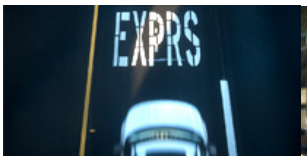
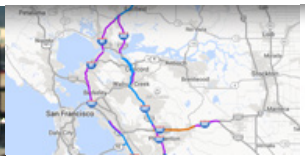
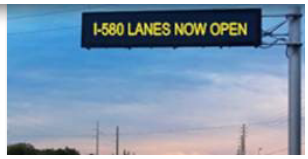
# BAY AREA EXPRESS LANES









# MTC Express Lanes Quarterly Report
## 2nd Quarter, April - June, 2016

Submitted: September 28, 2016

BAIFA
BAY AREA INFRASTRUCTURE FINANCING AUTHORITY

METROPOLITAN TRANSPORTATION COMMISSION

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


*Partially installed pricing sign.*
*(See additional construction photographs on pages 18-19)*

# 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 second quarter of 2016, April 1 to June 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.

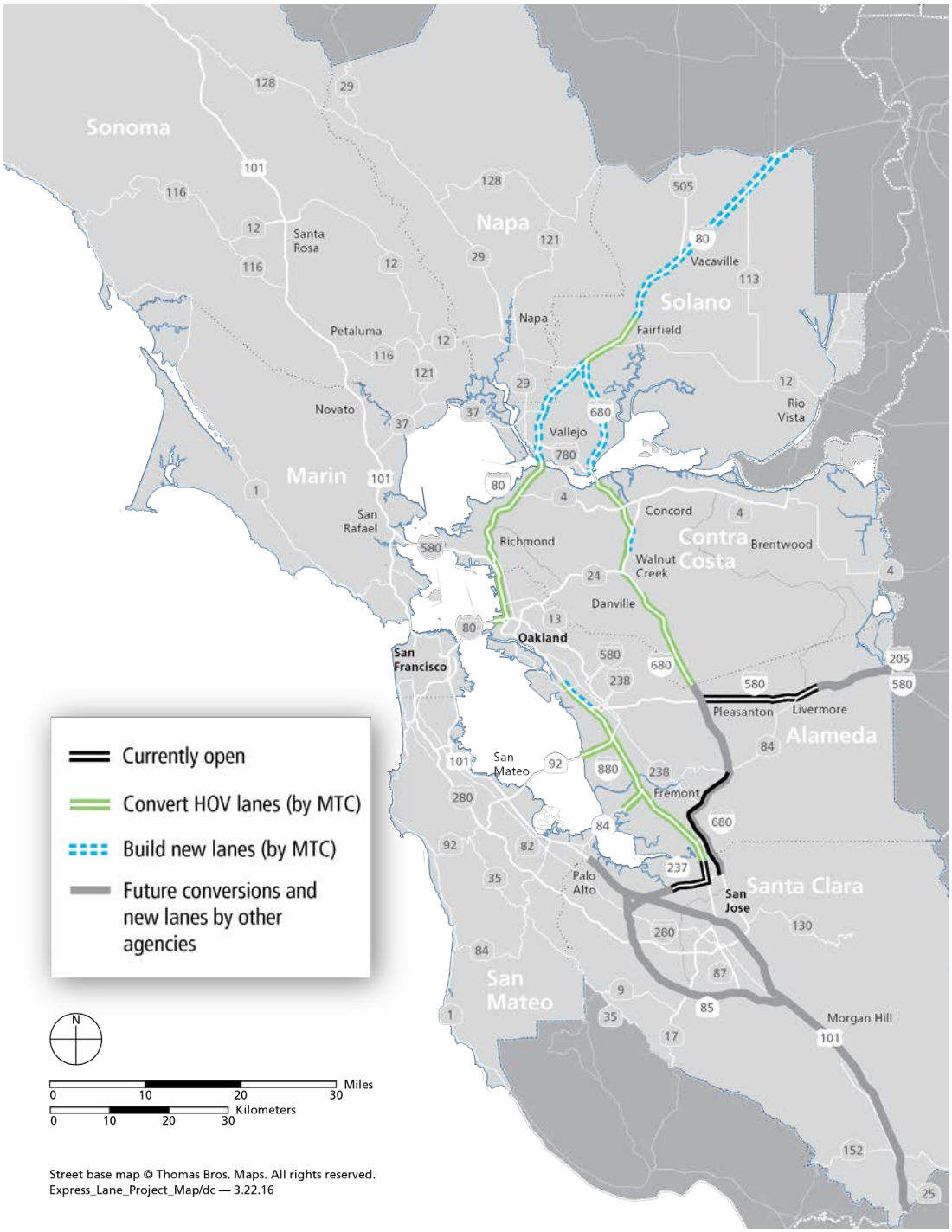
| Project Development & Construction | 2nd Quarter 2016 Highlights | Current Activities |
|---|---|---|
| I-880 Alameda (ALA-880)<br>Between San Leandro and Milpitas<br>*Hegenberger Road/Lewelling Boulevard to Dixon Landing Road* | • Caltrans median barrier construction contractor began work in April focusing on demolition of the existing barrier and preparation for pouring express lane sign structure foundations.<br>• 95% design was submitted to Caltrans for review and comment in June. | • Median barrier contractor is beginning to construct foundations for express lane sign structures.<br>• 100% design package is being prepared.<br>• MTC and Caltrans are working to coordinate scope, schedules and communications with the public for the median barrier, express lanes and resurfacing projects.<br>• Current cost trend is significantly higher than the project budget, and the sequencing of work required for the express lanes, median barrier and resurfacing projects has the potential to increase costs further and delay opening, as described under the Risk Management Plan on page 9. |
| I-680 Contra Costa Southern Segment (CC-680 South)<br>Between Walnut Creek and San Ramon<br>*Livorna Road/Rudgear Road to Alcosta Boulevard* | • Backhaul contractor completed fiber optic installation between Walnut Creek and San Ramon in June.<br>• Civil construction is over 95% complete. (See construction photographs on pages 18-19.)<br>• Factory acceptance testing of toll system hardware and software took place in June and the toll system integrator commenced installation of toll equipment at one site. | • Installation of backhaul network hubs at Walnut Creek, Dublin, and express lanes data centers is on-going.<br>• Installation and repair of fiber optic conduit, pull boxes and cables from Walnut Creek to Martinez will commence in the 3rd quarter.<br>• Staff and contractor are addressing findings from factory acceptance testing.<br>• Staff and contractor are continuing with toll equipment installation for on-site testing this fall. |
| I-680 Contra Costa Northern Segment Southbound Conversion (CC-680 North)<br>Martinez to Walnut Creek<br>*Marina Vista Boulevard to Rudgear Road/SR 242* | • Project staff met with the City of Concord in May to explain the basis for the access restrictions that will be implemented as part of the project.<br>• Draft preliminary engineering report was submitted to Caltrans for review and comment in May.<br>• Scheduled open date was revised from Fall 2018 to Spring 2020. This reflects delays in the start of construction associated with prolonged durations for design and right-of-way activities. | • Environmental studies are being finalized.<br>• MTC and CCTA staff continue to work with Caltrans to find feasible solutions to create width for the striped buffer in stretches with existing narrow lanes.<br>• 65% design package is in development and circulation is projected for August 2016. |
| I-80 Solano (SOL-80)<br>Fairfield to Vacaville<br>*Red Top Road to I-505* | • 35% design for the east segment was submitted to Caltrans for review and comment in June. | • 65% design for west and east segments is being combined into a single package. |

| Project Development & Construction | 2nd Quarter 2016 Highlights | Current Activities |
|---|---|---|
| Centralized Toll System | • Factory acceptance testing of toll system hardware and software occurred in June. (See testing photographs on page 13.) | • Staff and contractor will complete 95% design for the 375 Beale Operations Center.<br>• Installation of communications hubs at host data centers is on-going.<br>• Development of operating procedures is underway.<br>• Staff will request adoption of the toll ordinance and the BAIFA Privacy Policy at the July 2016 BAIFA meeting. |
| Public Information | • Monthly construction notices were issued to over 1,000 stakeholders about the I-680 Contra Costa Southern Segment and the backhaul network.<br>• Feedback was gathered from over 30 members of the Spanish-speaking community via a community engagement meeting at Monument Impact.<br>• The first of two toll ordinance public hearings was conducted. | • Staff will field an express lanes survey to potential I-680 Express Lane customers in the 3rd quarter to understand perceptions and inform customer education needs.<br>• Staff will conduct the second toll ordinance public hearing and BAIFA will consider adopting the toll ordinance in July.<br>• Communications and outreach for civil and backhaul construction is on-going. |

# 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)*

# 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) as shown on the map of the Bay Area Express Lane Network.

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*

# D. 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<br>*Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.* | ● | ● | ● |
| CC | 680 | I-680 Contra Costa Southern Segment | Between Walnut Creek and San Ramon<br>*Livorna Rd./Rudgear Rd. to Alcosta Blvd.* | ● | ● | ● |
| CC | 680 | I-680 Contra Costa Northern Segment - Southbound Conversion | Martinez to Walnut Creek<br>*Marina Vista Blvd. to Rudgear RD./SR 242* | ● | ● | ● |
| GAP CLOSURE OPPORTUNITY PROJECTS | | | | | | |
| CC | 680 | I-680 Northern Segment Southbound Conversion | Martinez to Walnut Creek<br>*Benicia Bridge to Rudgear Road* | ● | ● | ● |
| CC | 680 | I-680 North Northbound Extension | Walnut Creek to Concord<br>*North Main Street to SR 242* | ○ | ○ | ○ |
| SOL | 80 | I-80 Solano | Fairfield to Vacaville<br>*Red Top Road to I-505* | ● | ● | ○ |
| FUTURE CONVERSIONS | | | | | | |
| ALA/ CC | 80 | I-80 and Westbound Bridge Approaches | Cummings Skyway to Bay Bridge<br>San Mateo Bridge Westbound Approach<br>Dumbarton Bridge Westbound Approach | ◖ | ○ | ○ |
| CC | 680 | I-680 Northern Segment - Northbound Conversion | Walnut Creek to Benicia<br>*North Main St. to the Benicia Bridge* | ◖ | ○ | ○ |

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)<br>Between San Leandro and Milpitas<br>*Hegenberger Rd./Lewelling Blvd. to Dixon Landing Rd.* | Spring 2019 | Spring 2019 | ● | 12 |
| I-680 Contra Costa Southern Segment (CC-680 South)<br>Between Walnut Creek and San Ramon,<br>*Livorna Rd./Rudgear Rd. to Alcosta Blvd.* | Fall 2016 | Spring 2017 | ● | 14 |
| I-680 Contra Costa Northern Segment - Southbound Conversion (CC-680 North)<br>Martinez to Walnut Creek<br>*Marina Vista Blvd. to Rudgear RD./SR 242* | Fall 2018 | Spring 2020 | ● | 18 |

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. Note that the distribution of expenditures has shifted as compared to the last report due to the reclassification of prior costs to be consistent with the latest expenditure plan.

| Project[1] | Program Estimate[2] | Cost Forecast[3] | Regional Measure 2 (allocated) | BATA Express Lane Funds[4] | | | 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 | 77.8 | 77.8 | | 77.8 | 77.8 | 19.0 | 18% | 🔴 |
| I-680 Contra Costa Southern Segment | 55.6 | 55.6 | | 48.9 | 55.6 | 30.4 | 60% | 🟢 |
| I-680 Contra Costa Northern Segment Southbound Conversion | 36.1 | 36.1 | 3.8 | 32.3 | 32.3 | 0.6 | 8% | 🟡 |
| Centralized Toll System | 33.6 | 33.6 | | 36.2 | 33.6 | 10.1 | 30% | 🟢 |
| Program Planning, Coordination & Management | 28.4 | 28.4 | | 28.4 | 28.4 | 11.9 | 50% | 🟢 |
| Program Contingency | 50.0 | 35.9 | | 40.0 | 35.9 | | | 🟡 |
| Capitalized Start-up O&M | 16.0 | 16.0 | | 16.0 | 16.0 | 0.5 | | 🟢 |
| GAP CLOSURE OPPORTUNITY PROJECTS | | | | | | | | |
| I-680 Contra Costa Northern Segment - Southbound HOV Completion[7] | 19.0 | 19.0 | | 19.0 | 19.0 | | | 🟢 |
| I-680 Contra Costa Northbound Express Lane Completion (N. Main St. to SR-242) | 57.3 | | | | | | | |
| I-80 Solano | 179.4 | 34.2 | 15.2 | 19.0 | 19.0 | 1.7 | 10% | 🟢 |
| FUTURE CONVERSIONS | | | | | | | | |
| I-80 Alameda/Contra Costa & Westbound Bay, San Mateo & Dumbarton Bridge Approaches | 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 | | | | 5% | |
| Centralized & Program Costs, and Start-Up O&M Gap Closures & Future Conversions | TBD | | | | | | | |
| **TOTALS** | **678.7** | **343.8** | **25.5** | **318.3** | **318.3** | **74.8** | **23%** | |

(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.

There is only one major change to the MTC Express Lanes Program recorded through this process this quarter as follows:

- A change process was initiated to move forward with a combined design package for the SOL 80 West and SOL 80 East projects. The change is expected to streamline the design review process and will result in a consolidated design package to be bid and constructed as a single project, pending availability of funding.
- The scheduled open date of CC-680 North was revised from Fall 2018 to Spring 2020. This reflects delays in the start of construction associated with prolonged durations for design and right-of-way activities.

# 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.

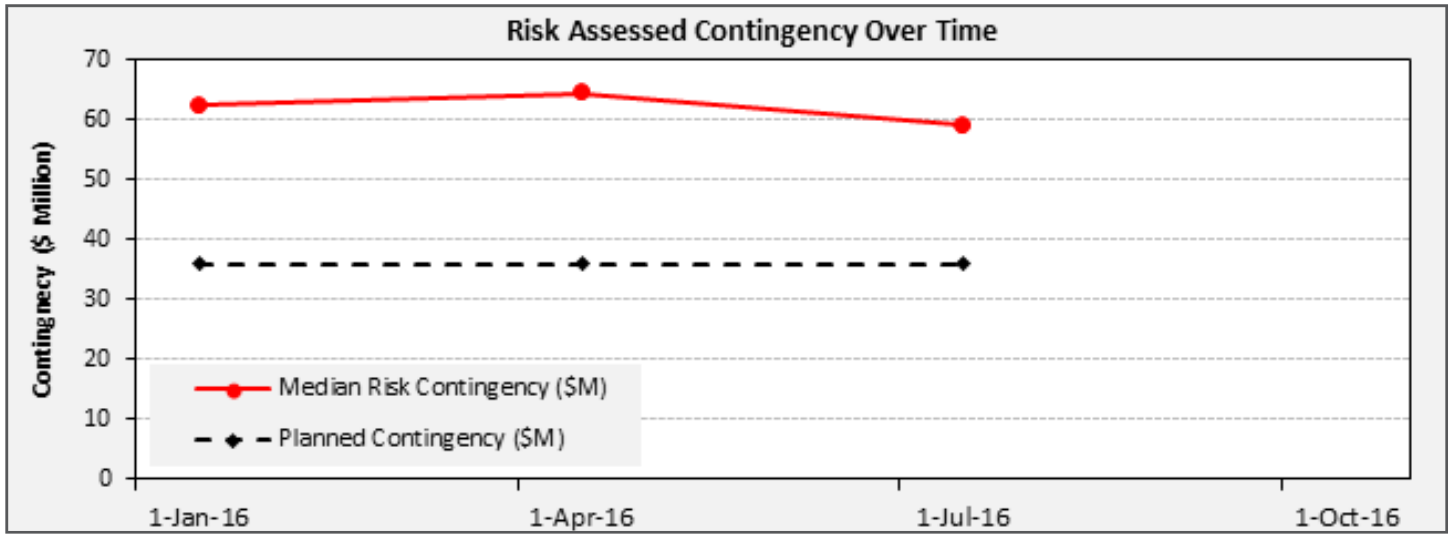
The program contingency is compared and tracked on a monthly basis with a risk-assessed contingency derived from the program risk register. In 2016, the program began using Monte Carlo simulation to evaluate potential collective impacts of identified risks on the Express Lanes program's capital cost. 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 figure below shows the change in the median (50% confidence level) capital contingency, per Monte Carlo analysis, as identified risks are mitigated and/or reduced as the project progresses. As of June 30, 2016, the median risk-assessed contingency stands at $59.1 million. This amount includes a significant increment due to the risk that the cost to construct the I-880 corridor will exceed the available budget as described below.

The top contributors to this risk-assessed capital contingency along with the planned/ongoing mitigations are as follows:

## I-880 Alameda

- The costs to construct and implement the I-880 corridor may significantly exceed the project budget and deplete the program contingency. The current cost trend is approximately $38 million higher than the project budget due to the additional cost of highway lighting, widening at access locations and signage not anticipated in the original budget.
- The I-880 express lane work must be staged to minimize, if not eliminate, conflicts with Caltrans' I-880 median barrier and pavement resurfacing contracts, creating a risk that delays on the Caltrans projects could lead to cost escalation and delays in opening the I-880 Express Lanes. MTC staff are continuing discussions with Caltrans staff to coordinate and closely monitor progress of the Caltrans projects.
- In three locations, the project must re-stripe all of the freeway lanes to create a transition lane between the express lane and the adjacent general purpose lane. When this is done, the pavement will be scarred in such a way that driver distraction might result. Caltrans has requested that this issue be addressed through pavement resurfacing. This increased scope of work will impact project schedule and cost, but can be mitigated by coordinating with a planned Caltrans resurfacing project that will repave a portion of the scarred pavement. The team is also




*This chart shows a change in the median (50% confidence level) risk-assessed contingency level over time for the MTC Express Lanes program. The charts do not include detailed risks for projects on I-80 in Solano County. Details will be added when design for these projects gets underway.*

exploring a request of Caltrans to provide all of the required express lanes resurfacing as part of their contract, which should result in bid savings over having the express lanes contractor perform the work.

## 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 CC-680S corridor to evaluate ways to avoid pavement damage so that resurfacing costs can be minimized.

## I-680 Contra Costa Southern Segment

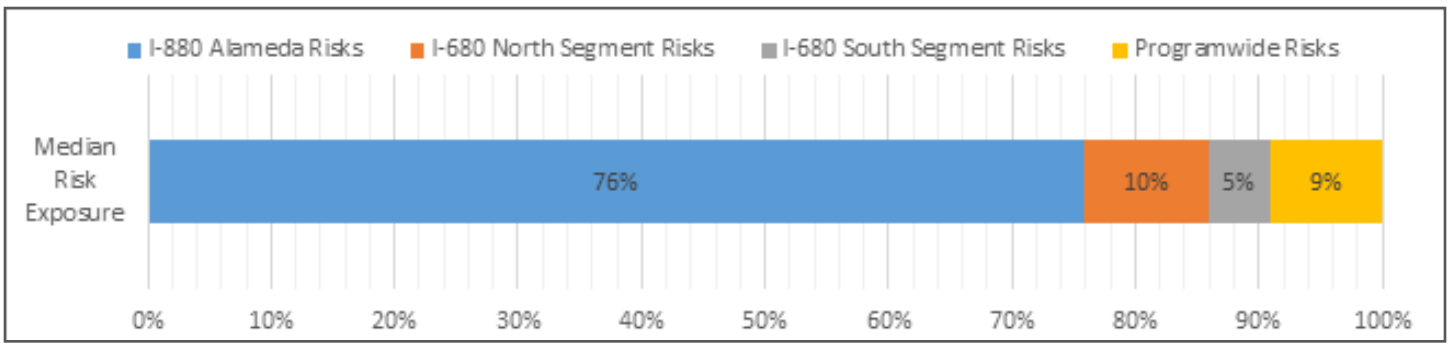
- Delays in toll systems implementation and testing could delay opening of the express lanes and the program could start incurring operations costs, backhaul contract payments, Customer Service Center costs, and civil overhead prior to generating revenue. The project team is actively working with the toll systems contractor to re-sequence work to minimize delays.

## Programwide Risks

- Regional policy change recommendations resulting from the managed lanes implementation plan (e.g., change in HOV occupancy or hours policy) may cause changes to design or operational policy and may impact scheduled opening dates. In addition, changes could result in increased costs for analysis, toll system design, signage or operations. The program team is identifying key decision points during design and operations to maximize the ability to make such changes and minimize costs impacts.

- 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 2018. This would require tuning the toll tag readers 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 contribution of risk exposure of each MTC Express Lanes program project towards the median risk exposure.*

# 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 the Spring of 2017.

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

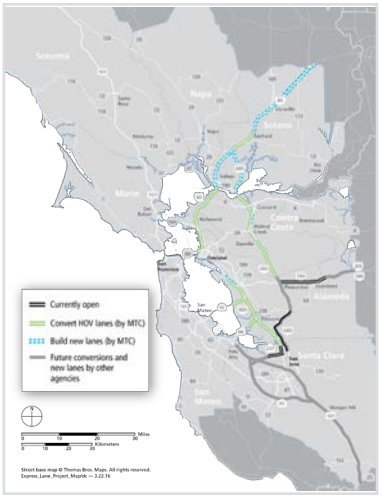
## Project Description

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.

## Project Highlights and Progress

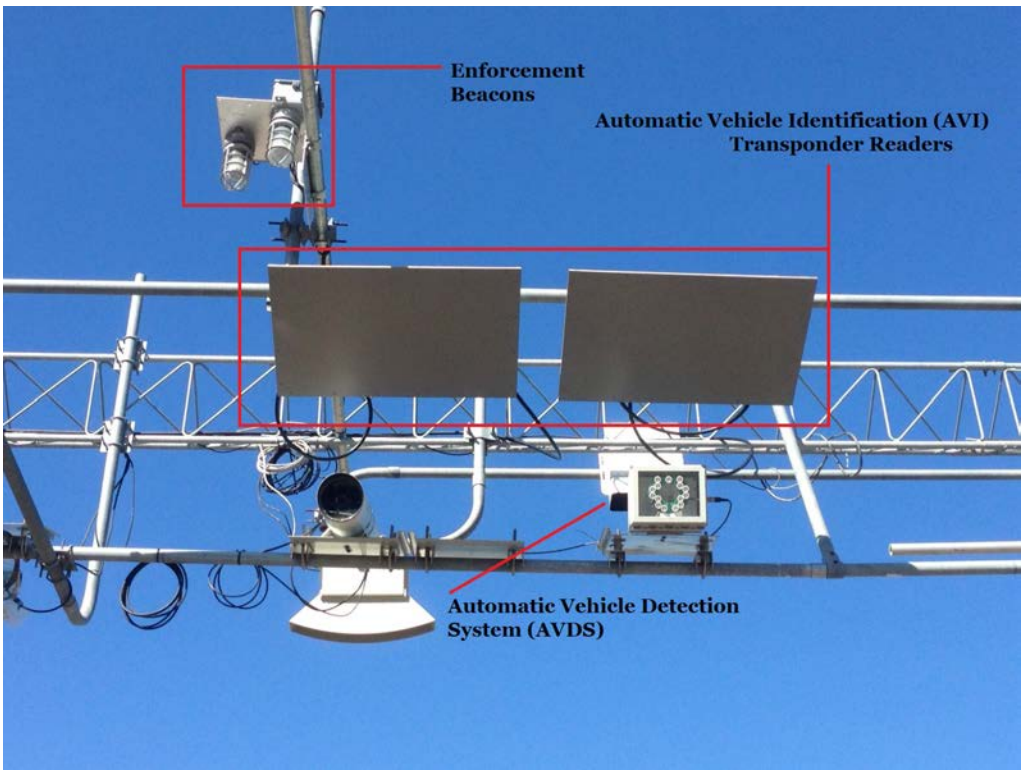
- Design-Build contract for the 375 Beale Operations Center was awarded in September 2015.
- Construction contract for the communications network of the host data centers and CC-680 South was awarded in December 2015.
- Final toll system host and software design was approved in March 2016.
- Toll operations staffing contract was awarded in March 2016.




- Factory acceptance testing of toll system hardware and software was held in June 2016. (See testing photos on the following page.)
- Monthly construction notices were issued to over 1,000 stakeholders about the I-680 Contra Costa Southern Segment and the backhaul network.
- Feedback was gathered from over 30 members of the Spanish-speaking community via a community engagement meeting at Monument Impact.
- The first of two toll ordinance public hearings was conducted in June 2016.

## Current Project Activities

- Staff and contractor will complete 95% design for the 375 Beale Operations Center.
- Installation of communications hubs at host data centers is on-going.
- Development of operating procedures is underway.
- Staff will request adoption of the toll ordinance and the BAIFA Privacy Policy at the July 2016 BAIFA meeting.
- Staff will field an express lanes survey to potential I-680 Express Lane customers in the third quarter to understand perceptions and inform customer education needs.
- Communications and outreach for civil and backhaul construction is on-going.




*These read point devices provide an example of what our toll system will use to collect transaction information and communicate back to the host system for processing.*

*A test lane with all lane equipment at the toll system factory acceptance test.*

*A test car goes through a test lane at the toll system factory acceptance test.*

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

## Hegenberger Road/Lewelling Boulevard to Dixon Landing Road

### Total Program Estimate

$77.8 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 2015.
- Caltrans median barrier construction contractor began work in April 2016 focusing on demolition of the existing barrier and preparation for pouring express lane sign structure foundations.
- 95% design was submitted to Caltrans for review and comment in June 2016.

### Current Project Activities

- Median barrier contractor is beginning to construct foundations for express lane sign structures.
- 100% design package is being prepared.
- MTC and Caltrans are working to coordinate scope, schedules and communications with the public for the median barrier, express lanes and resurfacing projects.
- Current cost trend is significantly higher than the project budget, and the sequencing of work required for the express lanes, median barrier and resurfacing projects has the potential to increase costs further and delay opening as described under the Risk Management Plan on page 9.

## Project Schedule by Phase


*Includes I-880 median barrier improvements.

## Project Cost

| Program Estimate[1] | Cost Forecast[2] | Regional Measure 2 (allocated) | BATA Express Lane Funds[3] | | | Physical % Complete[4] |
|---|---|---|---|---|---|---|
| | | | June 2015 Baseline | Dec 2015 Amendment | Expended To Date | |
| 77.8 | 77.8 | | 77.8 | 77.8 | 19.0 | 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.

(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 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

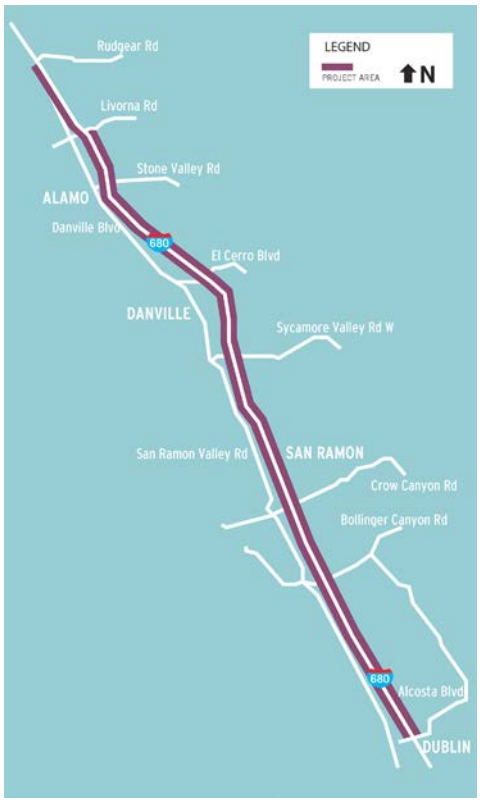
Spring 2017

The scheduled open date was revised from Fall 2016 to Spring 2017. This reflects delay in construction associated with the rebid of the backhaul construction contract in Fall 2015 and rain in the early part of 2016.

### 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.



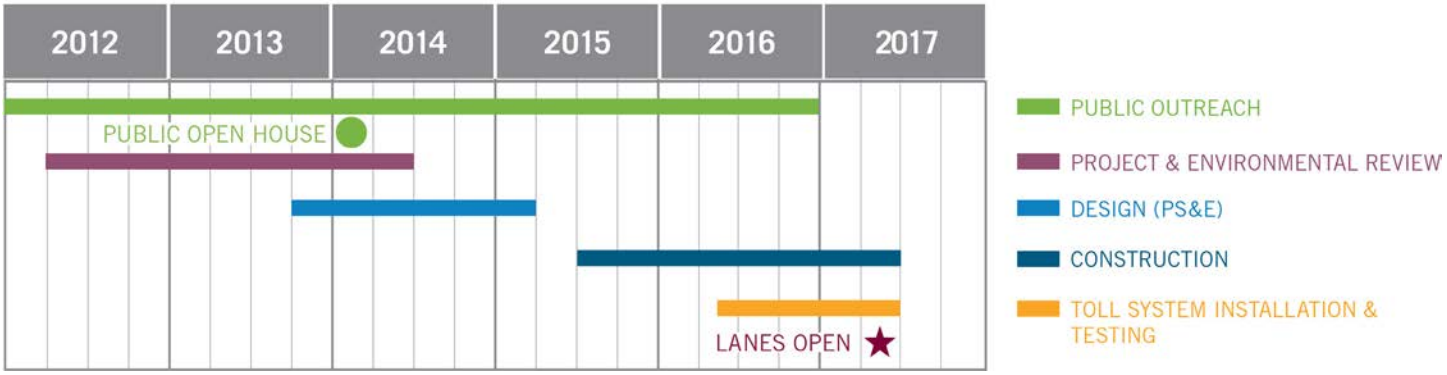

### Project Highlights and Progress

- Public open house was held in March 2014.
- Preliminary engineering report and environmental document were completed in August 2014.
- Final design was completed in April 2015.
- Final design for both the backhaul communication network and the toll system was completed in December 2015.
- Caltrans encroachment permits for the toll system and backhaul were issued in December 2015.
- Backhaul contractor completed fiber optic installation between Walnut Creek and San Ramon in June 2016.
- Civil construction began in August 2015 and is over 95% complete. (See construction photos on pages 18-19.)
- Factory acceptance testing of toll system hardware and software took place in June 2016 and the toll system integrator commenced installation of toll equipment at one site.

### Current Project Activities

- Installation of backhaul network hubs at Walnut Creek, Dublin and express lanes data centers is on-going. Installation and repair of fiber optic conduit, pull boxes and cables from Walnut Creek to Martinez will commence in the 3rd quarter.
- Staff and contractor are addressing findings from factory acceptance testing. Staff and contractor are continuing with toll equipment installation for on-site testing this fall.
- Staff will field an express lanes survey to potential I-680 Express Lane customers in the third quarter to understand perceptions and inform customer education needs.
- Staff will finalize the pre-launch customer education strategies in Fall 2016. Communications and outreach for civil and backhaul construction continue.

## Project Schedule by Phase




## Project Cost

| Program Estimate[1] | Cost Forecast[2] | Regional Measure 2 (allocated) | BATA Express Lane Funds[3] | | | Physical % Complete[4] |
|---|---|---|---|---|---|---|
| | | | June 2015 Baseline | Dec 2015 Amendment | Expended To Date | |
| 55.6 | 55.6 | | 48.9 | 55.6 | 30.4 | 60% |

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.

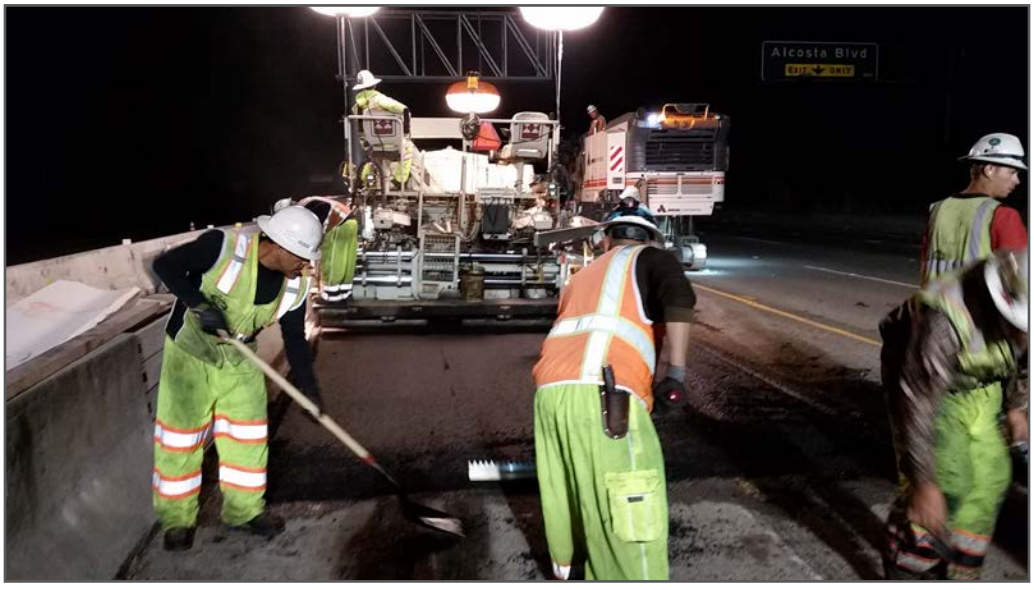
(2) Cost forecast represents current estimated cost to complete phases that are funded for each project.

(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.


*Construction crews paving an area for maintenance vehicles to service the toll equipment on I-680. The maintenance vehicle pull-outs will create a safer work environment for express lanes maintenance crews.*

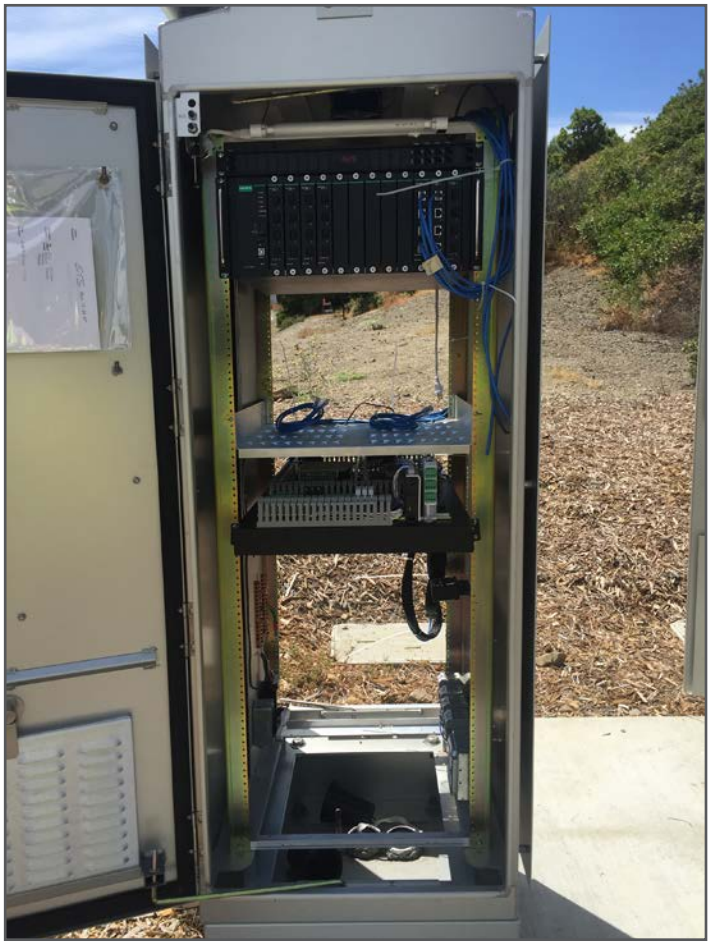
*Construction crews grind and pave lanes closest to the median barrier.*




*Crews paving a new maintenance vehicle pull-out.*

*A Violation Enforcement System (VES) camera installed on I-680 to assist with express lanes enforcement.*

*This roadside cabinet on I-680 houses the lane controller system, which provides monitoring, control, and management of each read point on a real-time basis.*



*Construction crews install an overhead sign along I-680.*

# 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

The scheduled open date has been revised from Fall 2018 to Spring 2020. This reflects delays in the start of construction associated with prolonged durations for design and right-of-way activities.

### 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.

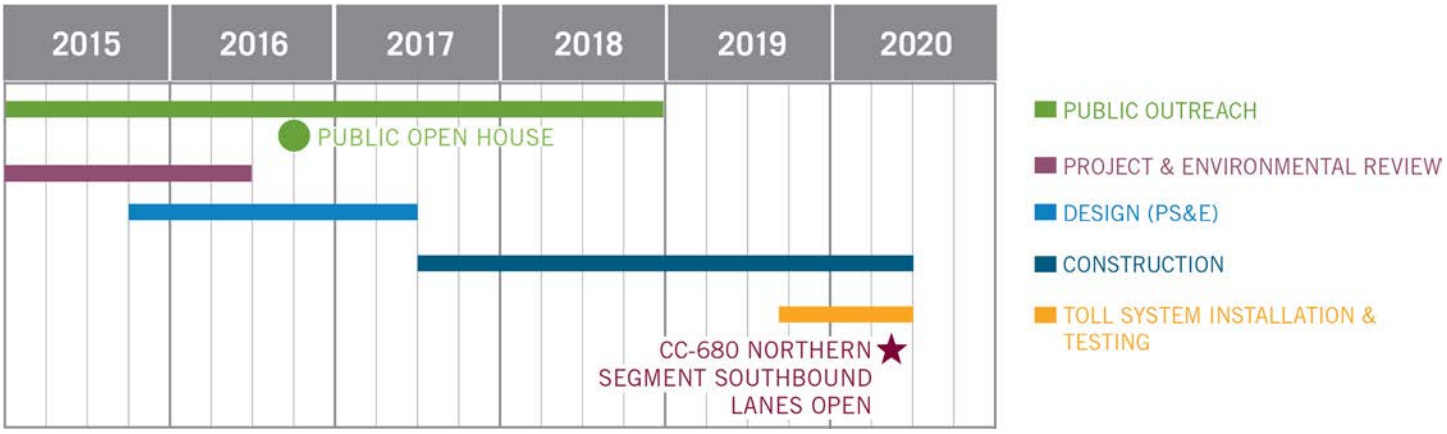
### Project Highlights and Progress

- 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 the City of Concord in May 2016 to explain the basis for the access restrictions that will be implemented as part of the project.
- Draft preliminary engineering report was submitted to Caltrans for review and comment in May 2016.


### Current Project Activities

- Environmental studies are being finalized.
- MTC and CCTA staff continue work with Caltrans to find feasible solutions to create width for the striped buffer in stretches with existing narrow lanes.
- 65% design is in development and circulation is projected for August 2016.
- An on-line public open house will be held in September.

## Project Schedule by Phase




## Project Cost

| Program Estimate[1] | Cost Forecast[2] | Regional Measure 2 (allocated) | BATA Express Lane Funds[3] | | | Physical % Complete[4] |
|---|---|---|---|---|---|---|
| | | | June 2015 Baseline | Dec 2015 Amendment | Expended To Date | |
| 36.1 | 36.1 | 3.8 | 32.3 | 32.3 | 0.6 | 8% |

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.

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

## Red Top Road to I-505

### Total Program Estimate

$179.4 million

### Scheduled Open Date

TBD

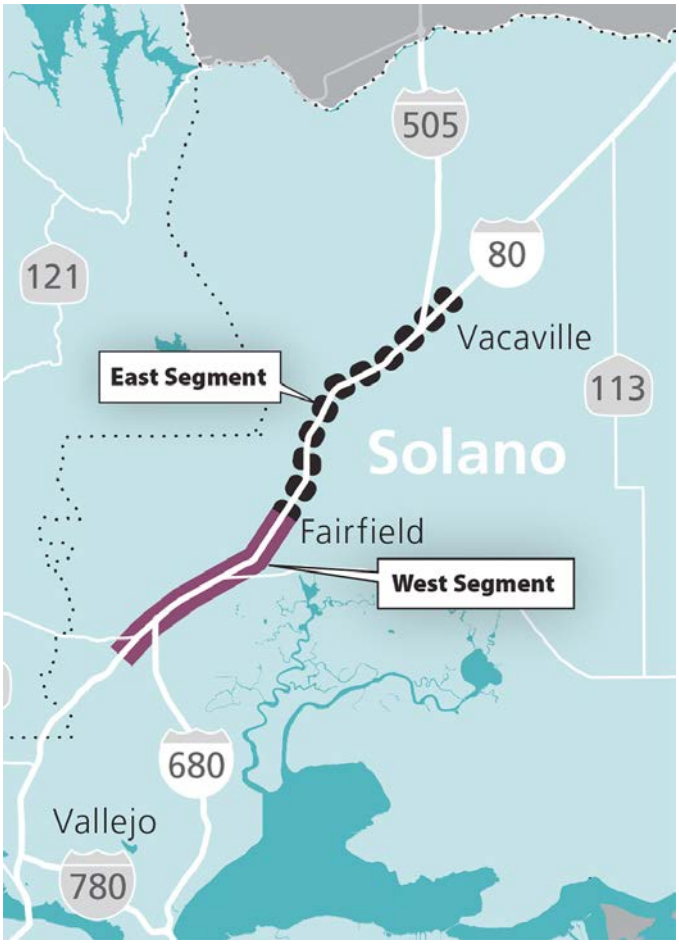
### Project Description

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.

Civil construction will be delivered by STA. MTC will install toll and communications equipment and will operate the express lanes.



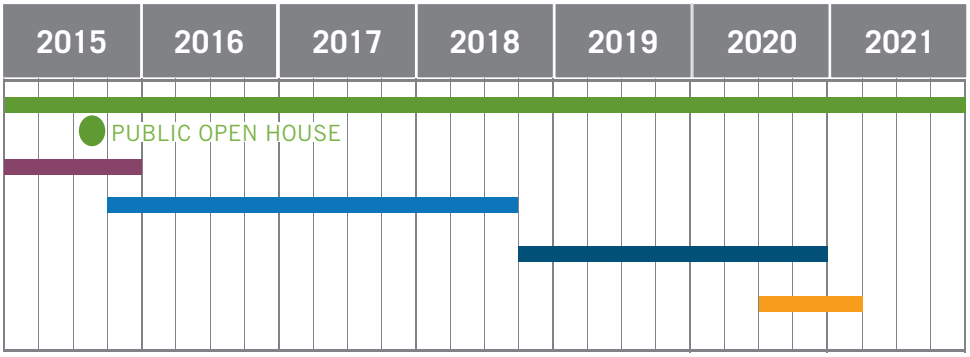

### Project Highlights and Progress

- Public open house was held in August 2015.
- Preliminary engineering report and environmental document were completed in December 2015.
- 35% design for the east segment was submitted to Caltrans for review and comment in June 2016.

### Current Project Activities

- Design and coordination with toll system integrator initiated.
- 65% design for west and east segments is being combined into a single package.

## Project Schedule by Phase




*Assumes STA will administer construction for the project.
**Funding for these activities is not yet secured.

## Project Cost

| Program Estimate[1] | Cost Forecast[2] | Regional Measure 2 (allocated) | BATA Express Lane Funds[3] | | | Physical % Complete[4] |
|---|---|---|---|---|---|---|
| | | | June 2015 Baseline | Dec 2015 Amendment | Expended To Date | |
| 179.4 | 34.2 | 15.2 | 19.0 | 19.0 | 1.7 | 10% |

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.

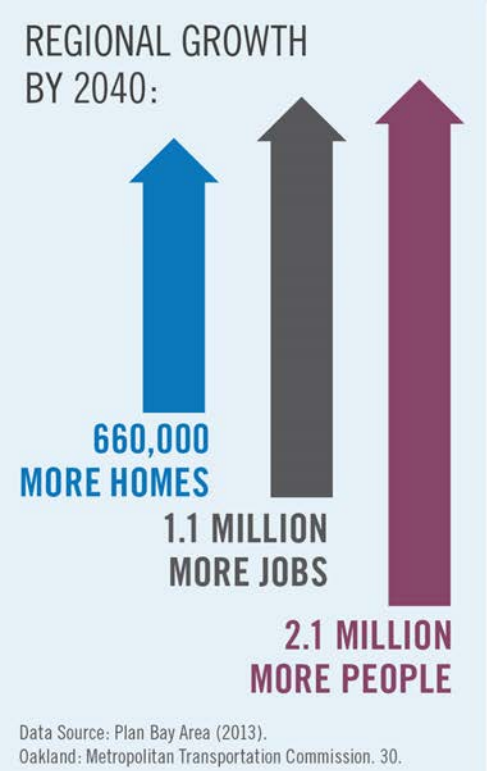
(3) BATA Express Lane Funds represent the funds that have been allocated from the BATA budget.

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

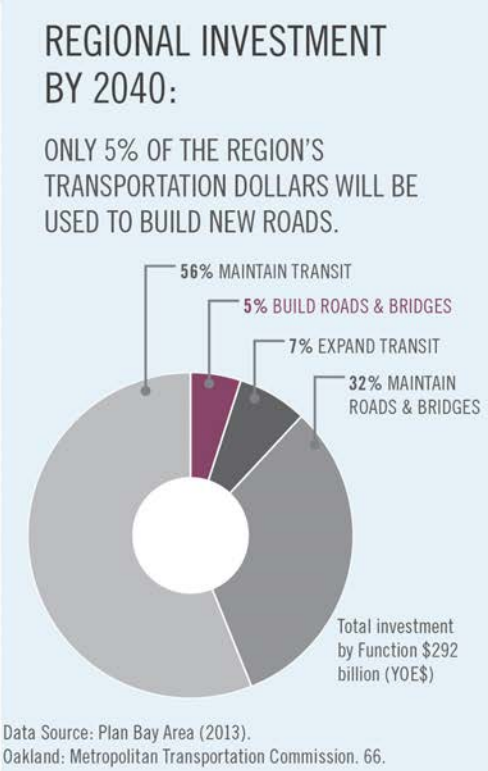
# APPENDICES

# A. Why Express Lanes?

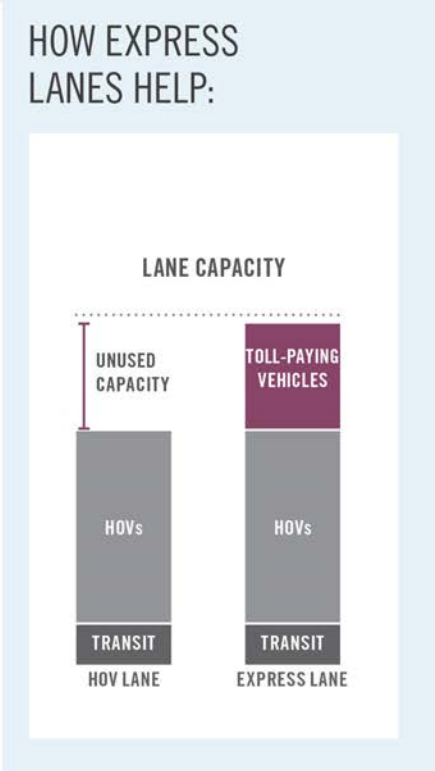
While regional growth will continue, transportation funding and land are simply not available to build enough new transportation capacity to keep up. Bay Area Express Lanes maximize use of our highways by A) filling any empty space in existing HOV lanes, B) improving operations in existing HOV lanes through better carpool enforcement and strategies to prevent lane slowdowns, and C) filling gaps in the HOV lane system to encourage more carpooling.




Data Source: Plan Bay Area (2013).
Oakland: Metropolitan Transportation Commission. 30.




Data Source: Plan Bay Area (2013).
Oakland: Metropolitan Transportation Commission. 66.

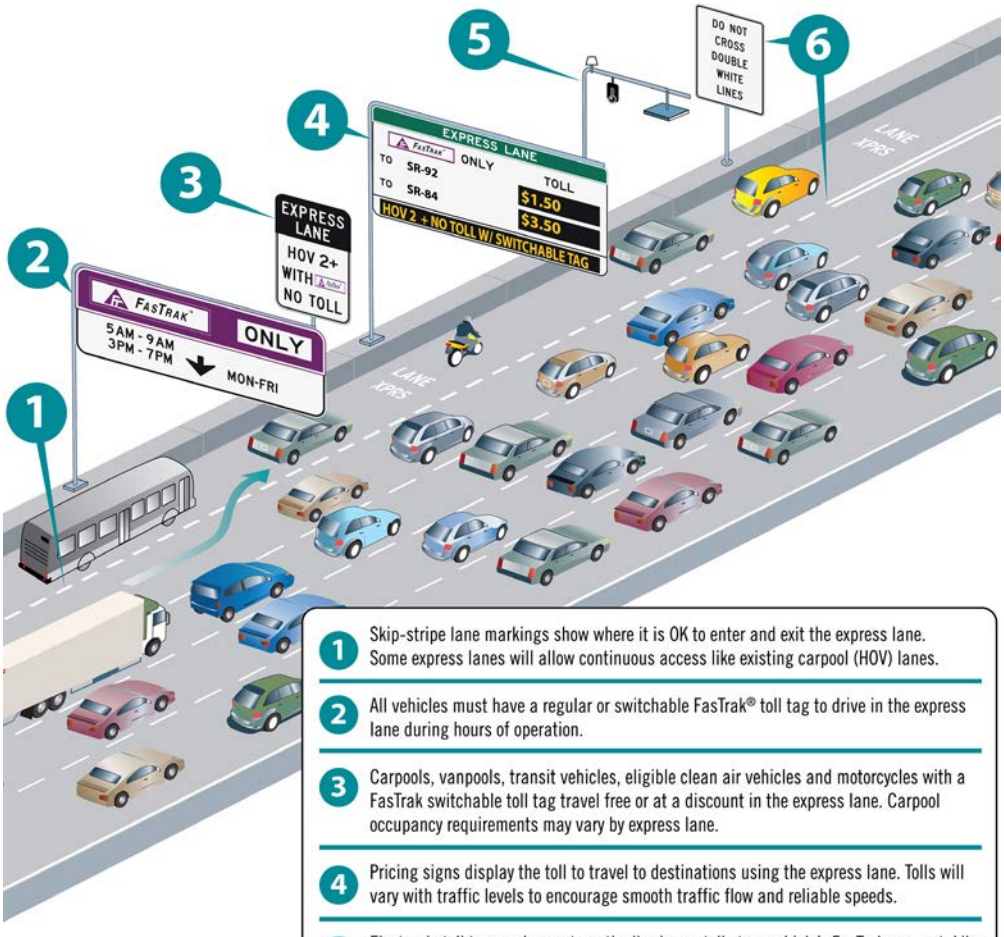


# B. How Express Lanes Work

MTC Express Lanes will be 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.

A qualifying toll-free vehicle will need a FasTrak® Flex toll tag properly mounted in the vehicle, and set in the toll-free position. A FasTrak® Flex tag has a switch that can be set to one of three positions indicating that the vehicle has one (1), two (2), or three or more (3+) occupants. When set on 2 or 3+, the tolling equipment knows not to charge that vehicle a toll. When set on 1, tolls will be charged.

The figure to the right gives an overview of how the express lanes signage will direct drivers and explains how the lanes are to be used.




MTC Express Lanes will mostly have "open," or "continuous" access configurations, meaning drivers will enter and exit the express lanes similar to how they enter and exit the HOV lanes today. Where necessary, due to operational or safety issues, sections of MTC Express Lanes will have limited access, meaning that entry and exit to/from an express lane is allowed only at certain locations. Where access is limited, special signage and lane striping will indicate entry and exit locations.

## FasTrak Flex®

Carpools, vanpools, transit vehicles, eligible clean air vehicles and motorcycles with FasTrak Flex® travel toll-free. Before driving, move the switch to show the number of people in the vehicle. Carpool occupancy requirements may vary by express lane. Solo drivers can use regular FasTrak® or FasTrak Flex® set in the "1" position.


# 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

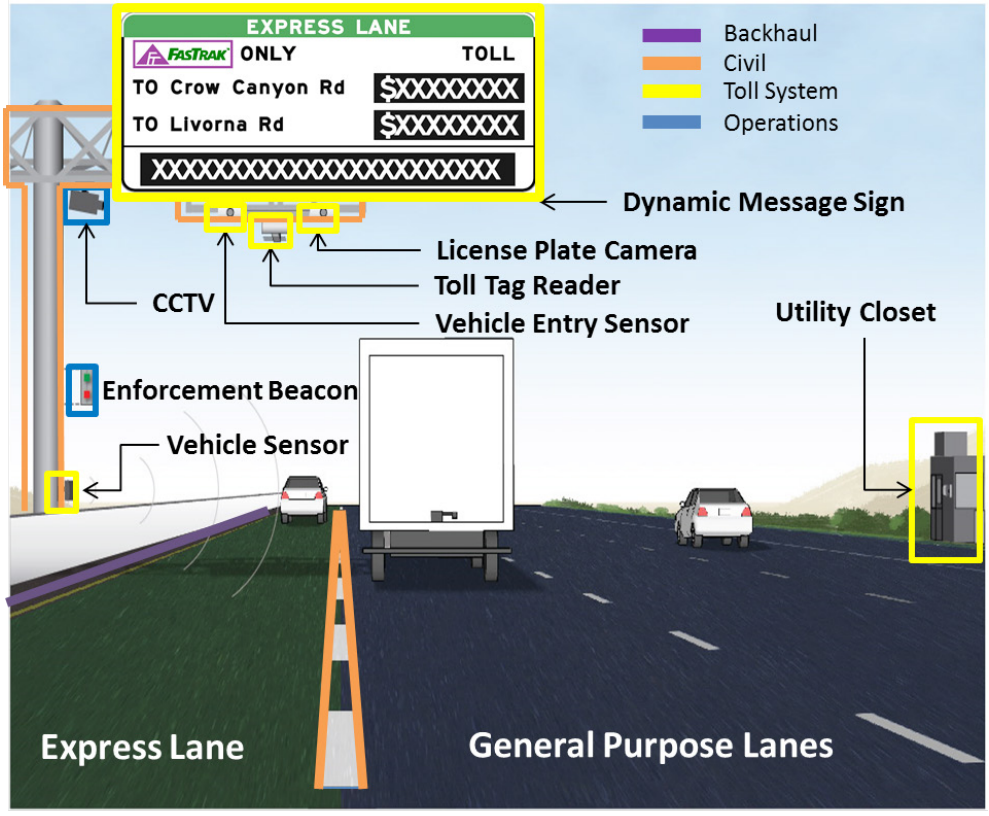
The toll system consists of two components, the in-lane system and the back-end "host" system. The lane system consists of all the equipment on the highway needed to operate the toll system including toll tag readers, cameras and vehicle detection. The host system serves as the brain of the toll system, 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