Richmond-San Rafael (RSR) Bridge Project Modified Pilot Extension

BCDC Workshop

January 16, 2024

PHOTO: BEN BOTKIN

Agenda

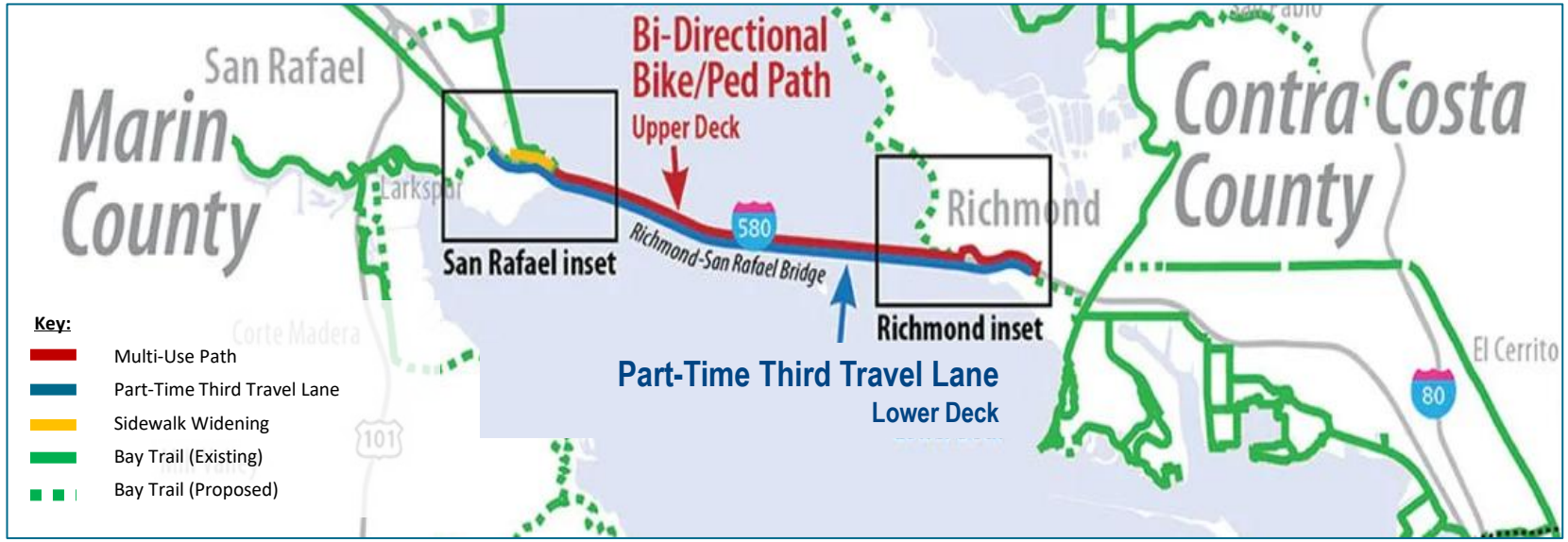
Pilot Project Recap & Key Findings

Proposed Modified Pilot

Other Projects

RSR Bridge Pilot Project

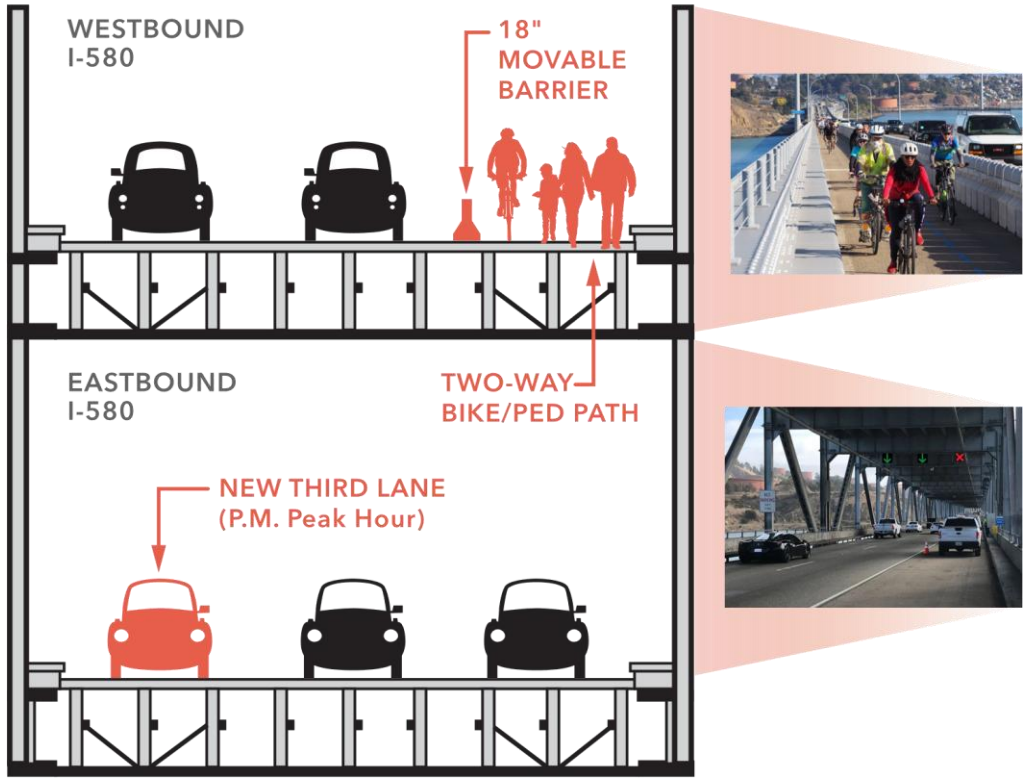
Background & Recap



Project Location Map

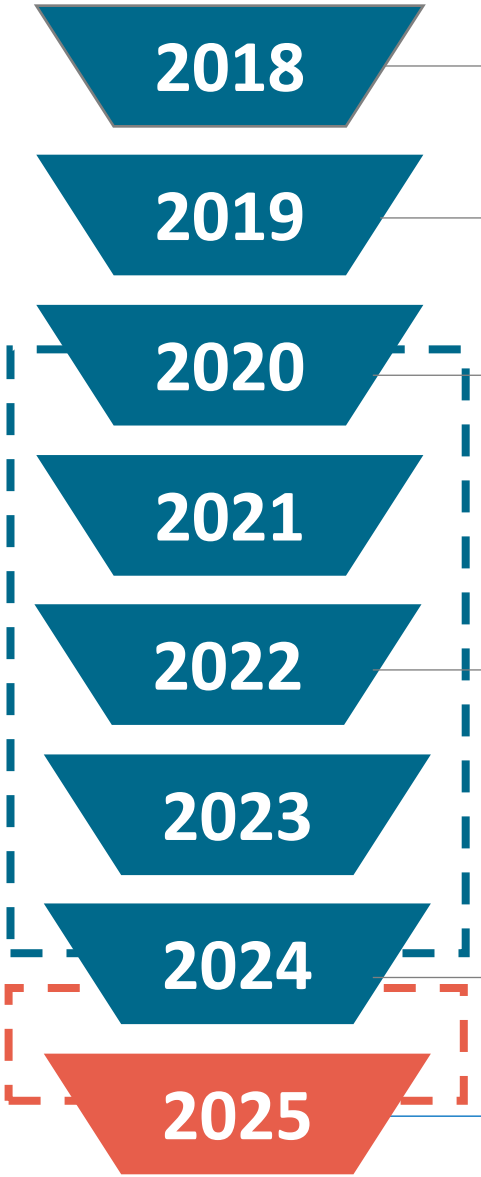
4-Year Pilot Designed for Two Purposes

- **Bicycle & Pedestrian Access (Nov. 2019)**
  - Converted Westbound Shoulder to Multi-Use Path for Bay Trail connection between East Bay and Marin.
  - Permanent Connections for Richmond and San Rafael
- **Traffic Congestion and Delay (Apr. 2018)**
  - Converted Eastbound Shoulder to Peak-Period Use Lane



RSR Bridge Cross-Section
(looking West)

Pilot Timeline



RSR Bridge Peak Period Use Lane (Apr. 2018)

RSR Bridge Multi-Use Path (Nov. 2019)

Sir Francis Drake Blvd. Bike Path (Aug. 2020)

Interim Phase I Report (Jul. 2022)

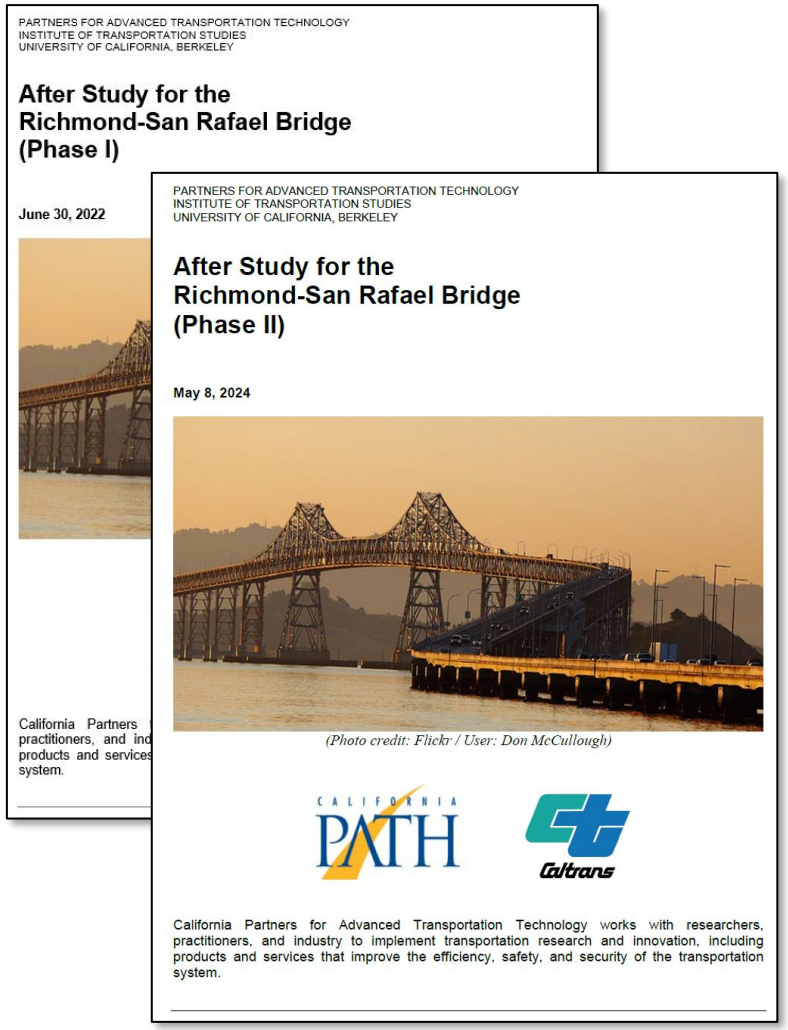
Phase II Final Report (May 2024)
Partner Proposal & BATA Direction (May 2024)
Request for BCDC Permit Amendment (July 2024)

BCDC Workshop (Jan. 2025)
BCDC Hearing on Pilot Modifications (Mar. 2025)

Pilot Study Report Overview

- **Caltrans / UC Berkeley PATH Report:**
  - Phase I: Pilot Study Report (June 2022)
  - Phase II: Pilot Study Final Report (May 2024)

- **Study and Focus on:**
  - Multi-Use Path Usage, Safety
  - Peak-Period Third Lane Travel Time, Compliance
  - Freeway Congestion Impacts
  - Incident Rates & Response/Clearance Times
  - Bridge Operations and Maintenance Impacts

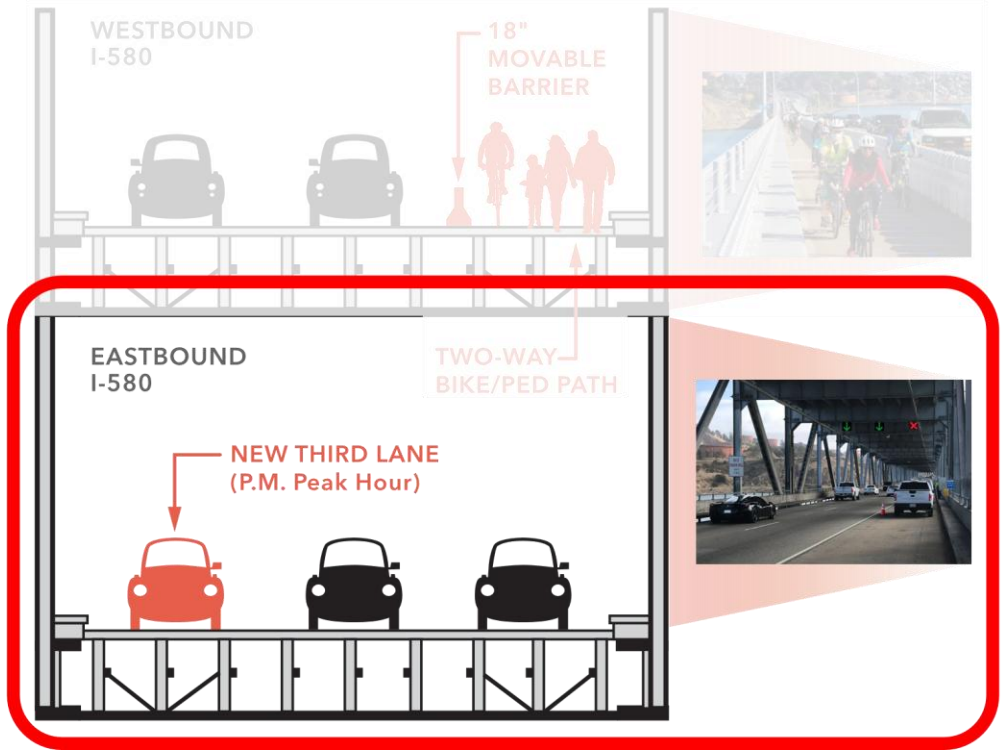


Pilot Study Report

Key Findings: Upper and Lower Decks

Lower Deck – Peak-Period Use Lane

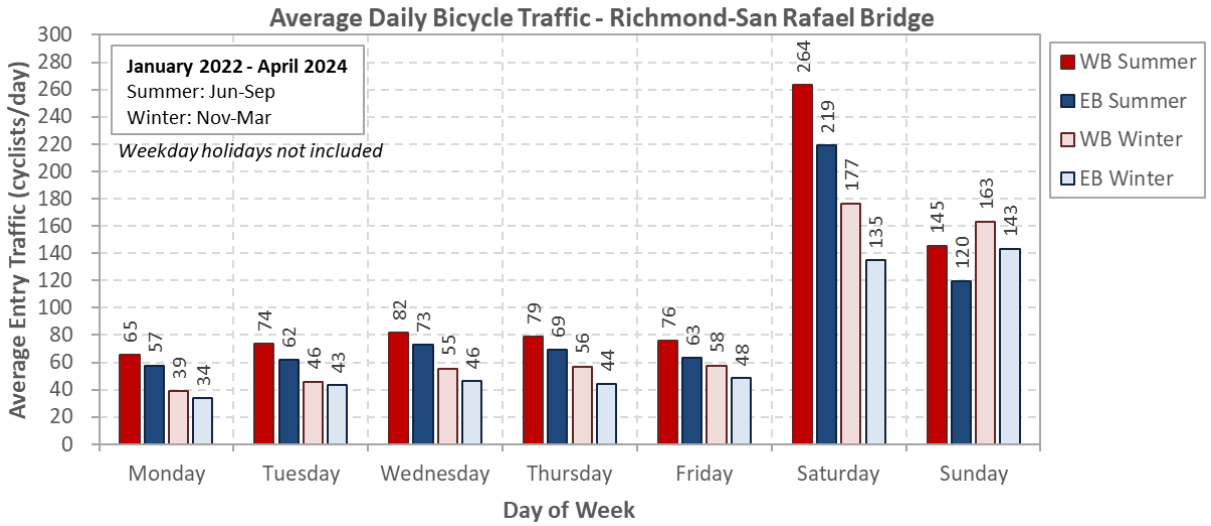
- **Key Findings:**
  - Peak-Period use lane eliminated afternoon eastbound congestion (freeway and local streets).
  - Up to 17 mins. travel time savings during peak PM hours
  - High compliance
  - No major impacts to bridge maintenance, vehicular incidents or response

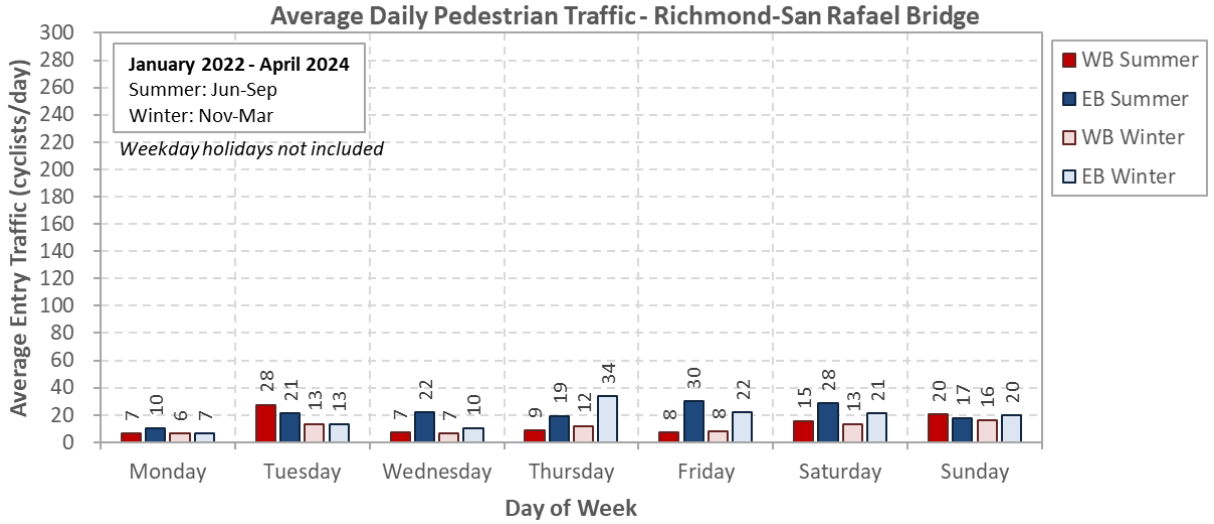


RSR Bridge Cross-Section
(looking West)

Upper Deck – Path Usage

- **Peak bicycle usage during weekends**
  - 35-80 entries/day per direction on weekdays
  - 120-260 during weekend days
- **Seasonal pattern**
  - Winter traffic typically 25-40% below Summer traffic
- **Small, constant pedestrian usage across days**
  - 6-20 entries/day per direction in winter
  - 7-30 during summer



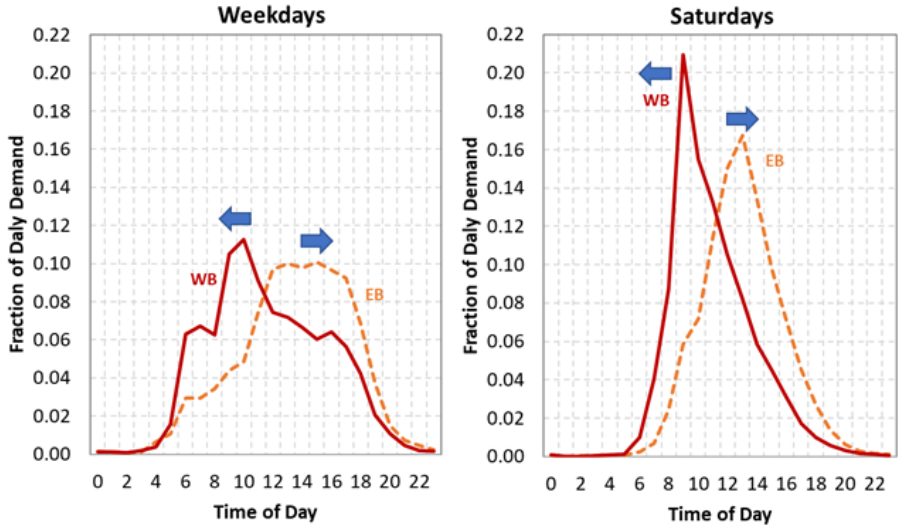


Upper Deck – Path Usage (Continued)

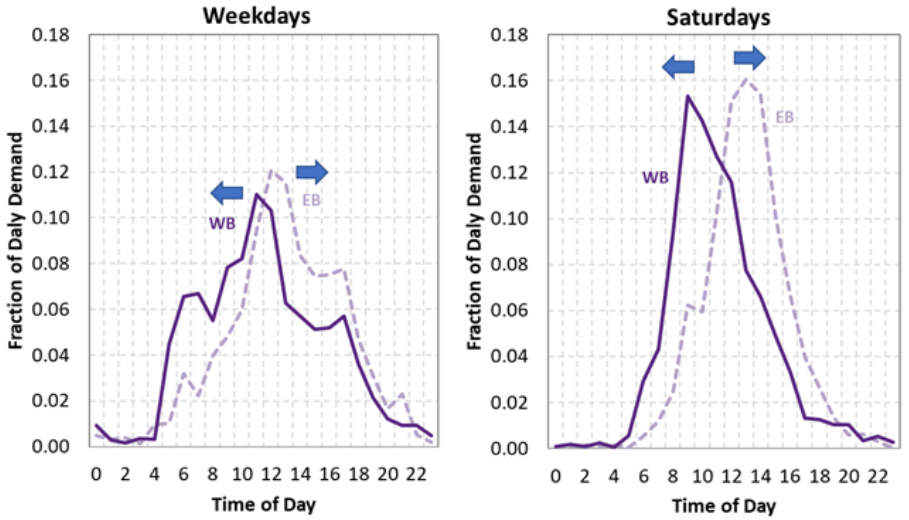
- **Same time-of-day patterns across weekdays for cyclists and pedestrians**
  - Toward Marin (westbound) in the morning
  - Toward Richmond (eastbound) in the afternoon

- **Reason for using the path**
  - 85% for recreation/exercise
  - 14% for commuting to work/non-work locations

Cyclists

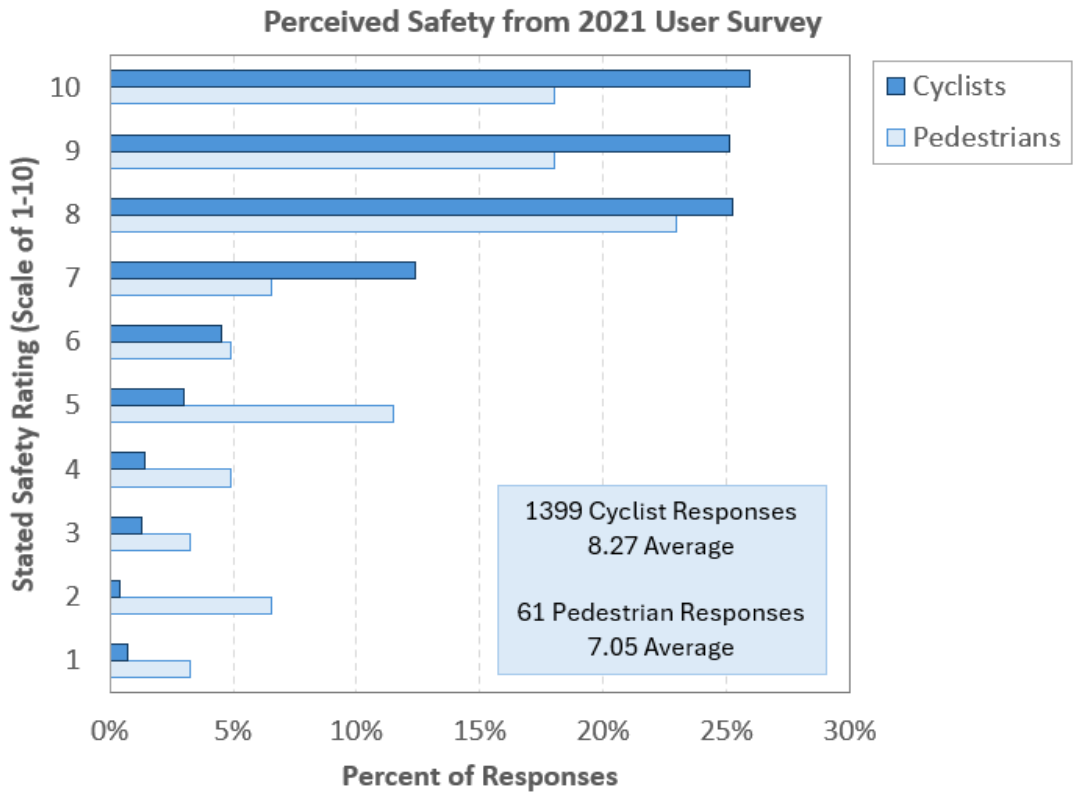


Pedestrians



Upper Deck – Path Safety

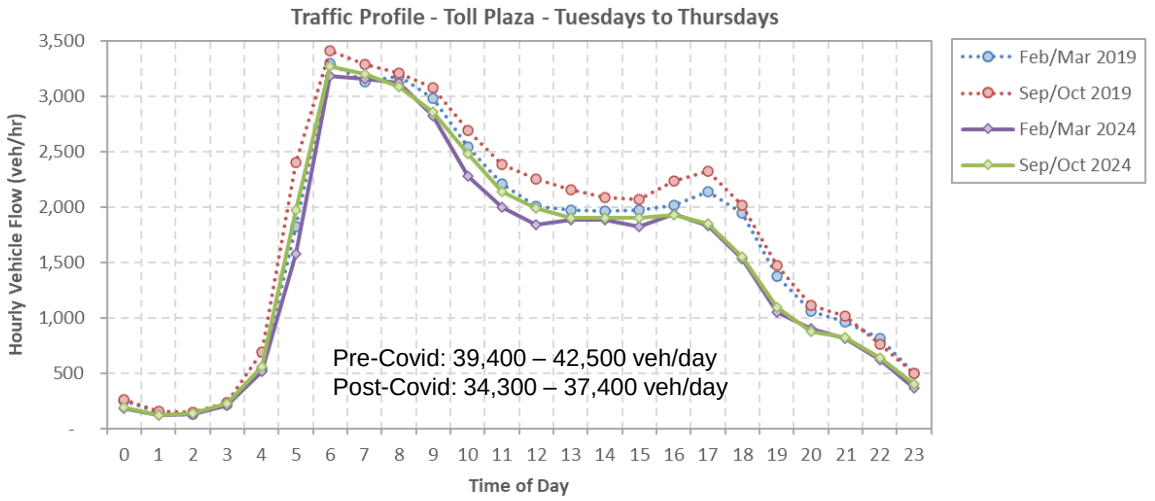
- **Path generally perceived as safe**
  - 8.27/10 rating from cyclists
  - 7.05/10 rating from pedestrians
- **Key stated concerns**
  - Narrow path width, particularly when encountering cyclists going in the opposite direction or slow-moving individuals
  - Ability of barrier to prevent vehicles from breaching the path
  - Debris flying from passing vehicles
- **Very little data available on actual incidents (Streetstory, CHP)**

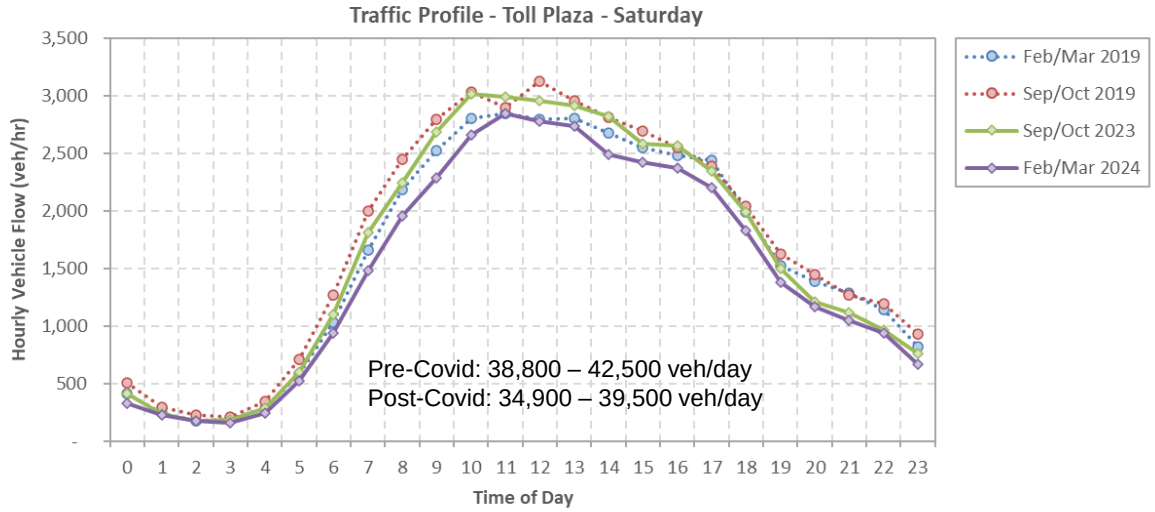


Upper Deck – Westbound Traffic

- **Current weekday traffic still below pre-Covid (2019) levels**
  - Midweek AM Peak (6-9 AM) at 92-99%
  - Off-peak remains 10-25% below

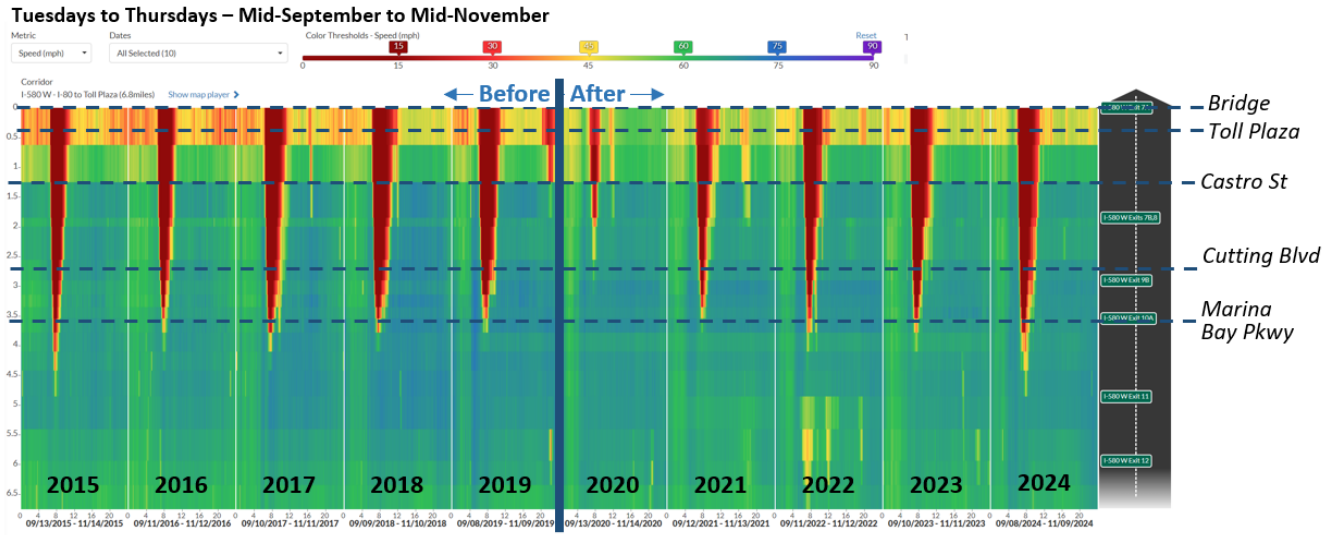
- **Weekend traffic also remains below**
  - 6-20% below depending on time of day

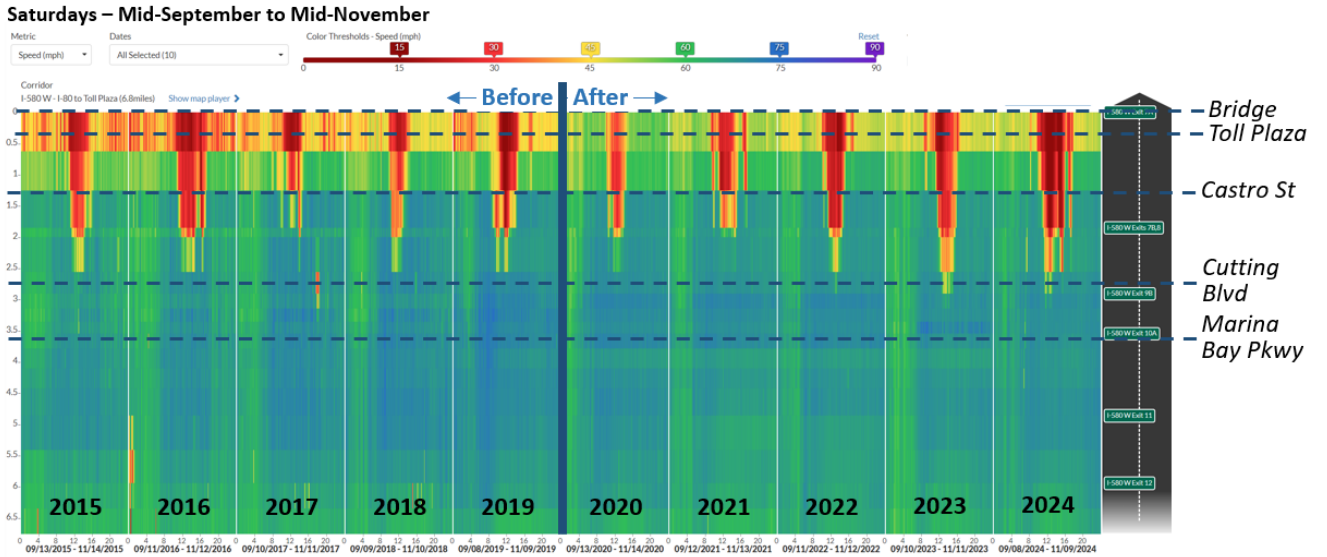




Upper Deck – Westbound Traffic (Continued)

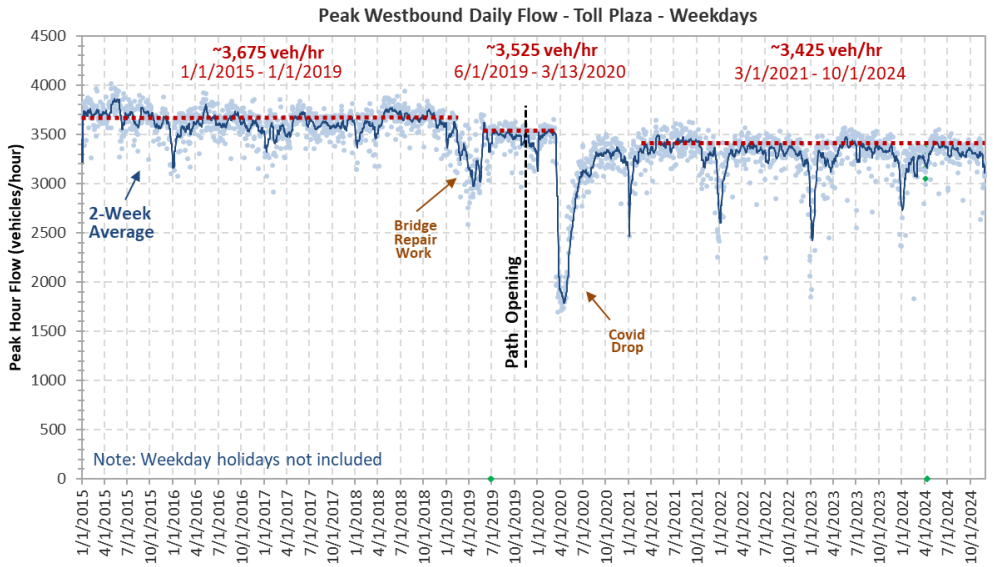
- **Peak back of queue similar to before path installation**
- **Primary cause of congestion is the lane drop at the bridge entrance**
  - 3 lanes on approach
  - 2 lanes on bridge
- **Lane expansion/drop around toll plaza adds to the problem**
  - Friction from traffic merging from 5/7-lane to 2 after the toll plaza
  - Merge area shortened from 850 ft to 325 ft

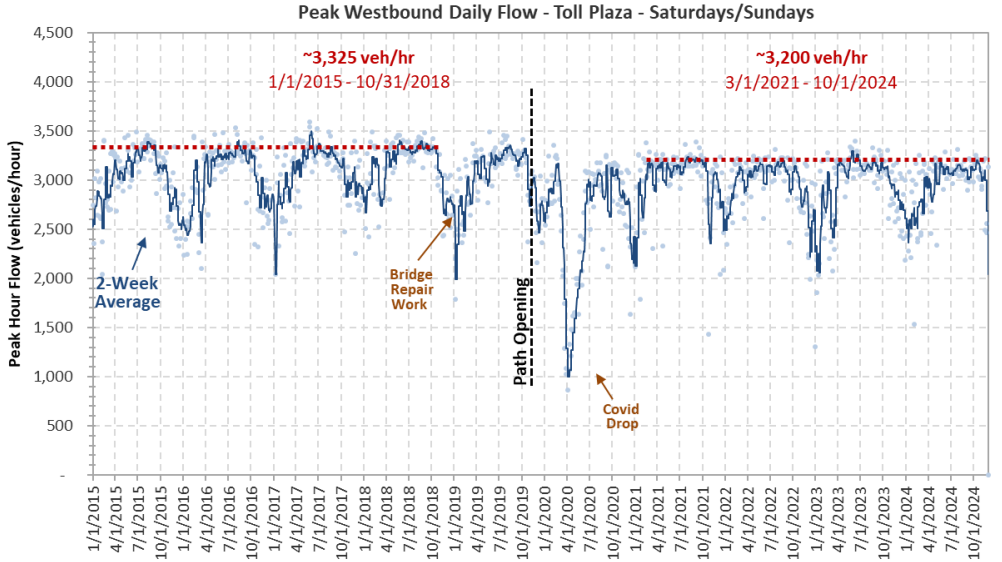




Upper Deck – Westbound Traffic (Continued 1)

- **Decrease in bridge capacity/throughput**
  - 7% drop in capacity during weekdays
    - 250 fewer vehicles per hour able to enter bridge during AM peak (6-9 AM)
  - 4% drop in capacity during weekends
    - 125 fewer vehicles per hour able to enter bridge
- **Different weekday and weekend results due to different set of drivers**
- **Capacity drop results in longer approach queues**
  - Increase travel time by about 5 min
  - Further affect traffic entering/exiting at Castro Street, Richmond Parkway

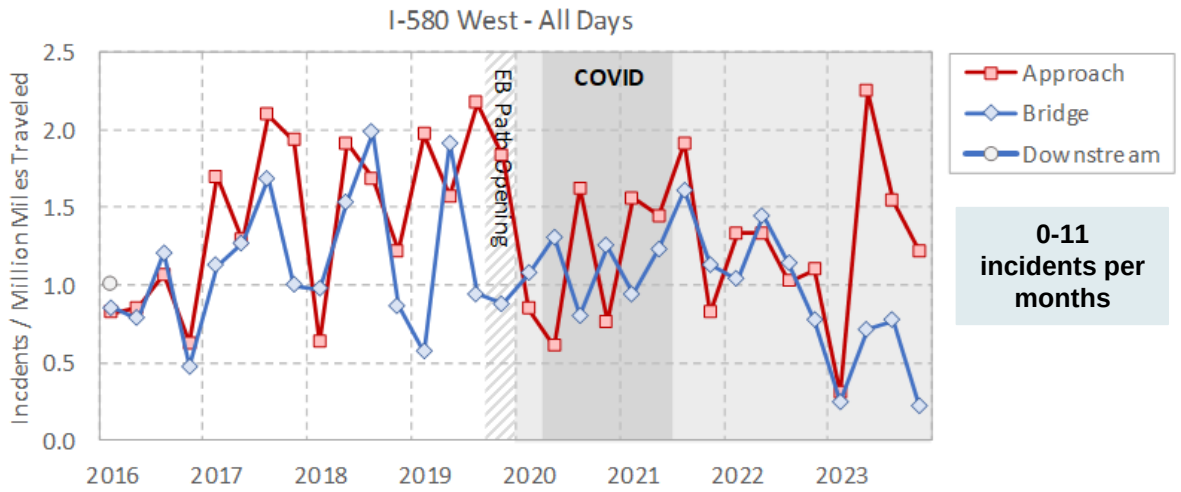




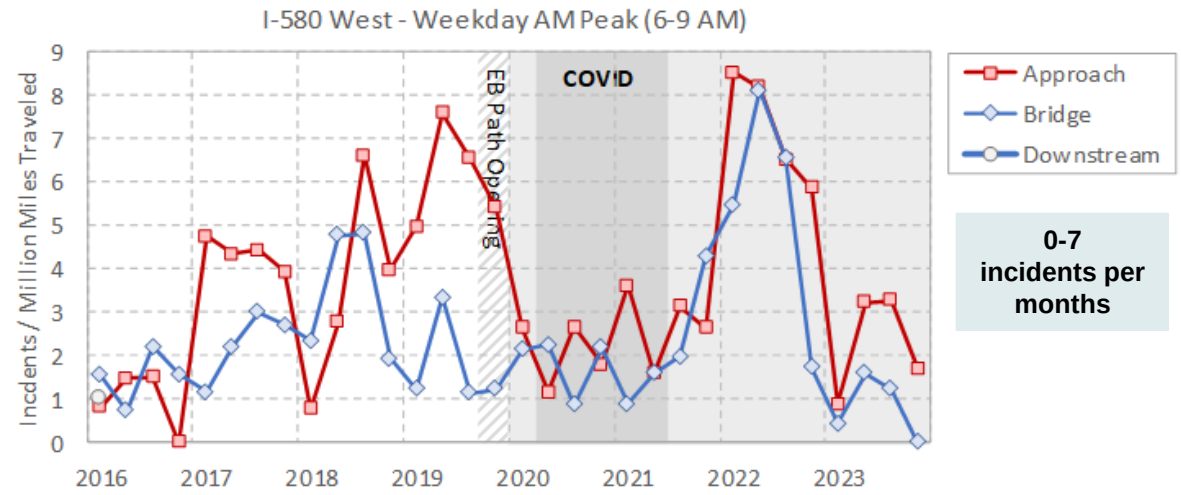
Upper Deck – Westbound Incidents

- **Due to data variability and partial 2023 data, no definitive impact conclusion can yet be made**
  - Additional data needed, to confirm trends
- **Incidents per million miles traveled**
  - Adjusts incident rates to observed traffic
  - Million miles traveled (all day) = ~ distance vehicles travel across upper deck in 6-7 days.
- **Change across all days**
  - Approach: -13% (~ -0.9 incidents/month)
  - Bridge: -19% (~ -1.7 incidents/month)
- **Change across weekday AM Peak (6-9 AM)**
  - Approach: +18% (~ +0.1 incidents/month)
  - Bridge: +33% (~ +0.4 incidents/month)

Incidents per million miles traveled



0-11 incidents per months

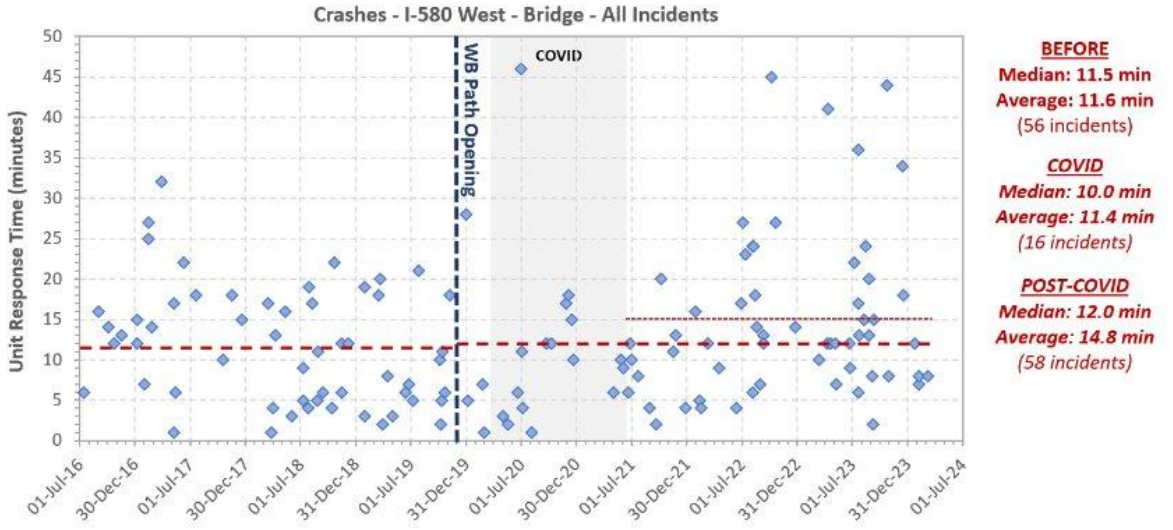


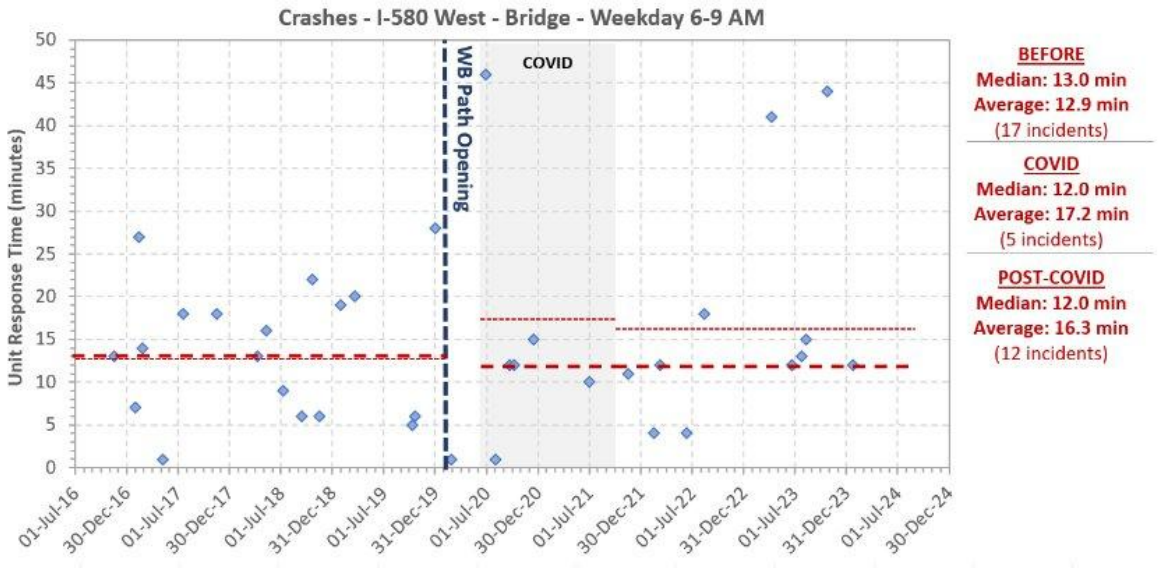
0-7 incidents per months

Upper Deck – Westbound Incidents (Continued)

- **No clear evidence yet of negatively impact on incident response times**
  - Limited number of incidents with sufficient data to analyze (tow truck records, CHP)
  - Slight increases in median response times could partly be due to normal variations
  - Lack of shoulder definitively results in additional response constraints

- **Additional observations**
  - Does not include flat tires, running out of gas





Caltrans & BATA Decision

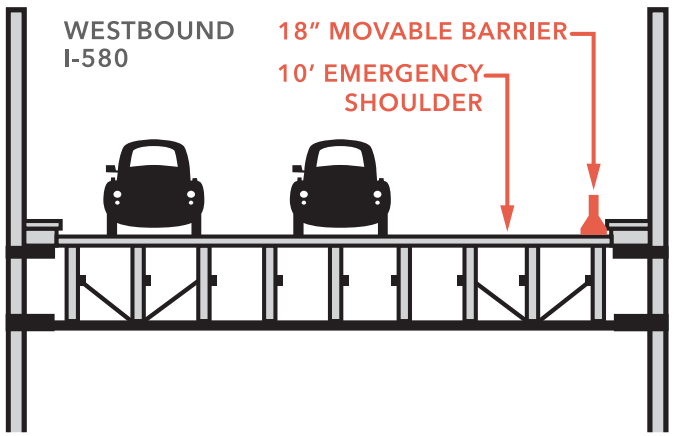
Lower Deck: Make Permanent

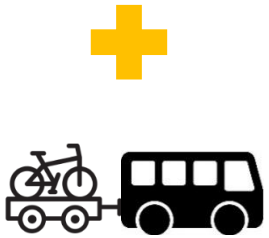
Upper Deck: Modify and Extend Pilot

(approved by BATA in May 2024)

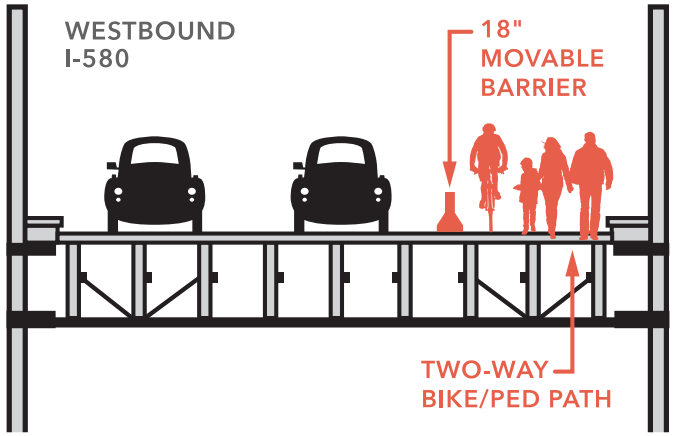
Upper Deck – Modify Pilot Operations

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Emergency Shoulder + Bike Shuttle				Bike/Ped Path		





FREE BIKE SHUTTLE



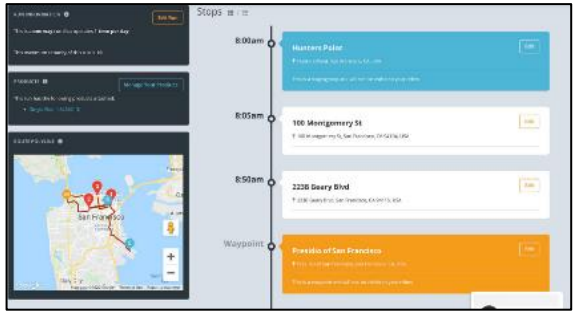
Free RSR Bridge Bike Shuttle

Fleet

- Two Shuttles in AM Peak
- Electric and Gas vehicles
- Up to 10 pax and bikes
- Accommodate various bike types (including e-bikes)

Technology

- Website / QR Code
  - Live GPS Tracking
  - Estimated Arrival Time
  - User Feedback
- Client Portal (# riders, KPIs)



Route

- Two Designated Stops (5.6 mi. apart):
  - Vista Point Parking Lot
  - Tewksbury Bus Stop
- Headway:
  - 15-20 mins (AM Peak)
  - 20-25 mins (Rest of Day)
- Hours:
  - 6am – 7pm (Monday – Wednesday)
  - 6am – 3pm (Thursday)

Modified Pilot Objectives

- **Extend Pilot Study "Phase III" for 2 years**
  - 18 months Pilot Study + 6 months Approvals

- **Gather additional data, to review and analyze holistically, with a focus on:**
  - Incident Rates, Response & Clearance Times,
  - Incident Impacts on Weekday AM Traffic
  - Bridge Throughput / Flow Rate
  - Path and Shuttle Usage
  - Equity Considerations
  - Movable Barrier Operations / Impacts on Bridge Deck


PHOTO: KARL NIELSEN


PHOTO: RICHMOND FIRE

What Does Extension Achieve?

- **Maintains access on SF Bay Trail segment when it's most used**
- **Provides understanding of emergency shoulder role when commute traffic is heaviest**
- **Other work can proceed in parallel**
  - Plan for Bridge strengthening (if movable barrier is permanent)
  - Caltrans and BATA projects (next section)

Other Projects & Opportunities

Caltrans, BATA, MTC, Local

RSR Forward

Open Road Tolling

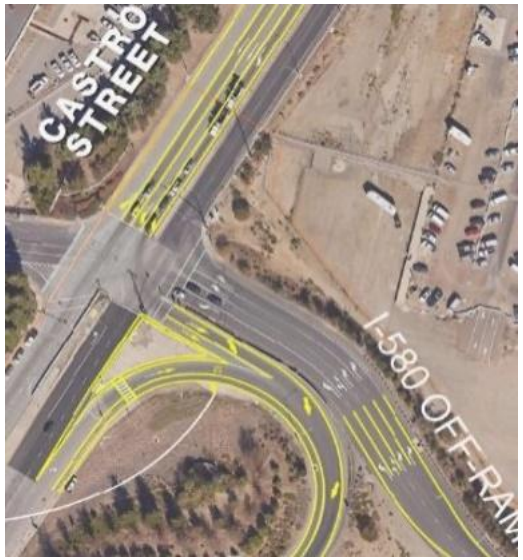
+

HOV Lane Extension

(Spring 2026)

Cutting Blvd. Transit Priority Project

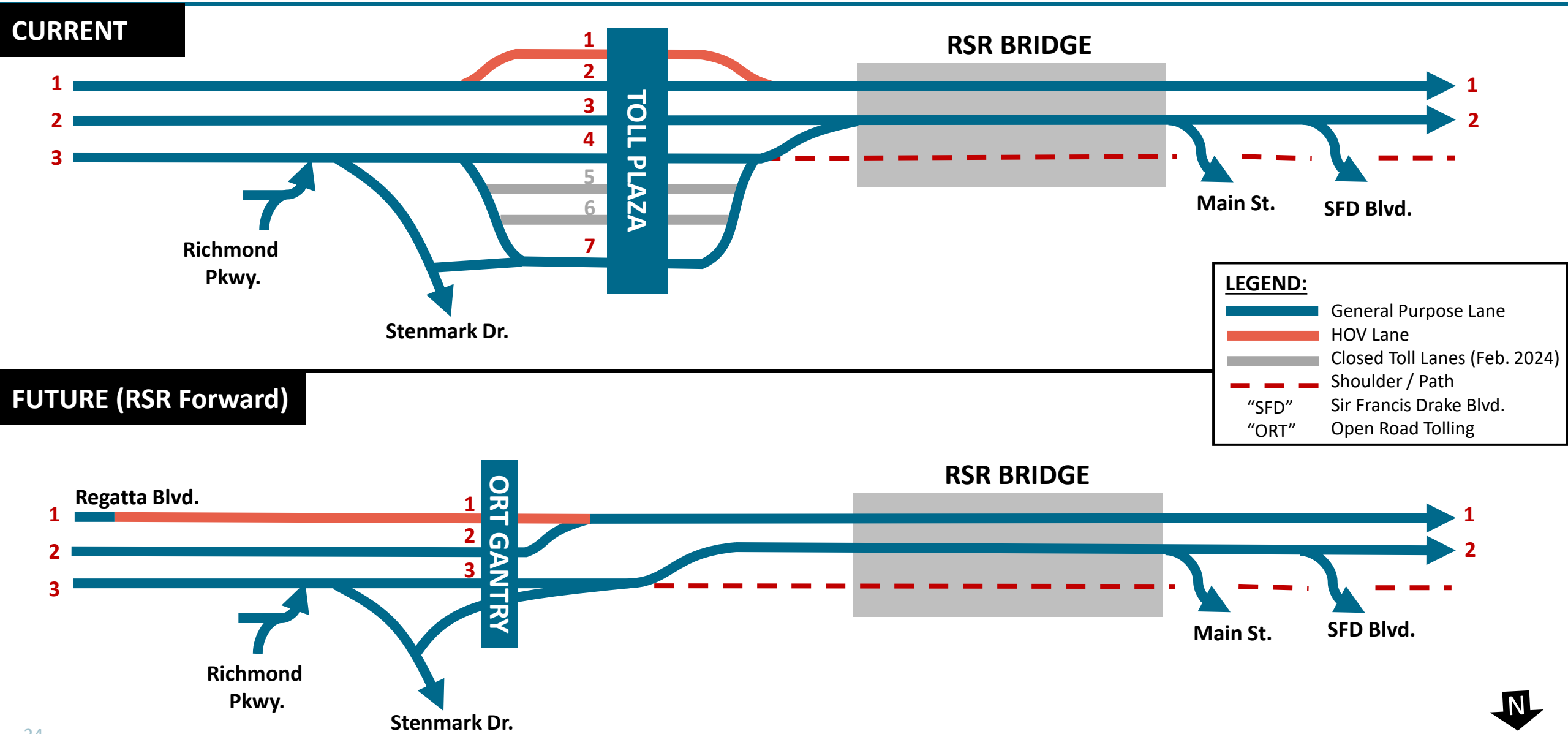
(Summer 2026)



Richmond Parkway Improvements

(Fall 2028)

I-580 Westbound Geometry Schematic

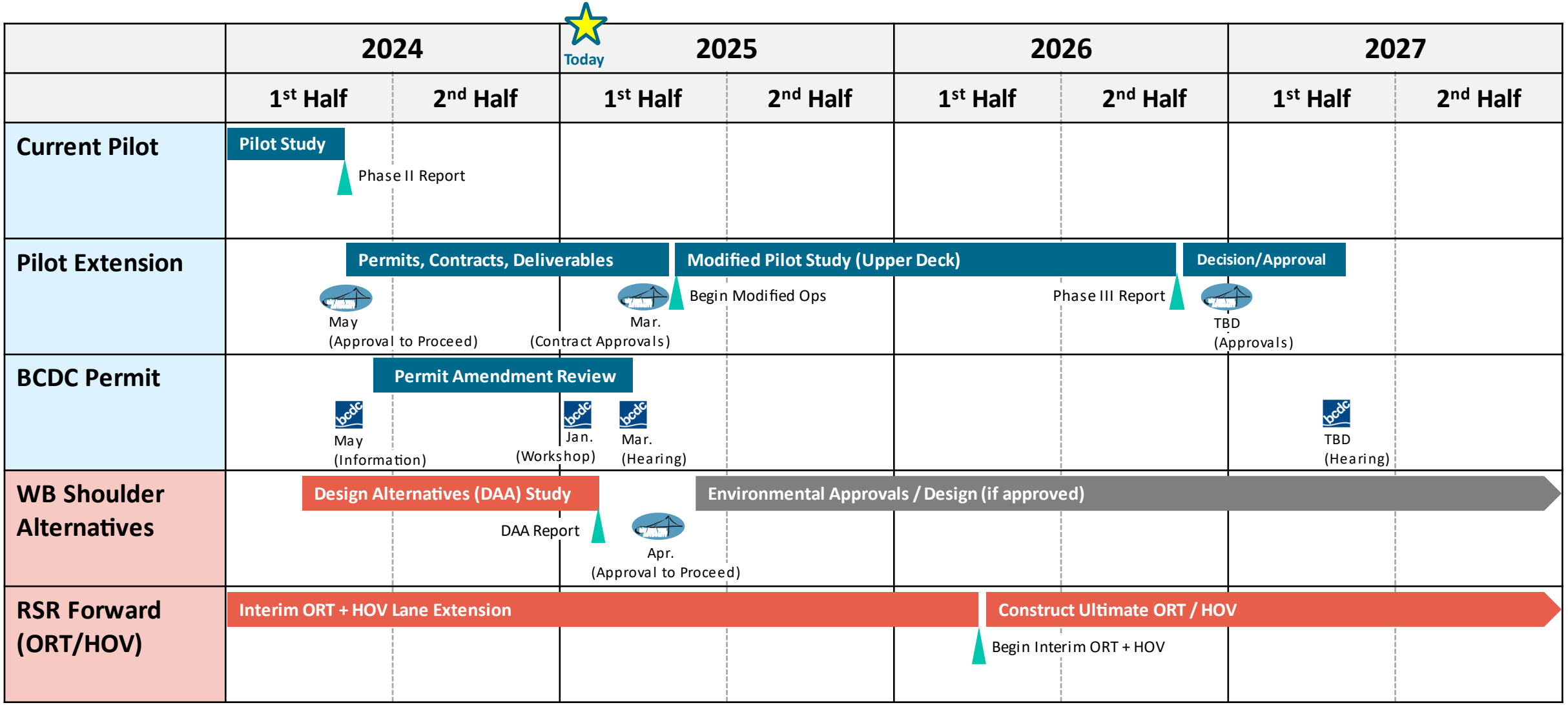


Westbound Shoulder Study

- **Design Alternatives Assessment (DAA)**
  Evaluates Alternatives and Cost Estimates for:
  - Full-time or part-time (weekday or weekend basis):
    - Shoulder, Third Lane HOV, and Multi-use Path.
  - Marin County improvements
  - Environmental, traffic, vehicle miles traveled, safety, geometry, and structural impacts
  - Transportation demand management and transit strategies
- **Schedule:**
  - February 2025 – Finalize DAA Report
  - April 2025 – Caltrans and BATA Oversight
    - Approval to start Project Environmental Phase


PHOTO: MARK JONES

Overall Timeline



Permanent Trail Connections (Contra Costa = 1 mile, $15M)

I-580 WB Shoulder
(Protected Fixed Barrier)

E. Standard Ave.
(Protected Fixed Barrier)

To Pt. Molate

To Marin Co.

To BART / Richmond Ferry

To Miller-Knox
Regional Shoreline

Permanent Trail Connections (Marin = 1.5 miles, $7M)

SFD Trail
(Trans. Authority of Marin)

To San Rafael Bettini Transit Center

To Larkspur Ferry Terminal

Continue SF Bay Trail

E Francisco Blvd
(Widened Sidewalk)

To Contra Costa Co.

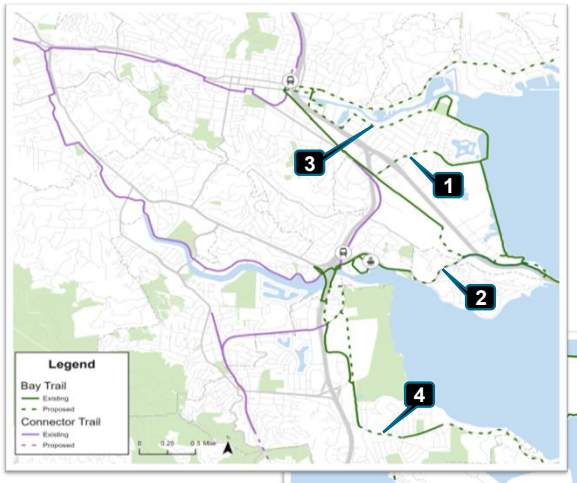
Local Active Transportation Opportunities

- **MTC/ABAG Technical Assistance**
  - Supports local jurisdictions deliver projects on the Regional Active Transportation Network.
  - Apply competitively to receive funding for consultant assistance on project design and outreach efforts.
  - Future cycles subject to funding.

- **Funding Opportunities**
  - **Regional Measure 3:** RSR Bridge Access Improvement
  - **Regional Measure 3:** Safe Routes to Transit & Bay Trail (SR2TBT)
  - **California Transportation Commission:** Active Transportation Program (ATP)

Identified gaps in Bay Trail and Connector Trails

- Approx. 4.7 miles (~$30M) in Marin County
- Approx. 4.6 miles (~$28M) in Contra Costa County

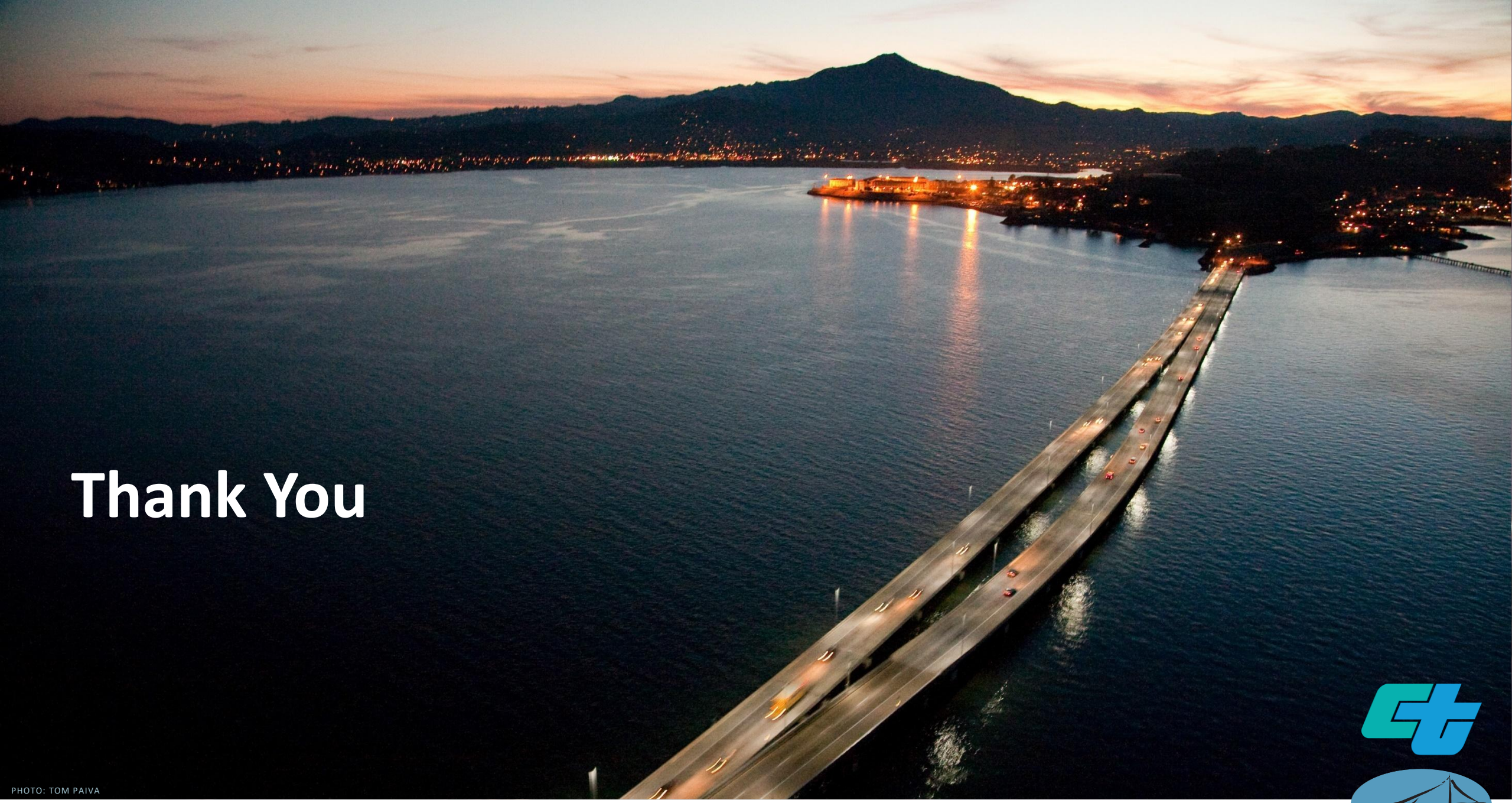


Marin County

Contra Costa County

Summary

- **4-year Pilot achieved original goals & objectives**
  - provided non-motorist access (upper deck) & improved freeway congestion (lower deck)
  - Implemented permanent improvements (local access and freeway widening)
- **Pilot Study key findings were mixed**
  - eliminated eastbound (lower deck) weekday PM congestion
  - inconclusive westbound (upper deck) bridge operation and impacts on incidents and associated weekday AM traffic
- **Caltrans & BATA's decisions to proceed, obtain BCDC Permit Amendment**
  - make lower deck permanent
  - modify upper deck operations w/ bike shuttle and extend pilot up to 2 years; holistic decision and approvals by Spring 2027.
- **Prioritize and Advance other projects along corridor**
  - Caltrans/BATA operational projects to alleviate westbound congestion and increase person throughput
  - commitment to public access: support local active transportation 'gap' projects



Thank You

PHOTO: TOM PAIVA

BAY AREA TOLL AUTHORITY