



BAY AREA EXPRESS LANES



MTC Express Lanes Quarterly Report 3rd Quarter, July - September, 2017

Submitted: November 1, 2017



METROPOLITAN
TRANSPORTATION
COMMISSION

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The I-680 Contra Costa Express Lanes open October 9. Temporary overhead signs tell drivers to get a FasTrak or FasTrak Flex toll tag to use the lane.



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 third quarter of 2017, July 1 to September 30.

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. Currently, there are several projects at varying stages of development with the first project scheduled to open in 2017.

Project Development & Construction	3 rd Quarter 2017 Highlights	Current Activities
<p>I-880 Alameda (ALA-880) San Leandro to Milpitas <i>Hegenberger Road/Lewelling Boulevard to Dixon Landing Road</i></p>	<ul style="list-style-type: none"> • Caltrans' median barrier construction work from Fremont to Oakland is approximately 75% complete. • Express lanes civil construction contract was awarded; Notice to Proceed was issued in September 2017. • Integrator submitted its 100% design package to Caltrans for review. 	<ul style="list-style-type: none"> • The express lanes civil contractor began work on September 12th, has completed demolition in Fremont and is preparing to drill the first sign foundation in October. • Caltrans' median barrier contractor is demolishing the median barrier in Oakland and finishing construction of express lane infrastructure in the median. • Staff is reviewing the projected open date, which may be delayed due to the need to sequence express lanes civil construction with Caltrans' median barrier and pavement resurfacing projects. • The first Construction Notice for the I-880 Express Lanes was distributed in October 2017; regular updates will follow.
<p>I-680 Contra Costa Southern Segment (CC-680 South) Walnut Creek to San Ramon <i>Livorna Road/Rudgear Road to Alcosta Boulevard</i></p>	<ul style="list-style-type: none"> • Corridor Testing was completed in August 2017. • Toll system equipment and software was finalized and tested in September 2017. • Backhaul site commissioning was completed in September 2017. • HOV lane pavement markings were removed, and new pavement markings were installed in September 2017. Removal and replacement of median barrier signs began. 	<ul style="list-style-type: none"> • Lanes will open October 9, 2017. • Toll system punch list items will continue to be addressed so Operations Testing can begin. • Backhaul contractor will complete punch list items and start operations and maintenance in October 2017.

Project Development & Construction	3 rd Quarter 2017 Highlights	Current Activities
<p>I-680 Contra Costa Northern Segment Southbound Conversion (CC-680 North)</p> <p>Martinez to Walnut Creek <i>Marina Vista Boulevard to Rudgear Road/SR 242</i></p>	<ul style="list-style-type: none"> • Project Report was approved by Caltrans in August 2017. • Environmental revalidation was completed in September 2017. • Final design plans were submitted to Caltrans in August 2017. • Caltrans agreed on a cost effective solution to mitigate pavement scarring caused by changes to the striping configuration. • New electric service locations were designed with PG&E, and permanent utility easements were acquired. 	<ul style="list-style-type: none"> • Contra Costa Transportation Authority is addressing Caltrans' comments on final design. The final encroachment permit package will be submitted in October 2017. • Advertisement of the construction contract is dependent upon advance approval of funds by the California Transportation Commission. The approval process could push advertisement into 2018, which may extend the opening date into 2021. Staff is reviewing the projected open date, which may also be influenced by rain delays and the Integrator's work on the I-80 Express Lanes. • To mitigate against potential construction schedule delay due to bird nesting season, a contract will be awarded in October 2017 for early tree removal; work will begin soon thereafter. • Integrator will begin its 100% design package.
<p>I-80 Solano (SOL-80)</p> <p>Fairfield to Vacaville <i>Red Top Road to I-505</i></p>	<ul style="list-style-type: none"> • 95% design document was submitted to Caltrans in July 2017. • Integrator began schedule coordination with Solano Transportation Authority and design team. 	<ul style="list-style-type: none"> • 100% design document will be submitted to Caltrans in October 2017. • Staff will request funds for PG&E design in October 2017. • Integrator will continue schedule coordination for toll system installation. • Staff is reviewing potential opportunities to fund construction with funds from Senate Bill 1 and Regional Measure 3.
<p>Program Management</p>	<ul style="list-style-type: none"> • Staff prepared for 'go live' operations of the I-680 Contra Costa Express Lanes. • Staff initiated a customer education campaign in July 2017. Staff also disseminated information at public events, made public presentations and emailed local employers. • Staff gave updates to local government and transportation advisory groups, including on hours of operation. • Staff completed outreach to the Alameda and Contra Costa County Superior Courts in July 2017. • Regional Operations Center staff were hired in August 2017, and trained through September 2017. • California Highway Patrol officers were trained on enforcement priorities and tools in September 2017. 	<ul style="list-style-type: none"> • The customer education campaign will continue through fall 2017. • Staff will host a tour of the I-680 Contra Costa Express Lanes for news media in early October 2017.

Project Development & Construction	3 rd Quarter 2017 Highlights	Current Activities
Toll System	<ul style="list-style-type: none"> • Integrator completed Corridor Testing in August 2017, which fully tested the toll and communications systems. • Integrator addressed punch list items from Communications End-to-End Testing in September 2017. • Integrator and the FasTrak® Customer Service Center completed Production Readiness Testing of the data exchange in September 2017. • Integrator finished and commissioned all field equipment in September 2017. 	<ul style="list-style-type: none"> • Integrator will launch the toll system on October 9, 2017. • Integrator will address punch list items from formal testing in order to begin Operations Testing of the installed toll system during actual operations by early November 2017. • Integrator will perform Disaster Recovery Testing in November 2017 to ensure that the failover to the redundant toll system host is functional.

II. PROGRAM OVERVIEW

A. Program Description

MTC and partner agencies are implementing a regional network of express lanes called Bay Area Express Lanes. Upon completion, Bay Area Express Lanes will comprise 550 miles of express lanes operated by MTC, the Valley Transportation Authority (VTA), the Alameda County Transportation Commission (Alameda CTC) and the Sunol Smart Corridors Joint Powers Authority (Sunol JPA).

Primary objectives for Bay Area Express Lanes include:

- Create a seamless network of HOV lanes to encourage carpools, vanpools and express buses;
- Make the best use of HOV lane capacity;
- Provide reliable travel times for solo drivers; and
- Better manage all lanes to keep traffic moving.

MTC’s portion of the Bay Area Express Lanes, referred to as MTC Express Lanes, will include 270 miles of express lanes – 150 miles of converted high occupancy vehicle (HOV) lanes and 120 miles of new lanes – on I-80 in Alameda, Contra Costa and Solano Counties; I-880 in Alameda County; I-680 in Contra Costa and Solano counties; and the westbound approaches to the Bay Bridge, San Mateo Bridge and Dumbarton Bridge.

Appendix B includes an overview of how express lanes operate.

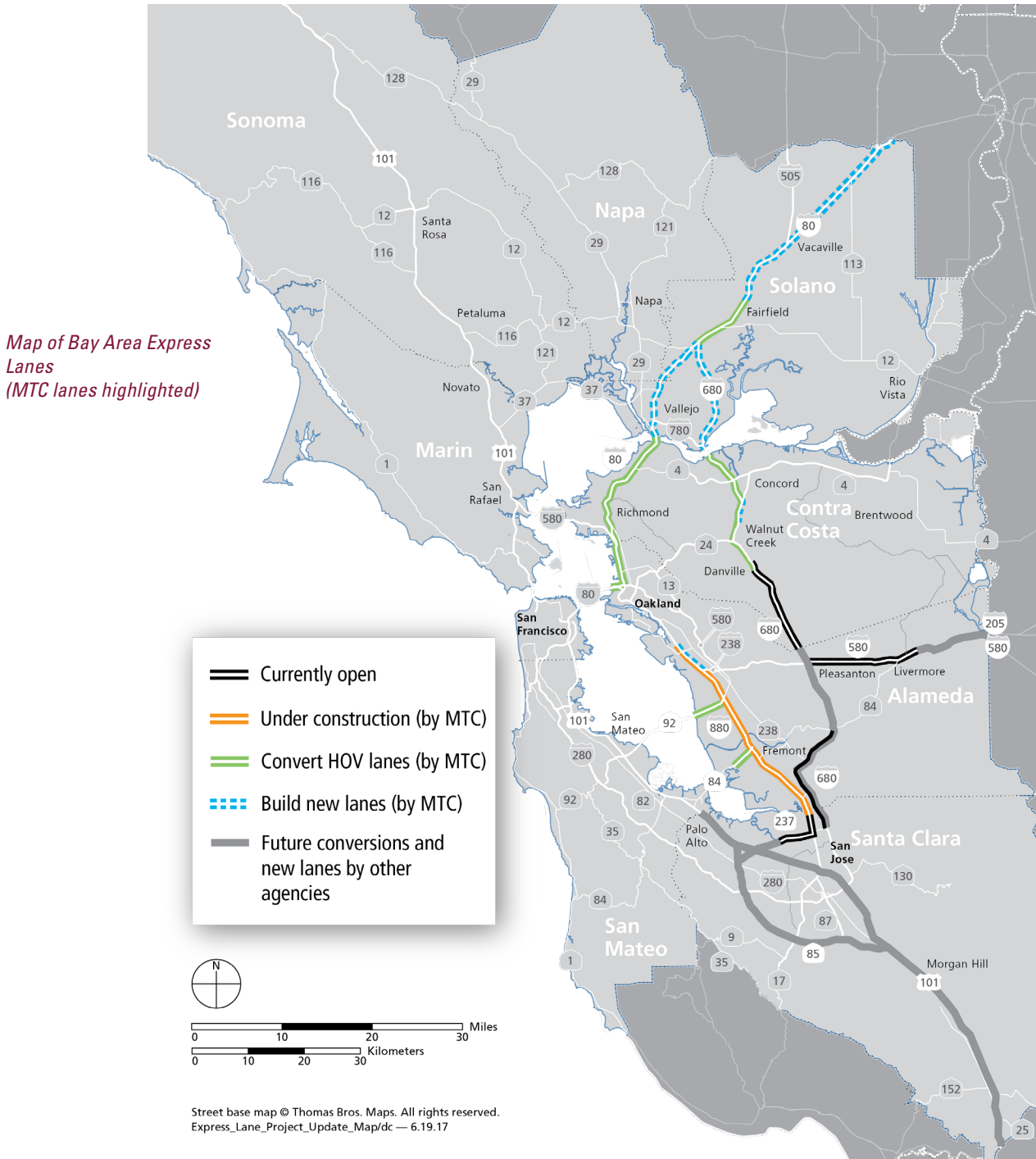


Map of Bay Area Express Lane Network

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.

The map below highlights MTC’s portion of 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	●	●	●
CC	680	I-680 Contra Costa Southern Segment	Between Walnut Creek and San Ramon <i>Livorna Rd./Rudgear Rd. to Alcosta Blvd.</i>	23	●	●	●
CC	680	I-680 Contra Costa Northern Segment - Southbound Conversion	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	●	●	○
FUTURE CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS							
ALA/ CC	80	I-80 and Westbound Bridge Approaches	Cummings Skyway to Bay Bridge San Mateo Bridge Westbound Approach Dumbarton Bridge Westbound Approach	50	◐	○	○
CC	680	I-680 Northern Segment - Northbound Conversion	Walnut Creek to Benicia <i>North Main St. to the Benicia Bridge</i>	5	◐	○	○
CC	680	I-680 Northern Segment - Northbound Extension	Walnut Creek to Concord <i>North Main St. to SR 242</i>	7	○	○	○




KEY

● Funded ◐ Partially Funded ○ Unfunded




ALA = Alameda, CC = Contra Costa, SOL = Solano

III. PROGRAM SCHEDULE SUMMARY

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	End of 2019		14
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		16
I-680 Contra Costa Northern Segment - Southbound Conversion (CC-680 North) Martinez to Walnut Creek <i>Marina Vista Blvd. to Rudgear Rd./SR 242</i>	Fall 2018	Spring 2020		19

KEY

-  Within schedule shown.
-  Identified potential risks that may significantly impact schedule if not mitigated.
-  Known impact to schedule, changes forthcoming.

IV. PROGRAM COST SUMMARY

A. Conversions and Gap Closure Opportunity Projects

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) programwide costs including planning and design, and implementation of centralized elements of the backhaul network and toll system. The program 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. The expended-to-date amounts shown represent the amount of BATA Express Lane funds expended through September 30, 2017, the end of the third quarter.

Project ⁽¹⁾	Program Estimate ⁽²⁾	Cost Forecast ⁽³⁾	Regional Measure 2 Funds (allocated)	BATA Express Lane Funds ⁽⁴⁾			Physical % Complete ⁽⁵⁾	Confidence Level ⁽⁶⁾
				Dec. 2015 Amendment	June 2017 Amendment	Expended through 9/30/17		
NEAR TERM CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS							<i>Costs shown in millions of escalated dollars</i>	
I-880 Alameda	132.5	132.5		77.8	132.5	36.0	30%	●
I-680 Contra Costa Southern Segment	55.6	55.6		55.6	55.6	42.7	95%	●
I-680 Contra Costa Northern Segment Southbound ⁽⁷⁾	56.9	56.9	5.6	51.3	51.3	3.7	18%	●
I-80 Solano	179.4	34.2	15.2	19.0	19.0	6.3	18%	●
Centralized Toll System	33.6	33.6		33.6	33.6	14.3	70%	●
Program Planning, Coordination & Management	28.4	28.4		28.4	28.4	16.2	65%	●
Program Contingency	18.1	18.1		35.9	5.1	0.0		●
Capitalized Start-up O&M	16.0	16.0		16.0	16.0	1.4		●
FUTURE CONVERSIONS AND GAP CLOSURE OPPORTUNITY PROJECTS								
I-80 Alameda/Contra Costa and Westbound approaches to the Bay, San Mateo & Dumbarton Bridges	110.9	5.7	5.0	0.7	0.7	0.7	1%	
I-680 Contra Costa Northern Segment - Northbound Conversion	14.6	1.5	1.5			0.0	5%	
I-680 Contra Costa Northbound Express Lane Completion (North Main Street to SR-242)	57.3							
Centralized & Program Costs & Start-Up O&M - Gap Closures & Future Conversions	TBD							
Previously unallocated BATA Express Lanes Capital Budget funds				23.9				
TOTALS	703.3	382.5	27.4	342.2	342.2	121.3	43%	

⁽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-80 gap closure.

⁽²⁾ Program estimate represents current estimated cost to complete each project.

⁽³⁾ Cost forecast represents current estimated cost to complete phases that are funded for each project.

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

⁽⁵⁾ Physical percent complete shown is 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, I-80 Solano West and I-80 Solano East.

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

⁽⁷⁾ Program estimate reflects total cost for express lanes (\$37.9 million of which BAIFA's contribution is \$32.3 million and RM2's contribution is \$5.6 million) plus BAIFA's contribution to the HOV Completion project (\$19 million). The table does not reflect other funding for the HOV Completion Project: Measure J (\$37million), RM2 (\$13million), STIP (\$16m million).

B. Change Management

The change management process captures the changes in the program that have an impact on the approved baselines. There have been no significant changes to the MTC Express Lanes Program in the third quarter.

C. 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.

In 2016, the program began using Monte Carlo simulation to evaluate potential collective impacts of identified risks in the program’s capital cost risk register. Monte Carlo simulation is a computerized technique that uses repeated random sampling from a range of variable inputs (risk probabilities and cost impact ranges) to determine the probability of different cost outcomes. This tool provides a realistic way of estimating uncertainty due to identified risks.

Chart #1 shows the median risk exposure for the program-level risks using Monte Carlo analysis. As of September 30, 2017, the risk exposure stands at \$10.0 million, which is lower than the \$10.4 million reported last quarter.

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 June 28, 2017, the cost forecast for the program has been increased to \$337.1 million and the authorized budget has been increased to \$342.2 million.

The current program contingency of \$5.1 million would not be sufficient if the risk exposure of \$10.0 million were to be realized. Staff plans to be 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

- Caltrans is currently managing a repaving project. Coordination issues with the project may delay completion of I-880 Express Lanes work and impact the open-to-traffic date. MTC staff is: meeting with Caltrans to create a sequence of activities that would reduce the overall schedule; evaluating alternative ways to expedite the work; and recommending specification changes to the Caltrans repaving project.
- Toll system integrator costs associated with schedule slippage and midday tolling may exceed available contingency, which was originally allocated for other known changes to tolling hardware. The project team is actively negotiating with the toll systems integrator on additional cost items, especially schedule slippage, and working closely with Caltrans to get their plans approved ahead of schedule.

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

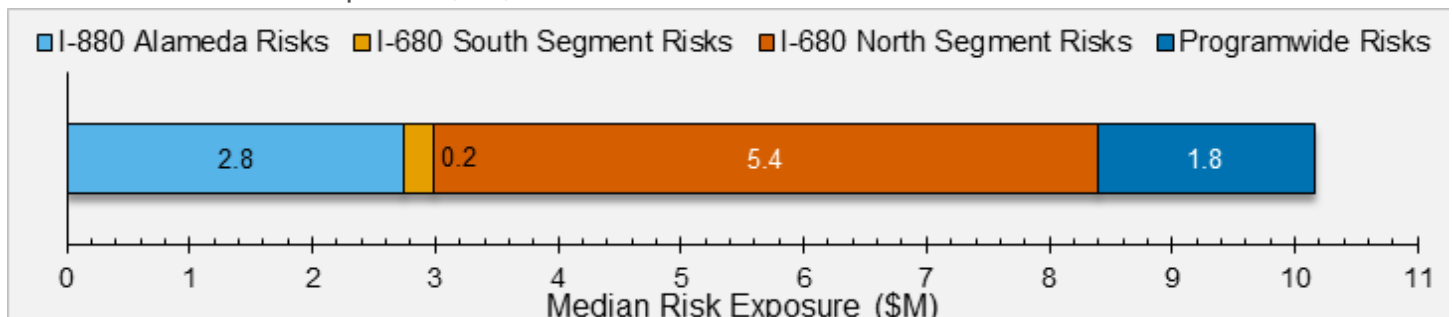


Chart #1 shows the contribution of each project’s risks toward the total program risk exposure.

I-680 Contra Costa Southern Segment

- Delays in toll systems implementation and testing could delay opening of the express lanes. This could result in extended ramp up, during which additional costs would be incurred for power and communications, the Customer Service Center, and civil overhead prior to generating revenue. The project team is actively working with the toll systems contractor to resequence work to minimize delays such as by bringing on additional software programmers and prioritizing work that is critical for toll system functionality on opening day (as a result, some non-critical functions may be delayed until after opening).

design and methods of construction to accommodate work in the State’s Right-of-Way while maintaining the original construction duration. There is, however, a risk that the costs of work will increase.

- Costs may escalate at higher than projected levels resulting in increased costs for design or construction. The program management team is monitoring the Caltrans Construction Cost Index, ENR Construction Cost Index and CPI and would adjust estimates if the escalation level is higher than estimated in the program budget. The program management team conducts independent reviews of engineers’ estimates, and moving forward, will explore ways to better account for the bid environment prior to advertising construction projects

I-680 Contra Costa Northern Segment

- Pavement stripe removal and additional pavement resurfacing is required for all lanes of the I-680 corridor to eliminate scarring due to existing narrow lanes in the corridor. This increased scope of work may impact project schedule and cost. This risk is being mitigated by researching other solutions and coordinating the needs and requirements with Caltrans. The team is currently refining the construction sequence of activities and incorporating the results of the I-880 corridor tests that evaluated ways to avoid pavement damage and resurfacing costs.
- To minimize impacts to Walnut Creek residents adjacent to the construction along South Main Street, CCTA plans to do most freeway widening work from within the State’s Right-of-Way. The designer has revised the sound wall

Programwide Risks

- Potential changes to state or national interoperability requirements may cause changes to design or operational policy that may have cost impacts for MTC’s Express Lanes Program. The California Toll Operators Committee has a goal that all operators will be able to read and process 6C transactions by spring of 2019. This would require tuning for the I-680 Contra Costa Southern Segment and thus may have cost impacts for MTC’s Express Lanes. This risk will be managed by participating in the development plan of the transition from Title 21 compliant toll technology to 6C compliant toll technology

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

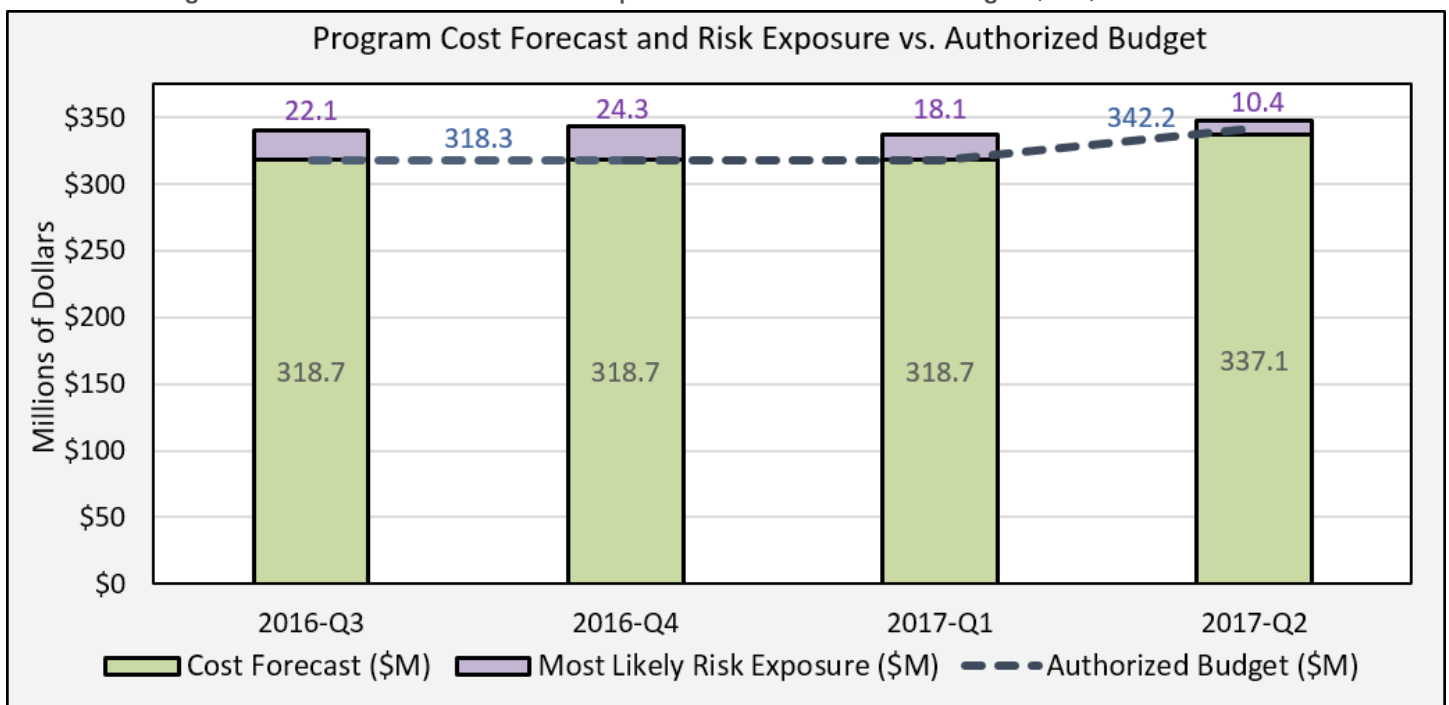


Chart #2 shows the program cost forecast and risk exposure as compared to the authorized program budget.

V. PROJECT SUMMARY SHEETS

Centralized Functions

Toll System and Program Management, Planning and Regional Coordination

Total Estimated Cost

\$33.6 million for the Centralized Toll System
 \$28.4 for Program Planning, Coordination and Management

Schedule

Centralized Toll System will be ready with 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 tollsetting 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 prepared for 'go live' operations.
- Staff initiated a customer education campaign in July 2017 to prepare drivers for the opening of the I-680 Contra Costa Express Lanes. The campaign uses social media (i.e. Facebook, NextDoor, Pandora), traditional advertising (i.e. traffic radio, local cable TV, movie theater ads) and on-corridor messaging (i.e. temporary overhead sign wraps, CCCTA/LAVTA bus ads). Key information was provided on 511.org. Staff disseminated information about the lanes at public events, made public presentations and emailed local employers.

- Staff gave updates on the opening of the I-680 Contra Costa Express Lanes to local government and transportation advisory groups, including on hours of operation.
- Staff completed outreach to the Alameda and Contra Costa County Superior Courts in July 2017 to support enforcement by California Highway Patrol.
- Regional Operations Center staff were hired to operate the express lanes in August 2017, and trained through September 2017.
- Police officers at the California Highway Patrol's Contra Costa office were trained on enforcement priorities and tools in September 2017.

Current Program Management Activities

- Lanes will open October 9, 2017.
- Staff will host a tour of the I-680 Contra Costa Express Lanes for the news media in early October 2017. Staff will monitor reporting and correct critical misinformation, if needed.
- The I-680 Contra Costa Express Lanes customer education campaign will continue through fall 2017.
- Staff is procuring an Express Lanes Program Advisor, which combines the responsibilities in the current Program Manager and Toll System Manager contracts. An award recommendation is anticipated in early 2018



I-680 Contra Costa Express Lanes customer education outreach artwork.

Examples of I-680 Contra Costa Express Lanes customer education outreach.

I-680 Contra Costa Express Lanes



Coming soon

FASTRAK IS REQUIRED FOR YOU TO USE THE EXPRESS LANES



Solo drivers pay to use the lanes with either:

- A standard FasTrak[®] toll tag, or
- A FasTrak Flex[®] toll tag set to "1".

Standard FasTrak Toll Tag



I-680 Coming Soon postcard.

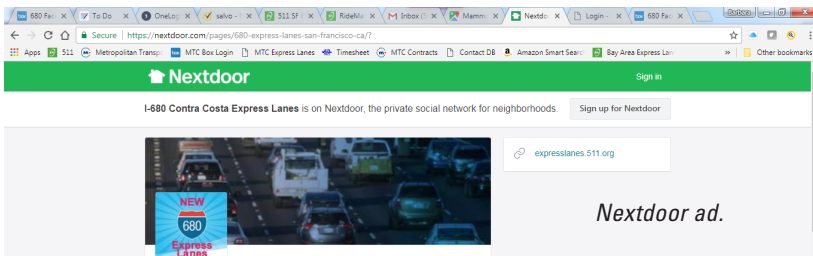
Carpools, qualifying clean-air vehicles and other toll-exempt vehicles must

use a FasTrak Flex[®] toll tag set to "2" or "3+" to travel toll-free.

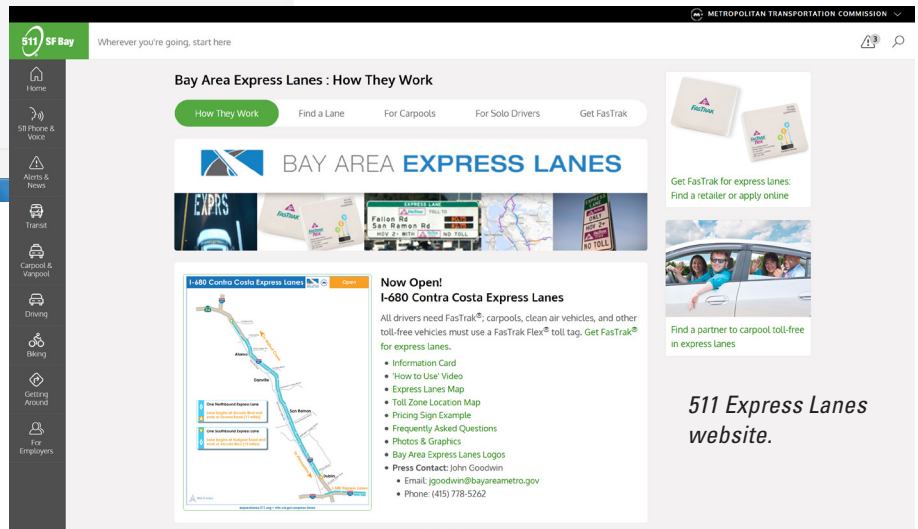
FasTrak Flex Toll Tag



Get FasTrak[®] at bayareafastrak.org



Nextdoor ad.



511 Express Lanes website.

Toll System Highlights and Progress

- The construction contract for the backhaul communications network for the host data centers and I-680 Contra Costa Southern Segment was awarded in December 2015.
- The toll operations staffing contract was awarded in March 2016.
- Final toll system host and software design was approved in March 2016, and Factory Acceptance Testing of hardware and software was held in June 2016.
- Primary toll system host hardware was installed at the Benicia-Martinez Bridge toll plaza in November 2016 and communications were established with the field equipment. Back-up operations hardware was also installed at the Traveler Information Center (TIC) located at Caltrans District 4 in Oakland.
- Buildout of the Regional Operations Center was finished in March 2017.
- The integrator completed the formal First Zone Test, which was the first field test to compile live lane transactions into

a single trip, in May 2017 and the Communications End-to-End Testing for the toll systems communications network in June 2017.

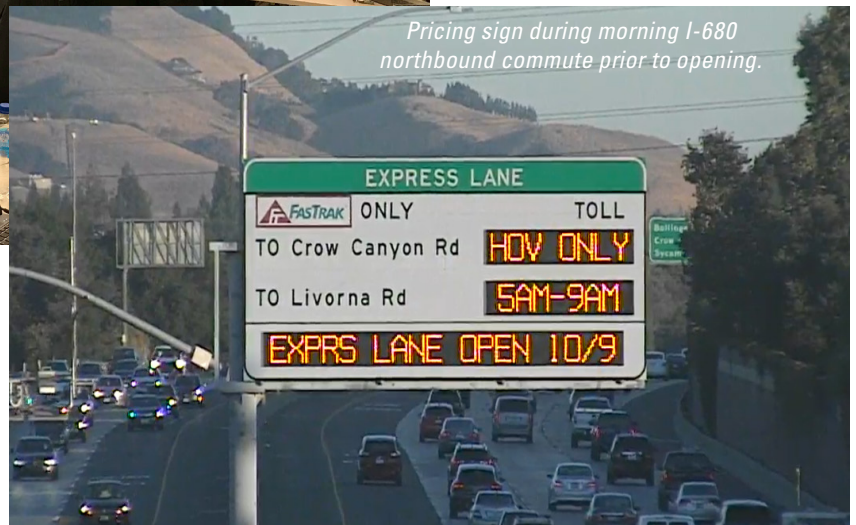
- The toll system began using the full backhaul network as of June 2017.
- The integrator completed Corridor Testing, which fully tested the entire toll and communications system, in August 2017 and finished installing and commissioned all field equipment in September 2017.
- The integrator and the FasTrak® Customer Service Center completed Production Readiness Testing of the data exchange in September 2017.

Current Toll System Activities

- The integrator will address punch list items from formal testing in order to begin Operations Testing by early November 2017.
- The integrator will perform a Disaster Recovery Test in November 2017 to ensure that the failover to the redundant toll system host is functional.



The Regional Operations Center (ROC) video wall and operations staff on opening day.



Pricing sign during morning I-680 northbound commute prior to opening.

I-880 Alameda (ALA-880)

Oakland to Milpitas

Hegenberger Road/Lewelling Boulevard to Dixon Landing Road

Total Program Estimate

\$132.5 million

Scheduled Open Date

End of 2019

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 gantries, signs, FasTrak® toll tag readers, traffic monitoring video cameras and California Highway Patrol observation areas. It will result in 51 express lane miles between Oakland and Milpitas.

The express lanes conversion project is being coordinated with a median barrier reconstruction project and a future pavement resurfacing project, both led by Caltrans. The median barrier reconstruction project will install foundations and other infrastructure required for the future express lanes construction.

Project Highlights and Progress

- Public open house was held in March 2015.
- Preliminary engineering report and environmental document were completed in October 2016.
- Caltrans approved the mid-day hours of operation assessment in December 2016.
- Resolution of Caltrans comments on 100% design was completed in May 2017.
- Civil construction contract bids were opened in June 2017.
- Caltrans issued the encroachment permit for the civil construction contract in June 2017.
- Caltrans' median barrier construction contractor began work in April 2016. Work from just south of Fremont Boulevard in Fremont to just south of High Street in Oakland is approximately 75% complete including construction of express lane sign structure foundations. (See construction photo on page 16.)
- The express lanes civil construction contract was awarded; Notice to Proceed was issued in September 2017.

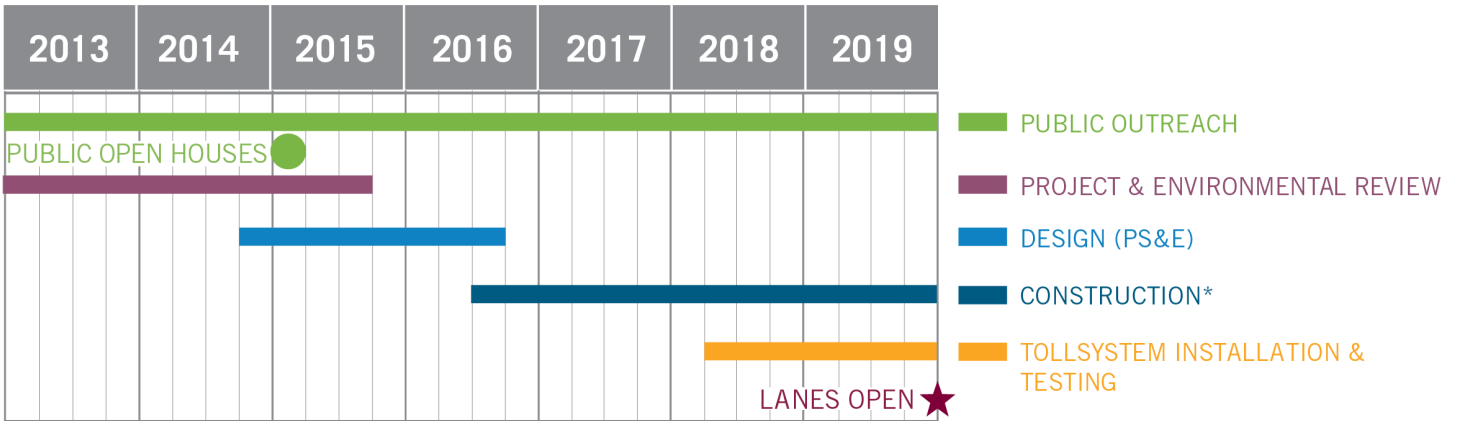


- The toll system integrator submitted its 100% design package to Caltrans for review.

Current Project Activities

- The express lanes civil contractor began work on September 12th, has completed demolition in Fremont and is preparing to drill the first sign foundation in October
- Caltrans' median barrier contractor is demolishing the median barrier in Oakland and finishing the construction of express lane infrastructure in the median.
- The toll system integrator will address Caltrans' comments on the 100% design submittal and resubmit in October 2017.
- Staff is reviewing the projected open date, which may be delayed due to the need to sequence express lanes civil construction with Caltrans' median barrier and pavement resurfacing projects.
- The first Construction Notice for the I-880 Express Lanes was distributed to a list of stakeholders and interested drivers in October 2017; regular updates will follow.

Project Schedule by Phase



*Includes I-880 median barrier improvements.

Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	Regional Measure 2 Funds (allocated)	BATA Express Lane Funds ⁽³⁾			Physical % Complete ⁽⁴⁾
			Dec. 2015 Amendment	June 2017 Amendment	Expended through 5/30/17	
132.5	132.5		77.8	132.5	36.0	30%

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) BATA Express Lane Funds represent the funds that have been allocated from the BATA 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.



Breaker attachment demolishing median barrier structure under Hegenberger Road.

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

Scheduled 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

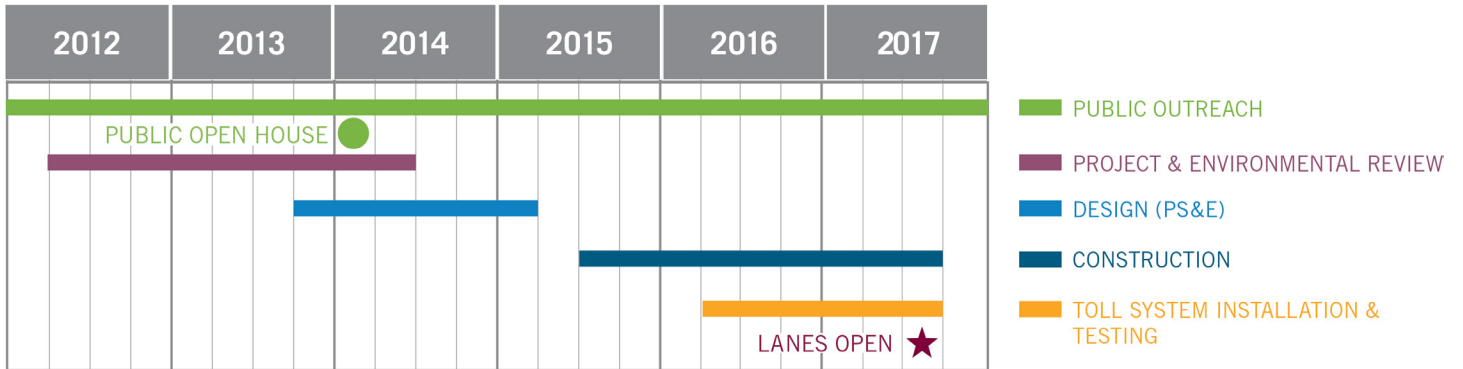
- Public open house was held in March 2014.
- Preliminary engineering report and environmental document were completed in August 2014.
- Final design and permits for both the backhaul communication network and the toll system were completed in December 2015.
- Final roadway design was completed in April 2015. Civil construction was completed in May 2017.
- Toll system equipment installation was mostly finished by June 2017.
- Backhaul contractor completed fiber optic installation between Walnut Creek and San Ramon in June 2016 and from Walnut Creek to the express lanes data center in Martinez in June 2017, totaling 26 miles of fiber.
- Three express lanes data centers (Benicia-Martinez toll plaza, Caltrans District 4 and the Regional Operations Center) and the two corridor hubs were online and utilized by the toll system integrator during system implementation.
- Corridor Testing was completed in August 2017.
- Toll system equipment and software was finalized and tested in September 2017.
- HOV lane pavement markings (i.e. diamonds) were removed, and new pavement markings (i.e. EXPRS LANE) were installed in September 2017. Removal and replacement of median barrier signs began



Current Project Activities

- Lanes will open October 9, 2017.
- Prior to opening, removal and replacement of median barrier signs will be completed, and 'Under Construction' stickers and temporary overhead signs will be removed.
- Backhaul contractor will complete network certification and start operations and maintenance in October 2017.
- Toll system punch list items will continue to be addressed so Operations Testing can begin, which will verify the operational toll system meets all specifications and will lead to the maintenance phase of operations.

Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	Regional Measure 2 Funds (allocated)	BATA Express Lane Funds ⁽³⁾			Physical % Complete ⁽⁴⁾
			Dec. 2015 Amendment	June 2017 Amendment	Expended through 5/30/17	
55.6	55.6		55.6	55.6	42.7	95%

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

⁽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⁾ BATA Express Lane Funds represent the funds that have been allocated from the BATA 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-680 Northern Segment Southbound Conversion (CC-680 North)

Martinez to Walnut Creek

Benicia Bridge to Rudgear Road

Total Program Estimate

\$56.9 million (\$51.3 million to be funded by BAIFA)

Scheduled Open Date

Spring 2020

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.

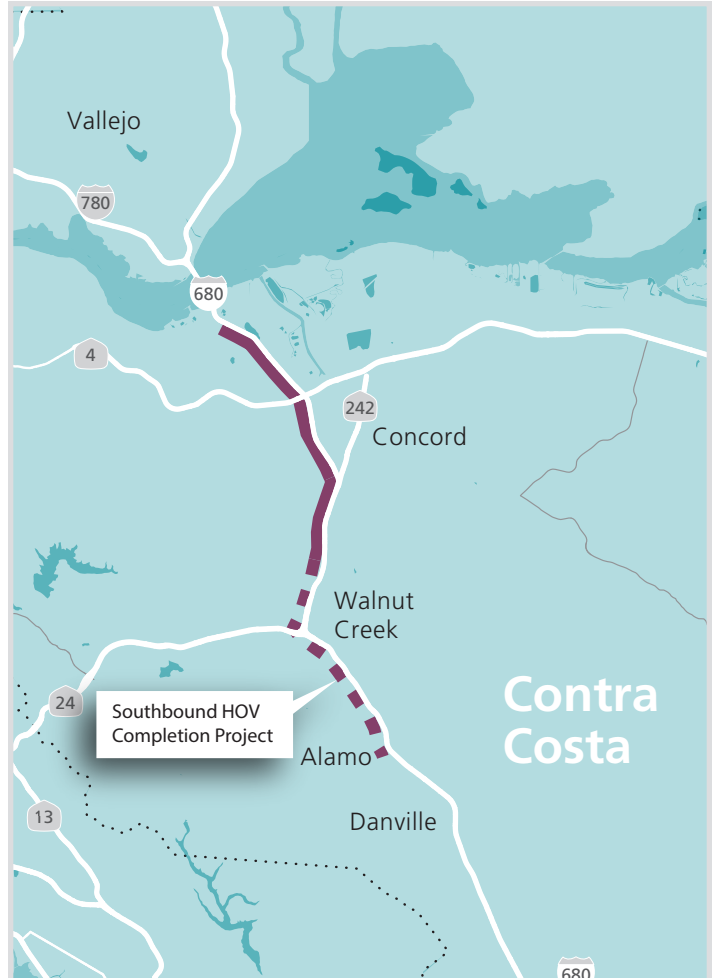
Civil construction will be delivered by the Contra Costa Transportation Authority (CCTA). MTC will install toll and communications equipment and will operate the express lanes.

Project Highlights and Progress

- Caltrans accepted the Traffic Operation Analysis Report in October 2015, and agreed with the mid-day hours of operation analysis in early 2017.
- Caltrans signed the environmental document in December 2016 and approved the Project Report in August 2017.
- Project staff met with the Walnut Creek Mayor and city staff in May 2017 to review the construction plan and impacts.
- Environmental revalidation was completed in September 2017. The Office of U.S. Fish and Wildlife Service provided concurrence that the project is not likely to adversely affect any known federally listed species.
- Final design plans were submitted to Caltrans in August 2017, and comments were received in September 2017

Current Project Activities

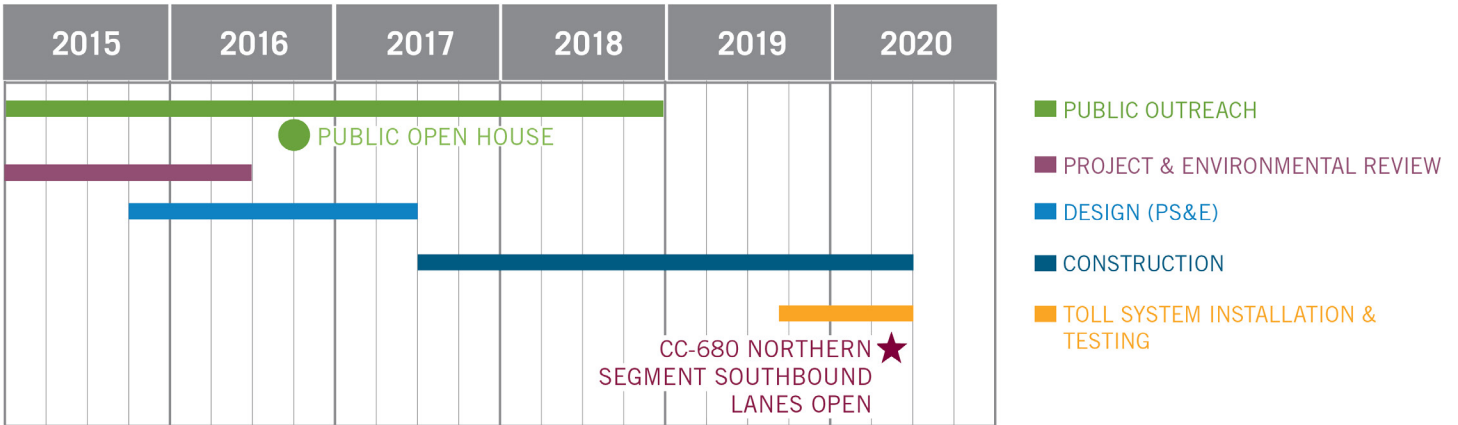
- CCTA is addressing Caltrans' comments on the final design. The final encroachment permit package will be submitted in October 2017.
- The planned construction contract advertisement is dependent upon a California Transportation Commission



(CTC) vote to advance State Transportation Improvement Program (STIP) funds for the project. The steps to secure CTC approval are pushing advertisement into 2018, which may extend the actual opening into 2021. Staff is reviewing the projected open date, which will also be influenced by rain delays and possibly by the toll system integrator having to work on the I-80 Express Lanes at the same time.

- To mitigate against potential construction schedule delay due to bird nesting season, an Early Tree Removal contract will be awarded in October 2017; work will begin soon thereafter.
- The toll system integrator will begin its 100% design package for the toll system in relation to the civil design, backhaul communications and power.

Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	Regional Measure 2 Funds (allocated)	BATA Express Lane Funds ⁽³⁾			Physical % Complete ⁽⁴⁾
			Dec. 2015 Amendment	June 2017 Amendment	Expended through 5/30/17	
56.9	56.9	5.6	51.3	51.3	3.7	18%

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

⁽¹⁾ Program estimate reflects total cost for express lanes (\$37.9 million of which BAIFA's contribution is \$32.3 million and RM2's contribution is \$5.6 million) plus BAIFA's contribution to the HOV Completion project (\$19 million). The table does not reflect other funding for the HOV Completion Project: Measure J (\$37million), RM2 (\$13million), STIP (\$16m million).

⁽²⁾ Cost forecast represents current estimated cost to complete phases that are funded for each project.

⁽³⁾ BATA Express Lane Funds represent the funds that have been allocated from the BATA 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-80 Solano (SOL-80)

Fairfield to Vacaville

Red Top Road to I-505

Total Program Estimate

\$179.4 million

Scheduled Open Date

TBD

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.

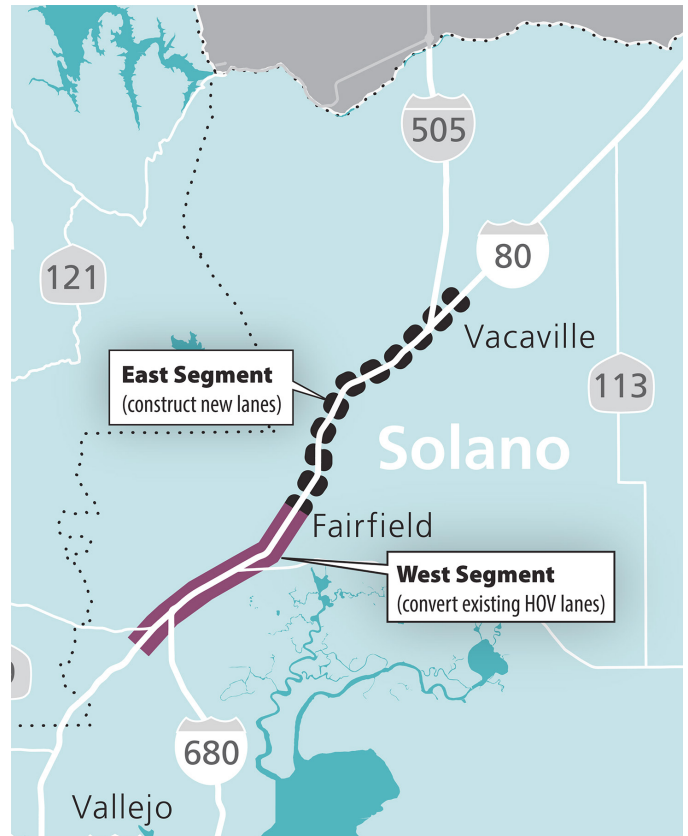
The project will also construct new eastbound and westbound lanes between Air Base Parkway and I-505 in Vacaville. In this section, the highway will be widened along with the installation of express lane striping, signage and equipment. The project will result in 36 miles of express lanes on I-80 in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

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

STA will advertise, award and administer the construction contract. MTC will install toll and communications equipment and will operate the express lanes.

Project Highlights and Progress

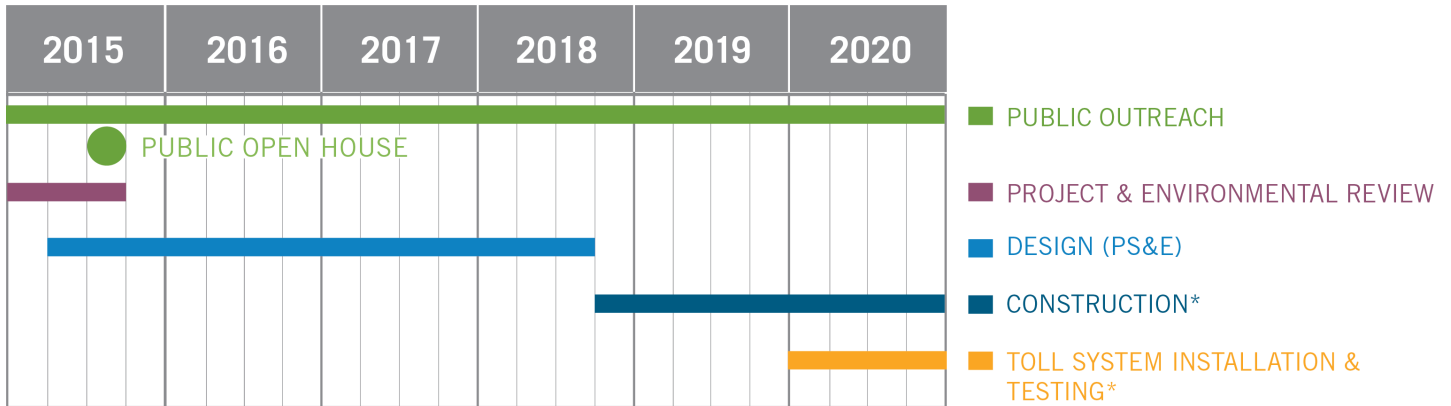
- A public open house was held in August 2015.
- The preliminary engineering report and environmental document were completed in December 2015.
- The 95% design document was submitted to Caltrans in July 2017 and STA received comments from Caltrans.
- The Toll System Integrator began schedule coordination with STA and design team



Current Project Activities

- The 100% design document will be submitted to Caltrans in October 2017.
- Staff will request funds for PG&E design in October 2017.
- The Toll System Integrator will continue schedule planning to determine when toll system installation can take place given other obligations for toll system installation on I-880 and I-680 North.
- Staff is reviewing potential opportunities to fund construction with funds from Senate Bill 1 and Regional Measure 3.

Project Schedule by Phase



* Funding for these activities is not yet secured.

Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	Regional Measure 2 Funds (allocated)	BATA Express Lane Funds ⁽³⁾			Physical % Complete ⁽⁴⁾
			Dec. 2015 Amendment	June 2017 Amendment	Expended through 5/30/17	
179.4	34.2	15.2	19.0	19.0	6.3	18%

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

Costs shown in millions of escalated dollars.

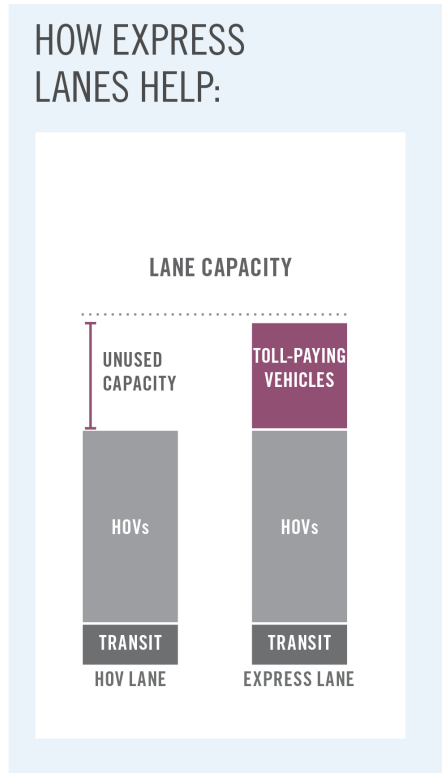
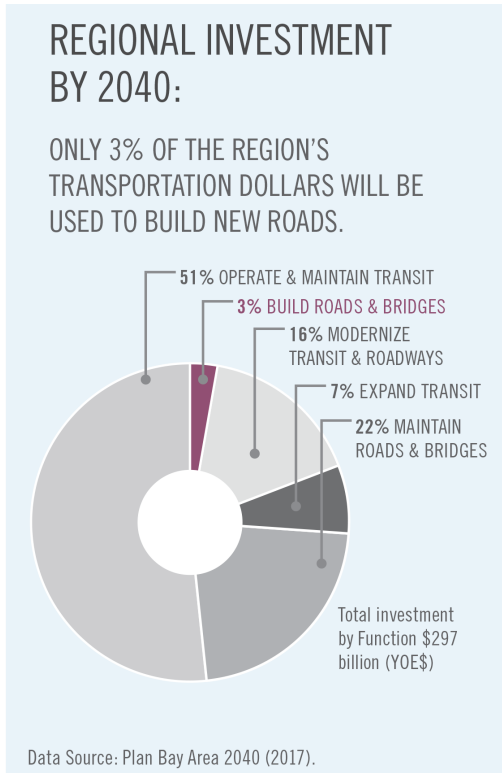
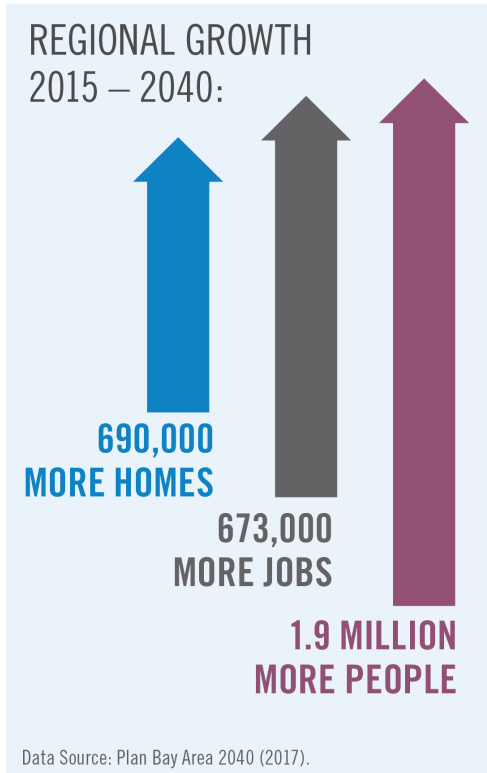
- (1) Program estimate represents current estimated cost to complete each project.
- (2) Cost forecast represents current estimated cost to complete phases that are funded for each project. I-80 Solano is funded through the design phase.
- (3) BATA Express Lane Funds represent the funds that have been allocated from the BATA 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.

APPENDICES

A. 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,

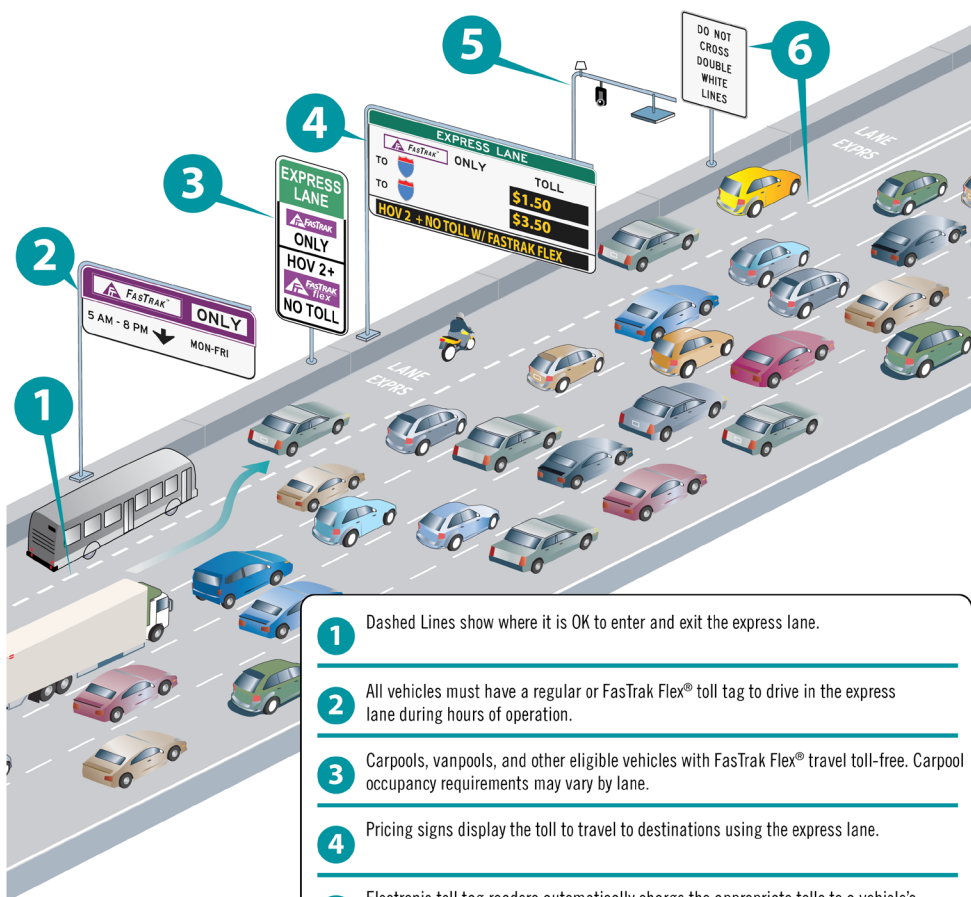
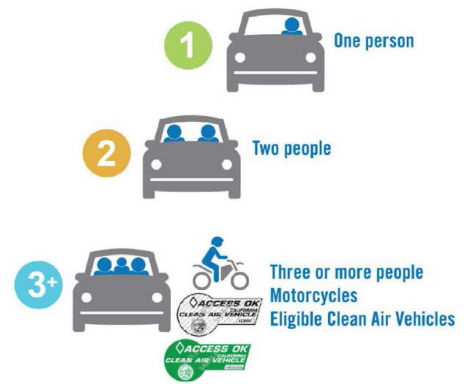
B) improving operations in existing HOV lanes through better carpool enforcement and strategies to prevent lane slowdowns, and C) filling gaps in the HOV lane system to encourage more carpooling.



B. How Express Lanes Work

MTC Express Lanes are free to carpoolers, vanpoolers, motorcycles, eligible clean air vehicles and transit buses. Solo drivers can choose to pay tolls to use the lanes. Tolls for solo drivers will be collected electronically via FasTrak®, as on Bay Area toll bridges. Overhead electronic pricing signs will display the current toll rates, which will increase as traffic congestion increases and decrease as traffic congestion decreases.

On MTC Express Lanes, carpools, qualifying clean-air vehicles and other toll-exempt vehicles must use a FasTrak Flex® toll tag set to “2” or “3+” to travel toll-free. Solo drivers pay to use the lanes with either a standard FasTrak® toll tag or a FasTrak Flex® toll tag set to “1.” Drivers should move the switch before driving.



- 1** Dashed Lines show where it is OK to enter and exit the express lane.
- 2** All vehicles must have a regular or FasTrak Flex® toll tag to drive in the express lane during hours of operation.
- 3** Carpools, vanpools, and other eligible vehicles with FasTrak Flex® travel toll-free. Carpool occupancy requirements may vary by lane.
- 4** Pricing signs display the toll to travel to destinations using the express lane.
- 5** Electronic toll tag readers automatically charge the appropriate tolls to a vehicle's FasTrak® account.
- 6** Double white lines show where it is illegal to enter and exit the express lane. These access limitations improve traffic flow.

The figure to the left explains how to use Bay Area Express Lanes. MTC Express Lanes will be mostly “open” access, meaning drivers will enter and exit the express lanes similar to how they enter and exit HOV lanes today. Areas in locations prone to excessive weaving or with safety issues will have limited access to restrict entry and exit at these locations. Signage and lane striping will identify the limited entry and exit locations. Limited access is a way to improve travel speeds in express lanes.

C. 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

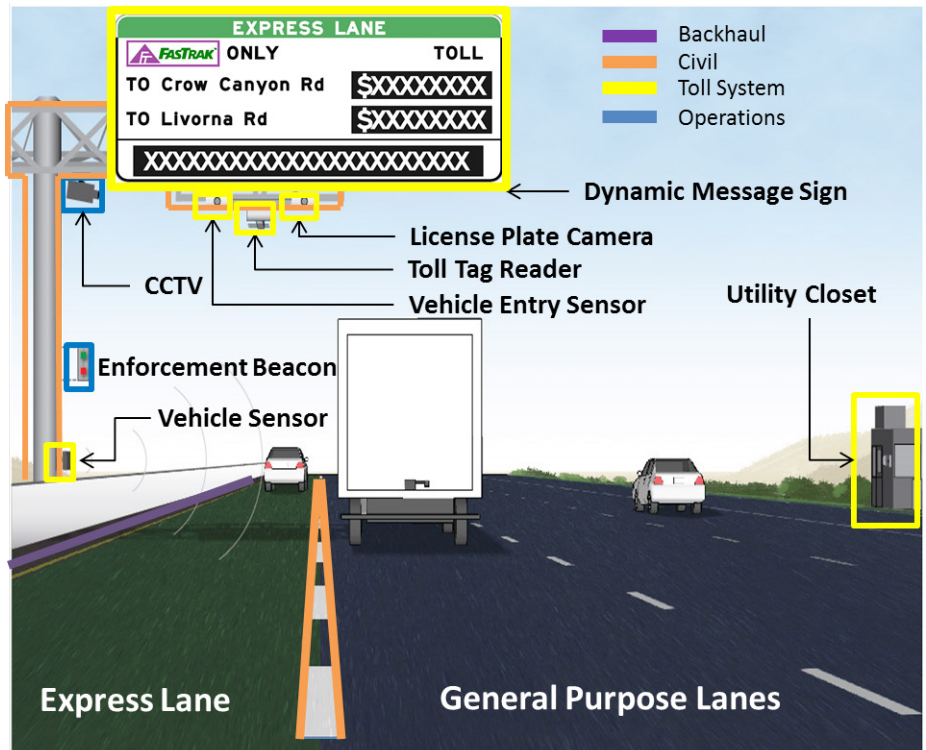
The toll system consists of two components, the in-lane system and the back-end “host” system. The lane system consists of all the equipment on the highway needed to operate the toll system including toll tag readers, cameras and vehicle detection. The host system serves as the brain of the toll system, 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 will be established in the Bay Area Metrocenter building in San Francisco where operators will 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