars) and average speed rose from 62 to 67 mph (orange lines). Express lane average maximum volume fell 36% (blue bars) and average speed rose from 72 to 77 mph (blue lines).

In the SB Crow Canyon Zone, general purpose lane average maximum volume fell 19% (orange bars) and average speed rose from 62 to 66 mph (orange lines). Express lane average maximum volume fell 47% (blue bars) and average speed rose from 73 to 78 mph (blue lines).

AM Peak Hour (8 a.m. - 9 a.m.)



AM Peak Hour (8 a.m. - 9 a.m.)



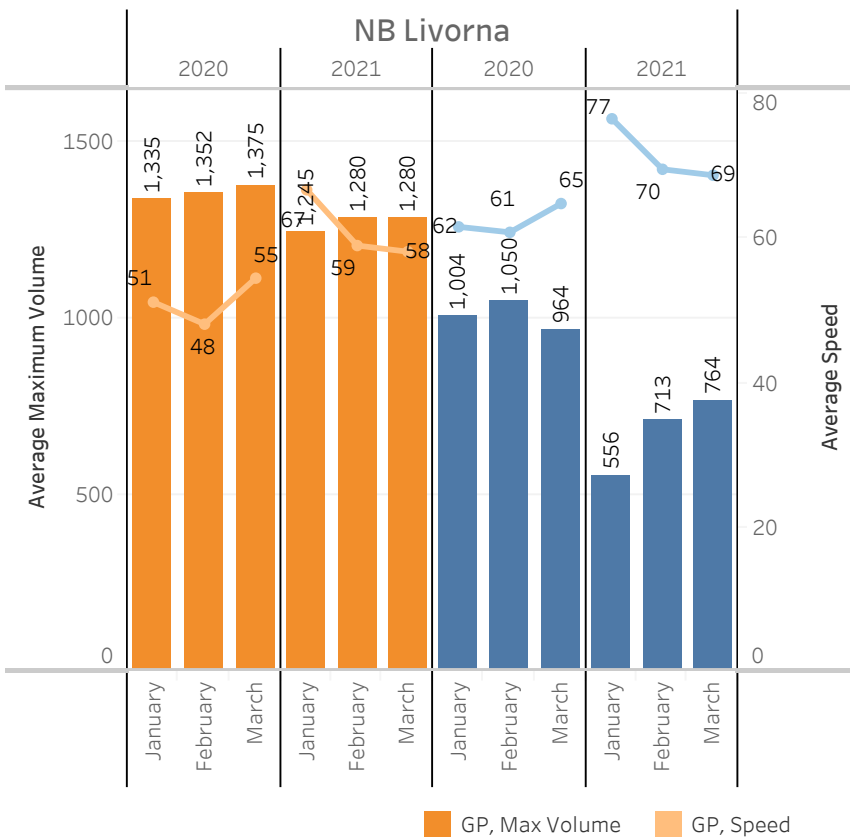
COVID-19 Traffic Impacts - p.m. peak hour

The graphs below explain traffic changes from Q1 2020 to Q1 2021 in the PM peak hour (5 - 6 p.m.) in the two busiest toll zones - NB Livorna on the left and SB Crow Canyon on the right. Bars show average maximum vehicle volumes and lines show average speeds.

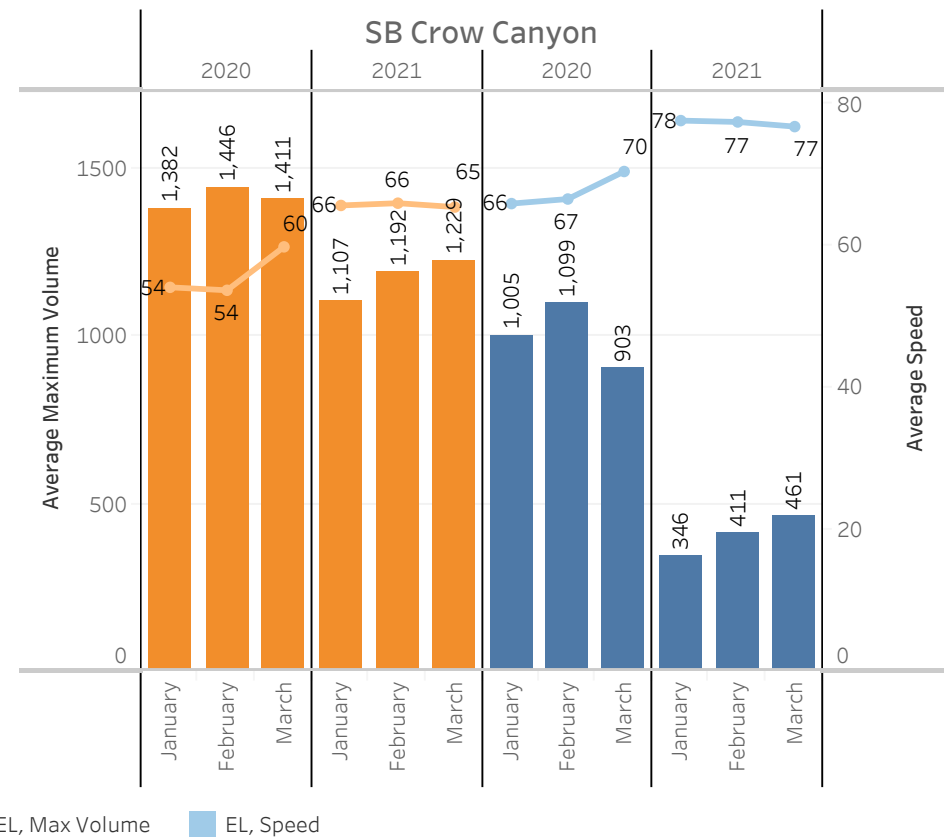
In the NB Livorna Zone, general purpose lane average maximum volume fell 6% (orange bars) and average speed rose from 51 to 61 mph (orange lines). Express lane average maximum volume fell 33% (blue bars) and average speed rose from 62 to 72 mph (blue lines).

In the SB Crow Canyon Zone, general purpose lane average maximum volume fell 16% (orange bars) and average speed rose from 54 to 66 mph (orange lines). Express lane average maximum volume fell 60% (blue bars) and average speed rose from 68 to 77 mph (blue lines).

PM Peak (5 p.m. - 6 p.m.)



PM Peak (5 p.m. - 6 p.m.)



Quarterly Average Tolls Paid - Year Over Year

Q1 2021 average tolls paid northbound peaked at \$3.60 in the 4 to 5 p.m. hour, half the \$7.20 peak in Q1 2020.

Typically, the southbound peak period occurs in the a.m. Like the prior two quarters, this was not observed in Q1 2021 due to reduced commuting during COVID-19. The Q1 2021 southbound a.m. peak toll was \$0.70 compared to \$5.70 in Q1 2020.

Northbound



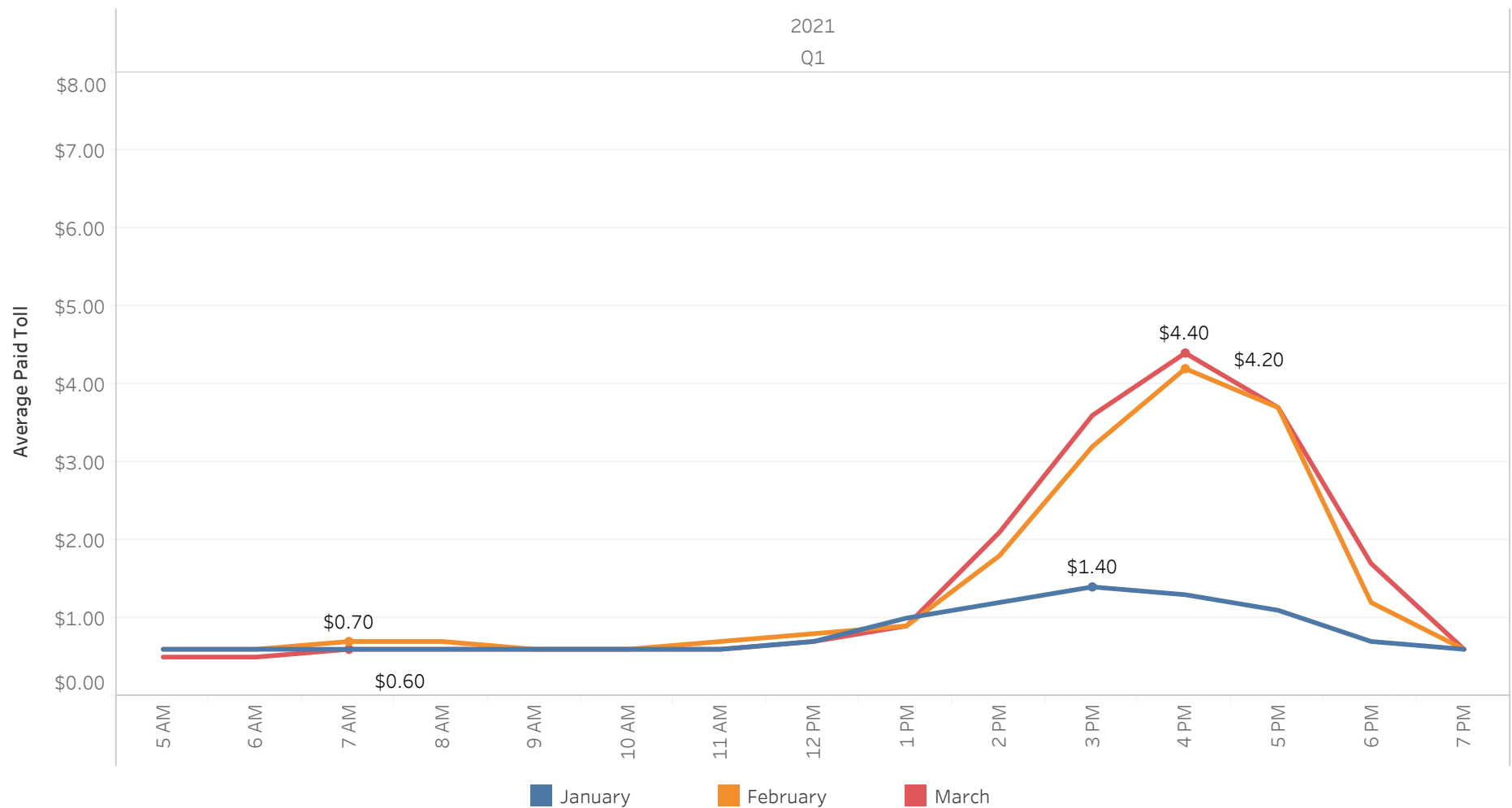
Southbound



Northbound Tolls

The tolls drivers pay depend on traffic conditions and the distances traveled. Northbound average tolls paid peaked at \$4.40 in the 4 to 5 p.m. hour in Q1 2021, which is higher than in Q4 2020 (\$3.70) or Q3 2020 (\$2.10), but still lower than typical pre-COVID conditions, when the peak northbound average tolls paid were greater than \$5.

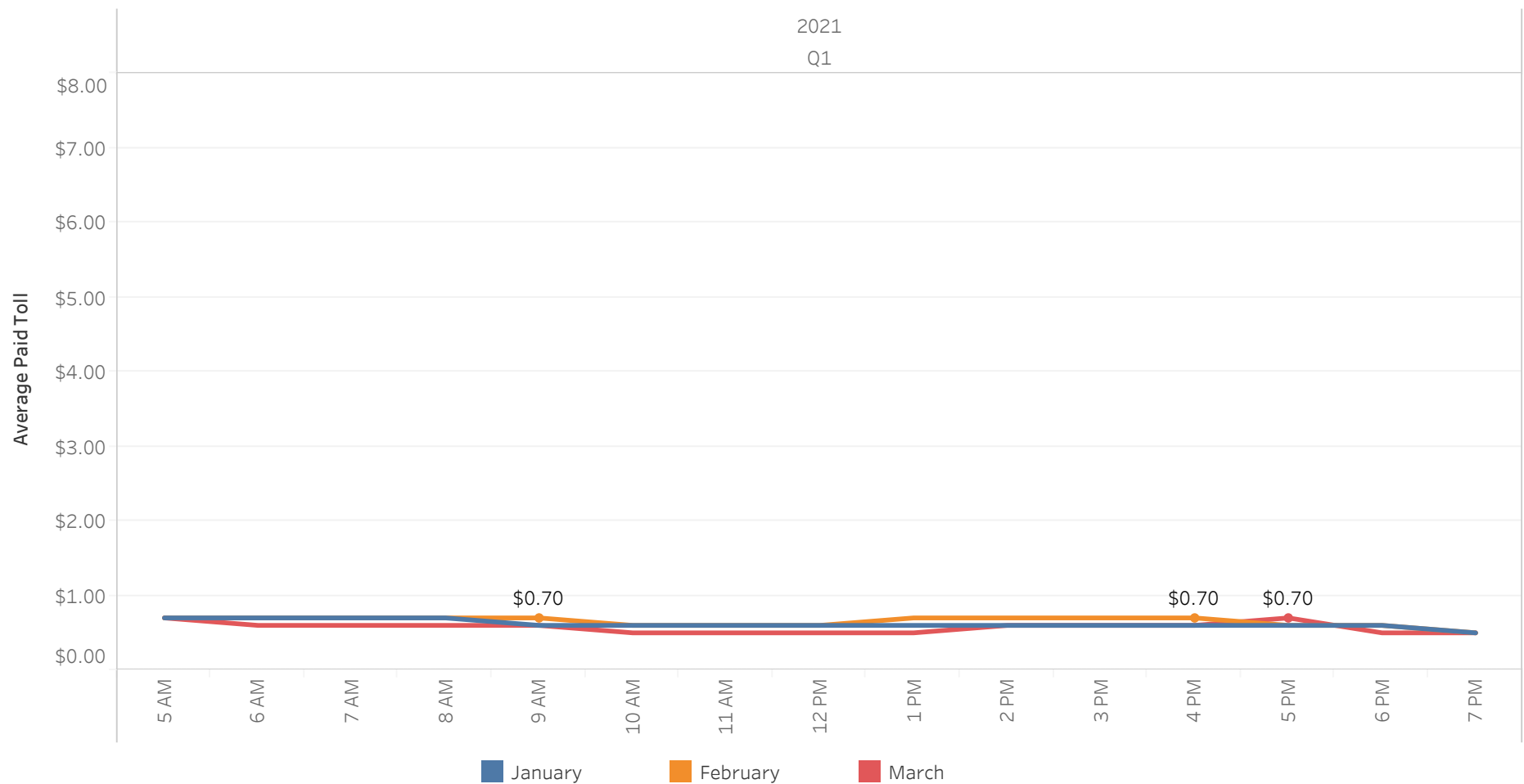
Demand for northbound express lane travel increased over the quarter. While northbound tolls paid to travel the entire corridor never reached \$10 in January, they did so on half of the tolling days in the second half of the quarter. Most (56%) of instances of \$10 tolls occurred between 4 and 6 p.m.



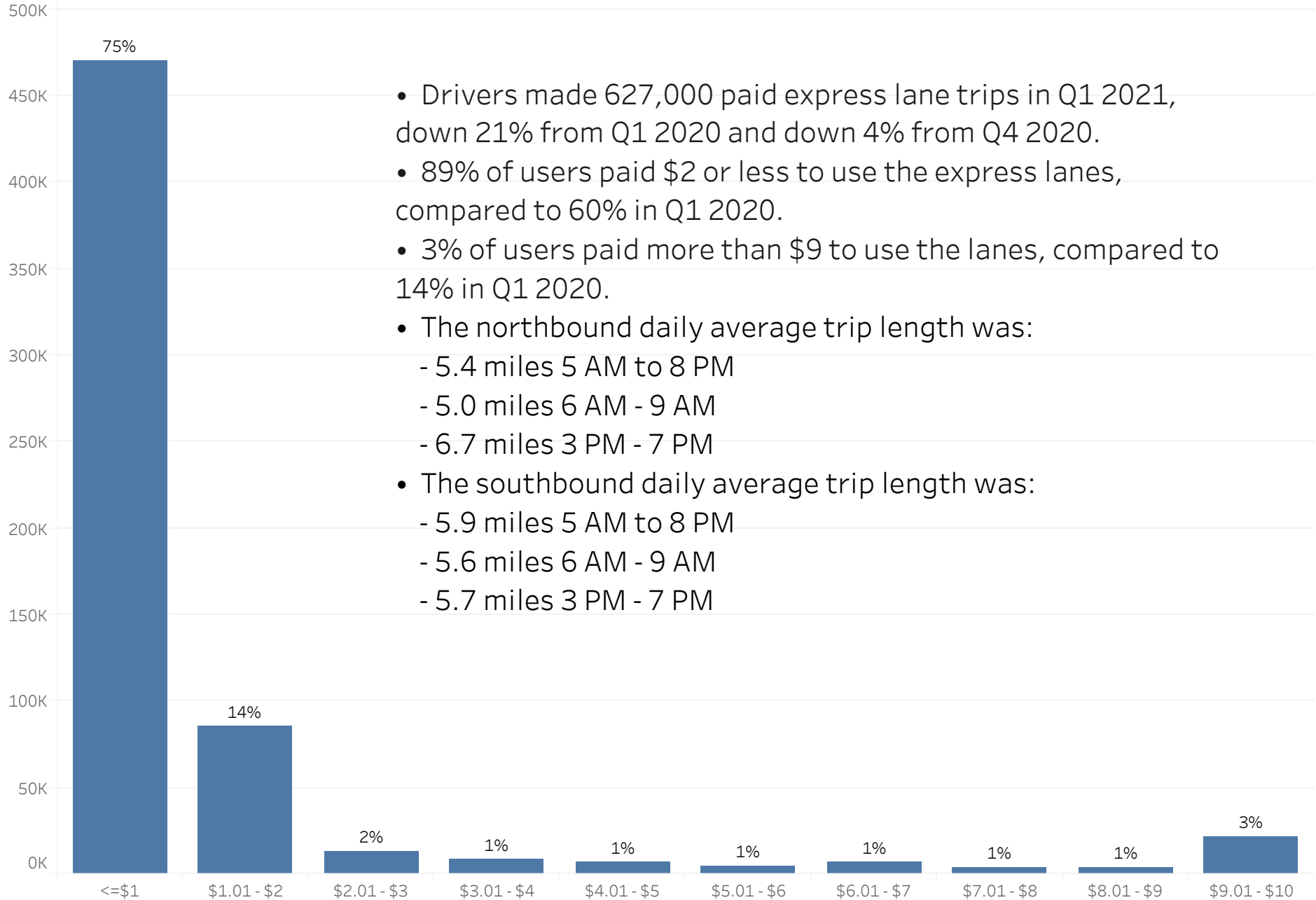
Southbound Tolls

The tolls drivers pay depend on traffic conditions and the distances traveled. Q1 2021 southbound average tolls paid were similar to Q4 2020 at \$0.50 to \$0.70.

Easily flowing traffic due to COVID-19 kept southbound tolls consistently below \$1.75 throughout 90% of the tolling days in the quarter.

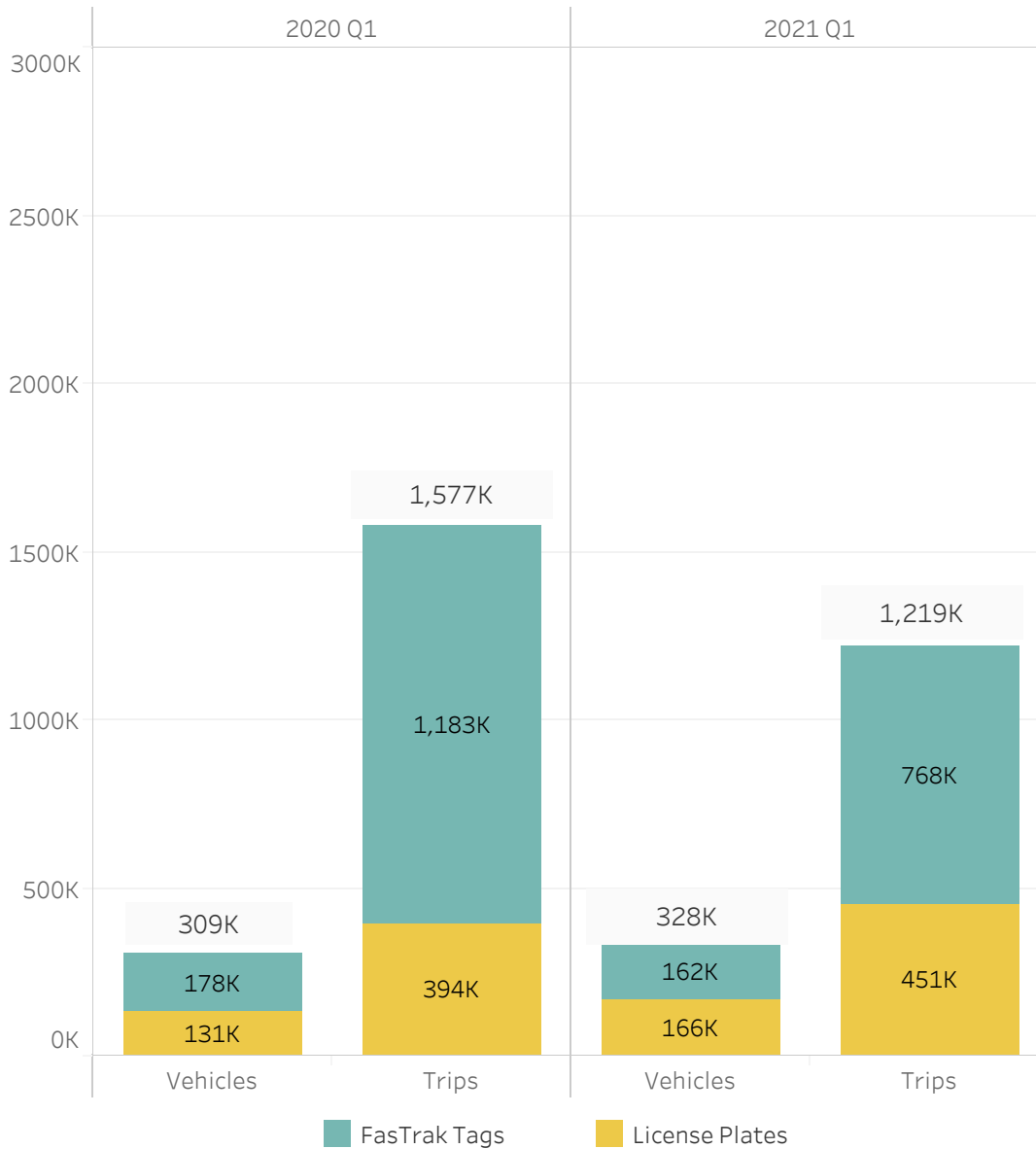


Toll Distribution



- Drivers made 627,000 paid express lane trips in Q1 2021, down 21% from Q1 2020 and down 4% from Q4 2020.
- 89% of users paid \$2 or less to use the express lanes, compared to 60% in Q1 2020.
- 3% of users paid more than \$9 to use the lanes, compared to 14% in Q1 2020.
- The northbound daily average trip length was:
 - 5.4 miles 5 AM to 8 PM
 - 5.0 miles 6 AM - 9 AM
 - 6.7 miles 3 PM - 7 PM
- The southbound daily average trip length was:
 - 5.9 miles 5 AM to 8 PM
 - 5.6 miles 6 AM - 9 AM
 - 5.7 miles 3 PM - 7 PM

How Drivers Use the Lanes



In Q1 2021, 328,000 unique vehicles made about 1.2 million express lane trips. 162,000 of these vehicles (49%) carried toll tags and made 768,000 express lane trips (63% of trips) for an average of 4.7 trips per user. 166,000 of the unique vehicles (51%) did not carry toll tags and made 451,000 express lane trips (37% of trips) for an average of 2.7 trips per user. These trips were captured by license plate reads.

The 51% share of vehicles relying on license plate reads grew 8% from 43% in Q1 2020. The 37% share of trips made with license plate reads grew 12% from Q1 2020 when 25% of trips were license plate based. While the Q1 2021 shares are greater than Q1 2020, they are down from Q4 2020; -8% for vehicles and -1% for trips.

Of the 451,000 license plate trips made, about 30% were not matched to FasTrak accounts resulting in the 11% violation rate shown on page 5.

Lane Use Frequency

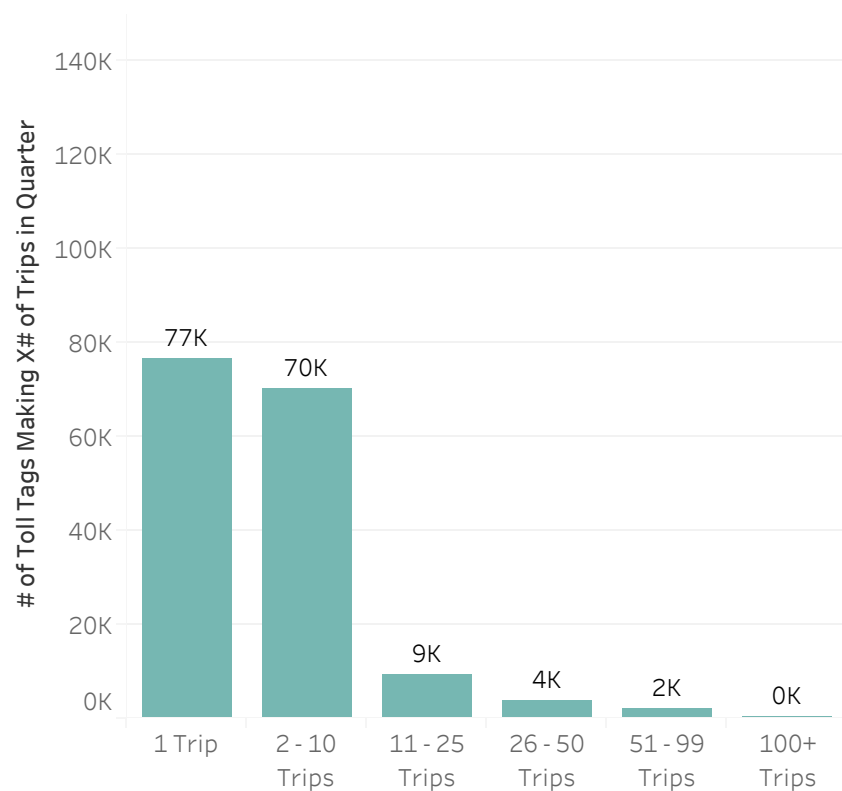
The graphs below show how frequently users made express lane trips.

Of the 162,000 FasTrak tags observed in Q1 2021, 77,000 (48%) made just one trip, while another 70,000 (43%) made 2 to 10 trips in the quarter. Of the 166,000 license plates (without toll tags)* observed in Q1 2021, 127,000 (76%) made just one trip, while another 66,000 (39%) made 2 to 10 trips in the quarter.

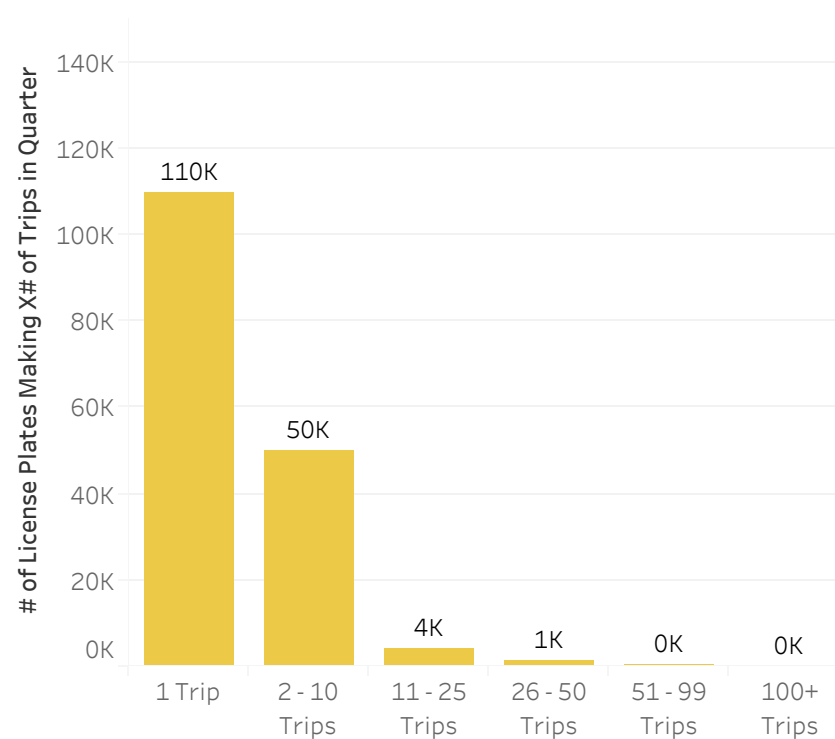
Over 300 vehicles with toll tags made over 100 trips, and 71 license plate-only lane users made over 100 trips.

*Includes violators and license plates matched to toll accounts.

Toll Tag Lane Users - Trips Made per Tag



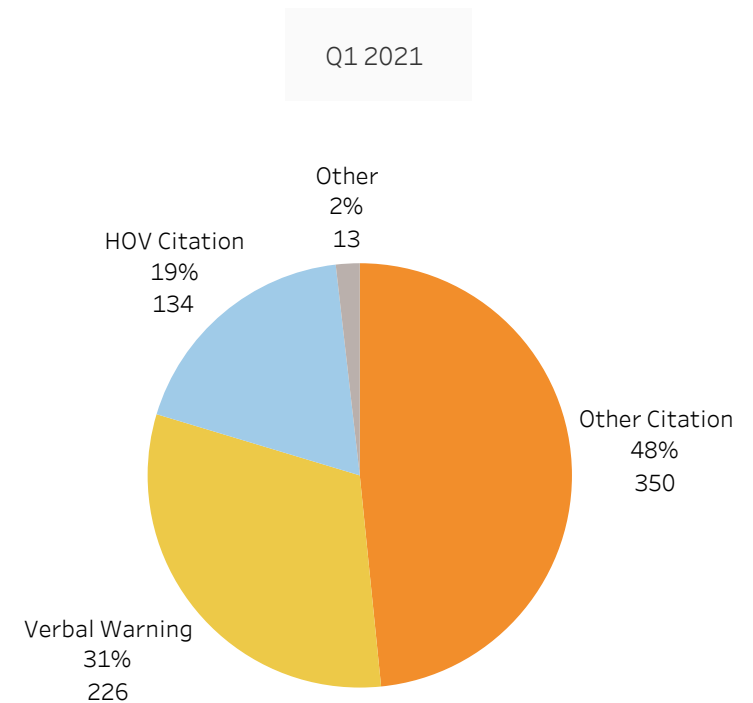
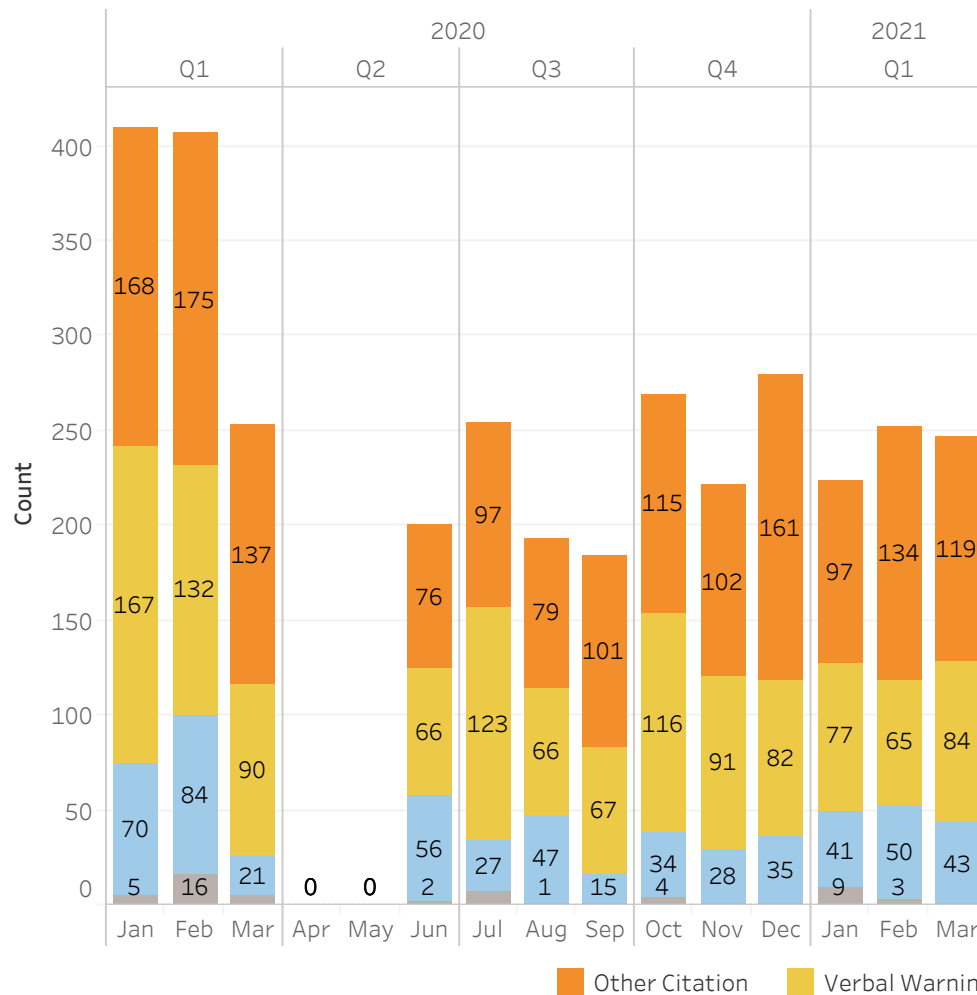
License Plate Lane Users* - Trips Made per Plate



CHP Enforcement

CHP made 723 enforcement contacts in Q1 2021, 134 of them (19%) resulting in HOV occupancy citations. There were 32% fewer contacts and 23% fewer HOV occupancy citations than Q1 2020.

BAIFA requested fewer enforcement hours in Q1 2021 than in Q1 2020 due to COVID-19 related traffic decreases. CHP filled 90% of the requested hours resulting in 34% fewer enforcement hours in Q1 2021 than in Q1 2020. The Q1 2021 enforcement costs were \$72,115 for an average cost per enforcement contact of ~\$100.



For more information, go to: mtc.ca.gov/express-lanes



APPENDIX D

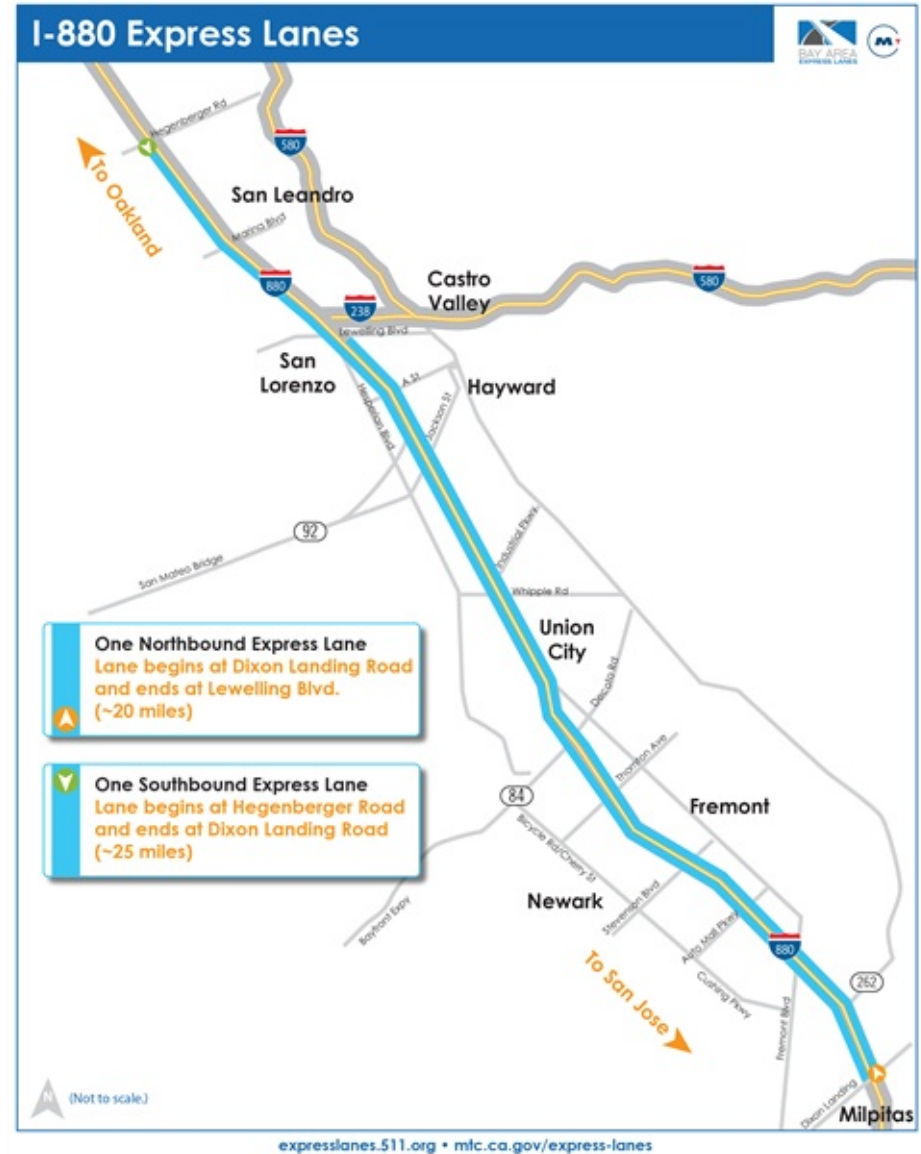
I-880 Alameda Express Lanes Operations Report

I-880 Express Lanes Performance 1st Quarter 2021: January - March



Rules of the Road

- Hours: 5 a.m. to 8 p.m. Monday - Friday
- FasTrak® required
- Carpools (3+) and motorcycles travel toll-free with FasTrak Flex® toll tags.
- Carpools (2) pay half-price tolls with FasTrak Flex toll tags.
- Solo-drivers in eligible clean-air vehicles pay half-price tolls with FasTrak CAV toll tags.



Summary of Performance Highlights

Trips & Revenue

- In Q1 2021, about 2.6 million express lane trips were recorded in the I-880 Express Lanes, a slight decline from Q4 2020. Of these, 1.5 million were tolled trips that generated \$4.4 million in toll revenue.
- 24% of trips were toll-free, 9% were half-toll, 50% were full toll and 17% were toll violators without FasTrak. The violation rate, while high, fell from 22% in the prior quarter. High violation rates are common when express lanes are new and drivers are learning the tolling rules.



Speeds & Volumes

- Northbound, in the peak hour, express lane corridor-long average speeds were 20 to 23 mph faster than the general purpose lane speeds. Southbound, they were 14 to 16 mph faster.
- At the most congested northbound location, express lanes speeds dropped below 45 mph on 29 of the 64 days (45%) in the quarter. Southbound, the most congested location saw express lane speeds drop below 45 mph on 5 days (8%).
- In the most congested northbound toll zone, maximum lane volumes rose over Q4 2020 - 3% in the general purpose lanes and 6% in the express lane. Southbound, they rose 2% in the general purpose lanes but fell 5% in the express lane.

Tolls

- Average monthly tolls paid peaked northbound from 3 - 4 p.m. between \$3.10 and \$4.40. Southbound, they peaked from 6 - 7 a.m. between \$2.20 and \$3.00.
- Tolls to travel the whole corridor exceeded \$15 in both the north and southbound directions, but fewer than 1% of drivers paid this price. 52% of tolled trips were \$2 or less.



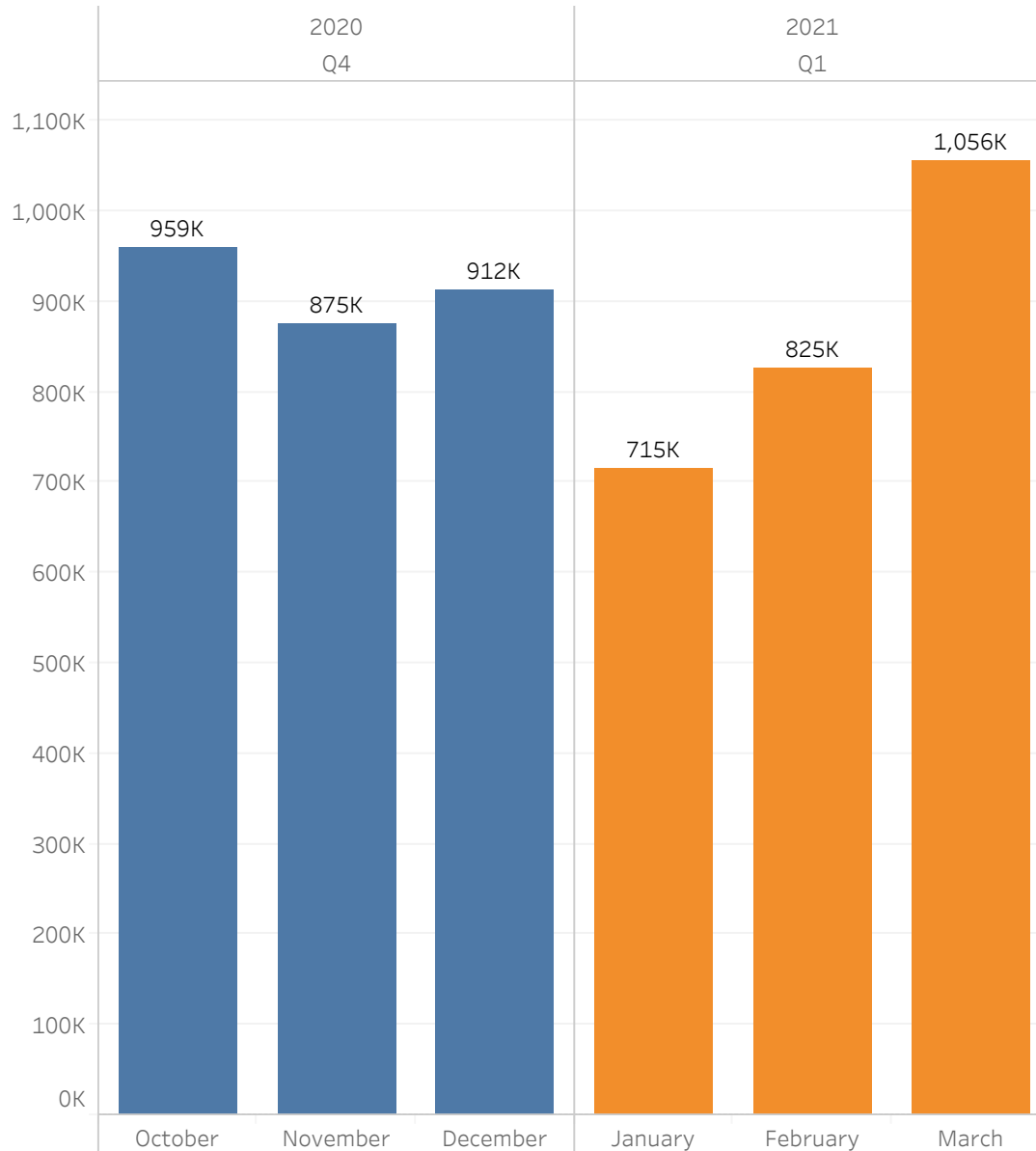
Enforcement

- CHP made 1,832 enforcement contacts in Q1 2021, 6% of which resulted in HOV occupancy citations and 29% in double-white line citations. CHP filled 57% of the hours requested by BAIFA.

Lane Users

- An estimated 512,000 unique vehicles made trips in the 880 express lanes; 48% (247,000) with a toll tag in the vehicle and 52% (265,000) without. License plates were used to record trips of the latter.
- Vehicles carrying FasTrak toll tags made an average of 6.6 trips per vehicle in the quarter, while vehicles identified by license plate made an average of 3.6 trips.

Express Lane Trips

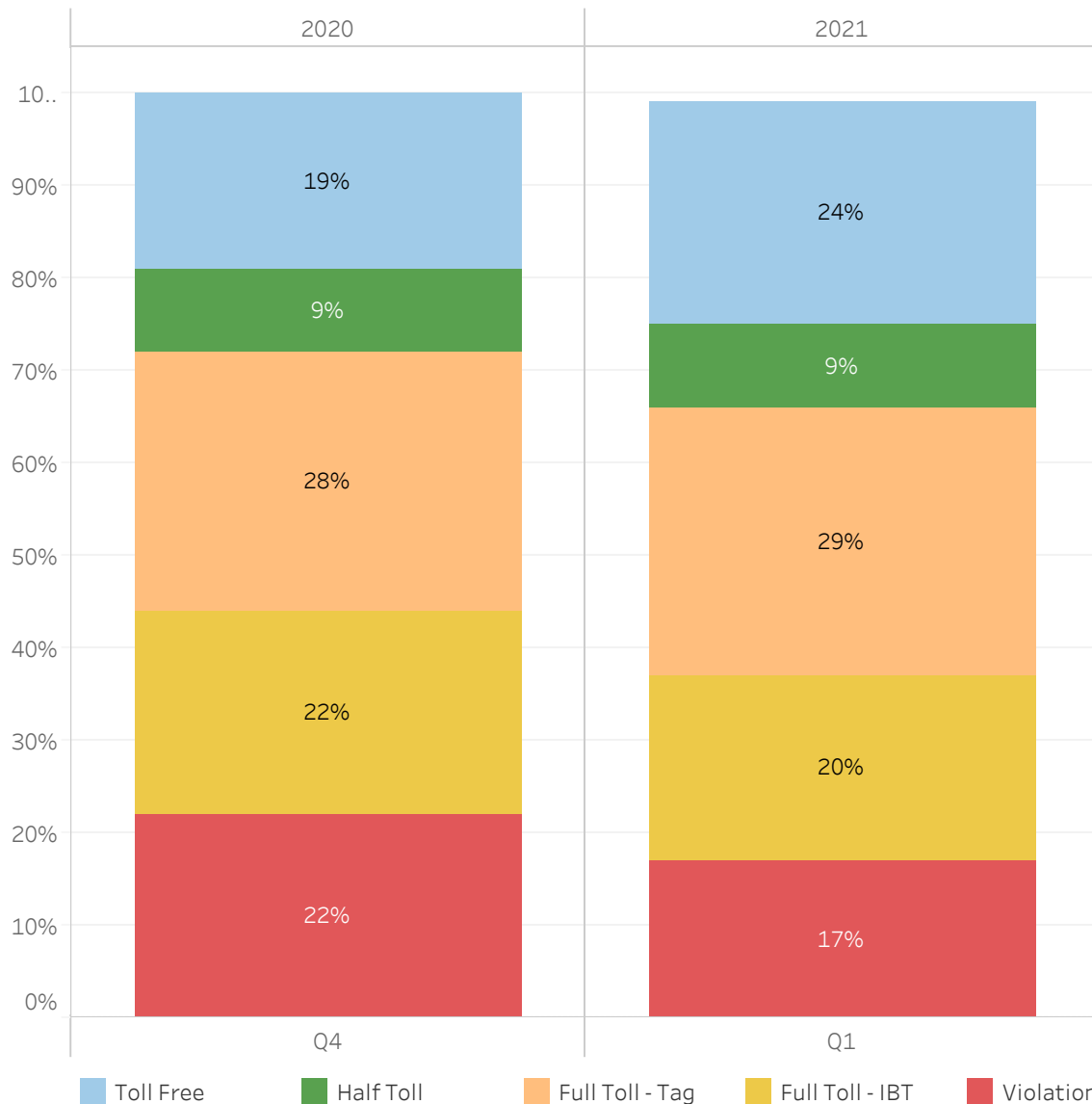


In the first six months of express lane operations on I-880, about 5.3 million express lane trips have been made, an average of 42,000 daily trips.

5% fewer trips were taken in Q1 2021 than in Q4 2020. COVID-19 stay-at-home orders affected both quarters for equal durations*, so the reason for the decline is unclear. March 2021, however, recorded the highest number of monthly express lane trips since tolling began.

*Orders were announced December 3, 2020 and lifted January 25, 2021

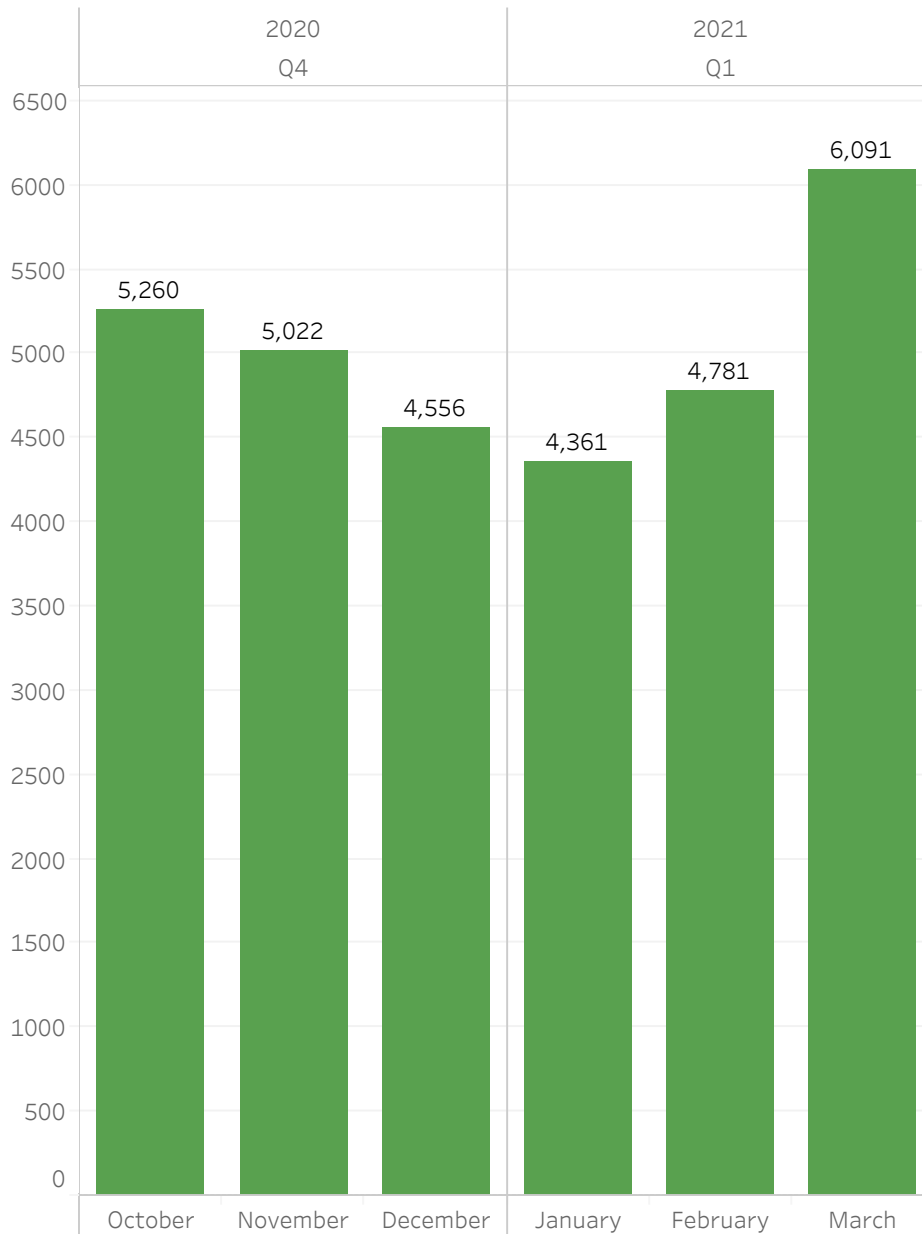
Express Lane Trip Types



- The share of toll-free trips was 24% in Q1 2021, up from 19% in Q4 2020. Toll-free trips are made by 3+ carpools, motorcycles, and vehicles with non-revenue toll tags (e.g., police vehicles).
- Half-toll trips were 9% of trips. Half-toll trips are made by single-occupant Clean Air Vehicles (CAV) and 2-person carpools.
- Full-toll trips were 49% of the express lane trips made this quarter - 29% by drivers with toll tags and 20% by drivers whose license plates were captured and matched to FasTrak accounts (Image-based Trips or IBT). Full-toll trips are made by non-CAV single-occupant vehicles.
- Violations occur when image-based trips are not matched to FasTrak accounts. In Q1 2021, 17% of trips were violations, a decline from 22% in Q4 2020. High violation rates are typical when express lanes are new and drivers are learning the rules.

“Toll Free” trips are recorded by FasTrak Flex tags set at 3+. “Half-Toll” trips are recorded by FasTrak Flex tags set at 2 or by CAV tags. “Full Toll - Tag” trips are recorded by FasTrak Flex tags set at 1 or standard FasTrak tags. “Full Toll - IBT” trips are license plate images matched to FasTrak accounts. “Violations” trips are license plate images not matched to FasTrak accounts.

Express Lane Clean Air Vehicle Trips



Clean Air Vehicles (CAV) are required to carry FasTrak CAV toll tags to use the I-880 Express Lanes at a discount.

In Q1 2021, about 15,000 FasTrak CAV tag trips were recorded, less than 1% of all trips. These tags could have been set in the 1, 2 or 3+ position based on the number of people in the car. Solo and 2-person CAVs pay half-price tolls. 3+ person CAVs travel toll free.

Express Lane Toll Revenue & Paid Trips



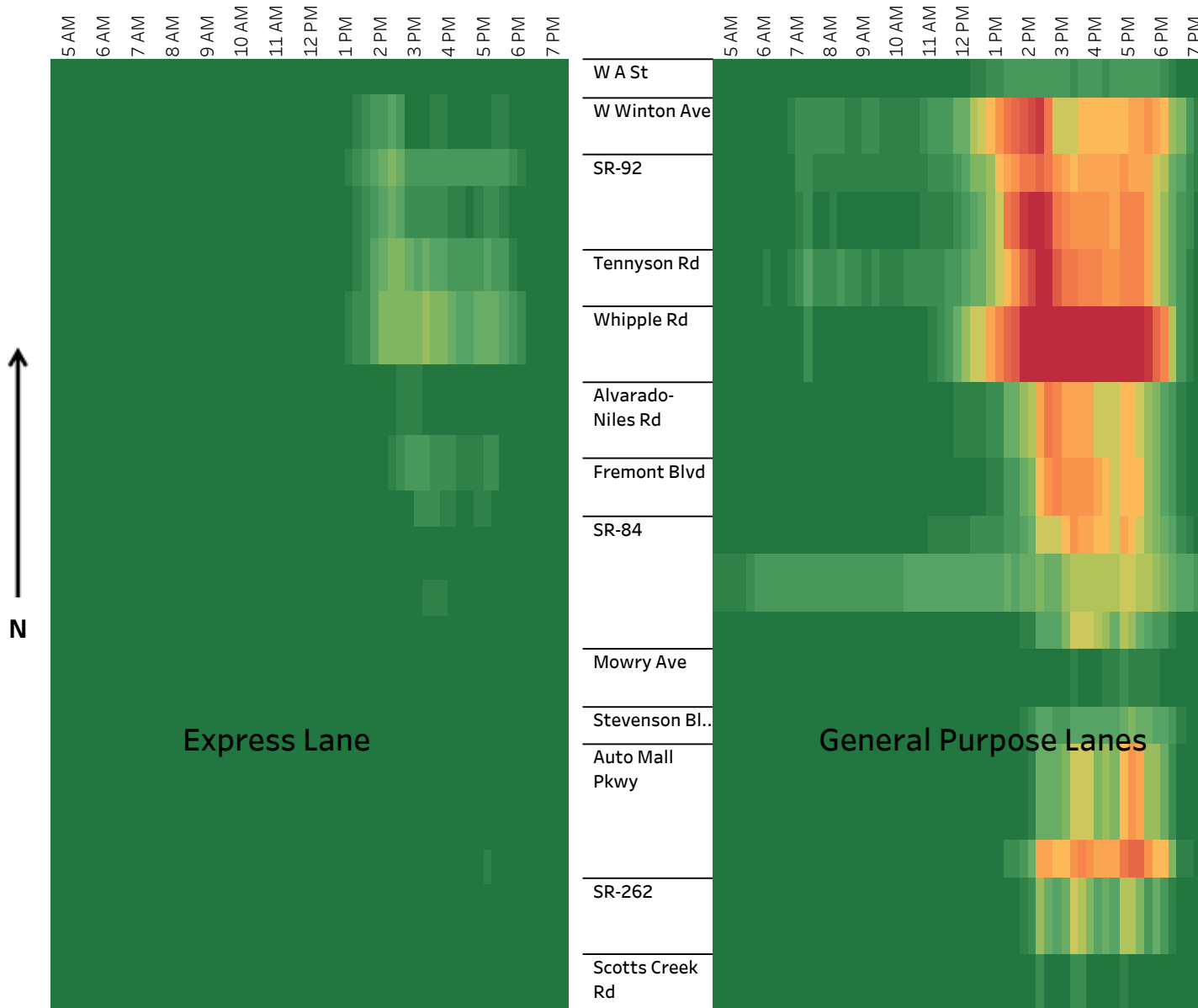
- In Q1 2021, 1.5 million paid express lane trips generated \$4.4 million in toll revenue.
- In Q4 2020, 1.6 million paid express lane trips generated \$4.2 million in toll revenue.

Notes

Toll revenue represents tolls collected and does not include violation fees.

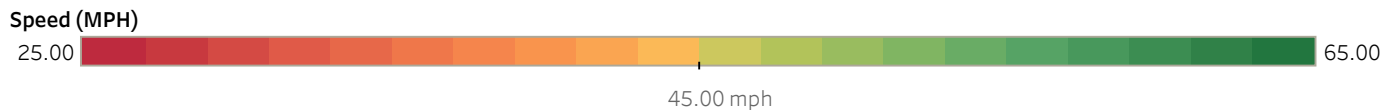
Quarterly revenue reflects the date revenue was recorded in MTC's financial system, which can lag from the time the trip was made.

Northbound Speeds by Location & Time



Northbound Q1 2021 average express lane speeds were 50 mph or better.

Northbound Q1 average general purpose lane speeds were lowest at the northern end of the corridor in the p.m. hours, especially around Whipple Rd., often falling to the high 20's mph range as early as 1 p.m.

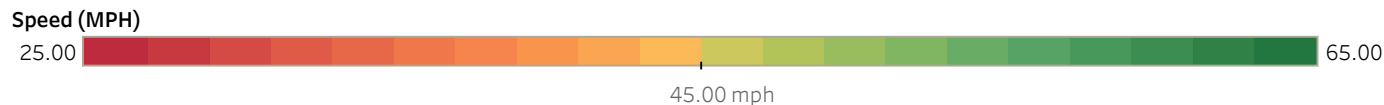


Southbound Speeds by Location & Time



Southbound Q1 2021 average express lane speeds did not dip below 65 mph.

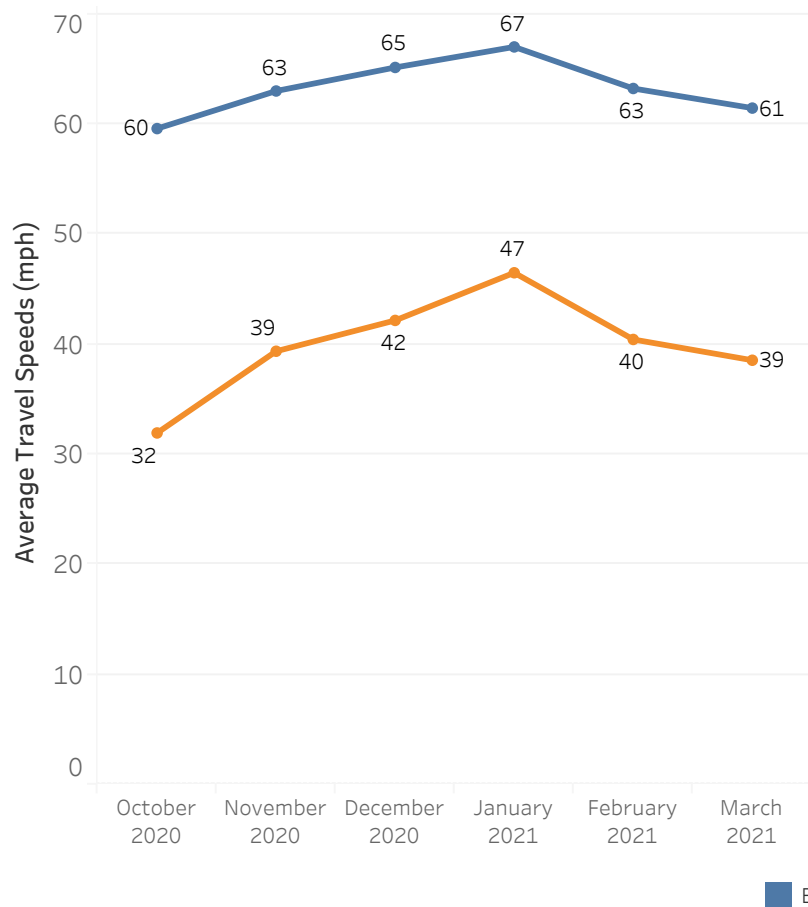
Southbound Q1 2021 average general purpose lane speeds occasionally fell into the 40 mph range in select locations in both the a.m. and p.m. There was no pronounced southbound peak.



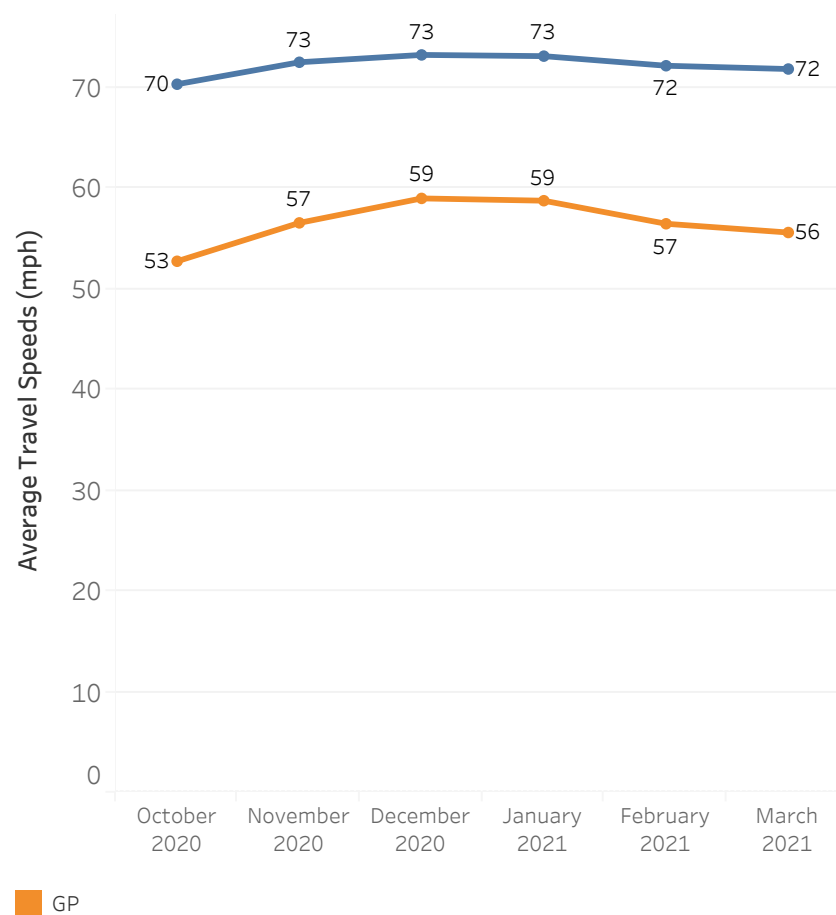
Peak Hour Average Corridor Speeds

The northbound peak traffic occurred between 3 and 4 p.m. Southbound, it occurred between 8 and 9 a.m. In Q1 2021, northbound peak hour average express lane corridor speeds were 20 to 23 mph faster than the average general purpose lane corridor speeds. Southbound, they were 14 to 16 mph faster.

Northbound Peak Hour (3 - 4pm) - Corridor



Southbound Peak Hour (8 - 9am) - Corridor

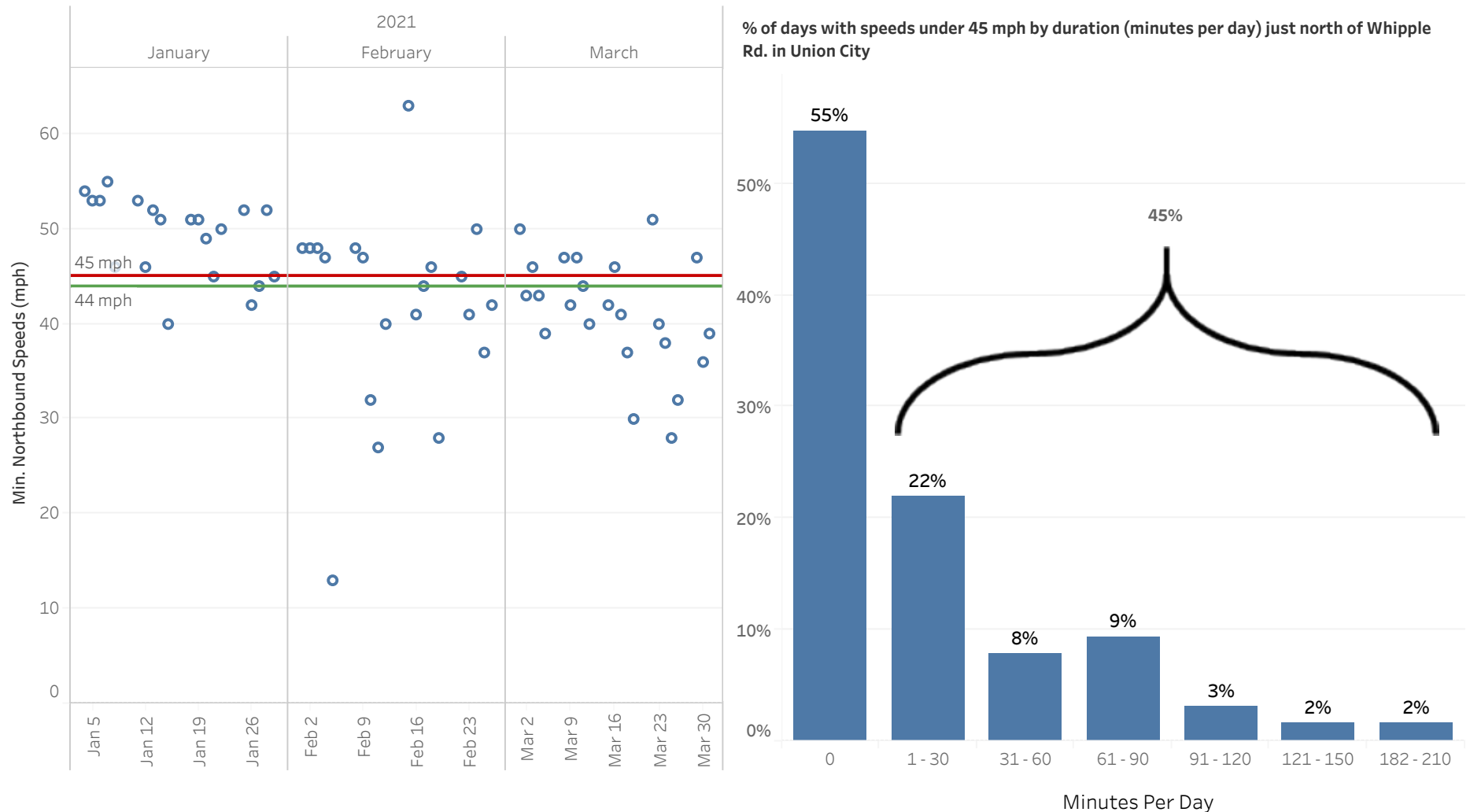


Speeds are averaged over the distance of the express lane. Peak hours are defined as the hours with lowest average corridor speeds across all lanes.

Lowest NB Exp Lane Speed - Whipple Rd.

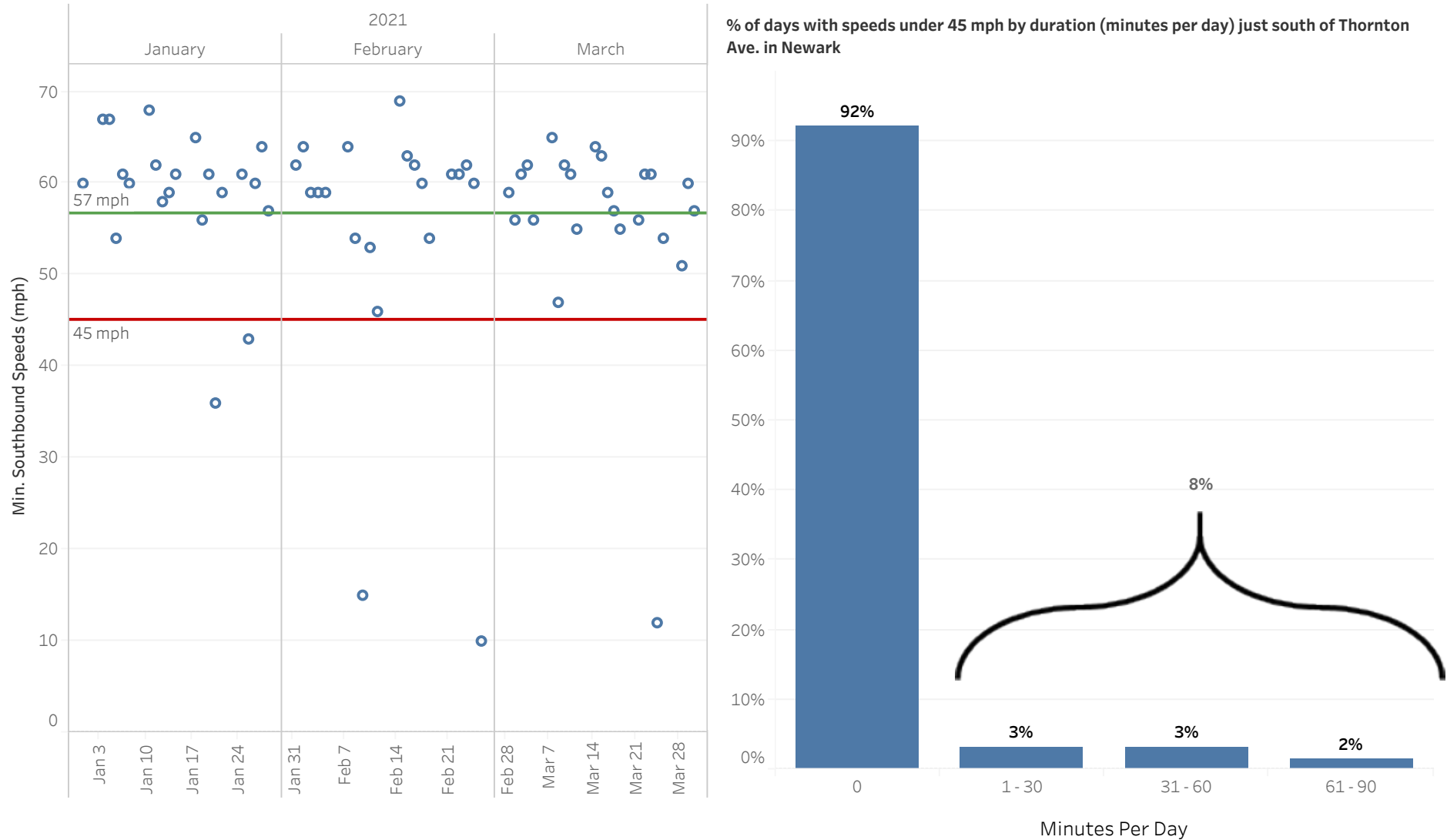
Northbound express lane traffic speeds were slowest around Whipple Rd. At this location, the lowest daily express lane speed averaged 44 mph and fell below 45 mph on 29 of the 64 days (45%) in the quarter. The heat map on page 7 shows that general purpose lane average speeds at this location were below 30 mph for most of the p.m. hours.

The incidences of slow speeds increased over the course of the quarter, a 4.3 fold increase in March compared to January. The incidences lasted longer than an hour on 16% of days in the quarter.



Lowest SB Exp Lane Speed - Thornton Ave.

Southbound express lane traffic speeds were slowest around Thornton Ave. The lowest daily express lane speed at this location averaged 57 mph and fell below 45 mph on 5 of the 64 days (8%) in the quarter. The speed decline lasted 1 to 30 minutes on 3% of days and between 61 to 90 minutes on 5% of days.



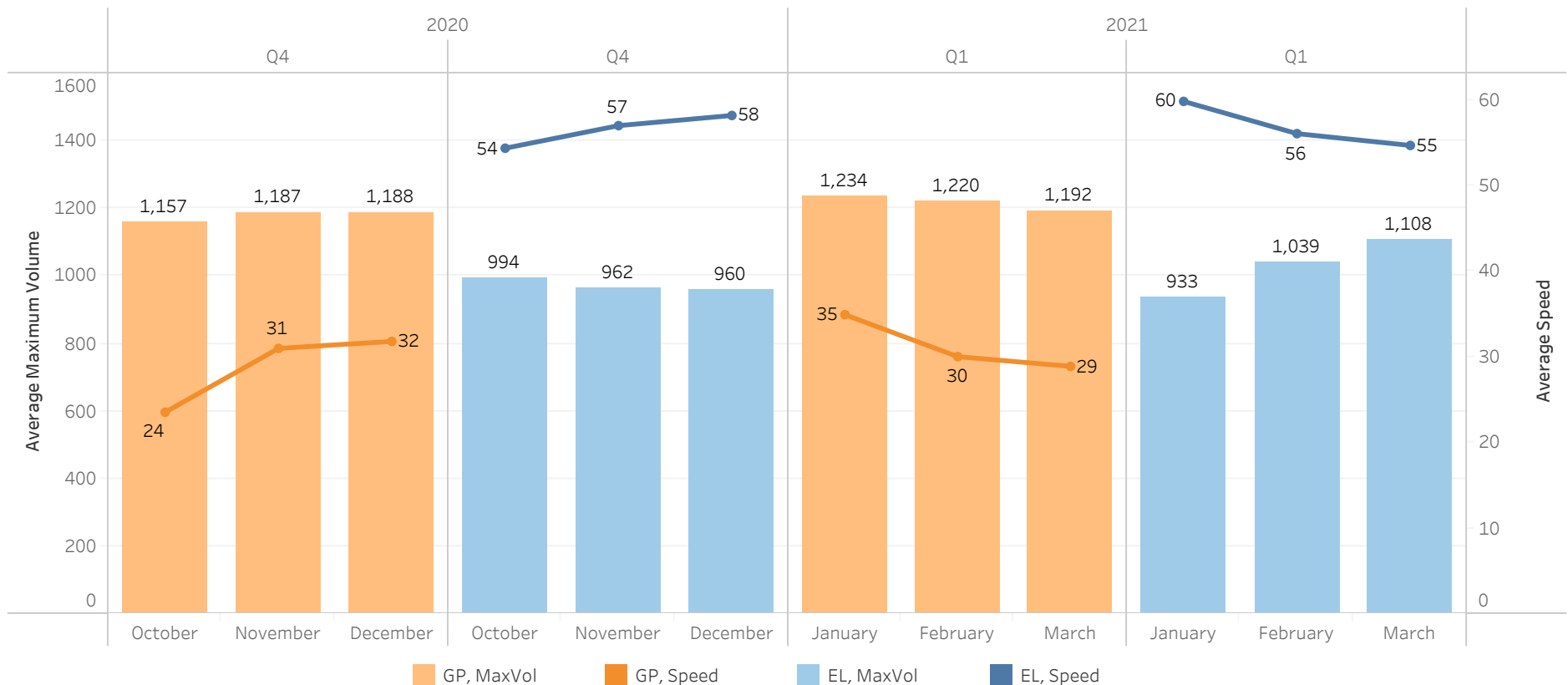
NB Peak Traffic - Volume & Speed

The graphs below show maximum traffic volume and speed in the general purpose lanes (orange bars and lines) and the express lane (blue bars and lines) in the most congested northbound toll zone in the most congested hour (Whipple Rd. to Hesperian Blvd.; 3 - 4 p.m.). Bars show average maximum vehicle volumes and lines show average speeds.

The general purpose lanes exhibit low speeds (orange lines) coupled with lane volumes below capacity (orange bars), indicating that traffic was very heavy at this hour in this toll zone. The express lane (blue), however, flowed well with Q1 2021 average maximum lane volumes about 15% lower and speeds 84% higher than the general purpose lanes.

From Q4 2020 to Q1 2021, average maximum volume increased 3% in the general purpose lanes and 6% in the express lane.

Northbound Peak Hour (3 p.m. - 4 p.m. in Hesperian/238 Toll Zone)



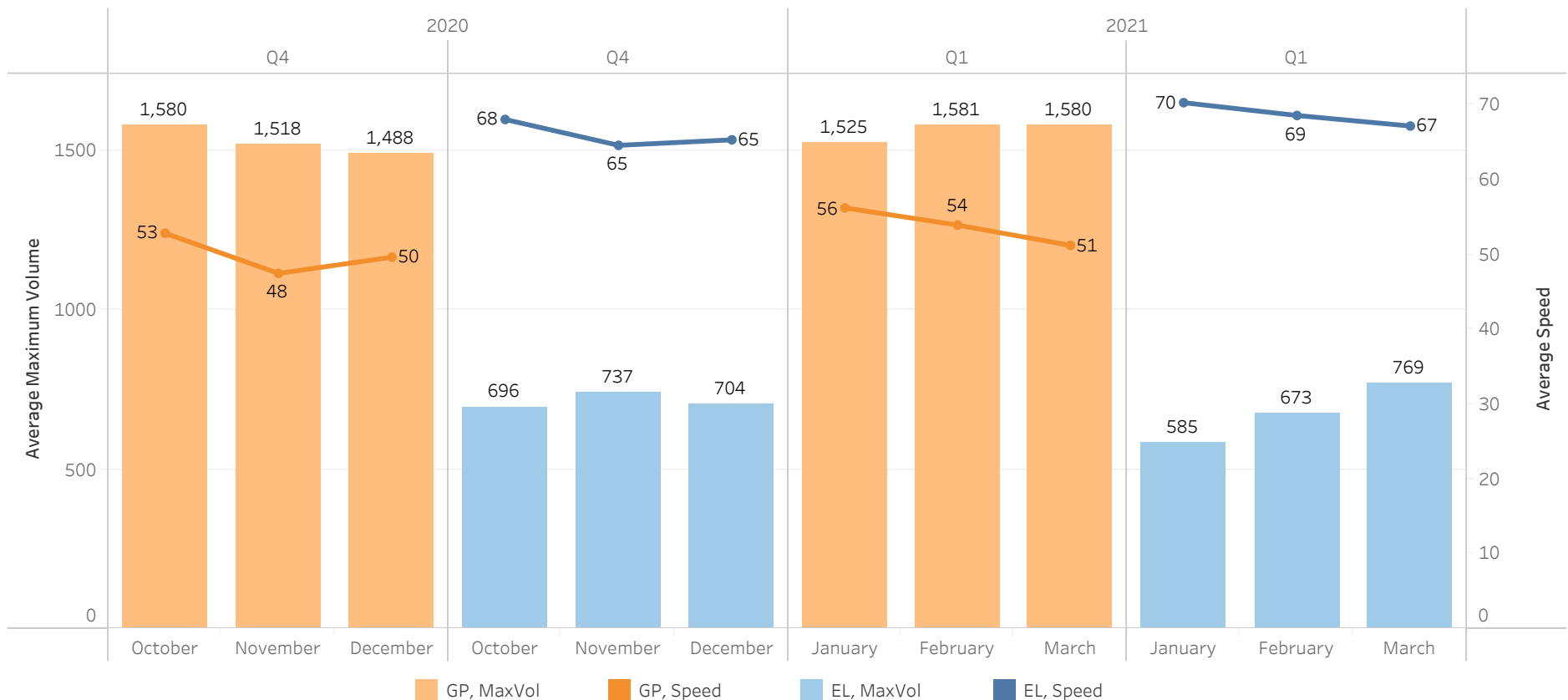
SB Peak Traffic - Volume & Speed

The graphs below show maximum traffic volume and speed in the general purpose lanes (orange bars and lines) and the express lane (blue bars and lines) in the most congested southbound toll zone in the most congested hour (Thornton Ave. to Auto Mall Parkway; 5 - 6 p.m.). Bars show average maximum vehicle volumes and lines show average speeds.

Express lane average maximum volume was less than half than in the general purpose lanes, and the the express lane traveled 28% faster than the general purpose lanes.

From Q4 2020 to Q1 2021, average maximum volume increased 2% in the genral purpose lanes and fell 5% in the express lane.

Southbound Peak Hour (5 p.m. - 6 p.m. in Auto Mall SB Toll Zone)



Quarterly Average Tolls Paid

Q1 2021 average tolls paid northbound peaked at \$4.00 in the 4 to 5 p.m. hour, slightly higher than in Q4 2020 (\$3.70 between 3 and 4 p.m). The southbound a.m. highest average tolls paid were \$2.70, also slightly higher than in Q4 2020 (\$2.40). The highest southbound tolls paid occurred between 7 and 8 a.m.

Northbound



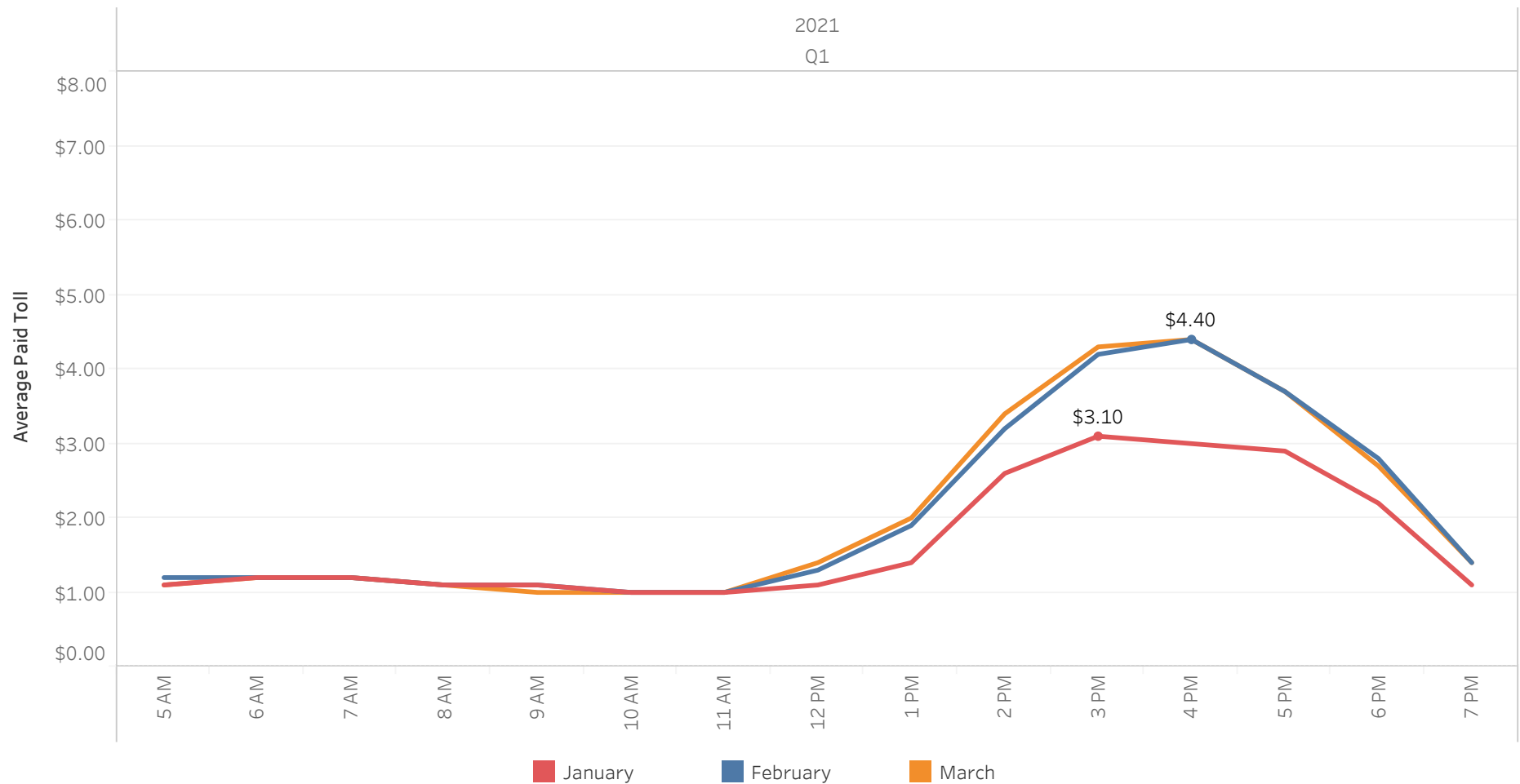
Southbound



Q4 2020 and Q1 2021
■ 2020 ■ 2021

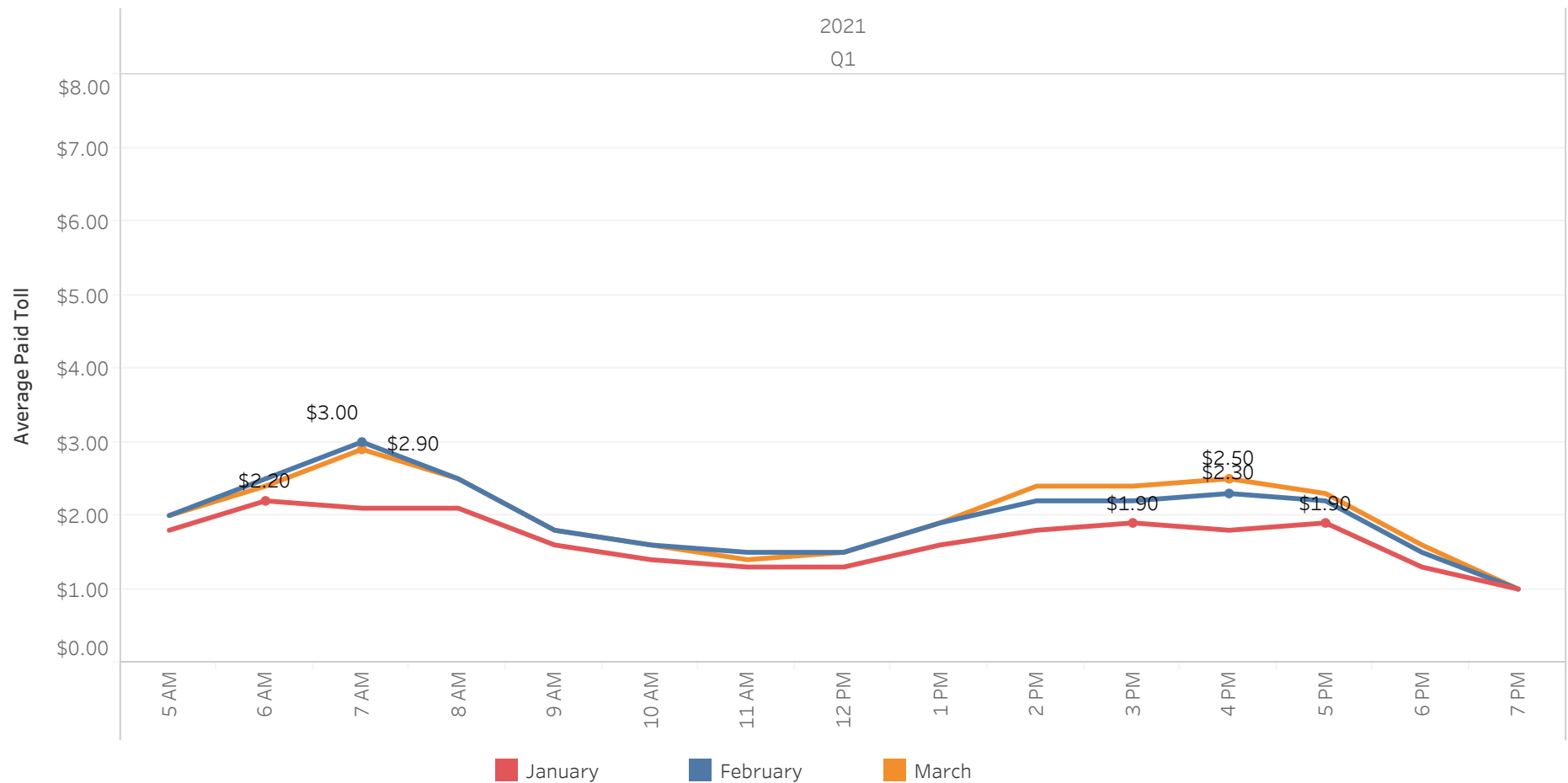
Northbound Tolls

The tolls drivers pay depend on traffic conditions and the distances traveled. Northbound, average tolls paid peaked between \$3.10 (January) and \$4.40 (February & March) between 3 and 5 p.m. Traveling the entire corridor northbound, the highest paid tolls exceeded \$15 on 16 of the 64 tolling days in the quarter. The highest paid tolls occurred between 3 and 5 p.m.

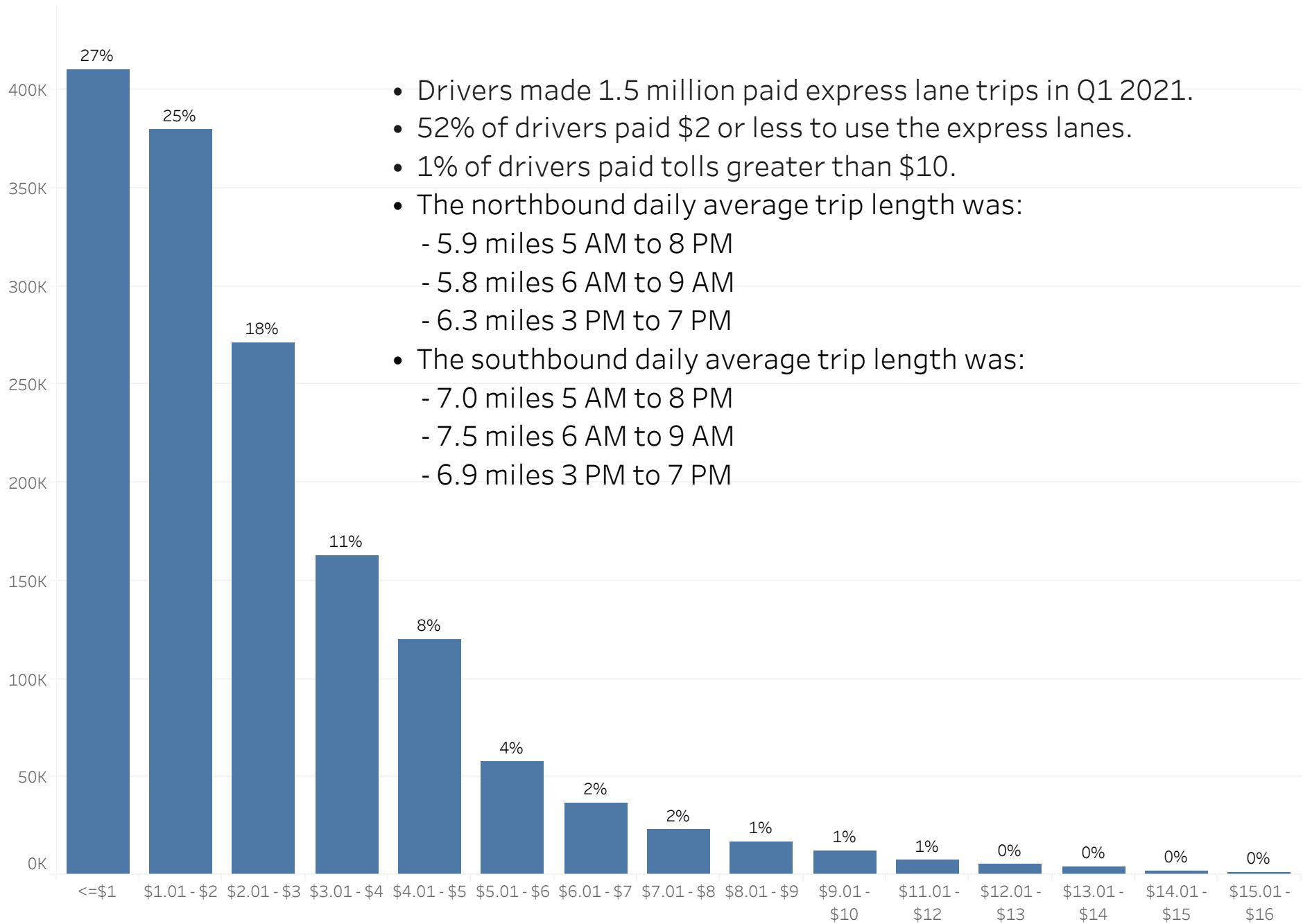


Southbound Tolls

The tolls drivers pay depend on traffic conditions and the distances traveled. Southbound tolls paid peaked between \$2.20 (January) and \$3.00 (February) between 6 and 8 a.m. Traveling the entire corridor southbound, drivers paid tolls greater than \$15 on 4 of the 64 tolling days in the quarter. The highest tolls paid occurred between 7 and 8 a.m. and between 2 and 5 p.m.

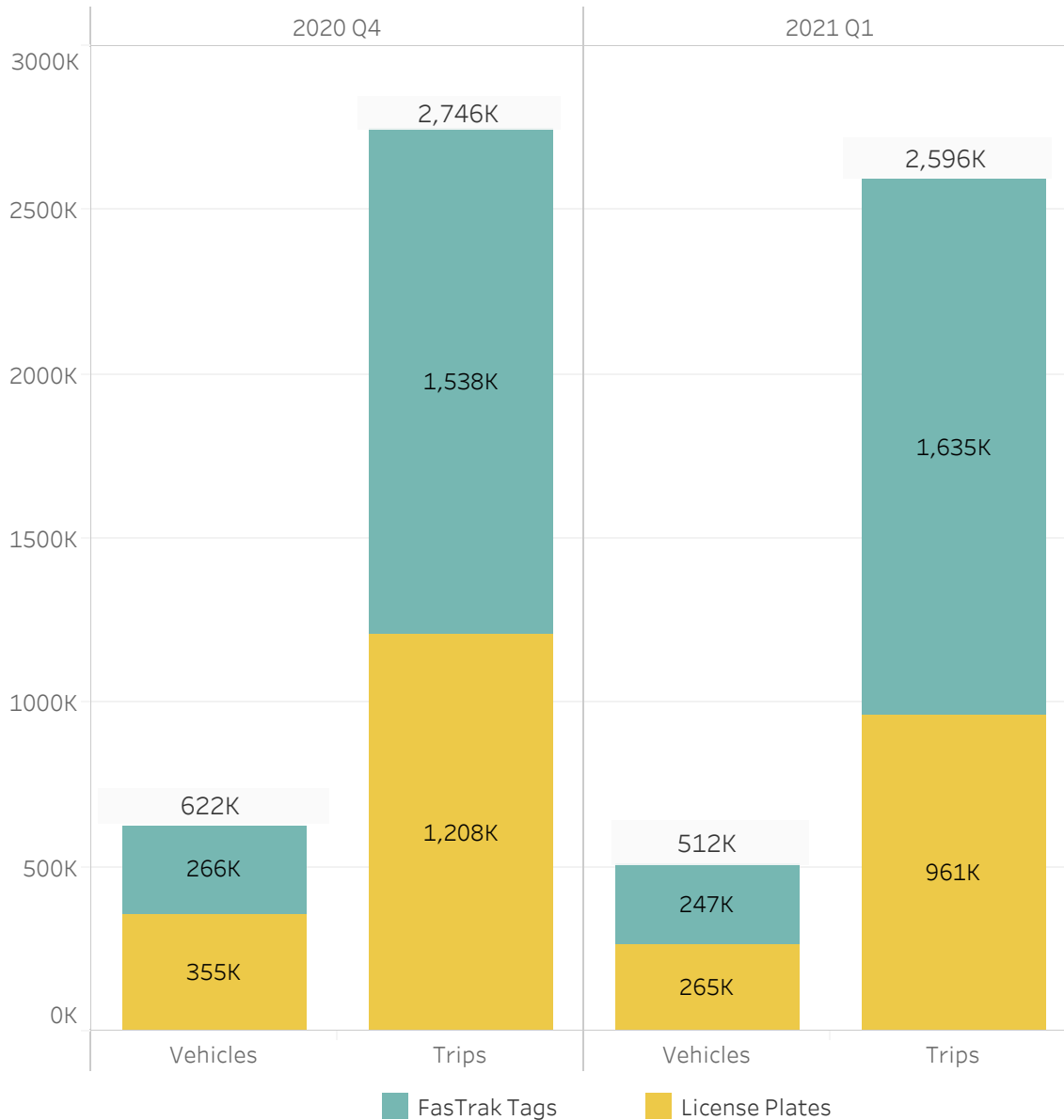


Toll Distribution



- Drivers made 1.5 million paid express lane trips in Q1 2021.
- 52% of drivers paid \$2 or less to use the express lanes.
- 1% of drivers paid tolls greater than \$10.
- The northbound daily average trip length was:
 - 5.9 miles 5 AM to 8 PM
 - 5.8 miles 6 AM to 9 AM
 - 6.3 miles 3 PM to 7 PM
- The southbound daily average trip length was:
 - 7.0 miles 5 AM to 8 PM
 - 7.5 miles 6 AM to 9 AM
 - 6.9 miles 3 PM to 7 PM

How Drivers Use the Lanes



In Q1 2021, 512,000 unique vehicles made about 2.6 million express lane trips. 247,000 of these vehicles (48%) carried toll tags and made 1,635,000 express lane trips (63% of trips) for an average of 6.6 trips per user. 265,000 of the unique vehicles (52%) did not carry toll tags and made 961,000 express lane trips (37% of trips) for an average of 3.6 trips per user. These trips were captured by license plate reads.

Vehicles relying on license plate reads fell 25% from Q4 2020, but continued to represent over half of lane users. Of the 961,000 license plate trips made by these drivers, almost half were not matched to FasTrak accounts resulting in the 17% violation rate shown on page 4. High violation rates are typical of new toll lanes as drivers get used to the rules. The high rates could also be influenced by the unique COVID environment where less CHP enforcement could be lessening rule compliance.

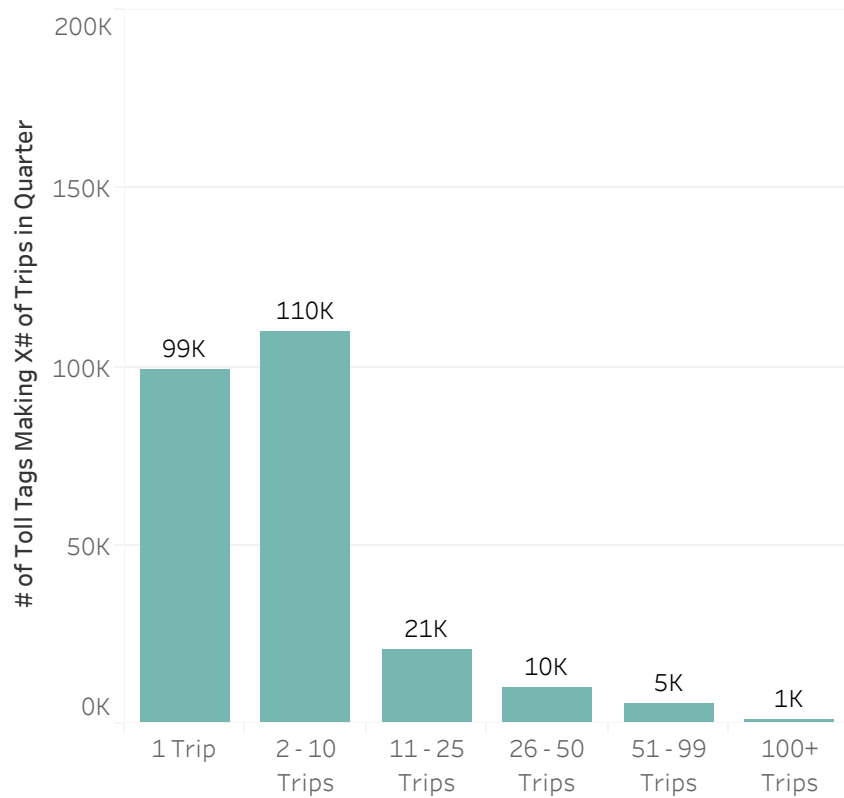
Lane Use Frequency

The graphs below show how frequently users made express lane trips.

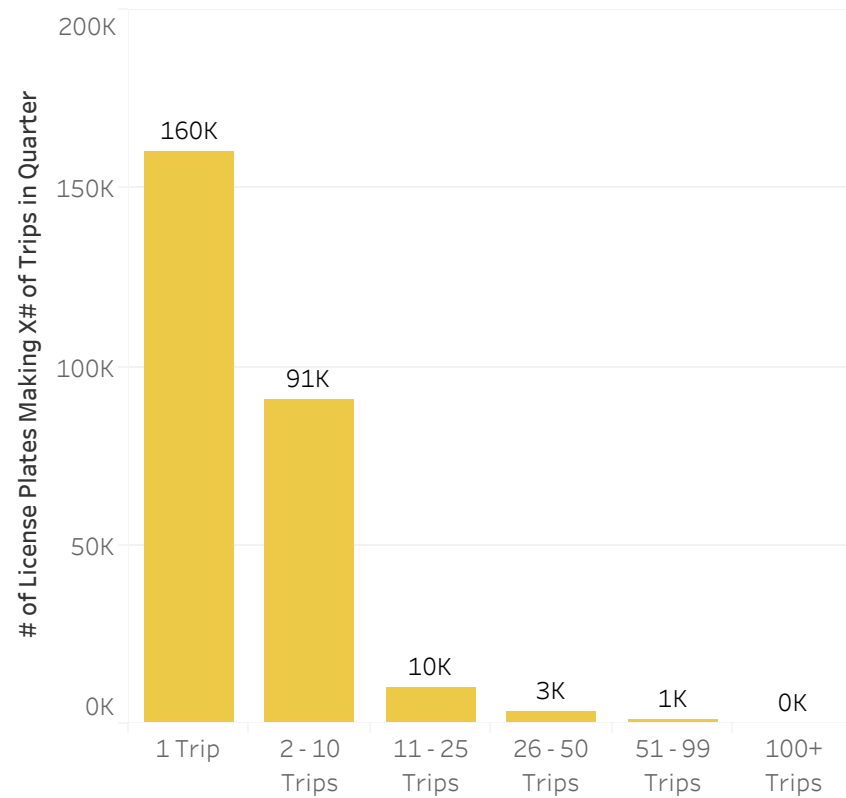
Of the 247,000 FasTrak tags observed in Q1 2021, 99,000 (40%) made just one trip, while another 110,000 (45%) made 2 to 10 trips in the quarter. Of the 265,000 license plates (without toll tags)* observed in Q1 2021, 160,000 (60%) made just one trip, while another 91,000 (34%) made 2 to 10 trips in the quarter. Over 1,100 vehicles with toll tags made over 100 trips, and 164 license plate-only lane users made over 100 trips.

*Includes violators and license plates matched to toll accounts.

Toll Tag Lane Users - Trips Made per Tag



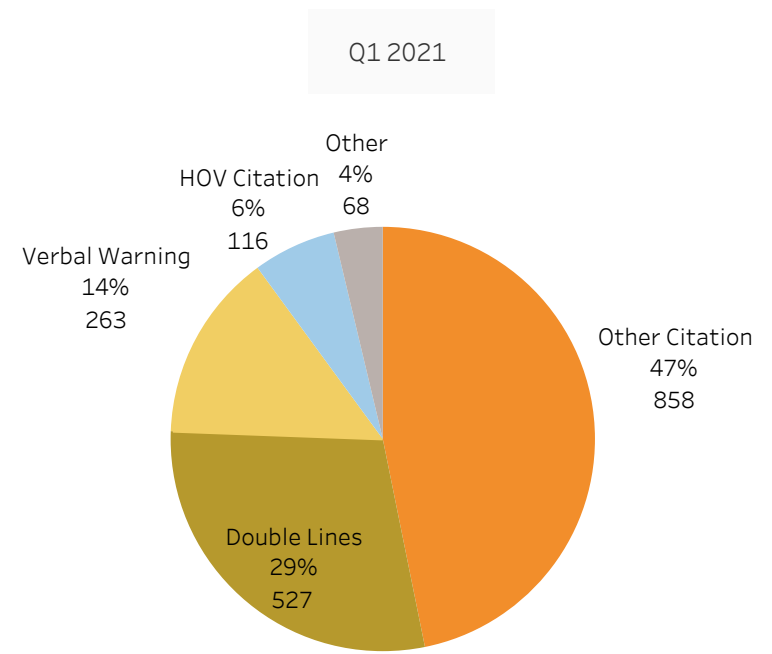
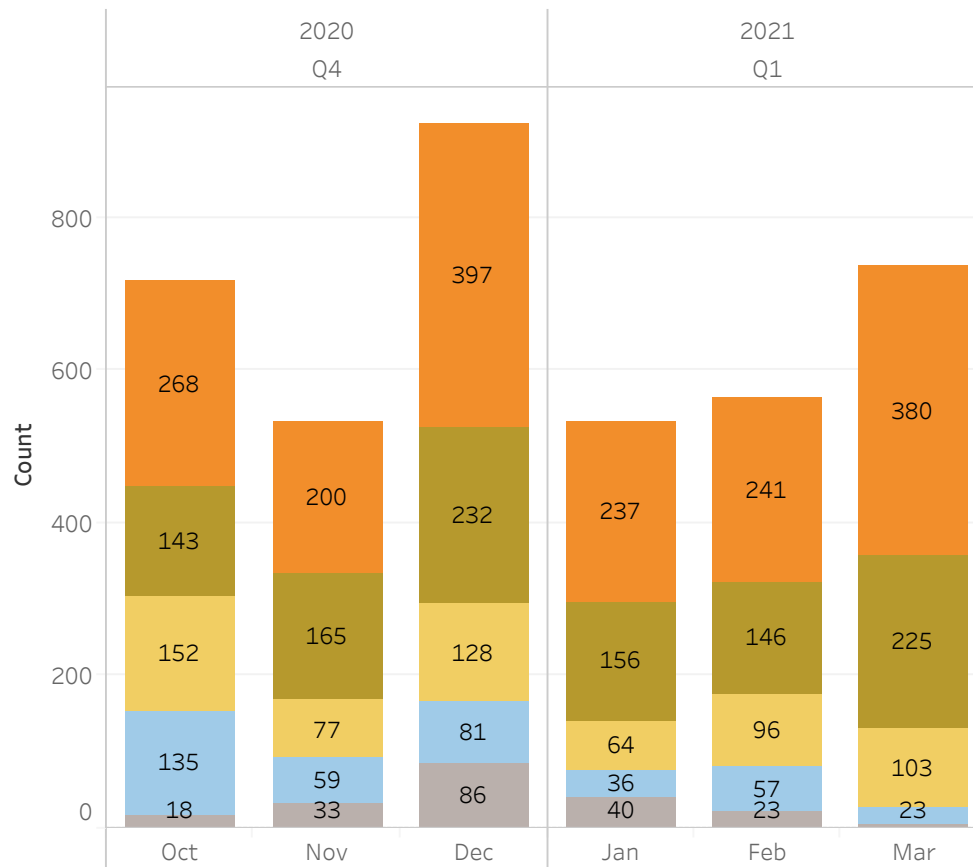
License Plate Lane Users* - Trips Made per Plate



CHP Enforcement

CHP made 1,832 enforcement contacts in Q1 2021, 116 of them (6%) resulting in HOV occupancy citations and 527 of them (29%) resulting in citations for crossing double-white lines.

CHP filled 57% of the hours requested by BAIFA. The Q1 2021 enforcement costs were around \$178,000, for an average cost per enforcement contact of ~\$97.



■ Other Citation
 ■ Double Lines
 ■ Verbal Warning
 ■ HOV Citation
 ■ Other

For more information, go to: mtc.ca.gov/express-lanes

