



Bay Area Infrastructure Financing Authority
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Memorandum

TO: BAIFA

DATE: May 17, 2017

FR: Executive Director

W. I. 6840

RE: Express Lane Program Quarterly Report – 1st Quarter 2017

MTC issues Express Lane Program reports on a quarterly basis. The quarterly report summarizes major developments, project schedules and risks and compares forecast costs with the Express Lane Program Expenditure Plan approved by BAIFA in June 2015, and subsequently amended in December 2015. The attached report covers the first quarter of 2017, January 1 to March 31.

Selected highlights from the first quarter report and subsequent developments are noted below.

I-680 Express Lanes in Contra Costa County between Walnut Creek and San Ramon

- This project (also called I-680 Contra Costa Southern Segment) is currently scheduled to open in late summer 2017, barring further delays from rain or toll system testing. Staff will ramp up customer education efforts approximately two months prior to opening. (See Agenda item 3a.) In the coming months, staff will provide BAIFA an update on opening and expectations for operations, including reports on the existing Bay Area Express Lanes on I-580, I-680 Sunol and State Route 237.
- The civil roadway construction contractor DeSilva Gates, Construction LP, completed all its work, including installation of overhead sign panels, in April of 2017. The maintenance contractor will perform final striping of the express lane and sign installation immediately prior to opening.
- The backhaul network contractor has completed installation of approximately 60 percent of the fiber within the corridor. The backhaul network cabinet damaged in January in a hit and run collision has since been replaced.
- The toll system integrator completed installation of the toll system equipment in the first week of April. The integrator has begun testing and commissioning the equipment at each toll site. Over the next few months, the integrator will conduct further testing of the toll system from end to end, to demonstrate compliance with the system requirements.
- The build out of the Regional Operations Center at the Bay Area Metro Center is now complete and will be used for toll system testing.

I-880 Express Lanes in Alameda County between Oakland and Milpitas

- Work on the express lane elements, such as foundations for sign structures and lighting, for the Caltrans I-880 Median Barrier project is approximately 50 percent complete.
- The invitation for bids for construction of the remaining express lane civil elements was released on April 25, 2017. Staff anticipates we will receive the Caltrans permit in May, and BAIFA will award the contract at its June meeting. As previously reported, staff will at that time recommend modifications to the Express Lanes Program Expenditure Plan (BAIFA Resolution No. 9) to address costs not anticipated in the original project budget. These include costs such as those related to new lighting requirements, additional signage, widening at access points, lessons learned during construction of the backhaul on I-680, and paving to prevent pavement scaring where the project requires restriping.

I-680 Express Lanes in Contra Costa County from Martinez to Walnut Creek

- The Contra Costa County Transportation Authority (CCTA) is currently preparing 95% design for this project (also called I-680 Northern Segment, Southbound). CCTA expects to advertise the project for construction later this year.

I-80 Express Lanes in Solano County from Fairfield to Vacaville

- The Solano Transportation Authority is preparing 95% design. The construction phase of this project remains unfunded and the lead for construction is unresolved.



Steve Heminger

SH: lk

Attachment: Quarterly Report



BAY AREA EXPRESS LANES



MTC Express Lanes Quarterly Report 1st Quarter, January - March, 2017

Submitted: May 24, 2017

BAIFA
BAY AREA INFRASTRUCTURE
FINANCING AUTHORITY



METROPOLITAN
TRANSPORTATION
COMMISSION

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Construction is nearly complete on I-680 in Contra Costa County, the first Bay Area Express Lane project to be planned, built and operated by MTC.

The focus now is on toll system testing in preparation for opening in Summer 2017.



*Crews boring conduit for the backhaul system.
(See additional construction photographs on page 18)*

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

Project Development & Construction	1 st Quarter 2017 Highlights	Current Activities
I-880 Alameda (ALA-880) Between San Leandro and Milpitas <i>Hegenberger Road/Lewelling Boulevard to Dixon Landing Road</i>	<ul style="list-style-type: none"> 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 50% complete including construction of express lane sign structure foundations. (See construction photo on page 15.) 100% design submitted to Caltrans in January 2017. Project team reached agreement with Caltrans on pavement resurfacing scope and budget. This retires a major risk item for the project. 	<ul style="list-style-type: none"> Caltrans median barrier contractor is continuing to demolish median barrier north of SR-92 and construct express lane infrastructure in the median. Staff is preparing to advertise the express lane civil construction contract in April 2017. Project team is working with Caltrans to secure the encroachment permit by May 2017. Staff anticipates the civil cost will exceed project budget and will prepare a revised expenditure plan for BAIFA consideration along with award of the civil construction contract. (See Program Cost Summary and Change Management sections on pages 7 and 8.) Staff is reviewing the projected open date, which likely will be delayed due to the need to sequence construction with Caltrans median barrier and resurfacing projects.
I-680 Contra Costa Southern Segment (CC-680 South) <i>Between Walnut Creek and San Ramon Livorna Road/Rudgear Road to Alcosta Boulevard</i>	<ul style="list-style-type: none"> Final roadway design was completed in April 2015. Civil construction will be completed in April 2017. (See construction photos on page 18.) Backhaul contractor completed fiber optic installation between Walnut Creek and San Ramon in June 2016. The connection of the leased line service at the Walnut Creek hub was completed in March 2017. Three express lanes data centers at the Benicia-Martinez toll plaza, Caltrans District 4, and the Regional Operations Center, and the two corridor hubs are online and being utilized by the toll system integrator during system implementation. Toll system equipment installation continued along the corridor and is expected to be completed in April 2017. Installation of toll system field equipment was delayed by weather. 	<ul style="list-style-type: none"> Physical installation of the remaining backhaul infrastructure from north Walnut Creek to Martinez is in progress. Upon completion, the backhaul will extend 26 miles on I-680 from Dublin to Martinez. Backhaul contractor is finalizing operations and the maintenance plan, and is preparing for full backhaul operations by the end of June 2017. Installation of toll system field equipment will finish and site commission testing will start in May 2017. Communications and public outreach for civil and backhaul construction activities continue.

Project Development & Construction	1 st Quarter 2017 Highlights	Current Activities
I-680 Contra Costa Northern Segment Southbound Conversion (CC-680 North) <i>Martinez to Walnut Creek</i> <i>Marina Vista Boulevard to Rudgear Road/SR 242</i>	<ul style="list-style-type: none"> CCTA developed a summary feedback from the on-line public open house in January 2017. 	<ul style="list-style-type: none"> CCTA is working to address Caltrans' comments on the 65% design while simultaneously preparing the 95% design for submittal in April 2017. Caltrans requires the project to mitigate pavement scarring from a change to the striping configuration. Project team is working with Caltrans on a cost-effective solution. Project team is working with PG&E to design the new service locations while concurrently initiating the right-of-way engineering process for permanent utility easements.
I-80 Solano (SOL-80) <i>Fairfield to Vacaville</i> <i>Red Top Road to I-505</i>	<ul style="list-style-type: none"> 65% design comments from Caltrans were received in February 2017. 	<ul style="list-style-type: none"> 95% design to be submitted to Caltrans in July 2017.
Program Management	<ul style="list-style-type: none"> MTC staff developed customer education materials for the I-680 Contra Costa Express Lane opening, including a video, maps, FAQs, news articles, information card, and presentations. Customer education campaign will kick off approximately two months prior to opening. MTC staff is collaborating with the Contra Costa Transportation Authority, the City of San Ramon and Bishop Ranch on the opening of the lanes, including speaking opportunities and coordination of a carpool incentive and opening event kick-off. 	<ul style="list-style-type: none"> MTC staff is finalizing the logistics to install overhead temporary sign wraps on the I-680 Express Lane corridor announcing the lane opening. MTC staff are finalizing a social media campaign for I-680 as well as bus ads, a radio buy, gas station pump toppers, Pandora ads, and developing a schedule for speaking engagements. MTC staff continues to email monthly customer notices to over 8,000 stakeholders and drivers in the I-680 corridor.
Toll System	<ul style="list-style-type: none"> Buildout of the Regional Operations Center was finished in March 2017. Dry run testing of file exchanges between toll system and FasTrak Customer Service Center was finished in March 2017. 	<ul style="list-style-type: none"> Integrator will address punch list items from first installation test in anticipation of the first zone test in May 2017. End-to-end testing will start between the toll system and the FasTrak Customer Service Center in April 2017. Redundant backhaul communications network will be established in June 2017. Operating procedures and an operations staffing plan will be finalized by May 2017.

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.

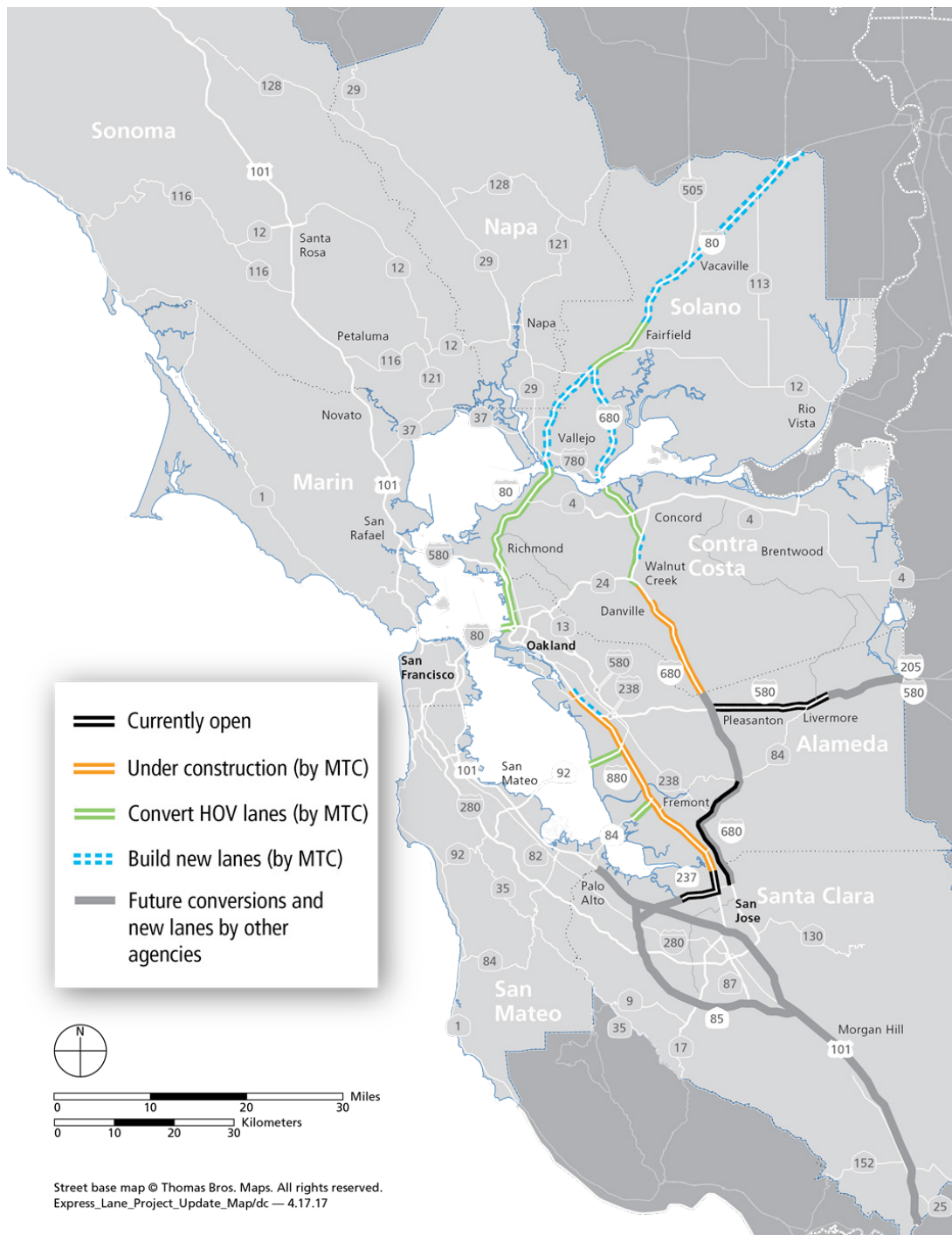


Map of Bay Area Express Lane Network

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.



Map of Bay Area Express Lanes (MTC lanes highlighted)

C. MTC Express Lane Project Funding

MTC is using existing funding to convert existing HOV lanes to express lanes and to conduct environmental studies 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	Environmental	Design	Construction
NEAR TERM CONVERSIONS						
ALA	880	I-880 Alameda	Between San Leandro and Milpitas <i>Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.</i>	●	●	●
CC	680	I-680 Contra Costa Southern Segment	Between Walnut Creek and San Ramon <i>Livorna Rd./Rudgear Rd. to Alcosta Blvd.</i>	●	●	●
CC	680	I-680 Contra Costa Northern Segment - Southbound Conversion	Martinez to Walnut Creek <i>Marina Vista Blvd. to Rudgear Rd.</i>	●	●	●
GAP CLOSURE OPPORTUNITY PROJECTS						
CC	680	I-680 Northern Segment - Northbound Extension	Walnut Creek to Concord <i>North Main St. to SR 242</i>	○	○	○
SOL	80	I-80 Solano	Fairfield to Vacaville <i>Red Top Rd. to I-505</i>	●	●	○
FUTURE CONVERSIONS						
ALA/ CC	80	I-80 and Westbound Bridge Approaches	Cummings Skyway to Bay Bridge San Mateo Bridge Westbound Approach Dumbarton Bridge Westbound Approach	◐	○	○
CC	680	I-680 Northern Segment - Northbound Conversion	Walnut Creek to Benicia <i>North Main St. to the Benicia Bridge</i>	◐	○	○




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 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) Between San Leandro and Milpitas <i>Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.</i>	Spring 2019	Spring 2019		14
I-680 Contra Costa Southern Segment (CC-680 South) Between Walnut Creek and San Ramon <i>Livorna Rd./Rudgear Rd. to Alcosta Blvd.</i>	Fall 2016	Summer 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 SR 92 and SR 84 projects. The expended-to-date amounts shown represent the amount of BATA Express Lane funds expended through the end of the current quarter.

Project ⁽¹⁾	Program Estimate ⁽²⁾	Cost Forecast ⁽³⁾	BATA Express Lane Funds ⁽⁴⁾			Regional Measure 2 (allocated)	Physical % Complete ⁽⁵⁾	Confidence Level ⁽⁶⁾
			June 2015 Baseline	Dec. 2015 Amendment	Expended To Date			
NEAR TERM CONVERSIONS	Costs shown in millions of escalated dollars							
I-880 Alameda	114.1	114.1	77.8	77.8	28.3		25%	🔴
I-680 Contra Costa Southern Segment	55.6	55.6	48.9	55.6	38.7		85%	🟢
I-680 Contra Costa Northern Segment Southbound Conversion	36.1	36.1	32.3	32.3	1.9	3.8	15%	🟡
Centralized Toll System	33.6	33.6	36.2	33.6	13.5		55%	🟢
Program Planning, Coordination & Management	28.4	28.4	28.4	28.4	14.4		60%	🟢
Program Contingency	50.0	35.9	40.0	35.9	0.0			🔴
Capitalized Start-up O&M	16.0	16.0	16.0	16.0	0.9			🟢
GAP CLOSURE OPPORTUNITY PROJECTS								
I-680 Contra Costa Northern Segment - Southbound HOV Completion ⁽⁷⁾	19.0	19.0	19.0	19.0	0.0		0%	🟢
I-680 Contra Costa Northbound Express Lane Completion (N. Main St. to SR-242)	57.3							
I-80 Solano	179.4	34.2	19.0	19.0	3.7	15.2	15%	🟢
FUTURE CONVERSIONS								
I-80 Alameda/Contra Costa & Westbound Bay, San Mateo & Dumbarton Bridge Approaches	110.9	5.7	0.7	0.7	0.7	5.0	1%	🟢
I-680 Contra Costa Northern Segment - Northbound Conversion	14.6	1.5			0.0	1.5	5%	
Centralized & Program Costs, and Start-Up O&M Gap Closures & Future Conversions	TBD							
TOTALS	715.0	380.1	318.3	318.3	102.2	25.5	35%	

⁽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⁾ Cost shown is BAIFA's contribution toward shortfall. Total project cost is \$85M. Other funds include Measure J (\$37M), RM2 (\$13M), STIP (\$16M)

B. Change Management

The change management process captures the changes in the program that have an impact on the approved baselines.

These are the major changes to the MTC Express Lanes Program:

- The confidence level associated with a Spring 2019 open to traffic date for I-880 has been downgraded from yellow to red based on more refined construction sequencing schedules and lessons learned from I-680S. The open to traffic date will be adjusted following award of the express lanes civil construction contract. In addition, coordination between the civil contract, the toll system contract, and the Caltrans median barrier and repaving contracts is likely to extend the schedule.
- As previously reported and shown in the cost summary, the costs to construct the I-880 corridor are expected to significantly exceed the project budget by as much as \$36 million. Bids for the I-880 construction contract are scheduled to be received next quarter, at which time staff will present BAIFA a revised budget recommendation and expenditure plan.

The costs to construct the I-880 corridor are expected to significantly exceed the project budget as reflected in the

updated cost forecast, which has been increased by \$36.3 million. The cost increase is associated with new lighting requirements, widening at access locations and signage not anticipated in the original budget. Staff anticipates additional cost increases as a result of lessons learned during construction of the backhaul communications network on I-680 and the inclusion of paving work to prevent scarring the pavement where the project requires restriping. It will be possible to validate the cost forecast when bids are received for the I-880 construction contract in 2017. Staff will present BAIFA a revised budget recommendation at that time, or sooner if needed.

- The Change Control Committee approved the consolidation of the east and west design packages for I-80 Solano, which was originally to be conceived as two separate projects. Now the intent is to bid and construct these segments as one project. By combining these projects, the change eliminates project-to-project interfaces and overlapping design improvements common to both projects. This change would also help streamline reviews by Caltrans. In addition to repackaging this scope, this change also extends the tolling limits to better align with existing and future congestion in the westbound direction through Fairfield.

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 assigns responsibility to the person best positioned to manage each risk.

The collective value of all the risks in the program risk register is tracked on a monthly basis to gauge the program's risk exposure. 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. Prior to 2016, the program tracked the mean risk-assessed contingency, which was a somewhat simplified assessment of risk. 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.

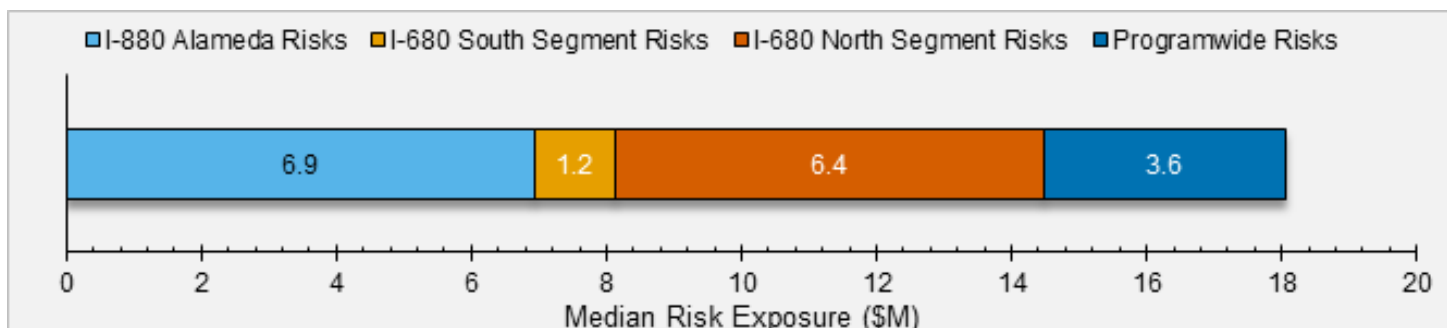
The chart below shows the median risk exposure determined using Monte Carlo analysis. As of March 31, 2017, the risk exposure stands at \$18.1 million, which is lower than the \$24.3 million reported last quarter.

The chart on the following page tracks the program's cost forecast and risk exposure as compared to the authorized program budget. The cost forecast for the program continues to exceed the authorized budget by approximately \$0.4 million, due to the increase in the I-880 cost forecast reported for the 3rd quarter of 2016. The approved program budget would not be sufficient if the risk exposure of \$18.1 million were to be realized. As mentioned on page 8, staff will return to BAIFA, as needed, to recommend a course of action for the use of program contingency and other options to supplement the I-880 budget.

The top contributors to the risk exposure for the express lanes program along with the planned/ongoing mitigations are as follows:

I-880 Alameda

- Caltrans is currently managing a repaving project. Coordination issues with the project may delay completion of I-880 corridor 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 complete the work that could be faster and recommending specification changes to the repaving project for Caltrans approval.
- Delays to the completion of the civil contract as a result of sequencing with other contracts (median barrier and resurfacing contracts) or weather-related delays would impact the start of, or interrupt, the toll systems contract. The project team has reviewed civil contract construction sequencing to find a suitable start time so that the toll systems contract can work continuously without interruption and tracking progress against internal milestones.
- Adverse site conditions for existing conduit and pull boxes may require repair or replacement of existing sections of conduit or pull boxes which would increase capital costs. MTC staff is performing conduit investigation as part of the median barrier contract to identify potential issues. Additionally, the scope of work for the contractor includes provisions for site investigation.



This chart shows the contribution of each project's risks towards the total program risk exposure.

I-680 Contra Costa Southern Segment

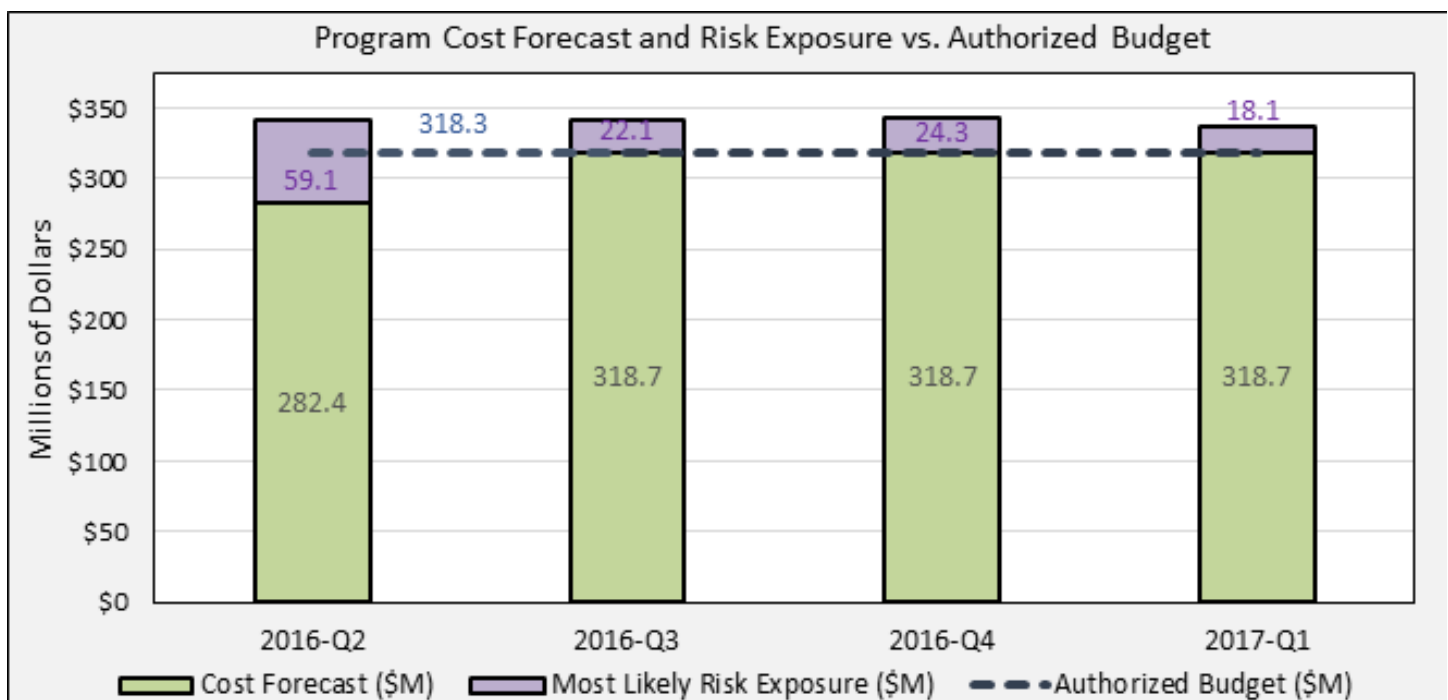
- Adverse weather may continue to impact backhaul and toll system construction and testing schedules, causing further delay to the opening of the express lanes.
- Delays in backhaul network and toll systems implementation and testing could delay opening of the express lanes. This could result in extended 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 re-sequence work to minimize delays.

I-680 Contra Costa Northern Segment

- Pavement stripe removal and additional pavement resurfacing may be 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 will be mitigated by thoroughly researching other solutions and coordinating the needs and requirements with Caltrans. The team is currently performing tests in the I-880 corridor to evaluate ways to avoid pavement damage so that resurfacing costs can be minimized for I-880 and future corridors.

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.
- 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.



This chart shows the program cost forecast and risk exposure as compared to the authorized program budget.

PROJECT SUMMARY SHEETS

Centralized Functions (e.g. Toll System & Program Management, Planning and Regional Coordination)

Total Estimated Cost

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

Schedule

Centralized Toll System will be ready with opening of the CC-680 South Project in late Summer of 2017.

Program Planning Coordination & 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 lanes, as well as the backhaul communications network components that transport toll data from MTC lanes to host and toll operations data centers, including corridor communication hubs. Additional system elements are the fiber optic cables and leased line services to transport data. Centralized toll system work includes designing and implementing the hardware and software for dynamic toll setting and trip building, integration with the FasTrak® Regional 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 toll 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

- MTC staff developed customer education materials for the I-680 Contra Costa Express Lane opening, including a video, maps, FAQs, news articles, information card, and presentations.
- Customer education campaign will kick off approximately two months prior to opening.
- MTC staff will collaborate with the Contra Costa Transportation Authority, the City of San Ramon and Bishop Ranch on the opening of the lanes, including speaking opportunities and coordination of a carpool incentive and opening event kick-off.



Current Program Management Activities

- MTC staff is finalizing the logistics to install overhead temporary sign wraps on the I-680 Express Lane corridor announcing the lane opening.
- MTC staff are finalizing a social media campaign for I-680 as well as bus ads, a radio buy, gas station pump toppers, Pandora ads, and developing a schedule for speaking engagements.
- MTC staff continues to email monthly customer notices to over 8,000 stakeholders and drivers in the I-680 corridor.



Variable toll message sign at a CHP Enforcement Area on I-680. This screenshot is from a CCTV. The text in the upper left corner indicates the location of the CCTV.

Toll System Highlights and Progress

- Construction contract for the communications network of the host data centers and CC-680 South was awarded in December 2015.
- 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.
- Buildout of the Regional Operations Center was finished in March 2017.
- Dry run testing of file exchanges between toll system and FasTrak® Customer Service Center was finished in March 2017.

Current Toll System Activities

- Integrator will address punch list items from first installation test in anticipation of the first zone test in May 2017.
- End-to-end testing will start between the toll system and the FasTrak® Customer Service Center in April 2017.
- Redundant backhaul communications network will be established in April 2017.
- Operating procedures and an operations staffing plan will be finalized by May 2017.

I-880 Alameda (ALA-880) – between Oakland and Milpitas

Hegenberger Road/Lewelling Boulevard to Dixon Landing Road

Total Program Estimate

\$114.1 million

Scheduled Open Date

Spring 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 an express lane.

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 being 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 95% design was completed in January 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 50% complete including construction of express lane sign structure foundations. (See construction photo on page 15.)
- 100% design submitted to Caltrans in January 2017.



- Project team reached agreement with Caltrans on pavement resurfacing scope and budget. This retires a major risk item for the project.

Current Project Activities

- Caltrans median barrier contractor is continuing to demolish median barrier north of SR-92 and construct express lane infrastructure in the median.
- Staff is preparing to advertise the express lane civil construction contract in April 2017.
- Project team is working with Caltrans to secure the encroachment permit by May 2017.
- Staff anticipates the civil cost cost will exceed project budget and will prepare a revised expenditure plan for BAIFA consideration along with award of the civil construction contract. (See Program Cost Summary and Change Management sections on pages 7 and 8.)
- Staff is reviewing the projected open date, which likely will be delayed due to the need to sequence construction with Caltrans median barrier and resurfacing projects.

Project Schedule by Phase



*Includes I-880 median barrier improvements.

Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	BATA Express Lane Funds ⁽³⁾			Regional Measure 2 (allocated)	Physical % Complete ⁽⁴⁾
		June 2015 Baseline	Dec 2015 Amendment	Expended To Date		
114.1	114.1	77.8	77.8	28.3		25%

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

Costs shown in thousands 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.

Demolished median barrier on I-880 near Winton Avenue in Hayward.



I-680 Contra Costa Southern Segment (CC-680 South) – between Walnut Creek and San Ramon

Livorna Road/Rudgear Road to Alcosta Boulevard

Total Program Estimate

\$55.6 million

Scheduled Open Date

Late Summer 2017

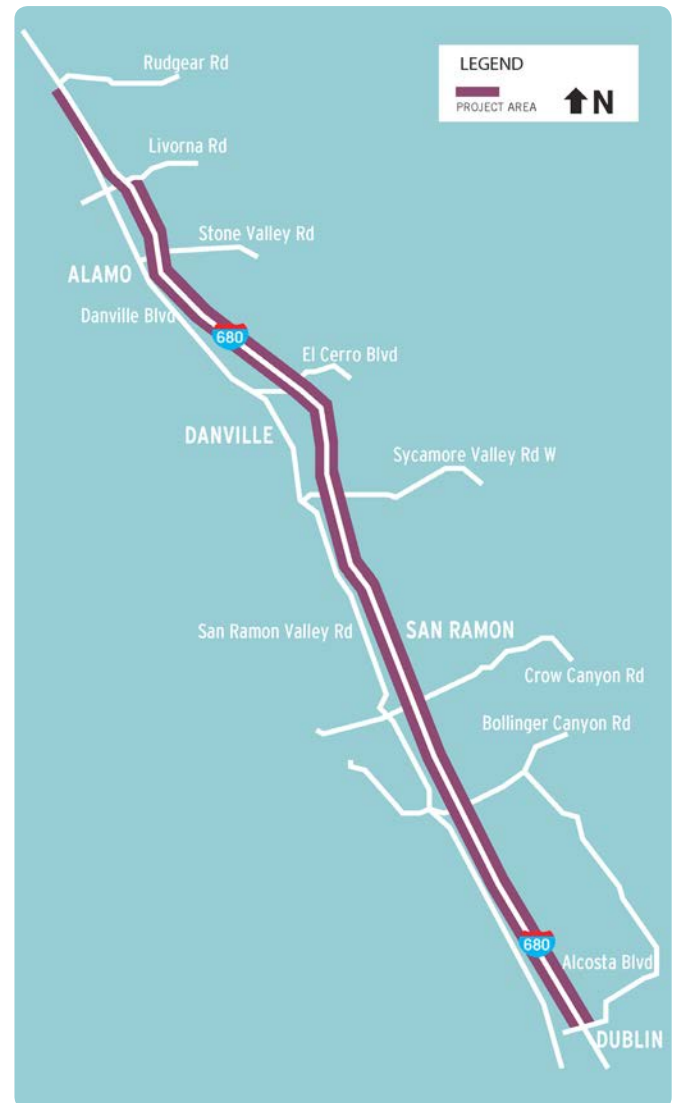
Project Description

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.
- Physical installation of the final backhaul network communications hub at BART's Oakland fiber facility took place in December 2016.
- Backhaul contractor completed fiber optic installation between Walnut Creek and San Ramon in June 2016. The connection of the leased line service at the Walnut Creek hub was completed in March 2017.
- Final roadway design was completed in April 2015. Civil construction will be completed in April 2017. (See construction photos on page 18.)
- Three express lanes data centers at the Benicia-Martinez toll plaza, Caltrans District 4, and the Regional Operations Center, and the two corridor hubs are online and being utilized by the toll system integrator during system implementation.
- Toll system equipment installation continued along the corridor and is expected to be completed in April 2017. Installation of toll system field equipment was delayed by weather.



Current Project Activities

- Physical installation of the remaining backhaul infrastructure from north Walnut Creek to Martinez is in progress. Upon completion, the backhaul will extend 26 miles on I-680 from Dublin to Martinez.
- Backhaul contractor is finalizing operations and the maintenance plan, and is preparing for full backhaul operations by the end of June 2017.
- Installation of toll system field equipment will finish and site commission testing will start in May 2017.
- Communications and public outreach for civil and backhaul construction activities continue.

Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	BATA Express Lane Funds ⁽³⁾			Regional Measure 2 (allocated)	Physical % Complete ⁽⁴⁾
		June 2015 Baseline	Dec 2015 Amendment	Expended To Date		
55.6	55.6	48.9	55.6	38.7		85%

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

Costs shown in thousands 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.

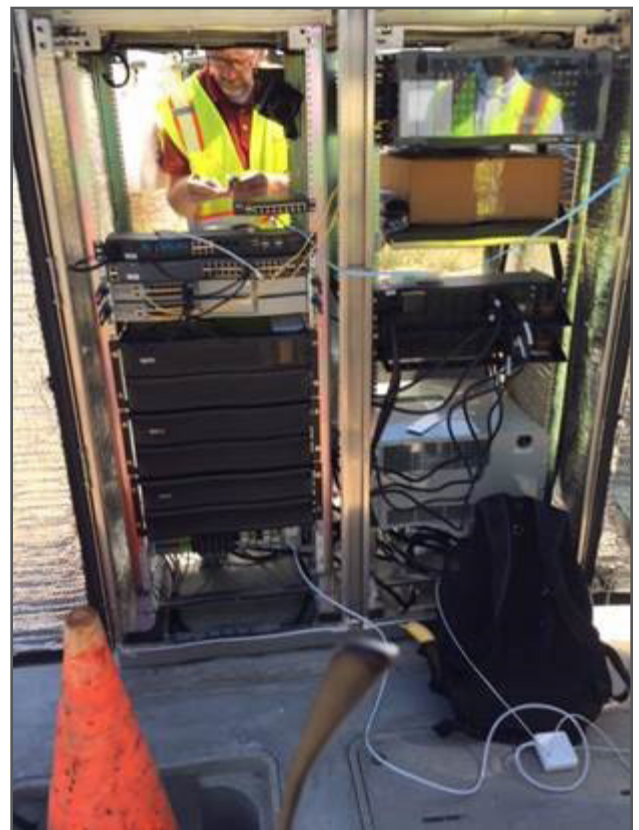
⁽⁴⁾ Physical percent complete shown is based on the achievement of major milestones whether those milestones were completed using BAIFA funds or other funds.



Backhaul conduit boring rig on I-680.



Backhaul trench to hub on I-680



Interior of backhaul hub cabinet

I-680 Northern Segment Southbound Conversion (CC-680 North) – Martinez to Walnut Creek

Benicia Bridge to Rudgear Road

Total Program Estimate

\$36.1 million (\$32.3 million to be funded by BAIFA)

Scheduled Open Date

Spring 2020

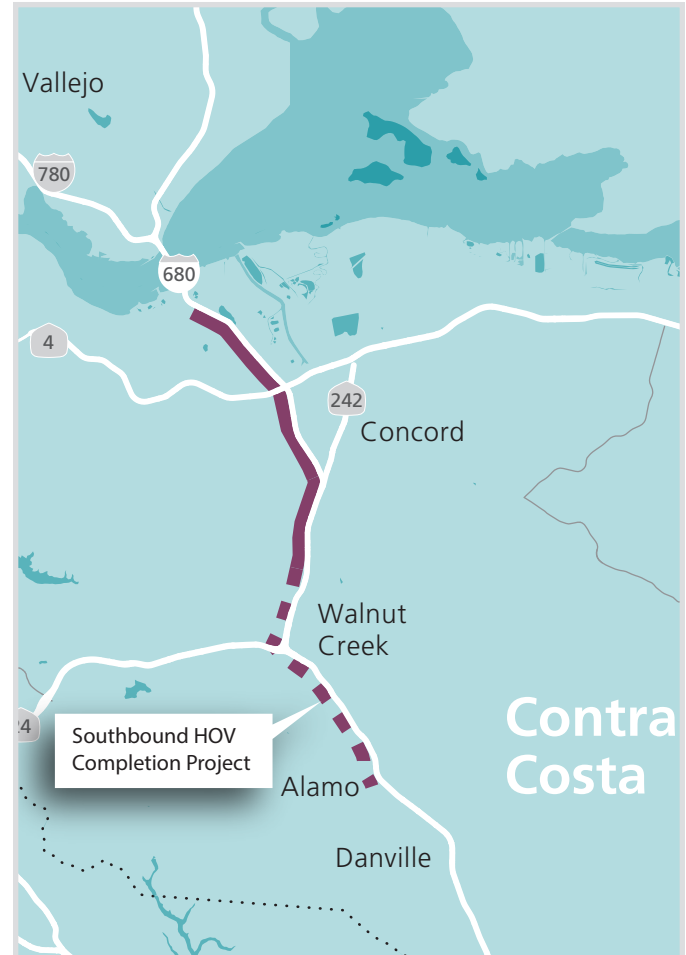
Project Description

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

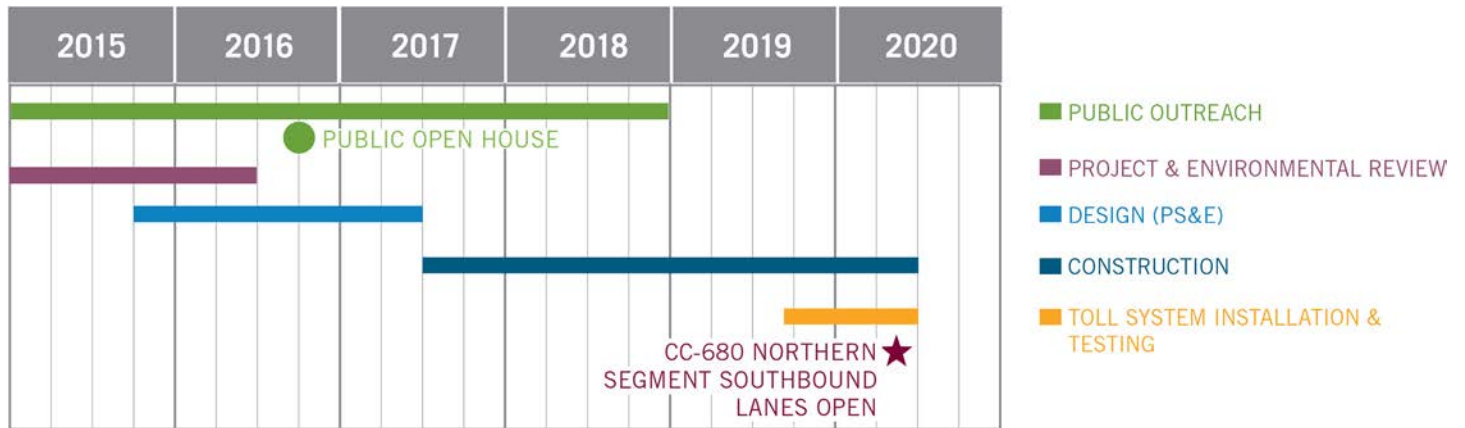
- Caltrans accepted the Traffic Operation Analysis Report in October 2015.
- Department of Fish & Wildlife provided concurrence in April 2016 that the CC-680 North express lanes project is not likely to adversely affect any known federally listed species.
- Project staff met with council members from the City of Danville in August 2016 to explain the basis for the access restrictions that will be implemented as part of the project.
- Environmental document for the express lane was signed by Caltrans in December 2016.
- On-line open house to describe the project and solicit feedback was held in November and December of 2016. CCTA developed a summary of feedback in January 2017.
- Comments on 65% design were received.



Current Project Activities

- CCTA is working to address Caltrans' comments on the 65% design while simultaneously preparing the 95% design for submittal in April 2017.
- Caltrans requires the project to mitigate pavement scarring from a change to the striping configuration. Project team is working with Caltrans on a cost-effective solution.
- Project team is working with PG&E to design the new service locations while concurrently initiating the right-of-way engineering process for permanent utility easements.

Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	BATA Express Lane Funds ⁽³⁾			Regional Measure 2 (allocated)	Physical % Complete ⁽⁴⁾
		June 2015 Baseline	Dec 2015 Amendment	Expended To Date		
36.1	36.1	32.3	32.3	1.9	3.8	15%

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

Costs shown in thousands 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.

I-80 Solano (SOL-80) Fairfield to Vacaville

Red Top Road to I-505

Total Program Estimate

\$179.4 million

Scheduled Open Date

TBD

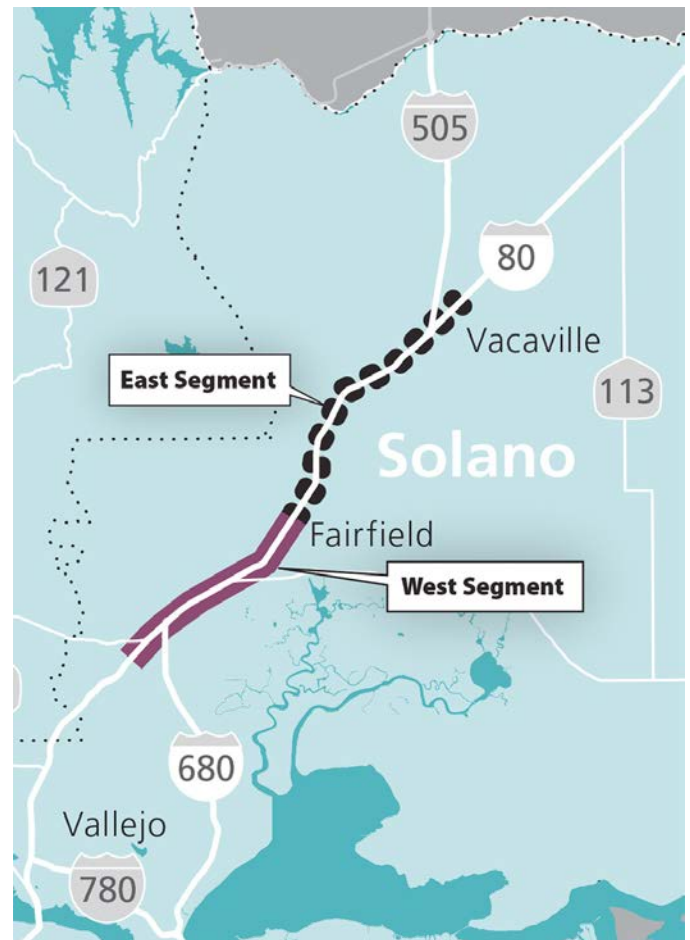
Project Description

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 has requested approval from Caltrans to advertise award and administer the construction contract. MTC will install toll and communications equipment and will operate the express lanes.



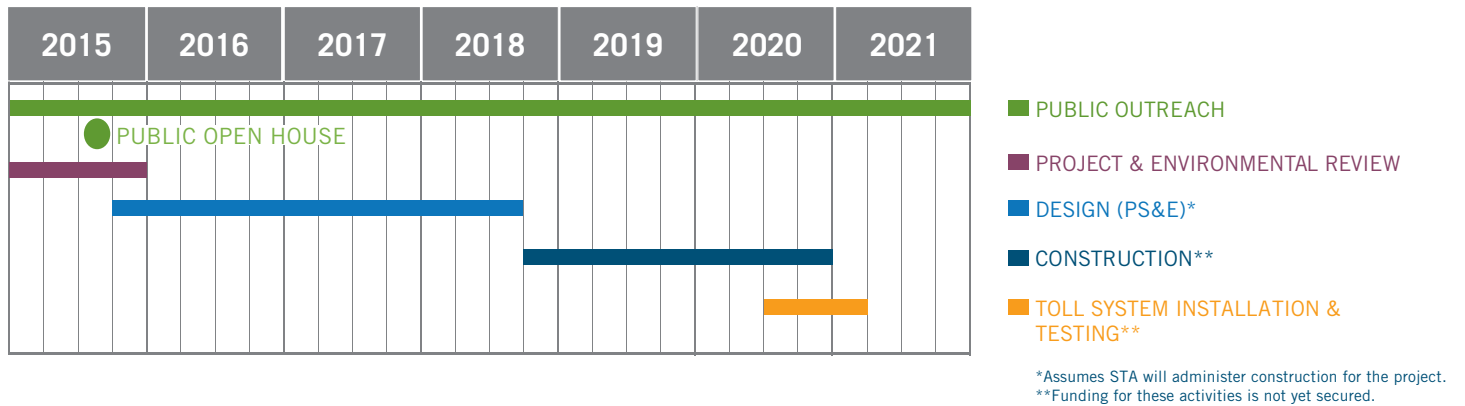
Project Highlights and Progress

- Public open house was held in August 2015.
- Preliminary engineering report and environmental document were completed in December 2015.
- 65% design comments from Caltrans were received in February 2017.

Current Project Activities

- 95% design is to be submitted to Caltrans in July 2017.

Project Schedule by Phase



Project Cost

Program Estimate ⁽¹⁾	Cost Forecast ⁽²⁾	BATA Express Lane Funds ⁽³⁾			Regional Measure 2 (allocated)	Physical % Complete ⁽⁴⁾
		June 2015 Baseline	Dec 2015 Amendment	Expended To Date		
179.4	34.2	19.0	19.0	3.7	15.2	15%

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

Costs shown in thousands 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.

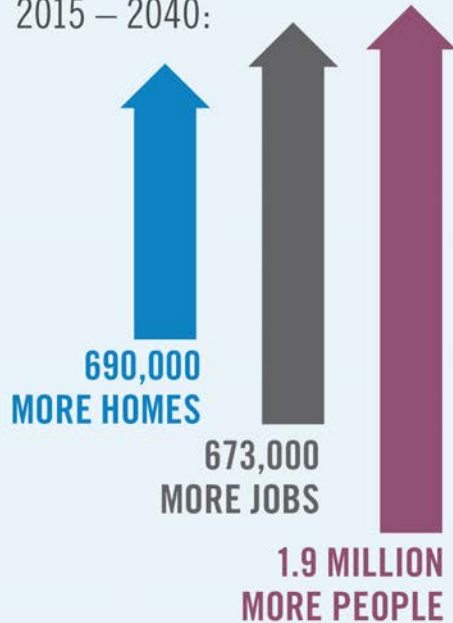
APPENDICES

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.

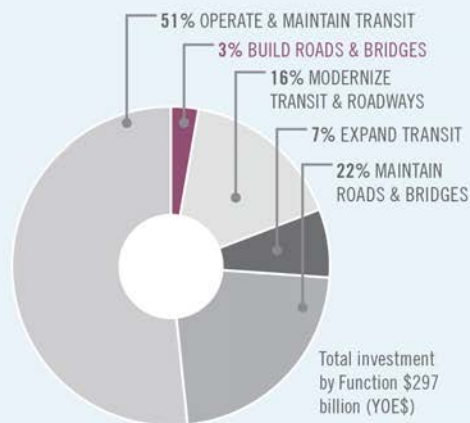
REGIONAL GROWTH 2015 – 2040:



Data Source: Plan Bay Area 2040 (2017).

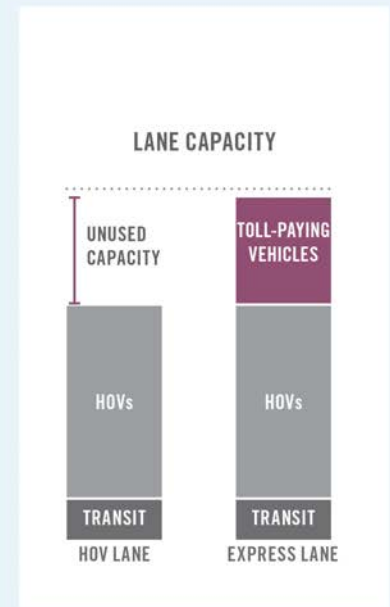
REGIONAL INVESTMENT BY 2040:

ONLY 3% OF THE REGION'S
TRANSPORTATION DOLLARS WILL BE
USED TO BUILD NEW ROADS.



Data Source: Plan Bay Area 2040 (2017).

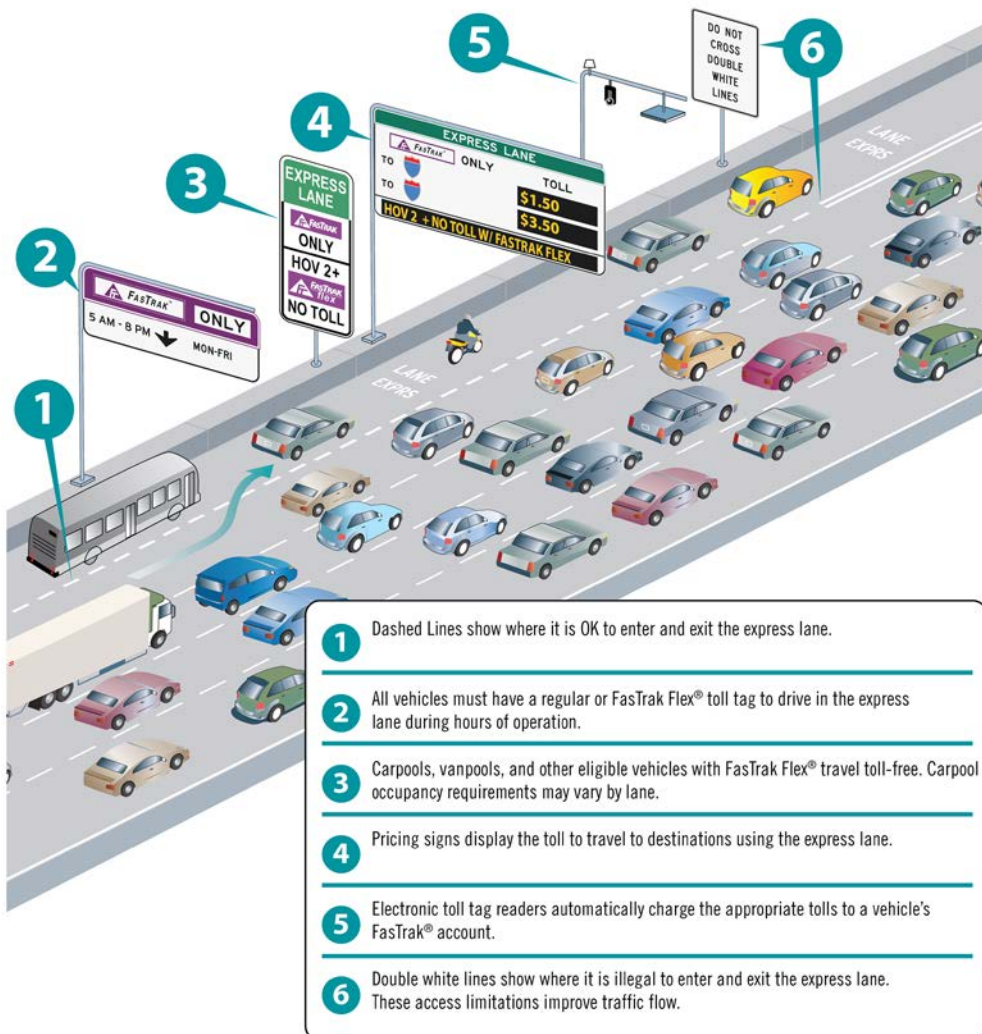
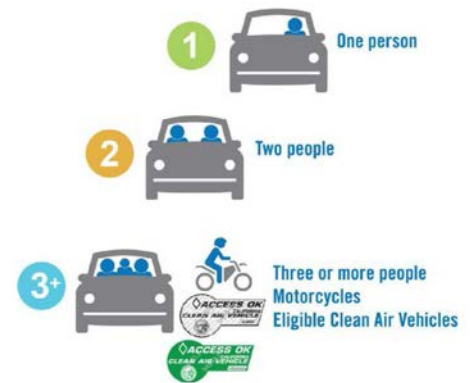
HOW EXPRESS LANES HELP:



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.



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

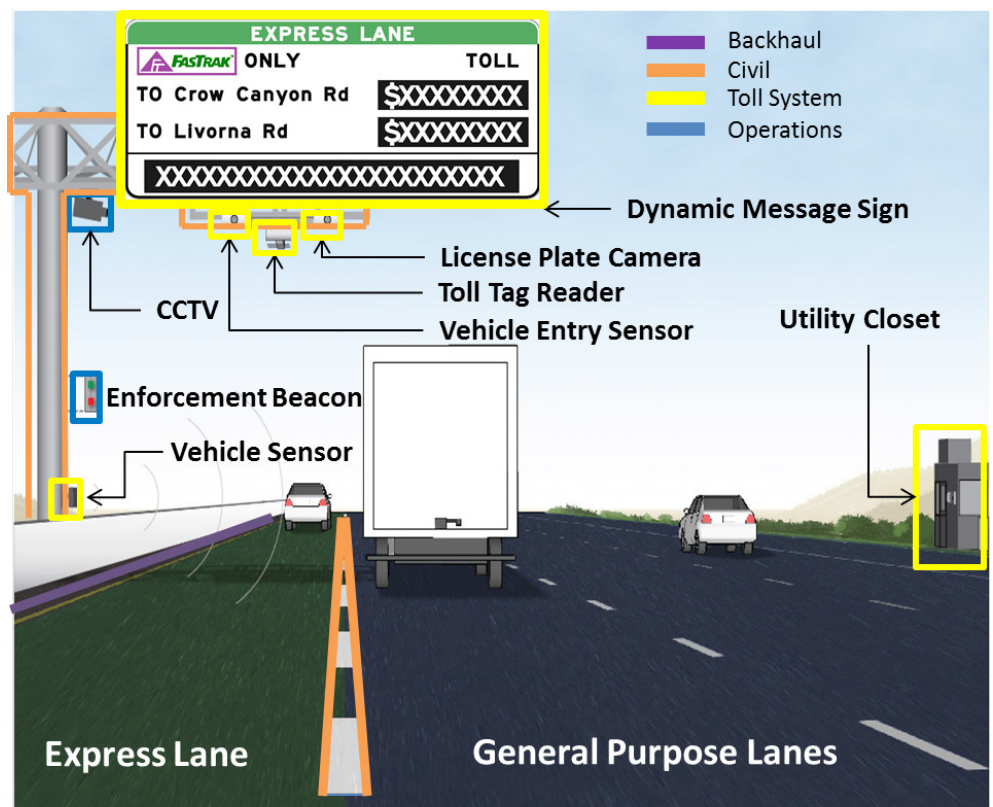
The toll system consists of two components, the in-lane system and the back-end "host" system. The lane system consists of all the equipment on the highway needed to operate the toll system including toll tag readers, cameras and vehicle detection. The host system serves as the brain of the toll system, 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 existing 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 on-going maintenance. An express lanes toll operations center will be established in the Regional Agency Headquarters 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