

Memorandum

Date: December 2, 2024
To: Robert Armijo, City of Richmond
From: Kevin Zamzow-Pollock, Purva Kapshikar, and Ian Barnes, PE, Fehr & Peers
Subject: **Addressing Morning Peak-Period Cut-Through Traffic in Point Richmond**

WC22-3874.03

The Richmond-San Rafael Bridge (RSRB) along Interstate 580 (I-580) is a critical interregional route connecting the City of Richmond and the East Bay to Marin County. Congestion on the westbound I-580 approach to the RSRB contributes to vehicles cutting through the Point Richmond neighborhood to avoid the congestion on the freeway mainline, with those vehicles rejoining westbound I-580 at the Castro Street interchange. This memorandum summarizes Fehr & Peers's study of cut-through activity and strategies to reduce the attractiveness of cut-through routes for morning peak period RSRB traffic volume. The study was conducted within the context of other ongoing projects led by MTC/BATA, as described later in this memorandum.

Extent of Cut-Through Activity

This analysis relies on direct observation and big data resources to assess the extent of, and reasons behind, cut-through activity in the Point Richmond area.

Site Observation

The project team visited the area during an average morning peak period in May 2024 and a more highly congested morning peak period in October 2024 to observe traffic conditions and cut-through activity.

For the average morning peak, the project team observed substantial back-ups on westbound I-580 (queue spillback to about Harbour Way South) and on the approaches to the Castro Street on-ramp, including both approaching from the north via Castro Street and from the south via Tewksbury Avenue in Point Richmond. During the average morning peak, the project team observed a maximum queue of about 1,600 feet (0.30 miles) southbound on Castro Street waiting to turn left, and a maximum queue of 580 feet (0.11 miles) from Tewksbury Avenue onto



northbound Castro Street to the base of the on-ramp. These peak conditions were observed between 7 am and 8 am.

During the more highly congested morning peak period, queue spillback on westbound I-580 spilled back as far as the Regatta Boulevard interchange. Queues along Tewksbury Avenue in Point Richmond spilled as far back as Washington Avenue. However, other roadways in Point Richmond that could be used as cut-through routes were lightly utilized (likely due to the presence of turn restrictions at Castro Street/Tewksbury Avenue).

The project team saw evidence of three cut-through routes during the average morning peak period:

- Cutting Boulevard: Vehicles traveling westbound on Interstate 580 exiting at Cutting Boulevard and using local routes through Point Richmond such as Railroad Avenue and Tewksbury Avenue to get back on the freeway at Castro Street.
- Canal Boulevard: Vehicles traveling westbound on Interstate 580 exiting at Canal Boulevard and immediately getting back on the freeway.
- East Standard Avenue: Vehicles traveling southbound on Castro Street avoiding the left turn onto the freeway by continuing on Castro Street and approaching the on-ramp from the south via East Standard Avenue.

StreetLight Data

The project team also collected vehicle flow metrics from StreetLight Data, a big data company that uses connected vehicle data (CVD) to generate various traffic metrics. In this case, the analysis incorporated StreetLight Data's origin-destination analyses, which tracked vehicle trips from Interstate 580 at Marina Bay Parkway to Interstate 580 west of the Castro Street on-ramps. This analysis tracks vehicles between these two points, including any route deviations onto local streets.

The analysis used the most recent year of data, from June 2022 through May 2023, and was able to analyze average morning peak conditions. The StreetLight Data analysis showed both the Canal Boulevard and East Standard Avenue cut-through routes as described in the Site Observation section. In particular, the StreetLight Data analysis showed vehicles traveling southbound on Castro Street using Chevron Way and East Standard Avenue to approach the freeway on-ramp from the south. The StreetLight Data analysis did not indicate any cut-through traffic using the Cutting Boulevard cut-through route during an average morning peak period. However, as discussed in the Site Observation section, this cut-through pattern does in fact develop. It is possible that traffic conditions have changed since the connected vehicle data was collected (i.e. congestion on I-580 has worsened, thus providing more incentive for cut-through traffic using Cutting Boulevard).



INRIX Travel Time Data

The project team also used INRIX, a big data company that relies on location-based service (LBS) data from mobile phones, to obtain speed and travel time metrics for road segments in the vicinity of Point Richmond. The INRIX analysis used data from May 2023 through April 2024. The analysis indicated that, typically, the identified potential cut-through routes are slower than remaining on Interstate 580. However, from roughly 6:30 am to 8:30 am, using the Canal Boulevard cut-through route to bypass the freeway mainline can be faster by up to a minute. While taking the Cutting Boulevard cut-through route is about 4.5 minutes longer than remaining on the freeway, between 7:00 am and 8:00 am, it can be 1.5 to 2.5 minutes faster than remaining on the freeway.

This analysis indicates that there is a travel time incentive to use the cut-through routes. On particularly congested days, the travel time savings on these routes may be even higher than the average conditions shown in the INRIX data. The most effective means to discourage travel on these cut-through routes is to restrict access to them, or to increase the perceived and actual travel time to dissuade freeway drivers from leaving the freeway to use a cut-through route.

Near-Term Intersection Conditions

The project team modeled five of the intersections along Cutting Boulevard and in Point Richmond in the Synchro software to assess the current level of delay experienced by drivers.¹ Then, the project team incorporated the vehicle trip estimates for two nearby projects north of the study area to produce near-term intersection conditions, which serve as baseline conditions for this study.²

The results of this near-term conditions analysis are shown in **Table 1**.

Table 1: Near-Term Intersection Conditions

Intersection Name	Control Type	Intersection LOS	Cut-Through Movement	Cut-Through Movement LOS	Cut-Through Movement Delay (sec)
Westbound I-580 Ramps/Cutting Boulevard	Signal	A	Northbound Left	B	12.2
Canal Boulevard/Cutting Boulevard	Signal	B	Westbound Through	C	20.8

¹ Analysis conducted in Synchro 12 using the HCM 6th edition methodology

² Projects included in near-term baseline:

- CenterPoint Properties Warehouse Project: <https://www.contracosta.ca.gov/DocumentCenter/View/73291/Appendix-I---Transportation-Supporting-Info-PDF>
- Scannell North Richmond Development: <https://www.contracosta.ca.gov/DocumentCenter/View/71268/Appendix-I---Transportation-Supporting-Information-PDF>



S Garrard Boulevard/Cutting Boulevard	All-Way Stop	B	Westbound Left	B	11.1
Castro Street/Tewksbury Avenue	All-Way Stop	A	Westbound Right	A	7.7
Castro Street/Westbound I-580 Ramps	Signal	F	Northbound Right	F	339.7

Source: Fehr & Peers, 2024.

Strategies for Reducing Cut-Through Traffic

To reduce the attractiveness of leaving the freeway during the morning peak, Fehr & Peers recommends a suite of changes along the identified cut-through routes to decrease the travel time incentive and increase the actual/perceived travel time along such routes. These strategies are targeted at the average morning peak period and provide sufficient travel time increase to bring the cut-through routes in-line with freeway travel times, according to the INRIX data.

Figure 1 and **Figure 2** show the extent of these strategies, which are described below.

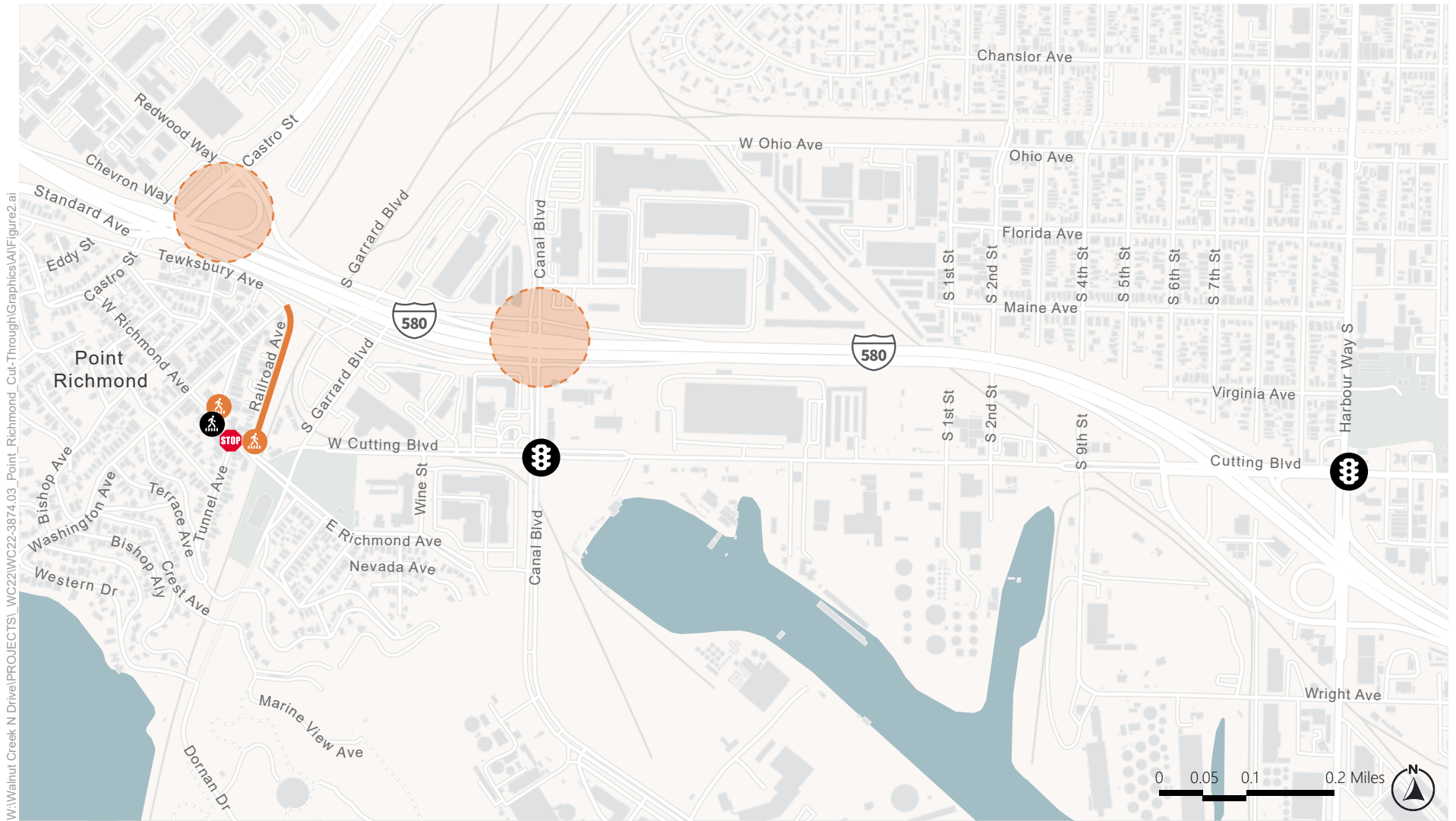
Signalization Changes

Fehr & Peers proposes changing the signal timing at two signalized intersections along Cutting Boulevard to increase travel times in the direction of cut-through traffic.

- At Westbound I-580 Ramps/Cutting Boulevard, reduce the northbound movement green time from 21 seconds to 12 seconds
- At Canal Boulevard/Cutting Boulevard, reduce the westbound movement green time from 24.5 seconds to 19 seconds

At both intersections, Fehr & Peers proposes setting the recall mode of the non cut-through movements to maximum recall, ensuring the other signal phases are always called for their full duration. Fehr & Peers also proposes eliminating right turns on red at Cutting Boulevard/Canal Boulevard, which reduces the incentive for unsafe vehicle movements to bypass the signal timing changes. Signal timing changes are an appropriate strategy for Cutting Boulevard, where the industrial land use context precludes the sort of complete streets improvements described below for the Point Richmond area. Additionally, the presence of these signalization changes earlier on the cut-through route helps disincentivize using the route before drivers are fully committed to it.

The Synchro modeling described above indicates that these timing changes would increase travel times along cut-through routes without substantially degrading overall intersection operations (relative to General Plan goals and polices) or producing queue spillback that cannot be accommodated by existing lane geometries. The green time removed from the cut-through movements could be added to other movements to improve traffic flow in other directions.



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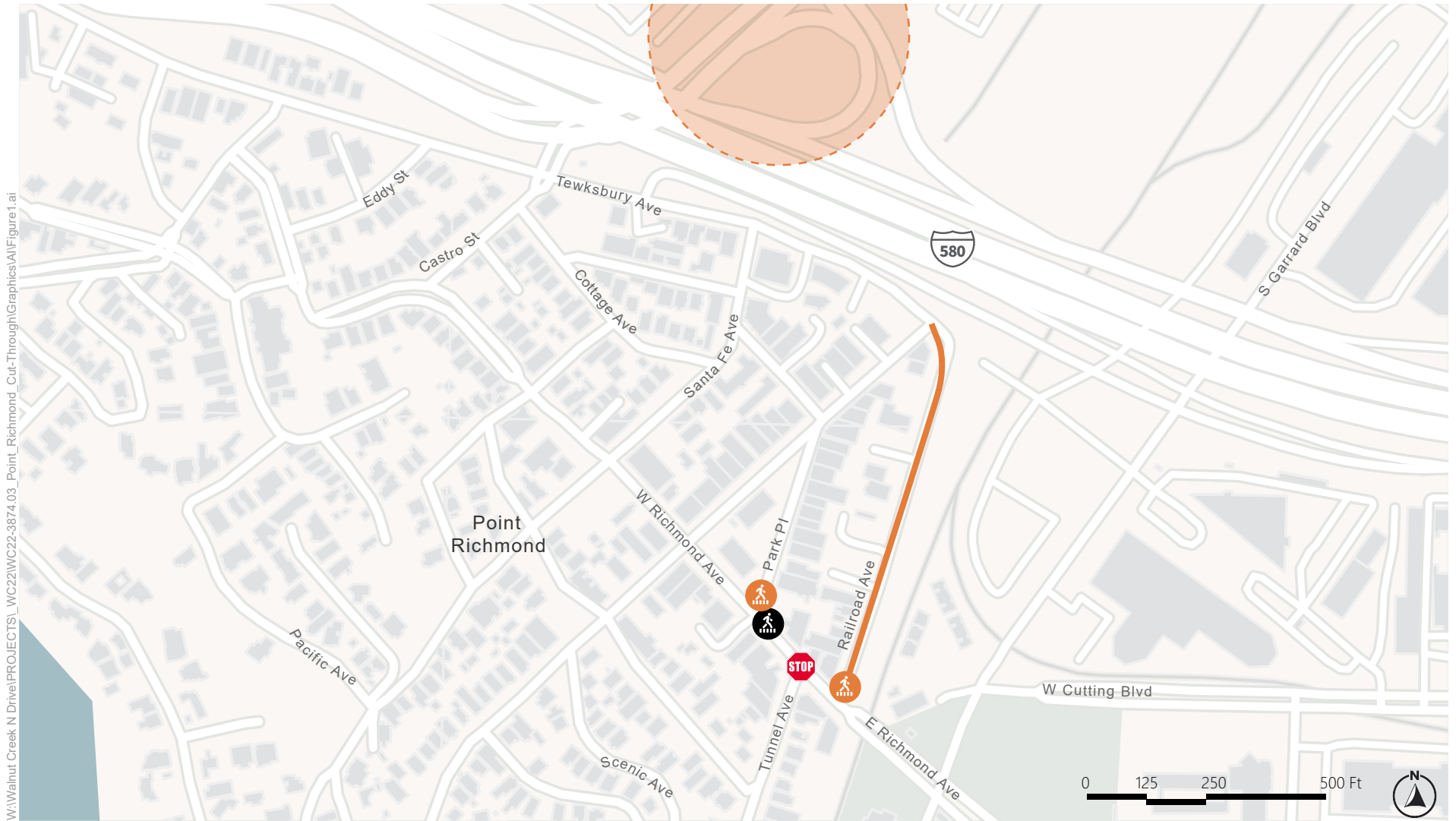
-  I-580/Richmond Parkway Projects
-  Signal Timing Changes
-  New Marked Crosswalk
-  New Raised Crosswalk
-  New All-way Stop
-  New Striping and Speed humps



Figure 1
Cut-Through Strategies: Corridor



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-  I-580/Richmond Parkway Projects
-  New Marked Crosswalk
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Figure 2
Cut-Through Strategies: Point Richmond



At Cutting Boulevard/Canal Boulevard, the realigned signal timing could be used for a leading or fully-dedicated east-west bicycle phase, to complement the recently completed bikeway improvements along Cutting Boulevard.

Point Richmond Streets Improvements

In addition to signal timing changes, Fehr & Peers recommends improvements to streets in the Point Richmond neighborhood to slow vehicle traffic as well as improve conditions for people walking and bicycling in the area. These improvements complement the Richmond Ferry to Bridge to Greenway (F2B2G) project which envisions these streets as primary bicycling routes between Cutting Boulevard and Tewksbury Avenue.

Fehr & Peers proposes narrowing lanes along Railroad Avenue from 12 feet to 11 feet and adding a striped centerline; both strategies that have been shown to reduce vehicle speeds. The additional two feet should be reallocated to the perpendicular parking and the back of the parking stall marked to indicate the edge of the driving lane. Fehr & Peers also proposes adding speed humps along Railroad Avenue similar to the one already present on Tewksbury Avenue to further reduce vehicle speeds and increase the perception of Railroad Avenue as a neighborhood street inappropriate for cut-through traffic. These speed humps should be placed roughly 250 feet apart, starting 250 feet north of the intersection with West Richmond Avenue; based on existing geometrics, this would result in three speed humps along the segment. These speed humps could be added without removing parking along the street. Finally, adding painted "sharrow" markings in line with the F2B2G project would emphasize the presence of bicycles along the roadway.

At the intersection of Railroad Avenue and West Richmond Avenue, the F2B2G project already proposes improvements to the northeast corner of the intersection to formalize currently installed temporary pedestrian improvements. This study supports those changes and also recommends converting the pedestrian crossing of Railroad Avenue at West Richmond Avenue to a raised crosswalk; this intervention would slow vehicles turning right from West Richmond Avenue onto Railroad Avenue.

Fehr & Peers also proposes the following improvements to promote slow vehicle travel, support pedestrian and bicycle safety, and discourage cut-through traffic in the center of Point Richmond:

- A new all-way stop at the current side-street stop at West Richmond Avenue and Tunnel Avenue
- A raised crosswalk across Park Place at West Richmond Avenue
- A marked (not raised) crosswalk across West Richmond Avenue at Park Place



These treatments interfere with cut-through movements while avoiding conflict with key emergency access routes from Richmond Fire Station No. 61.³ The new all-way stop at West Richmond Avenue and Tunnel Avenue would require an engineering study to implement per the California MUTCD Section 2B.07, but is likely to meet Option C based on the skew of the intersection preventing northbound traffic on Tunnel Avenue from seeing westbound vehicles on West Richmond Avenue.

Concurrent Projects

The Canal Boulevard and East Standard Avenue cut-through routes described in the Site Observation section overlap with the study area for the Interstate 580/Richmond Parkway MTC/BATA project currently underway. The MTC/BATA project will be proposing changes to these locations which should reduce the ability and/or incentive for vehicles to leave the freeway. In order to complement these projects and avoid conflicts, Fehr & Peers does not propose any additional changes to these locations at this time and presumes that whatever changes are made by the Interstate 580/Richmond Parkway projects will be sufficient to address existing cut-through patterns.

Conclusions

Site observations indicate that morning congestion on westbound Interstate 580 approaching the Richmond-San Rafael Bridge and the relative travel time savings by using local streets incentivizes drivers to use local cut-through routes to avoid the congestion. During the morning peak, multiple local routes have a lower real and perceived travel time than remaining on the freeway. Fehr & Peers proposes multiple context-specific strategies for disincentivizing cut-through traffic, including changing signal times along Cutting Boulevard for cut-through turning movements, narrowing and striping lanes on Railroad Avenue, and adding speed humps, raised crossings, and a new all-way stop in the Point Richmond neighborhood to slow vehicle traffic. Furthermore, the Interstate 580/Richmond Parkway projects, currently underway, will help address other cut-through routes near Canal Boulevard and Castro Street.

The purpose of these recommendations is threefold: to modify the actual travel time along cut-through routes, modify the perceived travel time, and improve conditions for people walking and bicycling in the area. These strategies are targeted at the average morning peak period; highly congested mornings due to above average vehicle volumes or a collision on the freeway may still result in cut-through traffic. However, by adjusting the habits of drivers on the average morning, these strategies reduce the likelihood drivers will choose to take local cut-through routes on highly congested mornings.

³ Richmond Fire shared that the primary access routes for Station No. 61 are East and West Richmond Avenue, Garrard Boulevard, Washington Avenue, Tewksbury Avenue, and Western Drive.