

## Summary of Commissioner Questions on the Richmond-San Rafael Bridge Access Improvement Pilot Project and Responses to Date

The San Francisco Bay Conservation and Development Commission raised the following questions at the May 2, 2024, Commission briefing on the Richmond-San Rafael Bridge Access Improvement Pilot Project. Questions with similar themes have been consolidated and grouped together, noting which Commissioner(s) asked specific questions. BCDC staff has compiled responses with information received to date from Caltrans, BATA, reports, and application materials. A version of these responses was originally shared with the Commission on January 13, 2025. This revised version, dated March 7, 2025, provides more detailed responses to Question 1D and 4A and updates the operating hours for the proposed shuttle in the response to Question 4E.

### 1. Project Design

- A. How are you going to be able to distinguish between changes resulting from the modified pilot and other projects such as Richmond-San Rafael Forward? (Gioia, Eklund)

Response from BATA: Results of the current PATH study will serve as a baseline against which to compare the modified pilot operations and to validate whether the path contributes to those impacts. RSR Forward is focused on the bridge approach and toll plaza and is expected to open in early 2026. It is anticipated that the effects, including an estimated mode shift of motorists to carpools or transit, won't materialize until at least one year after its opening (early 2027), which is around the same time that decision-making after the proposed pilot modifications would be in its final stages. The modified Pilot study, in contrast, will be focused on the bridge itself (i.e., flow rate across the bridge, incidents on the bridge, operations and maintenance impacts to the bridge, etc.) and would occur before the RSR Forward project is completed.

- B. Is it possible to collect the same data with fewer days of modified access? How many days are needed to collect the data that is sought? (Gioia)

Response from staff: Caltrans and BATA have considered closing the multi-use path on weekday mornings and reopening it in the afternoon, but did not move this option forward because operations to move the barrier requires 2-3 hours one-way and would be impractical to do on a daily basis. When asked whether the study could be designed such that the path would remain open more than three days a week, Caltrans and BATA responded that "the current proposed modifications allow an evenly distributed share and best use of the shoulder (bike/ped path vs emergency shoulder)," and because they will have collected additional data from the extension of the original pilot they do not believe it would be beneficial to change the day(s) of the proposed modifications.

C. Could the proposal include use of the shoulder for a bike shuttle? (Gioia)

Response from BATA: We reviewed this with Caltrans and are not proposing to run the shuttle on the shoulder for two reasons:

1. Typical congestion on this corridor is at the bridge approach, not on the bridge itself. On the bridge, average speed during the weekday AM is 45-50 mph. Therefore, the shuttle running on the shoulder would not have an advantage over vehicles in the traveled way under normal conditions, as both would be traveling at/near the same speeds. In addition, incidents and emergencies on the bridge are intended for the shoulder and would obstruct shuttle operations.
2. The existing shoulder is not set up to support shuttle traffic on a regular basis:
  - The 10-ft shoulder is narrow; CHP and Caltrans have traffic safety concerns
  - The project installed 8 plates that cover the bridge deck finger joints to protect bicycles/pedestrians from tripping over the bridge gaps. Caltrans does not recommend any vehicles (incl. shuttle) regularly driving over the plates without retrofit, to minimize deterioration/replacement of the plates.

D. If landside connections to the bike/ped lane have yet to be completed on either side of the bridge, can the modifications wait until they have been completed to account for any related effects? (Kishimoto)

Response from BATA: In addition to the 4-year pilot features on the bridge, there were a total of 2.5 miles of permanent trail connections that were constructed on the bridge approaches, at each end. Connections, which are outside of BCDC jurisdiction and not part of the permit, are permanent 24/7 paths that provide local and corridor access. The 1.5-mile permanent improvements in Contra Costa County were completed in 2019. On the Marin County side, BATA and Caltrans constructed the Transportation Authority of Marin's (TAM's) 2,000-foot bike path along the Sir Francis Drake Boulevard off-ramp in 2020. Just past the bridge, BATA and Caltrans implemented a two-phased construction approach to widen the 1-mile sidewalk along East Francisco Boulevard: the first 1,000 feet of the project was completed in Fall 2019 and the remaining 1,500 feet opened to the public in Summer 2024 - the latter was delayed due to complexity in utility relocations and right-of-way. BATA and Caltrans have gathered sufficient bike/ped path usage data to confirm seasonal variations, weekend vs. weekday counts, and reasons for use.

The proposed pilot modifications are purposefully designed to address safety and incident response. Caltrans and BATA want to better manage bridge operations and improve access for first responders by restoring the shoulder, which would also allow travelers and emergency services to get by when lanes are blocked. Caltrans and BATA do not think the last piece of landside connection in Marin County that opened in Summer 2024 would have had any related effects on the reasons for modifications.

- E. If we are looking to accommodate emergency vehicles on the shoulder, is there a way to combine emergency vehicle access with a bike/ped lane? (Kishimoto)

Response from BATA: Converting the path to an emergency shoulder on an as-needed basis (i.e., when an incident occurs) would not be practical due to the random nature of incidents and the length of time needed to clear the path before it is converted to a shoulder (approx. 2-3 hours).

## 2. Incidents

- A. Need more granular data on incidents.

Response from staff: The PATH study provides total numbers of documented incidents by type. The application provides examples of three incidents where they were able to provide location, type, and duration.

- B. What is the absolute number of incidents? (Gioia, Nelson, Gunther)

Response from staff: The PATH study provides total numbers of documented incidents by type. It appears that there were 179 documented incidents on the bridge and approach between January 2016 and March 2018, and 118 documented incidents in the combined periods of 07/2018 to 03/2020 and 07/2021 to 12/2021.

- C. What is the impact of individual incidents – how much did it actually affect congestion or delay? If minutes of delay on the bridge due to incidents have four times the impact, what does that mean? Four times the impact of what and to whom? What was the delay for what type of incident? (Gioia, Moulton-Peters)

From the PATH After Study Phase II Report: There is no evidence that the bridge modifications are producing longer crash-related incidents or changing the location where crashes tend to occur on the bridge. There is no evidence that the bridge modifications are increasing the time needed to clear crash events. In this case, data measuring more precisely the period during which an incident affects traffic would be required to provide a more definitive answer.

- D. What is the distribution of incidents over the course of the day and per day? (Nelson, Kishimoto)

Response from BATA: The number of incidents collected in the study are provided quarterly, not daily. Incidents are typically measured per million miles traveled because it allows for a standardized comparison between different drivers, vehicles, or locations by accounting for the amount of time spent driving, essentially giving a more accurate picture of safety by factoring in the exposure to potential accidents based on distance traveled rather than just the raw number of incidents. See Response to 2.G. for data collected on incidents.

- E. Are there incidents in the bike/ped lane? (Gunther)

Response from BATA: While no incidents have been recorded in official databases, anecdotal evidence suggests that incidents have on rare occasions happened, such as cyclists injuring themselves after falling.

- F. Would reducing the speed of traffic on the bridge reduce the number of incidents?  
(Gunther)

Response from BATA: Reducing speed will not reduce the number of incidents. Per the PATH study the incident rates have increased during morning peak, during which the traffic generally moves below the posted speed due to congestion. In general, for the freeway/highspeed facility environments, the lower speed correlates more to the less severity of the crashes than the reduction in the likelihood of crashes. The speed limit on the RSR Bridge was reduced from 55 mph to 50 mph when the Pilot project was implemented.

- G. What is the frequency of incidents at all times but especially during the peak hour?

Response from staff: From the data collected from 2016 to 2022, comparing the 2016-2019 data to the 2021-2022 data, PATH found that the average number of incidents across all days has dropped for both the approach (68.75/year to 62.50/year) and the bridge (48.50 to 39.00). However, looking at the weekday peak period only (6 AM-9 AM), the average number of incidents on the approach has increased from 22.5 to 26.5/year, while it has increased on the bridge from 31.50 to 40.50.

PATH cautions that annual frequency on its own does not provide a fair comparison, as periods of higher traffic tend to also have higher numbers of incidents. The PATH report instead expresses incident rates in incidents per million miles traveled. In these terms, the average incident rate overall drops from 1.45 to 1.26 incidents per million miles traveled (-13 percent) following the bridge modifications while the rate on the bridge decreases from 1.15 to 0.93 incidents per million miles traveled (-19 percent) and the combined rate decreases from 1.26 to 1.05 (-17 percent). During the AM peak, the rate of incidents on a per million miles traveled basis is found to increase from 3.61 to 4.26 (+18 percent) on the approach, from 2.31 to 3.07 (+33 percent) on the bridge, and from 2.74 to 3.47 (+26 percent) overall.

### 3. Benchmarks and Comparative Data

- A. Would like more comparative data on bicycle use of other bridges in the region (Bay Bridge, Golden Gate, etc.), and other well-used bike paths, commuter and recreational.  
(Gunther, Eklund, Randolph, Wasserman, Moulton-Peters)

Response from BATA: The Pilot After Study Phase II Report (Section 6.1) compares cyclist usage counts of the RSR Bridge Path with the other Bay Area Toll Authority (BATA) and Caltrans state-owned bridge paths.

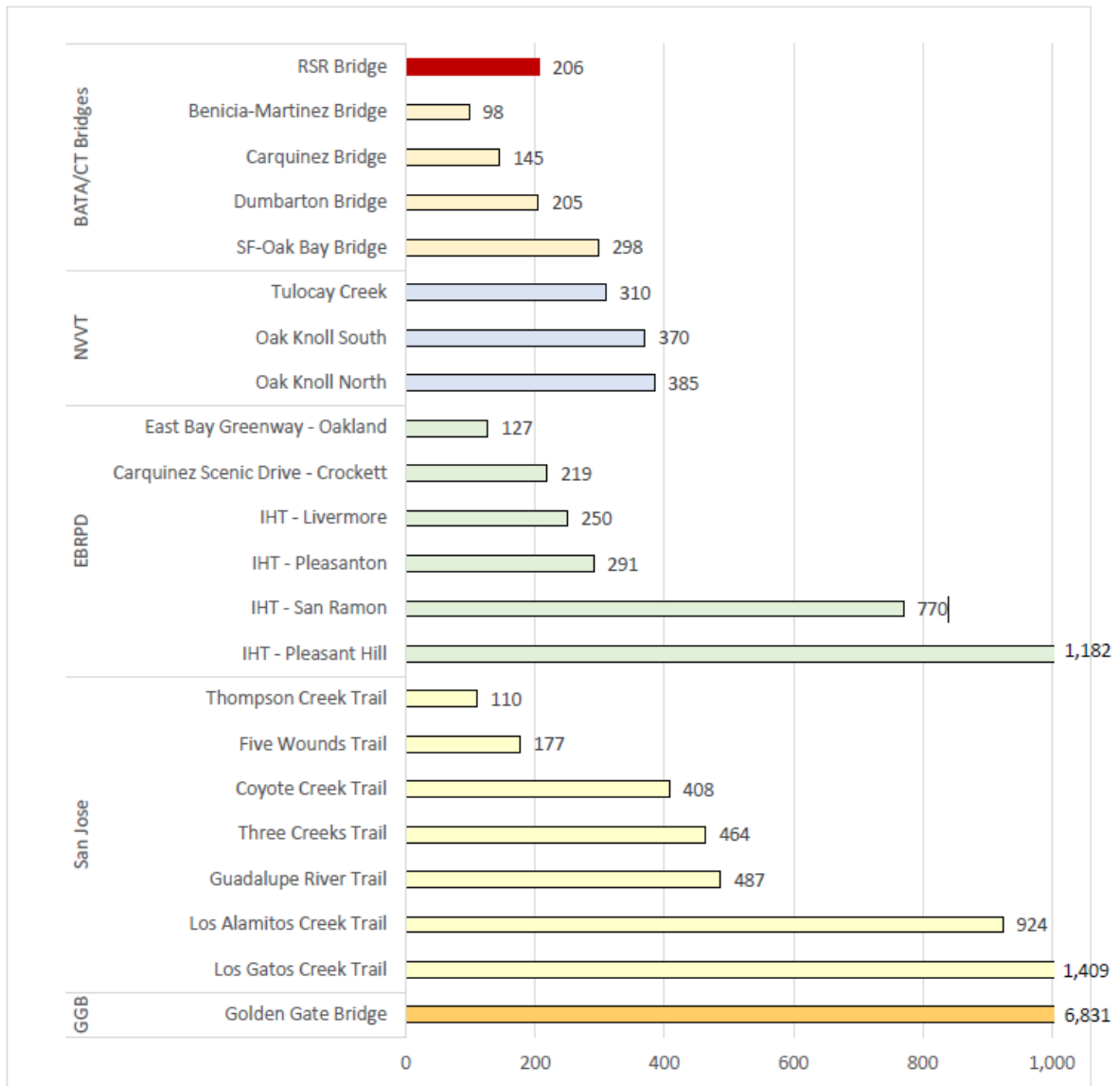
The following figure shows usage in average daily trips (pedestrians + cyclists) of other regional paths and trails, in comparison to the RSR Bridge Path.

- RSR Bridge is second in average daily usage for cyclists and pedestrians when compared to other Caltrans/BATA bridges. For cyclist use only, the RSR Bridge is first in average daily usage. RSR Bridge path is longer than the paths on other Caltrans/BATA bridges, which may contribute to low pedestrian usage.

- When compared to other regional trails, the RSR Bridge path is on the lower end. Trails with high usage generally have multiple access points to enter and exit the trail and are often surrounded by mixed residential and/or commercial land use.

This data was gathered from various sources that consist of studies, surveys, and permanent automatic counters along the path/trail as shown in the table below the figure. These sources do not consistently separate bicycle and pedestrian counts or weekday and weekend counts.

**Figure 9: Average Daily Trips (Cyclists and Pedestrians)**



- B. Need benchmarks to contextualize the qualitative information being provided. What are the goals and benchmarks to measure the results of the project? (Gunther, Randolph)

Response from staff: Benchmarks have not been provided as part of the amendment request. Caltrans and BATA have stated, “Whether an impact exists will be determined by analyzing changes in data values across time (as was done for the capacity reduction assessment) and, where relevant, conducting statistical analyses to determine whether the observed changes are significant at 95-, 90-, or 85-percent levels (as was done for the accident data). The objective is to gather additional data, to supplement and/or compare against the original 4-year pilot study as a baseline. The results will be reviewed and analyzed holistically and include multiple criteria...” No specific benchmarks have been proposed by Caltrans or BATA, but they have agreed to discuss these with BCDC as needed. According to Caltrans, the decisions will be made after the study, including public input that needs to be documented as part of the process to select the preferred alternative.

Benchmarks and determining the significance of impacts will also be a subject of discussion at the January 16, 2025, Commission Workshop on the amendment request.

- C. Is the number of users of the bike/ped lane small or large?

Response from staff: This is difficult to answer without benchmarks; however, the PATH report compares usage of the Richmond-San Rafael path with other bridges in the region (see the response to Question 3.A) and observed that bicycle traffic on the bridge is currently the highest of all State-owned toll bridge paths. If adding pedestrian use to the total, the usage of the path is second to the San Francisco-Oakland Bay Bridge.

- D. What was the projected usage when the pilot project was proposed in 2016?

Response from BATA: There was no projected usage when the pilot was proposed.

- E. Is a delay of 14 to 17 minutes a lot?

Response from staff: Benchmarks for delay have not yet been established.

Response from BATA: This is referring to the Eastbound improvements where, during the peak afternoon commute hours, 14-17 minutes time savings is a substantial decrease in travel time for a trip that took over 32 minutes before the improvement (traveling eastbound on I-580 from US-101 to the end of bridge); therefore, reducing the travel time by half.

## 4. Usage Data

- A. To what extent, if any, is the low usage of the bike lane on the bridge related to the status of connections on either end? It was not clear whether all landside connections have been completed or if some are still under construction. If they are under construction, when are they due to be done? (Nelson, Kishimoto)

Response from BATA: In addition to the 4-year pilot features on the bridge, there were a total of 2.5 miles of permanent trail connections that were constructed on the bridge approaches, at each end. Connections, which are outside of BCDC jurisdiction and not part of the permit, are permanent 24/7 paths that provide local and corridor access. The 1.5-mile permanent improvements in Contra Costa County were completed in 2019. On the Marin County side, BATA and Caltrans constructed TAM's 2,000-foot bike path along the Sir Francis Drake Boulevard off-ramp in 2020. Just past the bridge, BATA and Caltrans implemented a two-phased construction approach to widen the 1-mile sidewalk along East Francisco Boulevard: the first 1,000 feet of the project was completed in Fall 2019 and the remaining 1,500 feet opened to the public in Summer 2024. Caltrans and BATA cannot confirm if usage on the bridge was affected by the latter since there was an existing bike route (sharrows) along East Francisco Boulevard before it was reconfigured, and cyclist usage data showed the RSR Bridge as having the highest usage compared to other State-owned bridges.

- B. Would like to hear public impressions and opinions of a bike shuttle and understand usage numbers for the previous shuttle, including what attributed to the lack of use (e.g., was it due to unreliability of the shuttle or because riding in a shuttle is undesirable for cyclists?). (Nelson)

Response from staff: The original permit included the following finding regarding the previous bike shuttle: "bicyclists argue that the service was very inconvenient and unreliable and, therefore, led to cyclists having to use other methods for crossing the Bay between Richmond and San Rafael."

- C. Can you track commuters going over the bridge by car and bike to know where they come from and where they are going? (Moulton-Peters, Kishimoto)

Response from BATA: There have been ongoing and future studies and surveys to understand origin-destination (O-D) in this corridor.

MTC's Active Transportation group did an in-person survey and completed a report in 2022 of path users (see link) which included some O-D information.

<https://mtc.ca.gov/planning/transportation/regional-transportation-studies/origin-destination-study>

MTC has also completed a regional Bay Area Travel Study in 2024 (link below) and the findings are still in progress and are being refined in future surveys.

<https://mtc.ca.gov/tools-resources/survey-program/bay-area-travel-study>

In addition, the proposed Modified Pilot Extension would have UCB doing an Equity study to evaluate the bridge users (motorists and non-motorists). The scope was provided to BCDC staff.

- D. Who are the bicycle commuters? Are they the same users every day? (Moulton-Peters)

Response from staff: This cannot be determined from existing information.

- E. What are the alternatives for cyclists who want to cross the Bay? (Kishimoto)

Response from staff: Caltrans and BATA are proposing a bicycle shuttle that 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). Outside of the shuttle's operating hours, or instead of the shuttle, alternatives would be limited to existing transit service (such as Golden Gate Transit whose schedule has recently been enhanced) or taking transit from the East Bay to San Francisco and crossing the Golden Gate Bridge.

## 5. Understanding Alternatives

- A. What would be the benefits of regaining the shoulder? (Randolph)

Response from staff: Returning the path to a shoulder would remove the visual constraint on the bridge and likely result in some increased driving speeds, and would reduce friction at the merge after the toll plaza. It would also allow for vehicles involved in incidents to pull out of traffic, or provide an extra lane for traffic to move around immobilized vehicles. The actual time savings that could result from converting the shoulder are not known, but have been estimated by PATH to be an average of 5-6 minutes at peak hours (this is an average, delays during individual incidents may be longer).

- B. There was a cantilevered bike and pedestrian facility contemplated at one point; how much research was done and is that a possibility? (Kishimoto)

Response from BATA: A cantilevered path isn't feasible until we replace the bridge, due to additional loading.

- C. Is there contemplation of other demand-side strategies (HOV buses, toll increases, improved transit) to address congestion concerns? (Kishimoto)

Response from staff: The Richmond-San Rafael Forward project will introduce Open Road Tolling and an HOV lane at the approach to the bridge and will remove the existing toll plaza and allow for improved safety and flow through that area, improve transit access and operations in the corridor using transit signal priority and bus stop improvements, and improve access to I-580 from the Richmond Parkway Interchange and address local congestion at the Castro Street on-ramps. The Westbound Upper Deck Design Alternatives Assessment is evaluating alternative uses of the westbound bridge shoulder that will help maximize throughput, reduce congestion, and maintain public access. Alternatives analyzed include those that provide a shoulder, HOV lane, or multi-use path, on a full- or part-time basis.

## 6. Other Questions

- A. The volume of traffic is about 90 percent of pre-COVID levels, but the congestion level is similar to pre-COVID. Why is that? (Nelson)

Response from staff: This may be due to the shortened merge area downstream of the toll plaza related to the pathway and slower speeds on the bridge itself related to the barrier.

Response from BATA: To clarify, 90 percent of pre-COVID is for all-day traffic volumes. However, during the weekday AM Peak Period, traffic volumes are up to 99 percent recovered. This is due to the bridge capacity reduction. The capacity drop results in longer queues causing longer travel time to access the bridge. The cause of capacity reduction is due to the lane drop at the entrance of the bridge and people tend to drive slower on the bridge itself due to the barrier separating the path and the motorists.

- B. The heat map showed a longer period of delay in the commute in the morning that had increased over pre-COVID times. Can that be explained? (Moulton-Peters)

Response from BATA: Same response as 6.A.

- C. Why is there a part-time vehicle lane heading west vs. east, and why was that decision made? (Kishimoto)

Response from staff: The PATH report explains that lane configuration at the exits on the Marin side would not support a third lane going westbound. The eastbound third lane is directional/timed to address PM peak traffic only.

Response from BATA: In addition, BATA and Caltrans are currently evaluating a 3rd lane, which would be an HOV lane, on the RSR Bridge westbound upper deck.

This lane could be available on a full-time or part-time basis, allowing for the RSR Bridge path to remain open on the weekends. Analysis includes traffic & safety, whether it would increase VMT, and what improvements may be needed at the touchdown in Marin County.

In Spring 2025, BATA and Caltrans will have a better understanding of the options and costs to consider whether to start the environmental review process.