San Francisco Bay Conservation and Development Commission

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March 7, 2025

Application Summary

Richmond-San Rafael Bridge Pilot Project Modifications

(For Commission consideration on March 20, 2025)

BCDC Permit Application Number:	1997.001.06 (Material Amendment No. Six)
Applicant:	California Department of Transportation (Caltrans)
Project Description:	Use the right-hand shoulder of the eastbound lower deck as a part-time travel lane during peak hours on a permanent basis and continue the multi-use pathway pilot project on the westbound upper deck shoulder for two years with modifications, including reducing availability of the path to the period between Thursday afternoon and Sunday evening, converting the path back to an emergency shoulder at all other times, and providing a free bicycle shuttle Mondays through Thursdays.
Location:	In the Bay and within the 100-foot shoreline band, along the Richmond-San Rafael Bridge and approaches, in the cities of Richmond, Contra Costa County, and San Rafael, Marin County.
Application Filed Complete:	January 13, 2025
Deadline for Commission Action:	April 13, 2025
Staff Contact:	Katharine Pan (415/352-3650; <u>katharine.pan@bcdc.ca.gov</u>)

Project Overview

The California Department of Transportation (Caltrans) has submitted an application to materially amend 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 the permittee and 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.

Project Background

The project is located along the Richmond-San Rafael Bridge and its approaches (Figure 1). The Richmond-San Rafael Bridge is a Caltrans facility spanning the San Francisco Bay between Point Richmond in Contra Costa County and San Quentin in Marin County, and is a segment of



Interstate 580 (I-580) as well as a designated segment of the Bay Trail. It was constructed prior to the formation of the Commission, and opened to traffic in September of 1956. The bridge 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.



Figure 1: Project Location

Current Authorization and Pilot Project

The Commission approved Material 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 Richmond-San Rafael 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:

1. Westbound Upper Deck. On the upper deck, in the Commission'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 moveable 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 moveable barrier in the shoulder of I-580.



2. **Eastbound Lower Deck.** On the lower deck, in the Commission'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' 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 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

To evaluate the Pilot Project, Caltrans contracted California PATH (Partners for Advanced Transportation Technology), 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 documented in two phases. Phase I was published in 2022 and provided the data that was presented to the Commission at a briefing on May 2, 2024. Phase II was completed on May 8, 2024, and updated the Phase I analysis with data gathered since 2022 as well as a discussion of modifications made to an existing bike path connecting the bridge to Sir Francis Drake Boulevard in Marin County outside of the Commission's jurisdiction. The Commission received a briefing on the Phase II findings at a Commission Workshop held on January 16, 2025. The Phase II report is currently the main source of data about the project used by the applicants and Commission staff and is included as Attachment A of this application summary.

Project Description

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

- Westbound Upper Deck. On the upper deck and westbound approach, continue to pilot the multi-use path for an additional two years with a modified schedule that would reduce the availability of the public pathway to only the period from 2:00pm on Thursdays through 11:00pm on Sundays, with some additional availability around holidays. At all other times, the movable barrier separating the pathway would be removed and the path would revert to an emergency shoulder and breakdown lane. A shuttle would operate between 6:00am and 8:00pm on days where the 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. These modifications are illustrated in Figure 3.
- 2. **Eastbound Lower Deck.** On the lower deck and eastbound approach, 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.





Figure 3: Proposed Westbound Upper Deck Pilot Modifications

Upper Deck Modifications

Caltrans and BATA have stated that the purpose of the proposed modifications on the upper deck is to address concerns related to safety and incident response on the bridge while providing bicycle and pedestrian access on the weekends and a shuttle on weekdays to minimize impacts on existing weekday trail users, particularly commuting cyclists. The agencies have proposed the modifications to provide the BATA Board, the Commission, and the public a better understanding of the role of the shoulder through 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 original pilot. Caltrans will also analyze impacts to the bridge deck from the more frequent moves of the barrier from the modifications and use the Modified Pilot period to develop the structural strengthening improvements that would be required if the pathway and moveable barriers were to be made permanent.

Caltrans and BATA have also stated that the drivers of the proposal include the large volume of public comment from individuals and some local governments regarding concerns about the pathway and its impacts on congestion and incidents, as well as certain findings of the PATH study that warrant further evaluation. These findings include data that show reduced traffic throughput of up to 7 percent (approximately 250 fewer vehicles per hour) during weekday commute hours, and potential increased incident rates and response times during the weekday morning commute period when incidents have the highest risk and impact on traffic.



The proposed days of operation were selected based on findings 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 to 40 percent lower than summer averages). Caltrans and BATA believe 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. Alternatives explored included moving the barrier daily on weekdays or adding a barrier on the lower deck, but these were deemed physically impractical.

Lower Deck Modifications

Caltrans and BATA are proposing to make the lower deck improvements from the Pilot Project a permanent feature of the bridge based on the findings from the PATH study. The study data shows 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 US-101 and I-80 has been reduced by up to 14 minutes. The study found that compliance with the part-time shoulder hours of operations is relatively high, 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.

Public Access

The proposed amendment would not provide any new public access improvements, but would alter public access that has been provided by the current Pilot Project since November 2019 by reducing the amount of time it is available for use from a total of 168 hours per week to approximately 81 hours per week. In addition, since vehicular traffic volumes are generally lower on designated State holidays and there is more recreational path usage, BATA and Caltrans plan to keep the path open on designated State holidays. If a designated State holiday falls on a Monday, the path will remain open until before the morning peak period on Tuesday. If a designated State holiday falls on another weekday, the path may remain open the entire week.

The path will revert to a 10-foot emergency shoulder when it is closed. The path is separated from traffic lanes by movable concrete barriers. Closing and opening the path will take approximately two 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 a barrier transfer machine that travels approximately 5 mph will move the barrier to its intended position and a final inspection will be performed by Caltrans Maintenance staff before the path or shoulder is re-opened.



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. 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 Stop 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 proposed shuttle service is intended to be more robust than services that have been provided in the past. It would include 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 10 bicycles, and would include bicycle trailers to accommodate multiple types of bicycles, including e-bikes. Estimated headway for the shuttle is 15 minutes, and live tracking would be provided online for users to monitor real-time arrival information. Contact information would be provided for queries and user feedback. Caltrans and BATA would monitor shuttle usage and user feedback as part of the extended pilot study and consider adjusting shuttle operations accordingly.

Current Pilot Findings on the Public Access Pathway

The PATH study examined a number of indicators for traffic and safety impacts to evaluate whether any changes in operations could be attributed to the installation of the new public pathway. 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.



Many of the findings show that where changes have been observed in bridge operations before and after implementation of the Pilot, the changes are not statistically significant, meaning that they cannot be attributed to a specific cause and are more likely to be the result of random chance. In other words, those findings cannot be directly attributed to the implementation of the path. Of the study's findings, only two indicators showed a potential impact on operations that Caltrans and BATA have expressed interest in studying further, as discussed below.

- 1. Peak Period Hourly Vehicle Flows. Following implementation of the Pilot, average peak hourly flows dropped by 7 percent (approximately 250 fewer vehicles per hour) on weekdays and 4 percent (approximately 125 fewer vehicles per hour) on weekends. Current traffic volumes during the weekday AM and weekend peak hours are nearly as high as pre-COVID levels, so the study infers that the observed drops in capacity are the result of modifications made for the Pilot. Specifically, the design of the pathway approaching the bridge resulted in a shorter merge area after vehicles pass through the toll plaza, which reduces the rate that vehicles can pass through that section, and the narrower appearance of the roadway following the installation of the barriers may cause drivers to drive more slowly. The study did not provide an estimate of the overall change in travel times due to flow reductions resulting from the Pilot, but BATA has stated that the difference is likely an average of 5 minutes during the weekday AM peak.
- 2. Weekday Morning Incident Rates and Response Times. The study states that most of the observed changes in incident rates, types, and severity were not statistically significant. Overall, incident rates have dropped on both the bridge and bridge approach; however, the data suggests there may be a potential increase in incident rates specifically during the weekday AM peak. 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 incidents per million miles traveled to 3.07 on the bridge (2.74 to 3.47 overall) during peak hours. The average incident response time on the bridge for California Highway Patrol and first responders increased from 12.9 to 16.3 minutes during the peak AM period. The report states that these changes were not found to be statistically significant, and thus could be the result of random variability. The report also found that there was no evidence that the Pilot had increased the time needed to clear crash events, but that more precise data for the periods during which an incident affects traffic would be needed for a more definitive answer. Incidents studied include various types of collisions, such as rear-endings, sideswipes, collisions with objects, etc., but do not include non-crash events, such as vehicles that have run out of gas or that have a flat tire.



Environmental Justice and Social Equity

The Richmond-San Rafael 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.

On the eastern side, the bridge touches down at Castro Point in an area that is largely characterized by industrial and open space uses, near the neighborhood of Point Richmond. According to the Commission's Community Vulnerability Mapping Tool, this area is within a 2020 Census block group identified as having "highest contamination vulnerability" and "low social vulnerability." Contamination vulnerability in the area is indicated by the presence of nearby hazardous cleanup activities, groundwater threats, and hazardous waste facilities. Farther east, approximately 2 miles from the touchdown, I-580 cuts between a primarily residential area (containing the Santa Fe, Stege, Atchison Village, Pullman, and City Central neighborhoods, among others) to the north, and an industrial area near the Port of Richmond that also contains the Marina Bay neighborhood to the south. The residential neighborhoods to the north are identified as having "highest contamination vulnerability" and "highest social vulnerability." Social vulnerability in this area is indicated by high percentiles of single-parent households, people with disabilities, people of color, individuals without a high school degree, individuals without U.S. citizenship, and households categorized as Very Low Income.

The bridge's western touchdown is in southeast San Rafael, which includes the Canal neighborhood. The immediate area is characterized by mix of residential uses, open space, industrial development, and the San Quentin Rehabilitation Center. The Community Vulnerability Mapping Tool identifies this area as having "High Contamination Vulnerability" and "Highest Social Vulnerability." Contamination vulnerability in this area is indicated by the presence of nearby hazardous waste facilities and solid waste sites. Social vulnerability is indicated by high percentiles of renter-occupied households, single-parent households, people of color, individuals without a high school degree, individuals with limited English proficiency, individuals without U.S. citizenship, and households categorized as Very Low Income.

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, the applicant has not completed an analysis of equity impacts of the pilot project or the proposed modifications, but has included an equity analysis in the scope of work for the modified pilot. The analysis would evaluate whether the conversion of the upper deck shoulder into a multi-use path and then later reducing the path's availability 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.

Bay Fill

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

Schedule and Cost

The modifications would be implemented as soon as Spring 2025 and would be in place for two years, including an 18-month study period and up to 6 months for decision-making following the study. The estimated total project cost is approximately \$200,000 for capital and support costs (this amount does not include operations and maintenance costs).

Issues Raised

The staff believes the primary issues raised by the proposed project are:

- (1) Whether the proposed project provides the maximum feasible public access consistent with the project, and is otherwise consistent with the Commission's policies related to public access, recreation, and scenic views; and
- (2) Whether the project is consistent with the Commission's policies on transportation to minimize pressure to fill the Bay for new bridge and roadway projects.

Staff Notes

The staff notes the following consideration for the Commission:

Commission Briefing. Caltrans and BATA provided a briefing on the Pilot Project and the PATH Phase I After Study findings to the Commission on May 2, 2024. The briefing was intended to meet the permit requirement to provide a written and verbal report to the Commission on the status of the public pathway, including, but not limited to, an analysis of public usage and benefits, an assessment of any operational and safety issues, and the need for any future changes to the facilities, including removal or making them permanent. The presentation included a preliminary description of the proposed amendment and Pilot modifications. During the briefing, Commissioners posed a number of questions about the design of the proposed study, benchmarks and comparative data, usage data, and alternatives.

Commission Workshop. At the January 16, 2025 Commission meeting, the Commission participated in a workshop to receive information related to the Pilot and proposed modifications, and to provide staff with direction on important considerations related to the proposal. The workshop was not a public hearing or vote on Caltrans' permit amendment



application, and Commissioners were asked not to indicate how they expected to vote on the application. The workshop provided a setting where Commissioners could engage with relevant data and policy questions, and respond to requests for guidance from staff on key concepts and considerations that will help to shape the forthcoming staff recommendation on the application. In addition, Commissioners held small-group discussions about the trade-offs associated with providing public access along the bridge corridor and what factors might be important to consider when evaluating the feasibility or suitability of the existing path and proposed path modifications. These factors included environmental impacts, equity, economic impacts, and safety. In general, potential impacts were discussed as impacts resulting from congestion and queuing, and whether that effect, if attributed to the path, was contributing to increased emissions, decreased regional economic health, and decreased quality of life. Commissioners also expressed concerns about the design and timing of the proposed pilot modifications.

Applicable Laws and Policies

The following laws and policies are applicable in the Commission's review of the proposed project:

- McAteer-Petris Act: Sections 66602 (Water-Oriented Land Uses and Public Access), 66605 (Allowable Bay Fill), and 66632.4 (Maximum Feasible Public Access).
- San Francisco Bay Plan policies on: Public Access, Transportation, and Environmental Justice and Social Equity.

