Project Description - Proposed Operating Modifications to the Richmond-San Rafael Bridge Pilot Project

1. Project Overview

The California Department of Transportation (Caltrans) is submitting an application to amend San Francisco Bay Conservation and Development Commission (BCDC) Permit No. 1997.001 to modify the Richmond-San Rafael Bridge Public Pathway Pilot Project (Pilot), which was previously authorized by Amendment No. Four of that permit. Caltrans is implementing the Pilot in coordination with the Bay Area Toll Authority (BATA), which is a subsidiary agency under the Metropolitan Transportation Commission (MTC) created to administer tolls on the Bay Area's state-owned bridges.

2. Project Background

The project is located along the Richmond-San Rafael (RSR) Bridge and its approaches. The RSR Bridge is a segment of Interstate 580 (I-580) that opened to traffic in September of 1956. It is approximately 4 miles long and consists of an upper deck for traffic westbound to Marin County, and a lower deck for traffic eastbound to Contra Costa County.

The RSR Bridge is a highly constrained transportation corridor. Prior to the implementation of the Pilot, the bridge was comprised of two travel lanes plus a shoulder on each deck of a 70-year-old bridge structure connecting Contra Costa and Marin counties across the environmentally sensitive San Francisco Bay.

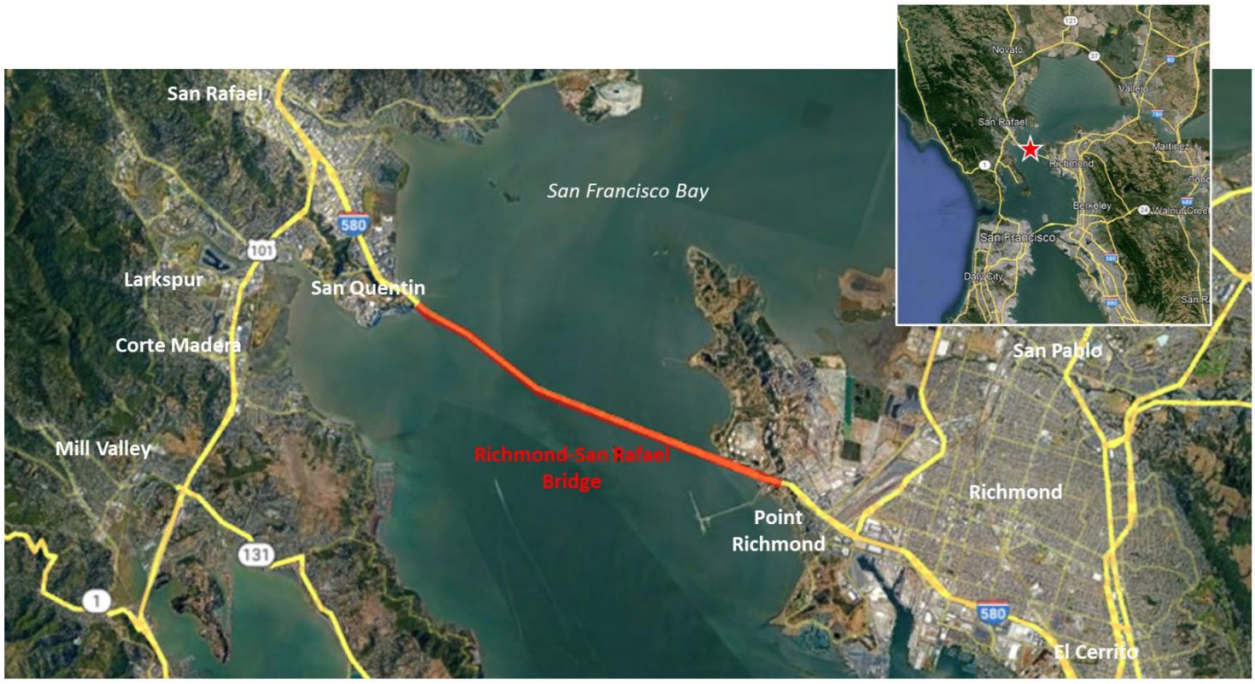


Figure 1: Project Location

Caltrans, as owner of the RSR Bridge, and BATA, as the agency responsible for funding bridge operation and preservation with toll revenue, share the mission of providing a safe, sustainable, multimodal and reliable transportation system to get people where they need to go. Optimizing mobility for all corridor travelers in a safe and sustainable manner requires creative approaches such as the current Pilot and the proposed modifications to it (this permit amendment request).

It also requires a holistic approach to providing access and improving bridge operations (to ensure the safe and efficient functioning of a bridge, including traffic management, maintenance, and responding to emergencies) built on real-world experience to assess feasibility and carefully consider trade-offs. In addition to the Pilot, Caltrans and BATA are also working on the following initiatives that aim to improve transit and carpool travel options and reduce dependency on single occupancy vehicles along the corridor:

RSR Forward – This project prioritizes safety and person throughput (in buses and carpools) in the City of Richmond on the westbound approach by removing toll booths, reducing merging and weaving at the toll plaza, providing priority for carpools and buses and improving local traffic circulation. The Open Road Tolling (ORT) and westbound HOV lane extension improvements (converting a general purpose lane into a HOV lane between Regatta Blvd. and Toll Plaza) are expected to provide travel time savings of 12 minutes for carpools/buses and 5 minutes for other traffic, and are expected to be completed in Spring 2026.

RSR Bridge Westbound Improvement Project (a.k.a. Third Lane HOV Design Alternatives Assessment) – When BATA staff presented the Pilot study results and updates at the November 2023 BATA Oversight Committee, the Chair requested staff

work with Caltrans to develop a scope, cost, and schedule on a feasibility study, also known as the Design Alternatives Analysis (DAA). This study was subsequently approved to start in March 2024, to analyze operational solutions and improvements that can be implemented to meet corridor mobility needs on this corridor, such as a third HOV lane on the westbound upper deck. This direction was in response to numerous public comments to improve westbound traffic congestion during the weekday AM peak period, questioning the impact of the multi-use path and urging BATA and Caltrans to consider other alternatives. The objective of the DAA is to increase carpooling and transit use by providing additional travel time advantages for carpools and buses through a continuous HOV lane from Regatta Blvd (built with RSR Forward project as described above) across the bridge during peak periods. It considers the potential to increase transit and carpooling as well as improve bridge operations by converting the bridge shoulder to an HOV lane that could still operate part-time in conjunction with the multi-use path. As further described in Section 4 of this application, the DAA will narrow alternatives and identify any major challenges in advance of starting the environmental process.

BATA staff presented the DAA results to the BATA Oversight Committee on May 14 2025, where it approved staff to pursue the next phase of project delivery to implement an HOV lane as the 3rd lane on the RSR Bridge in the westbound direction. This would allow staff to work with Caltrans to conduct the project initiation and environmental approval process, expected to start in Summer 2025 with the goal of completing this phase no later than 2028. Additional information on the Westbound Improvement Project, the BATA Oversight agenda item, and a copy of the DAA study are included in Attachment B.

Current Authorization and Pilot Project

BCDC approved Amendment No. Four of BCDC Permit No. 1997.001 on September 20, 2016. The amendment authorized a four-year pilot project to evaluate the use of a separated Class I public pathway on the shoulder of the westbound upper deck of the RSR Bridge and use of the shoulder of the eastbound lower deck as a part-time vehicular travel lane during PM peak hours only. The authorized Pilot includes the following components on the bridge decks and approaches, as shown in Figure 2:

A. **Westbound Upper Deck.** On the upper deck, in BCDC's Bay jurisdiction, the Pilot includes a 4-mile long, 10-foot-wide bi-directional Class I accessible public pathway on the northern shoulder, separated from vehicle traffic by a 42-inch-tall, 18-inch-wide movable barrier. It also includes an outer safety railing on the north side of the pathway, as well as informational signage, traffic-monitoring cameras and usage instrumentation. At the westbound approach to the bridge in the 100-foot shoreline band, the Pilot includes a 0.19-mile-long segment of the same Class I pathway and movable barrier in the shoulder of I-580. Outside BCDC's Bay jurisdiction and not included in Permit Amendment No. Four, Caltrans and BATA also completed 1.8 miles of permanent paths

to improve access to the bridge path, Bay Trail, Bay shoreline, and communities in Richmond and San Rafael.

B. **Eastbound Lower Deck.** On the lower deck, in BCDC's Bay jurisdiction, the Pilot converts a 4-mile segment of the 12-foot-wide shoulder to a vehicle travel lane during peak commute hours only (from 2:00 PM to 7:00 PM daily) and includes signage as well as traffic-monitoring cameras. At the eastbound approach to the bridge in the 100-foot shoreline band, the Pilot also converts a 0.65-mile-long segment of the I-580 shoulder for use as a vehicle travel lane.

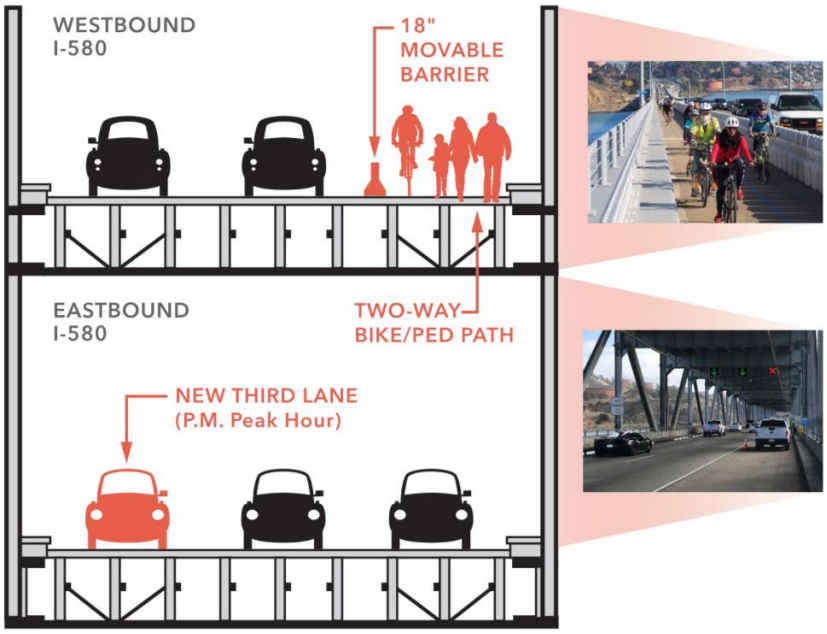


Figure 2: Current Pilot Configuration, Bridge Cross-Section (looking west)

Caltrans and BATA's objectives in piloting these uses of the bridge shoulders were to seek a means of reducing congestion and travel time in the eastbound direction and to provide pedestrian and bicycle facilities across the bridge, the latter of which is related to the provision of public access contemplated in the findings of the original permit issuance from 1997. Caltrans and BATA intended to evaluate the performance and use of these improvements to determine whether they could feasibly be made permanent.

The authorization provided in Amendment No. Four expired at the end of the four-year pilot period. As the lower deck pilot improvements opened on April 20, 2018, and the upper deck pilot improvements opened on November 18, 2019, the original authorization for the pilot project components expired on April 20, 2022, and November 18, 2023, respectively. However, the amended permit also stated that the Pilot facilities could not be removed, substantially altered, or made permanent without authorization through a permit amendment. Thus, to allow time to conclude the Pilot evaluation, determine appropriate next steps, and complete the amendment process with BCDC, Caltrans requested and was granted Non-Material

Amendment No. Five to temporarily extend the authorization of the Pilot through December 31, 2025.

Pilot Project Evaluation and Findings

To evaluate the Pilot Project, Caltrans contracted with the California Partners for Advanced Transportation Technology (PATH), a research center at the University of California, Berkeley. PATH prepared a "Before" study in 2018 that described conditions existing in 2015-2016 before the Pilot was implemented, as well as an "After" study that was conducted in two phases. Phase I was completed on June 30, 2022, and Phase II was completed on May 8, 2024. The Phase 2 study was a continuation of Phase 1 and includes data gathered since 2022, as well as data from another pilot bike path project connecting the bridge to Sir Francis Drake Boulevard in Marin County, which is outside of BCDC's jurisdiction. Data from the Phase 2 study was presented to the Commission at a briefing on May 2, 2024, and the Phase II report is included as Attachment A of this application summary.

The PATH study examined a number of indicators and performance measures for traffic and safety impacts to evaluate whether any changes in operations could be attributed to the installation of the Pilot projects. These indicators included peak hourly flows across the bridge and through the bridge approach; physical extent and duration of congestion on the bridge, the approach, and on local roads; travel times across the bridge; speeds on the bridge; traffic patterns; incident rates, types, and severity; the location and duration of incidents; incident locations; and incident response times.

Eastbound Lower Deck: Findings show that since the implementation of the peak hour lane, the I-580 eastbound traffic congestion that previously existed has been eliminated and travel time during the peak hour between the US-101 interchange and end of bridge/toll plaza has been reduced by up to 17 minutes. The PATH study also found that compliance with the part-time shoulder hours of operations is high (99.6%), there is no evidence of impacts on incident types and incident response, and there have been no signs of impacts to Caltrans bridge maintenance and inspections.

Westbound Upper Deck: Findings show where changes have been observed in bridge operations before and after implementation of the Pilot. Two indicators showed an impact on operations that Caltrans and BATA would like to further study:

A. **Peak Period Hourly Vehicle Flows.** Findings show that the maximum flow across the bridge dropped by 7 percent (approx. 250 fewer vehicles per hour) on weekdays and 4 percent (approx. 125 fewer vehicles per hour) on weekends. This is likely due to the narrower appearance of the right-most bridge lane following the installation of the movable barrier that may cause drivers to drive more slowly and the design of the pathway approaching the bridge resulted in a shorter merge area after vehicles pass through the toll plaza. The study did not provide an estimate of the overall change in travel times and congestion queues due to flow reductions, but PATH has stated to BCDC staff that the difference is likely an average of 5 to 6 minutes during the weekday

AM peak, and further affects traffic entering the freeway at Castro Street and Richmond Parkway.

B. **Weekday Morning Incident Rates and Response Times.** Overall, incident rates have dropped on both the bridge and bridge approach; however, the data suggests there is an increase in incident rates specifically during the weekday AM peak (6a-9a). During the peak AM period, the average number of incidents on the approach increased from 22.5 to 26.5 per year, and the average number of incidents on the bridge increased from 31.5 to 40.5. The report expresses incident rates as incidents per million miles traveled rather than incidents per year so that the rates can be compared in a way that would not be affected by fluctuations in traffic volumes. When ignoring the COVID-impacted period, incident rates were observed to increase from 3.61 incidents per million miles traveled to 4.26 on the approach, and from 2.31 to 3.07 on the bridge (2.74 to 3.47 overall) during peak hours. Also, the study showed the average incident response times on the bridge, by CHP and first responders increased from 12.9 to 16.3 minutes during the peak AM period. Incidents may include various types of collisions, such as rear-ends, sideswipes, collisions with objects, etc. And these numbers do not include non-crash events, such as vehicles that have run out of gas or that have a flat tire.

3. Proposed Project Modifications

The amendment request proposes the following modifications to the Pilot Project:

Eastbound Lower Deck:

On the lower deck and eastbound approach, we'd conclude the pilot phase and continue, on a permanent basis, the use of the shoulder as a vehicle travel lane during the peak commute hours of 2:00pm to 7:00pm each day, based on the findings from the PATH study.

Westbound Upper Deck

On the upper deck and westbound approach, we'd continue to pilot the multi-use path with a modified schedule that would keep the public pathway open from 2:00pm on Thursdays through 11:00pm on Sundays, with some additional availability around certain holidays. At all other times, the movable barrier separating the pathway would be moved to the edge of the bridge and the path would revert to an emergency shoulder and breakdown lane for motorists and first responders. The modifications are illustrated in Figure 3 and described further in the following sections.

A free shuttle would operate between 6:00am and 8:00pm on days where the multi-use path is closed, to transport cyclists across the bridge (on Thursdays, the shuttle would run until the path reopens). The shuttle would run between the Tewksbury Avenue bus stop in Richmond and the Vista Point parking lot in San Rafael and involve the placement of informational signage.

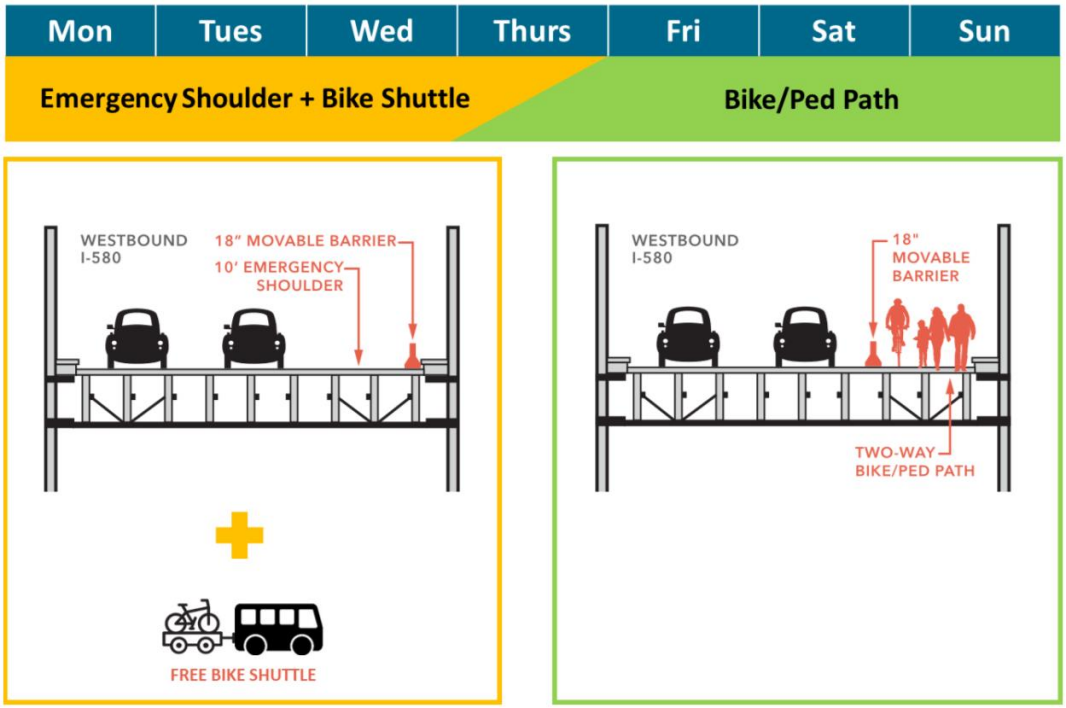
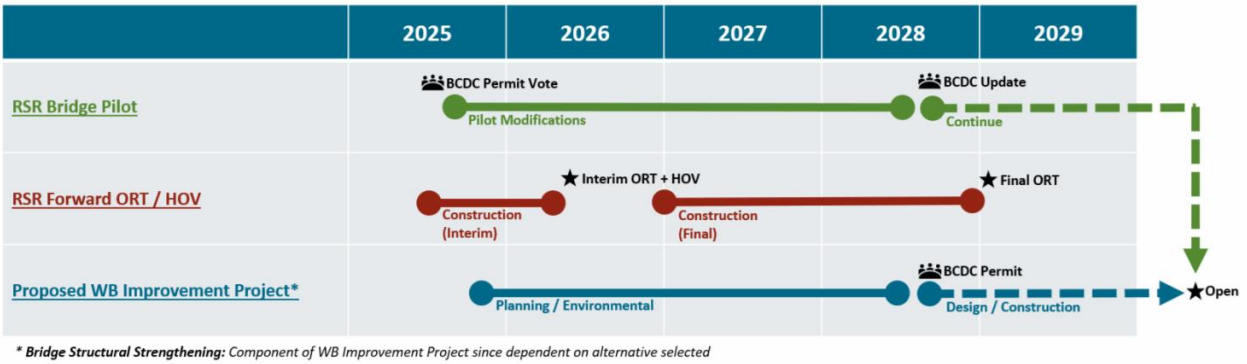


Figure 3:Proposed Westbound Upper Deck Pilot Modifications

The modifications would be implemented by Fall 2025 with an expected duration of up to 3 years, during which time BATA and Caltrans will conduct environmental review of the RSR Bridge Westbound Improvement Project. Towards the end of the third year, we expect the results of the original Pilot, proposed modified Pilot, RSR Forward improvements, and environmental phase of the RSR Bridge Westbound Improvement Project will inform the many stakeholders in determining the appropriate next steps and long-term improvements for this corridor.

If by the end of the third year, the Westbound Improvement Project has received environmental clearance and a funding plan has been established, then the modifications would continue to remain in place until the completion and opening of the Westbound Improvement Project, as shown in the figure below.



However, by the end of the third year, if there is not a way forward to advance the Westbound Improvement Project or if the environmental study is still in-progress, then we'll report to BCDC on appropriate next steps.

Operations: The proposed days of operation allow for an evenly distributed share and best use of the shoulder and will generate enough data to evaluate the role of the shoulder in relation to incidents and traffic throughput during peak commute periods. The proposed days of operation were selected based on findings from the PATH Study that bicycle usage of the pathway was higher on weekends (averaging 264 westbound bicycle trips and 219 eastbound bicycle trips on Saturdays in the summer high season) than on weekdays (averaging 75 westbound trips and 66 eastbound trips in the summer high season) during the study period. The study observed seasonal trends in bicycle usage; winter averages are typically 25-40% lower than summer averages. Pedestrian usage vary from 7 to 30 entries per day per direction in the summer and 6 to 20 in the winter season with little variation on days of the week.

The PATH Study's Time-of-Use graph indicates that approximately 15-20% (20 to 30 users) of the total daily users use the multi-use path on weekdays between 6 AM to 9 AM. In contrast, motorists that commute westbound during the same time period is approximately 25% (9,200 vehicles) of the total daily traffic when the bridge is at capacity. Since vehicular traffic volumes are generally lower and there is more recreational path usage on some designated State holidays, BATA and Caltrans plan to keep the path open on the following:

- For Memorial Day and Labor Day, the Path will remain open until 11:00 PM on that Monday.
- If Fourth of July or observed is on a Monday, the Path will remain open until 11:00 PM on that Monday.
- For Christmas and New Year, the Path will remain open 18 days between 2:00 PM on the Thursday the week before Christmas is observed through 11:00 PM on the Sunday after New Year.

The path will revert to a 10-foot emergency shoulder when it is closed. And similar to current operations, the path may also be closed to allow for routine or as-needed Caltrans bridge maintenance and inspection. The path is separated from traffic lanes by movable concrete barriers. Closing and opening the path will take approximately two to three hours, in each direction, to move and transition the barrier. Caltrans Maintenance staff will perform an inspection of the path or shoulder to ensure it's clear of people and/or debris. Then the barrier transfer machine (BTM) that travels approximately 5 mph will move the barrier to its intended position and a final inspection is performed by Caltrans Maintenance staff before the path or shoulder is re-opened.

Other alternatives: Caltrans and BATA explored other alternatives and configurations to the proposed modifications, which included the following:

A. **Daily weekday barrier moves.** Moving the barrier back and forth daily so that there's an emergency shoulder during AM peak hours and multi-use path at all other times, was

determined not practical because of the amount of time and resources (staffing and operational costs) to perform each barrier move as described in the paragraph above.

B. **Add movable barrier on the lower deck.** Adding another movable barrier system on the lower deck to provide alternating upper and lower deck availability of the multi-use path. For example, when the upper deck path is closed during the morning AM peak, the shoulder on the lower deck would be converted into a path using a similar movable barrier system and vice versa during the afternoon PM peak hours. This was not a cost-effective solution since the additional dead load of adding another concrete barrier system would require extensive bridge structural strengthening. Also, this option requires additional environmental clearance and design of new connections from the lower deck path to the existing local path connections.

C. **Reduce path width from 10 to 8 feet (with 2-foot shoulder) or creating vehicle pull outs at certain intervals.** Modifying the geometry and alignment of the movable barrier system to provide additional space for stalled/stopped vehicles on the bridge could not be accommodated by the BTM, which is restricted to a minimum fixed width of 10 feet.

Public Access: In addition to the proposed modifications above, BATA and Caltrans have and will provide the following public access improvements:

A. **Shuttle.** When the Path is closed, a free shuttle will travel between designated pick-up and drop-off locations to assist cyclists and pedestrians impacted by the closure. The shuttle operator will be contracted and managed by BATA and will be monitored and adjusted accordingly. Pick-up and drop-off locations have been identified at each end of the bridge at the Vista Point Parking Lot in the City of San Rafael and Tewksbury Bus Stop in the City of Richmond, approximately 5.6 miles apart, as shown in Figure 4. The Vista Point shuttle stop would be located within the 100-foot shoreline band, and physical improvements in this area would include a single wood post sign.

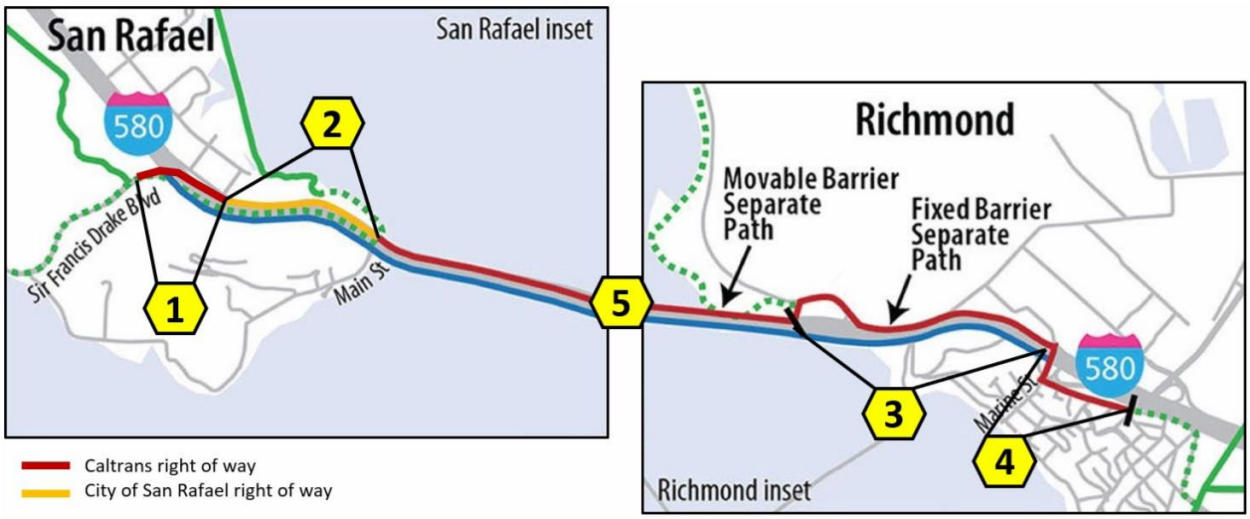
Figure 4: Proposed Shuttle Pickup and Dropoff Locations

The shuttle is proposed to operate from 6 AM to 8 PM on days that the path is closed (on Thursdays, the service would end when the path reopens, around 2 PM). Signage that displays wayfinding and informational signs will be installed at the Bridge Path entrance (Vista Point and Stenmark Dr.) and near the Richmond bike shuttle stop (Marine St. and Castro St.).

The PATH Study includes a time-of-day hourly chart based on bike/ped usage on the multi-use path; during the hours of shuttle operations (6AM to 8 PM) the shuttle would be able to accommodate 96% of the weekday daily users. Outside the hours of shuttle operations, the 4% (approximately 5 to 6 users) impacted by the modified pilot would have to use other options, such as transit (Golden Gate Transit) or rideshare vehicles (SUV/van) that can accommodate a bike.

The proposed shuttle service is a more robust shuttle option than provided in the past. It includes two transit shuttles (including one electric vehicle) during the weekday morning commute (6 AM to 9 AM) and one shuttle at all other times. Each shuttle is designed to accommodate up to 10 passengers and will include a trailer to accommodate up to 10 bicycles, including e-bikes. Estimated headway for the shuttle is 20 minutes, and live tracking will be provided online for users to monitor real-time arrival information. Contact information will be provided for queries and user feedback. Caltrans and BATA will monitor shuttle usage and user feedback as part of the extended pilot study and will consider adjusting shuttle operations accordingly.

B. **Permanent Access Improvements.** In addition to the public access improvements authorized in Permit Amendment No. Four (approximately $10M, 4.5 miles), Caltrans and BATA have completed permanent access improvements on both bridge approaches, that are outside the Commission's jurisdiction (approximately $22M, 1.8 miles), which connects the bridge pathway to existing local paths and trails. See Map and Table below for more information.



	ID:	Cost	Length	Location	Bay Trail?	Right-of-Way	Description
Permanent	2	$5M	0.5 mi.	E. Francisco Blvd.	Yes	City of San Rafael	• Completed gap between RSR Bridge Vista Point and Sir Francis Drake Blvd. off-ramp flyover. • Widens sidewalk along E. Francisco Blvd. for bi-directional shared-use facility. • Previously, bikes shared road via sharrows.
	3 4	$15M	1.0 mi.	Parallel I-580 WB to Castro St.	Yes	Caltrans	• Completed gap between RSR Bridge Stenmark Dr. and Point Richmond adjacent to I-580 corridor. • Constructed Class I barrier-separated path connection from the Tewksbury/Standard Ave. to Stenmark Dr. near Point Molate. • Previously, bikes were allowed on the freeway shoulder along this segment without protection.
Pilot	1	$2M	0.3 mi.	Sir Francis Drake (SFD) Blvd Off-Ramp	Yes (Bike Only)	Caltrans	• Constructed Class 4 barrier-separated bike path adjacent to Sir Francis Drake Blvd. off-ramp. • Improved connection between RSR Bridge and Andersen Dr. to downtown San Rafael. • Funded by TAM, TAM and Caltrans are making it permanent.
	5	$10M	4.5 mi.	RSR Bridge	Yes	Caltrans	• Completed gap between Marin and Contra Costa Counties. • Converted existing shoulder on RSR Bridge upper deck (westbound I-580) to a Class I two-way bicycle and pedestrian path through a moveable concrete barrier system. • Additionally providing incident response vehicles and improved radios, suicide prevention hot line

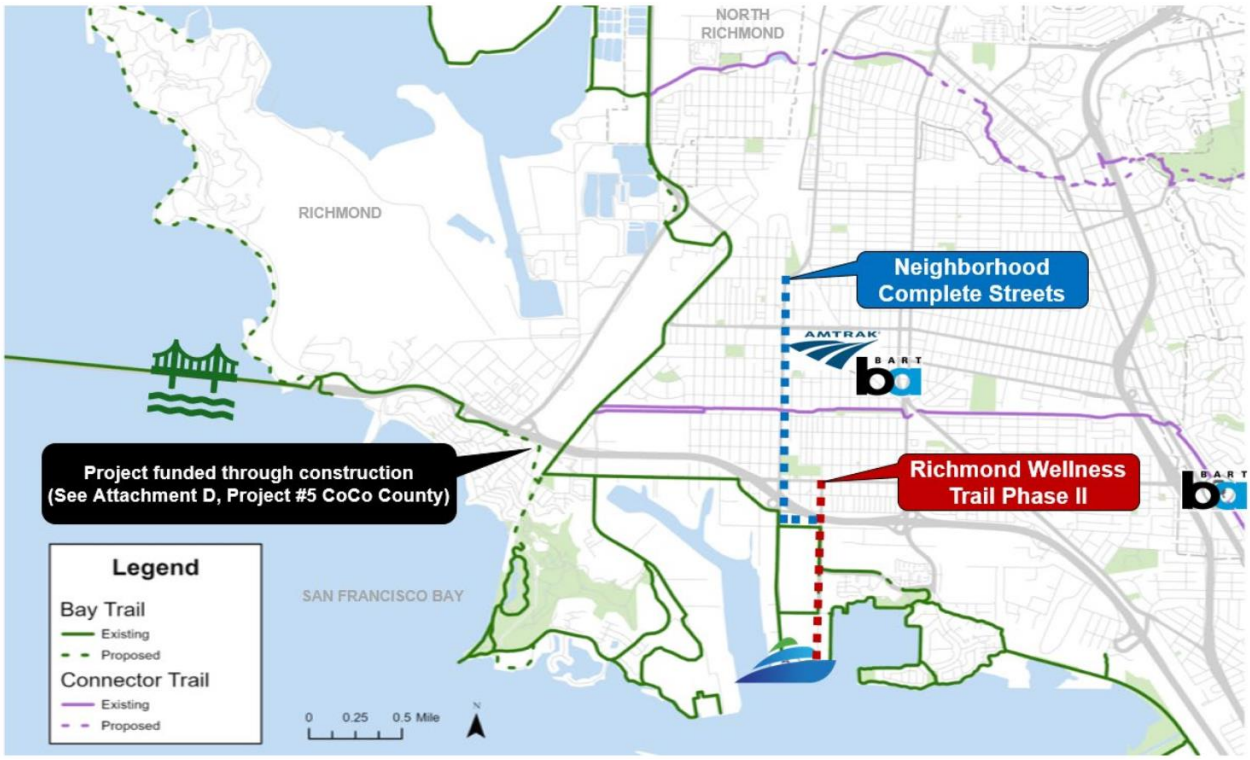
For reference, Attachment C includes Maintenance Agreements between BATA, Caltrans, and the City of San Rafael which delineate maintenance roles and responsibilities for these improvements.

C. **Recent Awards and Investments.** Caltrans and BATA recognize more work remains to connect local city pathways to the RSR Bridge corridor. Since the start of the original Pilot project, $47M has been awarded for 13 miles of bicycle and pedestrian infrastructure projects in the City of Richmond and City of San Rafael. This includes $26M ($16M in 2025) programmed by MTC and $21M from other sources through applications supported by MTC. Attachment D includes more information about the recent MTC awards on active transportation projects that improve key connections and access onto the RSR Bridge, through the Bay Trail and local connector trails. Specifically, Project 5 in Contra Costa County (see Attachment D), the Downtown Point Richmond Bicycle Connectivity project, received recent MTC funding through completion of construction that will connect access from the Point Richmond neighborhood to the permanent access improvements as described in the section above.

D. **Future Funded Commitment.** Caltrans and BATA will recommend MTC commit active transportation funds for bicycle and pedestrian infrastructure improvements in this corridor. In particular, per Senate Bill 595 Project 25 (2017), Regional Measure 3 (RM 3) will fund westbound improvements in the RSR Bridge corridor, including westbound access and operational improvements in the vicinity of the toll plaza east of the bridge in

Contra Costa County. Of the amount allocated to this project, $75 million shall be dedicated to the projects in Contra Costa County, of which in 2023 the partners have agreed to recommend up to $10 million to the City of Richmond specifically for bicycle access improvements serving this transbay corridor. Voters approved RM 3 in 2017 before the bridge path opened in late 2019, and the recommendation to set aside $10M for projects that improve access to the bridge is attributable to the Pilot.

The City of Richmond has identified two priority projects that are eligible for the RM 3 $10 million that they intend to use to complete their funding for construction (see Attachment F). The following includes more information about these projects and the figure below illustrates at a high-level how these projects improve access in the RSR bridge corridor for a variety of travelers: transit users (including transit dependent populations) connecting from BART, Amtrak, Ferry, and local buses, local travelers connecting from the city's Greenway, and regional travelers connecting from the SF Bay Trail.



Richmond Wellness Trail Phase II (1.1 miles) – Phase II will complete the 4-mile Richmond Wellness Trail which will connect the BART and Amtrak station to the San Francisco Ferry Terminal, while also creating local connections to Unity Park, Richmond Greenway, Nystrom Village, Martin Luther King Jr. Park, and Kaiser Field Hospital. This project will support local and regional connectivity for Richmond residents via Amtrak's Capital Corridor, BART's Red and Orange Lines, and the Richmond Ferry, which has recently added additional weekend trips. Phase I of the Wellness Trail from the Richmond BART and Amtrak stations to Cutting Blvd. was completed in 2022. Phase II

will complete the connection from Cutting Blvd to the San Francisco Ferry Terminal and the existing Bay Trail that leads to the RSR Bridge path. 0.3 miles of Phase II is ranked 2 out of 21 in the County per the Bay Trail Gap Closure Implementation Plan Prioritization 2024.

Neighborhood Complete Streets (1.7 miles) – The Neighborhood Complete Streets Project is located along Harbour Way from I-580 to Downtown Richmond and provides a connection between Downtown Richmond and Ford Peninsula area, through the Coronado and Santa Fe neighborhoods. This corridor currently includes four lanes of fast-moving traffic that create barriers to pedestrians and bicyclists between neighborhoods on either side. This project will restripe Harbour Way from three lanes to two lanes, add bike lanes, and add pedestrian-scale lighting. This project will provide an east-west connection with the Richmond Wellness Trail on Marina Way via Wright Avenue and access to the existing Bay Trail that leads to the RSR Bridge path. It will also connect MLK Park, the proposed MLK Resilience Hub, and Nystrom Elementary School to the Richmond Greenway and Downtown Richmond.

E. **Future Commitment to Work with Locals to Identify Projects and Funding.** During the pilot extension, Caltrans and BATA will continue to work closely with local jurisdictions and transportation authorities in Marin and Contra Costa counties to look for partnership and funding opportunities, including meeting at least twice a year. Through these discussions, BATA staff will work with local stakeholders to identify additional opportunities, including funding opportunities (e.g., sources, anticipated cycles, process and eligibility), to improve access to the RSR Bridge, Bay Trail, and surrounding local regional pathways and connector trails, and improve transbay connectivity. Staff will provide record of meetings at the end of the 3-year modified pilot extension. In addition, BATA and MTC staff will continue host periodic public meetings, such as the Active Transportation Working Group that meets every 2 months.

4. Westbound Upper Deck Modifications (Holistic Approach)

The modified pilot is a forward-thinking approach that will benefit all corridor travelers. In conjunction with the complementary projects and studies, it will allow Caltrans and BATA to methodically understand the trade-offs through observed data and better serve the varied users traveling between Contra Costa and Marin counties. Our proposal would continue to provide bike and pedestrian access across the bridge when there is the largest demand and provide access via shuttle at other times and complement the Forward projects.

Continued Pilot Study

As mentioned in Section 2, there were several key findings in the PATH study that show operational and safety impacts during the weekday morning commute period when incidents have the highest risk and impact on traffic. The modified pilot will provide Caltrans and BATA empirical data and direct experience to demonstrate the impact of an emergency shoulder on trip reliability, incident response and safety when compared to key observations from the initial

study, while providing bicycle and pedestrian access on the weekends and a shuttle on weekdays to minimize impacts on existing weekday trail users. Modifications will provide a better understanding of the role of the shoulder; to better manage bridge operations and improve access for first responders by restoring the shoulder on the 4-mile-long bridge, which would also allow travelers and emergency services to get by when traffic lanes are blocked and allow inoperable vehicles to move to the shoulder.

The extended pilot study will continue to gather data and analyze the performance measures for traffic and safety impacts to the westbound upper deck (see Attachment E). The extended study will include an equity study as described in Section 5, which was not in the original pilot study scope, to analyze the potential equity impacts of the modifications on drivers, cyclists, pedestrians, and vulnerable populations.

Complements Multi-Modal Freeway Operations

The initial Pilot project and studies were focused on the observable impacts on operations and safety, comparing several years of before and after conditions. However, it did not directly reference other planned freeway operational improvements to improve transit and carpooling. Therefore, during the proposed Pilot modification and extension, the continued PATH study will complement the following projects that will collectively aid and inform the long-term access and mobility strategies in this corridor:

RSR Forward – This project assumes the bridge multi-use path in its current configuration, but due to the presence of the barrier, the outside lane would have a non-standard merge length. Other alternatives have been explored to provide standard merge length but those would require major reconstruction of the Stenmark Drive interchange and the Stenmark Drive on-ramp undercrossing structure. When the RSR Forward project opens, traffic will flow through the toll plaza area at a higher rate. If the barrier remains during peak commute periods, it may reduce the flow near the merge, causing backup. Moving the barrier to restore the shoulder may be necessary to realize the expected time savings for HOVs and other traffic.

The ORT and westbound HOV lane extension is expected to open in Spring 2026, which will alter the traffic conditions at the bridge approach. Therefore, implementing the pilot modifications as soon as possible (prior to opening RSR Forward) will provide us data that's based on the same traffic conditions and configuration as the current Pilot study. Also, Fall season is often preferred for traffic analysis because it represents a period of consistent traffic patterns compared to other seasons; less holidays/vacations, schools are back, and the days get shorter. Although a small sample size, having this data could still provide insight into whether we see a change in bridge capacity and incident types/response before the traffic at the bridge approach changes after the RSR Forward project is operational.

RSR Bridge Westbound Improvement Project – As mentioned in Section 2, the project will begin in Summer 2025. The environmental phase is expected to finish around the

same time that the proposed modified pilot extension ends. Ultimately, the results of the current Pilot, proposed modified Pilot, Forward improvements, and Westbound Improvement Project environmental study will inform the many stakeholders in determining the appropriate next steps and long-term improvements for this corridor – whether that be retaining the bridge path in its original or modified operation, or pursuing further corridor improvements, such as an HOV-lane on the bridge on weekdays and a pathway on weekends. This will include an assessment of the pilot's equity analysis on recommended permanent improvements that were not in the pilot phase.

Bridge Structure

The RSR bridge is structurally sound and safe. While not a structural concern, the upper deck has experienced some localized concrete spalling, including a spalling incident in February 2019 and other minor spalling issues since, which have resulted in emergency repairs and traffic closures even on the lower deck from falling debris. In the current configuration, the movable barrier is moved monthly for routine maintenance and cleaning, and the proposed modifications would move the barrier weekly. The extended pilot will allow Caltrans and BATA to assess how the bridge deck responds to more frequent barrier moves, specifically if it results in cracking and/or spalling of the bridge deck pavement. Results will help inform the feasibility of operating a third westbound HOV lane on the bridge, which analyzes a similar operation of weekly barrier moves.

In addition, Caltrans and BATA performed a load rating study in 2020 per the Federal Highway Administration (FHWA), which determined the RSR bridge stringers (longitudinal beams that support the load from the bridge deck) to be in Fair condition[1]. If the movable barrier were to stay on the bridge long-term, then strengthening the bridge structural connection between the existing concrete deck and the supporting steel stringers is required to support the additional dead load imposed by the concrete movable barrier.

Also, the solution to the long-term Westbound Improvement project will be determined around the same time as the end of the pilot extension. At that time, Caltrans and BATA will have a better idea of the bridge structural strengthening needs, since it's dependent on whether the pathway and movable barriers are made permanent and how they are operated. BATA will fund the Environmental analysis of the structural strengthening proposal. Following completion of the Environmental review, BATA will commit funds for construction, provided the cost is reasonable and it has been determined the bridge path will be kept on a long-term basis.

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[1] A bridge condition rating is given for each bridge's deck, superstructure, and substructure; the lowest rating of these three determines the bridge's overall "Bridge Condition" rating. If the lowest rating is greater than or equal to 7, the bridge is classified as Good; if it is less than or equal to 4, the classification is Poor. Bridges rated 5 or 6 are classified as Fair. It is important to note that the FHWA bridge condition rating is not a safety rating but a tool to help record and track deterioration and prioritize projects and funding. For more information on the conditions of the Bay Area's seven state-owned toll bridges, see https://mtc.legistar.com/gateway.aspx?M=F&ID=cbdb7677-7318-4140-b178-939c79395623.pdf

5. Environmental Justice and Social Equity

The RSR Bridge is a segment of I-580, which traverses the communities of Richmond and San Rafael on its approaches and connects the broader regions of the East Bay and North Bay, providing access to homes, jobs, services, and recreational opportunities.

In preparing the proposal for the modified pilot, Caltrans and BATA engaged with local bicycle coalitions and trail advocates, including the Marin County Bicycle Coalition, Rich City Rides, Bike East Bay, and the Trails for Richmond Action Committee at three virtual meetings to share information about the modifications and seek input for the proposed shuttle operations. Caltrans and BATA also made public presentations on the project at meetings of the BATA Oversight Committee, the BATA Commission, the Contra Costa Transportation Authority Board, the Transportation Authority of Marin Board, the Marin County Board of Supervisors and the West Contra Costa County Transportation Commission.

To date, Caltrans and BATA have not completed an analysis of equity impacts of the pilot project or the proposed modifications, but we've included an equity study in the scope of work for the modified pilot (see Attachment E). The equity study would evaluate whether the conversion of the upper deck shoulder into a multi-use path and then converted back to an emergency shoulder during weekday commute, would have different impacts on drivers, cyclists, pedestrians, and vulnerable populations. Planned engagement efforts would include expert interviews with local governments and transportation agencies, local active transportation groups, and local businesses; small group discussions with cyclists and motorists; and a community survey targeting both cyclists and motorists.

6. Bay Fill

The proposed project would take place on existing Bay fill along the RSR Bridge, but would not place new solid fill in the Bay or expand the coverage of existing fill.

7. Schedule and Cost

The modifications would be implemented by Fall 2025 and would be in place for up to 3 years. The estimated total project cost is approximately $200,000 for capital and support costs, and does not include operations and maintenance costs.

Towards the end of the third year, we expect the results of the original Pilot, proposed modified Pilot, RSR Forward improvements, and environmental phase of the RSR Bridge Westbound Improvement Project will inform the many stakeholders in determining the appropriate next steps and long-term improvements for this corridor.

If by the end of the third year, the Westbound Improvement Project has received environmental clearance and a funding plan has been established, then the modifications would continue to remain in place until the completion and opening of the Westbound Improvement Project, as shown in the figure below.

However, by the end of the third year, if there is not a way forward to advance the Westbound Improvement Project or if the environmental study is still in-progress, then we'll report to BCDC on appropriate next steps.

8. Attachments

Attachment A – PATH Phase II Study

Attachment B1 – BATA Oversight, May 14, 2025

Attachment B2 – Westbound Upper Deck DAA

Attachment C1 – Maintenance Agreement Caltrans & BATA

Attachment C2 – Maintenance Agreement Caltrans & City of San Rafael

Attachment D – Recent MTC Awards of Active Transportation Projects

Attachment E – PATH Phase III Study Scope of Work

Attachment F – Regional Measure 3 Letter of Intent from City of Richmond