

The Embarcadero Enhancement Project



SPUR Forum
February 19, 2020

Port of San Francisco

Who Is The Port?

- Trustee for Public Trust Lands
- Self-supporting enterprise agency



Public Trust Mission

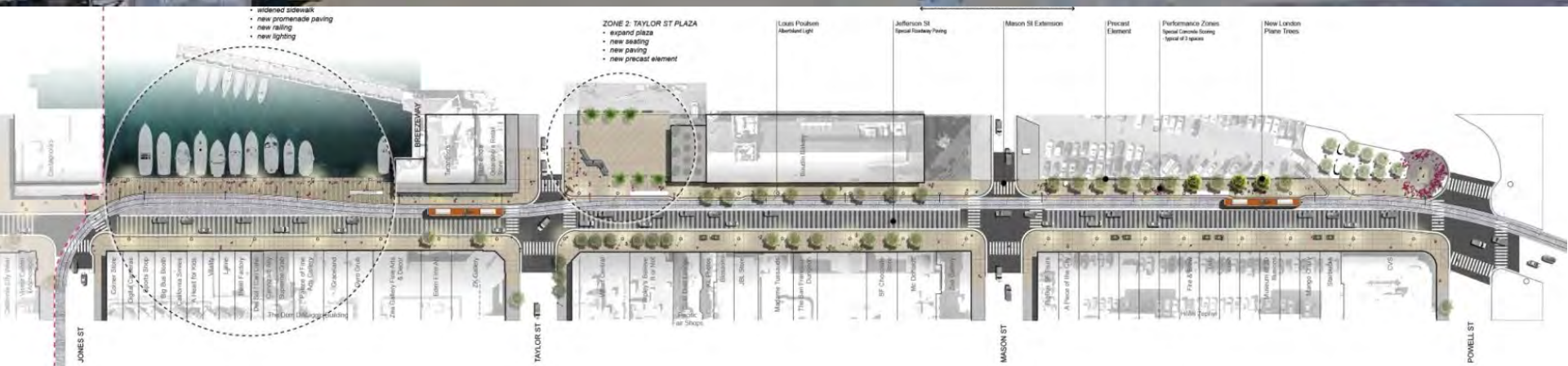
- Promote maritime commerce, navigation and fisheries
- Protect natural resources
- Provide facilities that attract the public to use the waterfront











Embarcadero Enhancement Project

Walk SF & Design for Accessibility

@walksf



walksf.org





Who is Walk SF?





The Embarcadero - Our Waterfront Gem

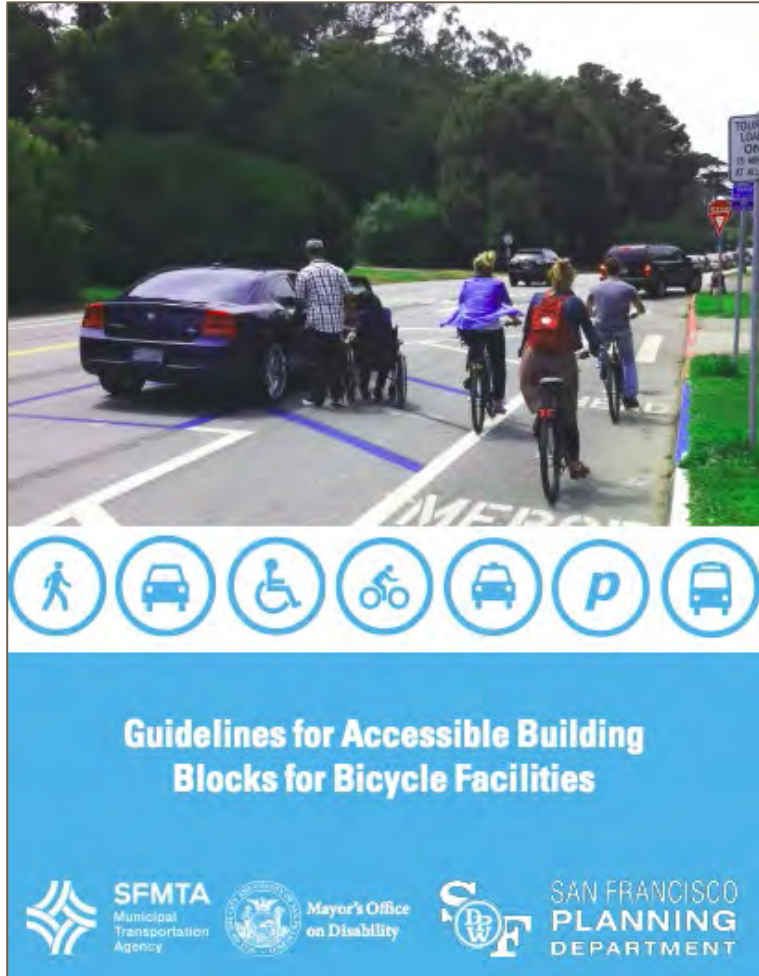












Focus on safe bike infrastructure



Getting to the Curb

A Guide to Building Protected Bike Lanes
That Work for Pedestrians



Getting to the Curb



Getting to the Curb



Senior & Disability
Working Group of
the Vision Zero
Coalition



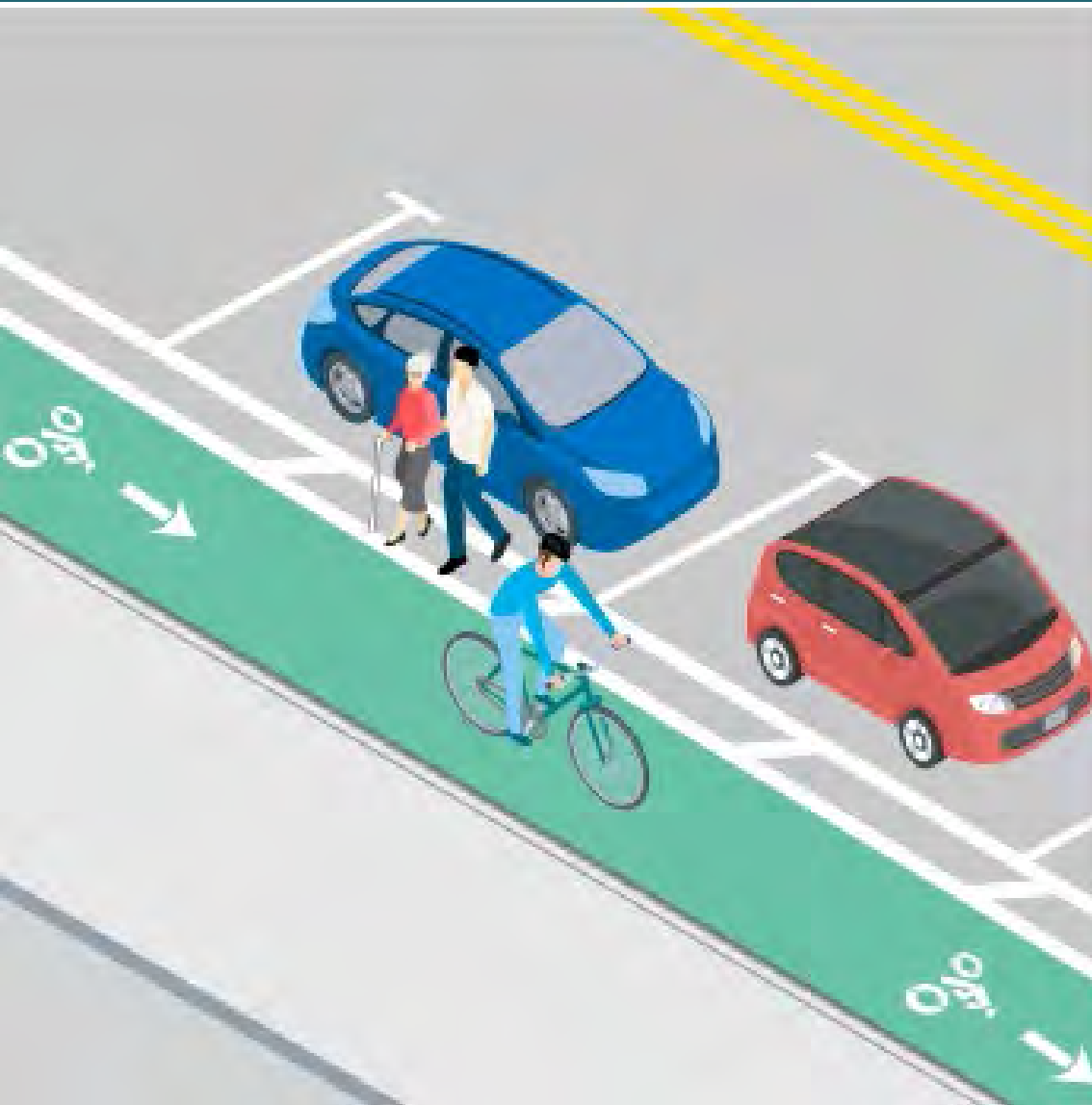
Nine Principles

1. Institutionalize Inclusive Engagement and Co-Design
2. Design a Wide Buffer Area, At Least Five Feet
3. Ensure the Buffer Area Is Obstacle-Free
4. Build Raised Pedestrian Crossings Across the Bike Lane
5. Install Robust Speed Management Features at Bike Lane Crossings
6. Make Crossings High-Visibility
7. Ensure There Are Access Points to/from the Curb At Least Every 100 Feet
8. Ensure That Quick-Build Projects Include Sidewalk Curb Ramps
9. Include Accessible Loading Islands When No Paratransit Access or Parking



Separated bikeways today





Challenges crossing bikeway





Solutions





Buffer design challenges





Solutions





Importance of Inclusionary Planning & Community Engagement



THANK YOU!

Stay connected

Jodie Medeiros, Executive Director

Jodie@walksf.org

@walksf



walksf.org



Embarcadero Enhancement Project







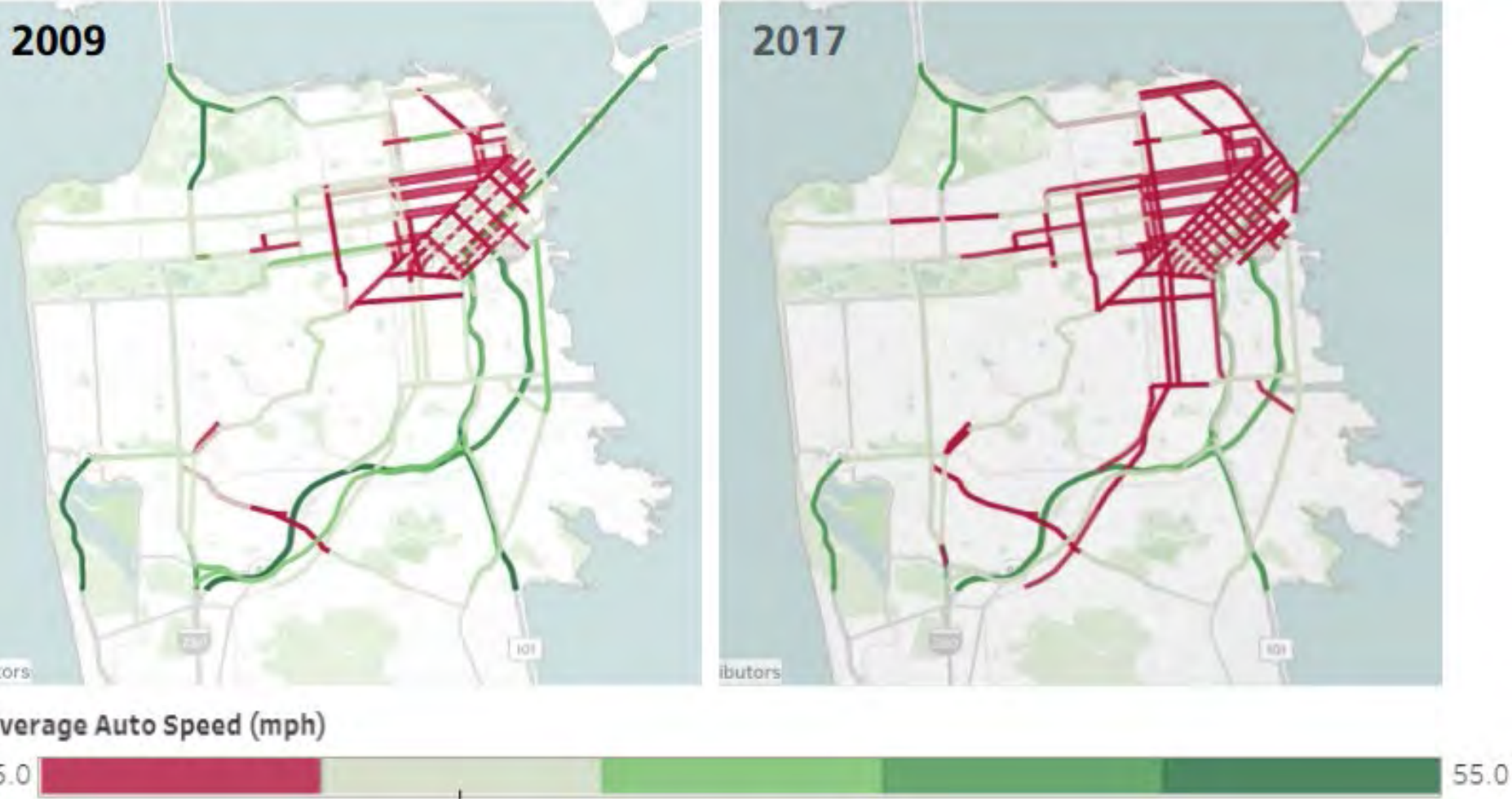
Washington St
LEFT LANES

← Howard St

SLEEP
RIGHT

Source: SF Chronicle

City Growth & Congestion



One recent study estimates 80%+ of increased delay on The Embarcadero is related to Uber & Lyft

The Experience Today



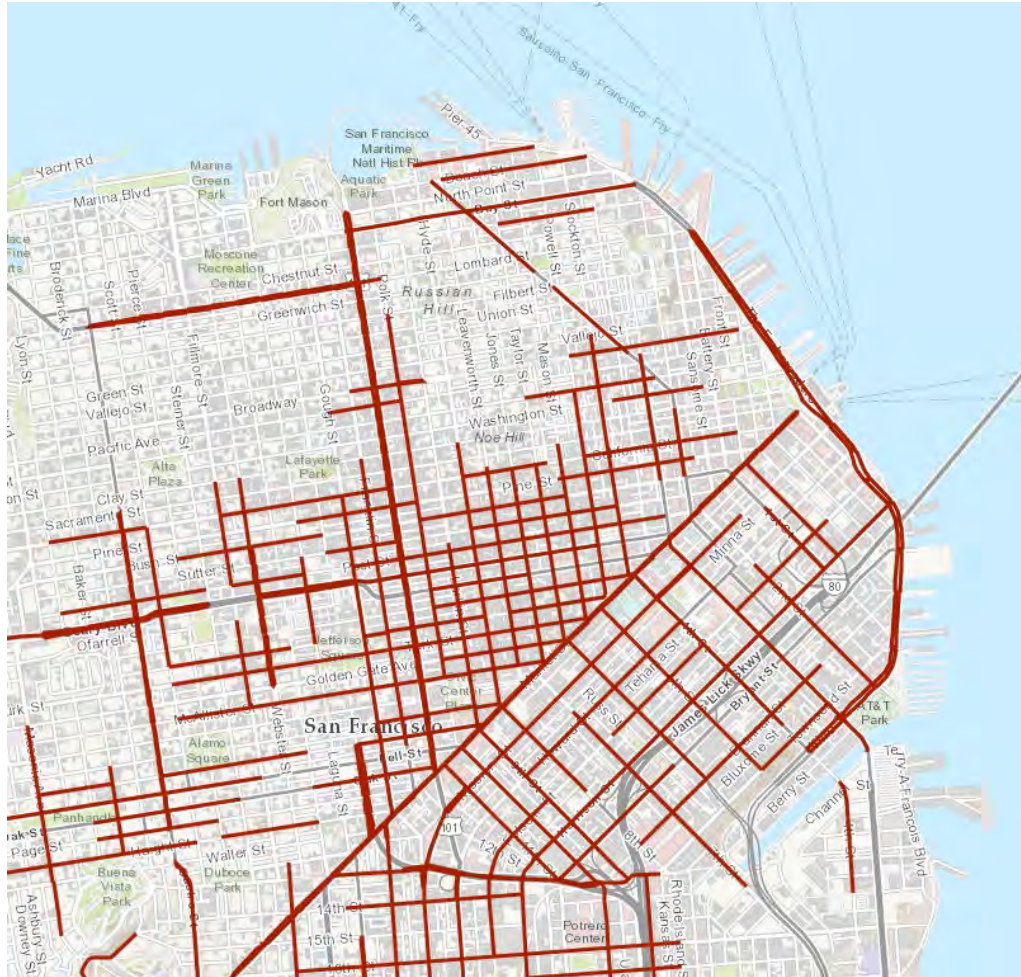
The Experience Today



The Experience Today



Vision Zero High-Injury Network



Most of The Embarcadero is on San Francisco's High Injury Network, representing the city's 13 percent of streets that account for 75 percent of severe and fatal traffic collisions.

Between 2014 and 2019, **242 people** were injured by traffic on The Embarcadero including two fatalities.

The vast majority of collisions occur at intersections. Nearly 40% of all victims (92) were people on a bicycle, despite being approx. 5% of all traffic.*

The drive behind Vision Zero is that these deaths and injuries are preventable and unacceptable.

**Remaining victims include 26 pedestrians, 122 drivers/passengers (including one fatality at Bryant Street), and 2 "other"*

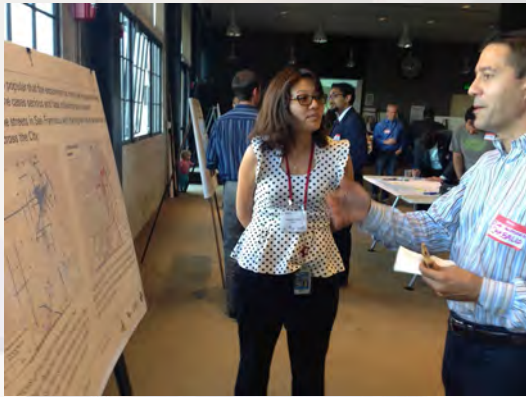
Embarcadero Transportation Goals



- Safety
- Access
- Mobility
- Prosperity
- Civic Design
- Resiliency



2014 Open House / Design Workshops (x3)



What We Heard

- Accommodate Loading/Unloading
- Wide and Welcoming Bikeway
- Think 'Big'
- Adapt to Best Uses of Curb (Right-of-Way)
- Details Matter
- Provide Flexibility
- Accommodate Larger Vehicles / Lane Widths
- Fisherman's Wharf/Pier 39 Area Needs Separate Planning

Detailed Summary Report available at sfmta.com/embarcadero

2016 Open House

Assessing Trade-Offs of Bikeway

- One-Way vs. Two-Way Protected
- Preliminary Parking & Traffic Analysis
- 17,000+ mailers / 300+ attendees
- Public Survey (531 responses)



Bikeway Alignment Survey Results
(531 total respondents)

The Embarcadero Enhancement Project Bikeway Alignment Alternatives Impacts Summary

Two-Way Waterside	One-Way
<p>Traffic / Circulation</p> <p>The basic two-way alignment keeps two NB travel lanes and double-left turn lanes at Washington, Broadway, and Bay; prohibits NB left-turns at Folsom; and repurposes a third travel lane between Howard & Pier 5 (approximately 4 blocks). A modest increase in NB congestion during peak periods is anticipated for these blocks. Alignment options north of Bay Street, in front of Pier 27, and the "Big Move" concept at the Ferry Building require more study. Existing SB travel conditions largely would not be affected.</p>	<p>Traffic / Circulation</p> <p>The one-way alignment keeps two NB and SB travel lanes and NB double-left turn lanes; repurposes a NB travel lane between Howard & Pacific; and repurposes SB peak period lanes between Broadway and Don Chee Way. Due to required bike signal phasing, SB congestion is forecast to substantially increase at Battery Street and at most intersections south of Ferry Building. SB right turns at Folsom and Harrison would be prohibited.</p>
<p>Parking / Loading</p> <p>The basic two-way alignment impacts approximately 89 parking spaces spread over the length of the water-side (approximately 3 miles), and up to 132 spaces depending on various alignment options. Parking mitigation / replacement options would be explored.</p> <p>Although some shifting of zones may be necessary, existing loading areas on the water-side would be retained and/or enhanced.</p>	<p>Parking / Loading</p> <p>The one-way alignment impacts approximately 314-330 parking spaces depending on final design. Mitigation/replacement efforts may reduce the number of parking spaces removed, but options are limited.</p> <p>Existing load zones on the water-side would be largely retained; City-side impacts include Chays, Balancey Street restaurant load zones.</p>
<p>Pedestrian Facilities</p> <p>The basic two-way alignment has varied impacts to the Promenade: for most blocks it would be minimal (narrowing of 0-4 ft), at key pinch-points it may be narrowed by 11-14 ft, and in some cases it could be widened slightly. All alignment options would "de-clutter" the Promenade where possible, improve marginal wharf areas, and upgrade curb ramps. Except for short sections including at Pier 38 and at Broadway, a minimum Promenade width of 20 ft is expected to be maintained.</p> <p>City-side sidewalks could be widened if the SB bike lane is removed.</p>	<p>Pedestrian Facilities</p> <p>Due to existing narrow sidewalks on the City-side, the one-way alignment would result in potentially unacceptable sidewalk widths (9 feet or less) from North Point to Battery, Howard to Harrison, and at Brannan Street if bikeway width assumptions are held. Existing bulbouts for midblock crossings would be removed.</p> <p>On the water-side, the one-way alignment would still impact the width of the Promenade but much less so than the two-way alignment. The Promenade, wharf areas, and curb ramps would be upgraded.</p>
<p>Trees / Landscape Design</p> <p>The basic two-way alignment impacts at least 6 palm trees at Folsom and Battery streets where center medians may be narrowed, and could impact approx. 20 Sycamore trees near Pier 38. Otherwise, the basic and optional alignments create opportunities for new/improved landscaping and urban design elements pending additional design.</p>	<p>Trees / Landscape Design</p> <p>The one-way alignment could impact up to 62 London Plane trees and 44 pedestrian light poles on the City-side, with limited options to replace or relocate on site (in addition to the 6 center median palm trees that would be removed). Opportunities for new / improved landscaping on the water-side are similar to the basic two-way alignment.</p>
<p>Transit / Bus Operations</p> <p>The basic two-way alignment should not significantly impact public transit or four bus operations beyond increased levels of congestion. Impacts to trolley operations may be enhanced with stop consolidation at a few locations, although trolley impacts from the "big move" concept near the Ferry Building requires further study.</p>	<p>Transit / Bus Operations</p> <p>The one-way (vs. two-way) alignment impacts bus operations more due to further congestion from additional SB lane reductions and dedicated bike signal phasing. Trolley impacts are not expected. Consolidating or removing trolley stops is optional and may (or may not) be explored as part of this alignment.</p>
<p>Bikeway Quality</p> <p>The two-way alignment meets or exceeds the preferred minimum width in virtually all locations, provides ample opportunities to physically protect users from traffic, has fewer signalized intersections, and is directly adjacent to most waterfront destinations. If desirable, some or all portions of the existing SB bike lane could also be retained.</p>	<p>Bikeway Quality</p> <p>The one-way alignment would widen the existing SB bike lanes and improve intersection safety at most locations with dedicated signals or vehicle right-turn bans. Wider and physically-protected NB lanes are achievable, but opportunities for SB protection are more limited (in some locations a protected bikeway is not feasible), which may limit its attractiveness as an alternative to the Promenade pathway.</p>
<p>Cost</p> <p>While detailed cost estimates are not available, the one-way alignment is expected to be roughly double the cost of a two-way bikeway (all else being equal) due to its larger footprint and impacts to both sides of The Embarcadero.</p> <p>\$\$</p>	<p>Cost</p> <p>\$\$\$\$</p>

Colors denote overall impact to existing conditions

"SB" = Southbound or "City-side"
"NB" = Northbound or "water-side"



Public Outreach / Engagement

Project Briefings

- Port Commission (2014, 2018)
- Northeast Waterfront Advisory Group (NEWAG)
- Central Waterfront Advisory Group (CWAG)
- Maritime Commerce Advisory Committee (MCAC)
- Ballpark Mission Bay Transportation Committee
- San Francisco Hotel Council
- SF Travel, SF Tour Guide Guild
- South Beach/Rincon/Mission Bay Neighborhood Assoc.
- Barbary Coast Neighborhood Association
- District 3 SFMTA Working Group
- Fisherman's Wharf Community Benefits District
- Fisherman's Wharf Restaurant Association
- Fisherman's Wharf Merchants Association
- MTC Bay Trail Steering Committee
- Individual stakeholders incl. Ferry Building, Exploratorium, Pier 39, and many others...

Changes are coming to the Embarcadero, San Francisco's waterfront



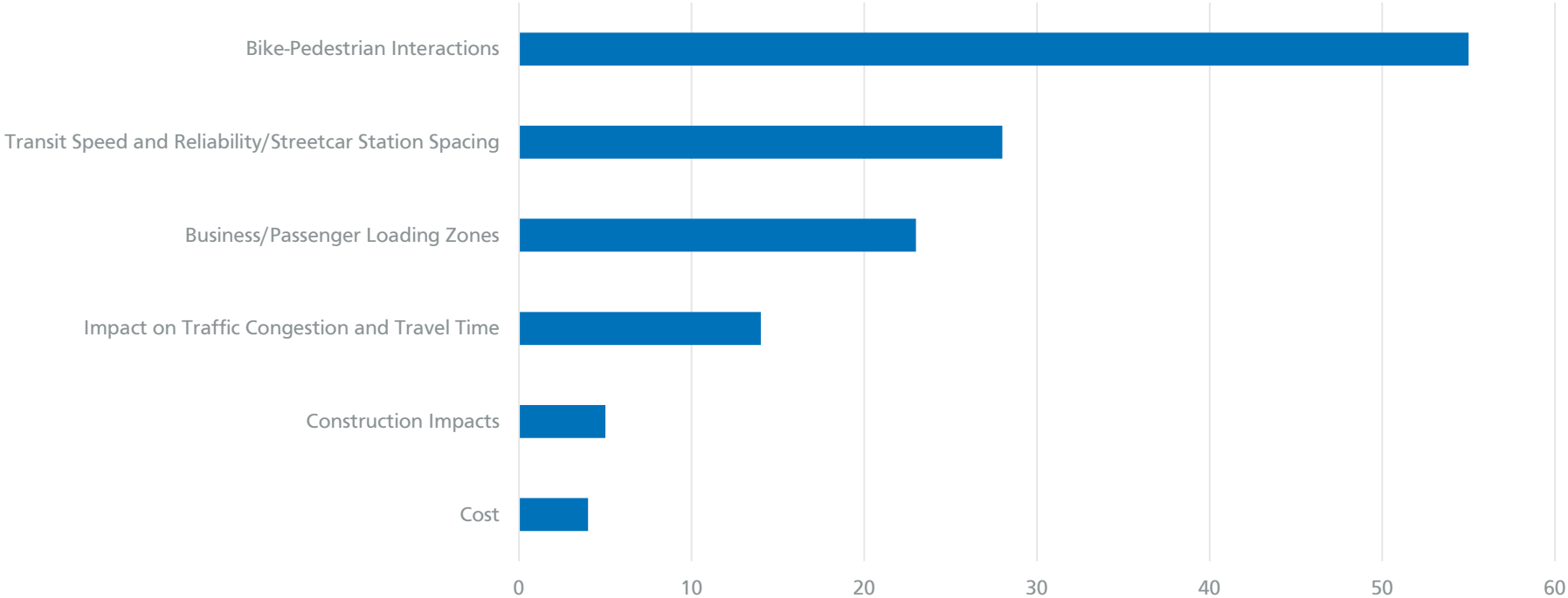
Media



Vendor Ride-Alongs

2018 Design Showcase Survey

What are you most interested to see studied or refined in greater detail?



VISION FOR A BETTER EMBARCADERO

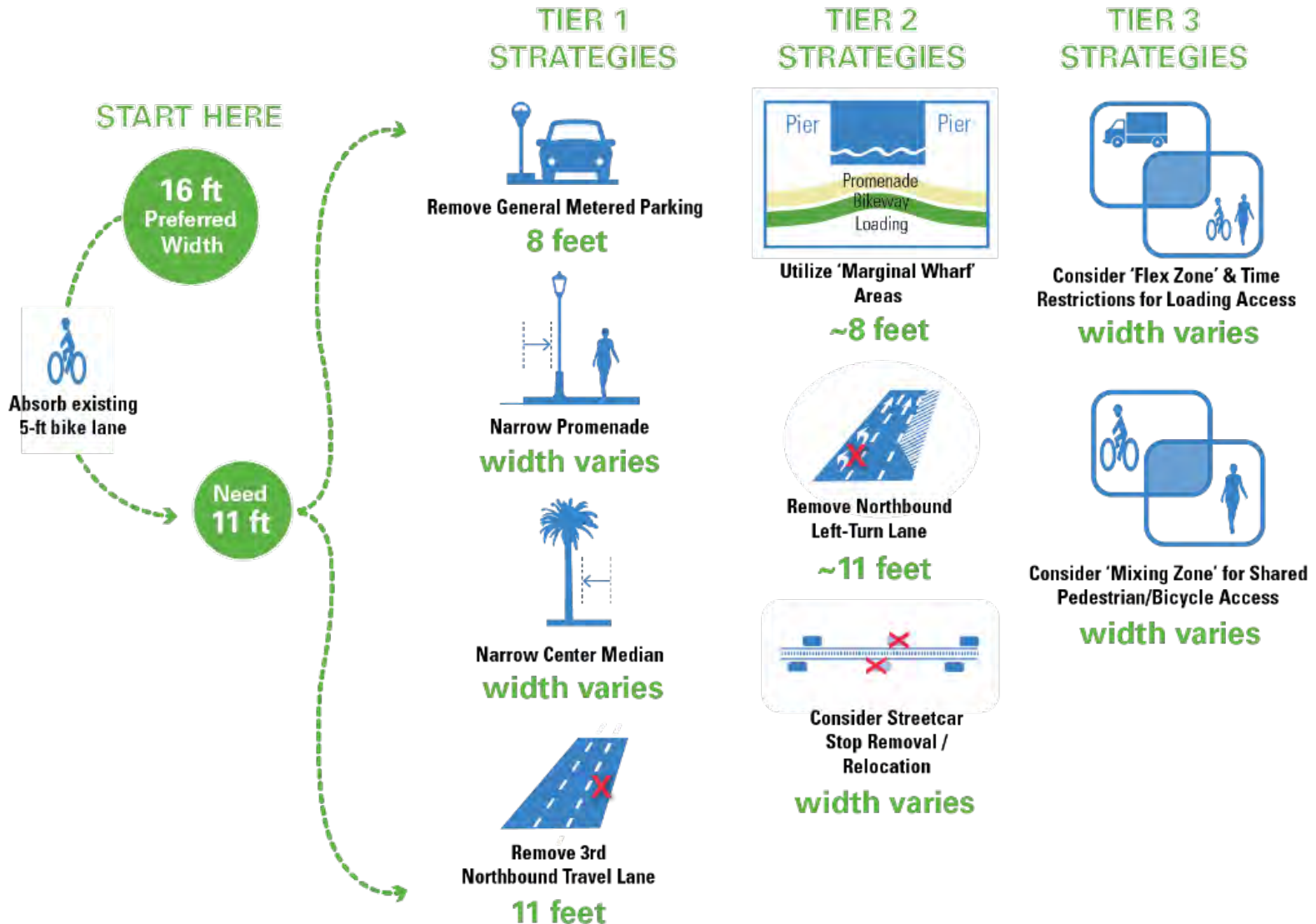


Embarcadero Enhancement Design Showcase - October 25, 2018

www.sfmta.com/embarcadero



Design Strategies



Embarcadero Enhancement Project

Project Approvals / Environmental Determination (PAED) Phase

- \$875,000 for preliminary engineering, traffic analysis, and public outreach
- CEQA review including historic resources evaluation & updated project description
- Ongoing coordination with Port Resiliency Program, RFP's for pier redevelopment
- \$12m-\$15m assumed for initial project segment (tentatively the 'southern segment')
- Consultant assistance includes 3D animation(s) of two-way bikeway for public engagement



SFMTA Quick-Build Initiative

LOCAL // BAY AREA & STATE

Breed calls for 20 miles of new protected bike lanes in SF in two years

Rachel Swan | May 9, 2019 | Updated: May 9, 2019 4:15 p.m.



Activists with the People Protected Bike Lane group form a human barrier to separate streets in San Francisco.

LOCAL // BAY AREA & STATE

City speeds up approval process for new bike lanes, road safety improvements

Rachel Swan | June 5, 2019 | Updated: June 5, 2019 4:49 p.m.



killed earlier this year after being struck by a vehicle.

Vision Zero Desperately Needs Help

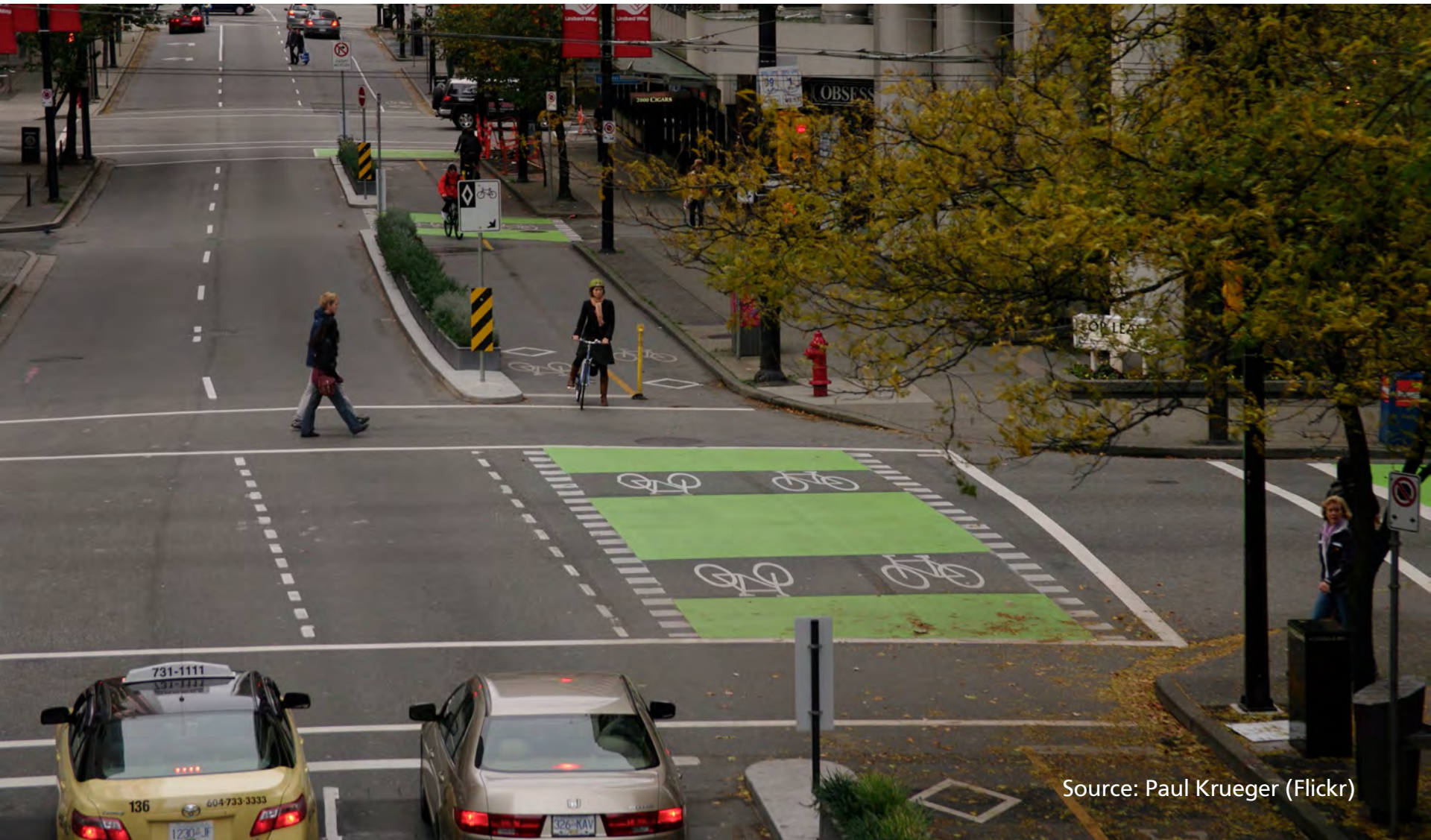
San Francisco's goal to eliminate traffic fatalities by 2024 seems farther away than ever. What will it take to get back on track?

by Ida Mojada • 08/20/2019 5:39 pm - Updated 08/22/2019 12:08 pm



By SF Weekly's count, 23 people have died in traffic fatalities on city streets this year. (Art by Sophia Valdes)

SFMTA Quick-Build Initiative



Source: Paul Krueger (Flickr)



Folsom to Mission Quick-Build Proposal

Folsom to Mission Quick-Build Proposal



Protected Bikeway:

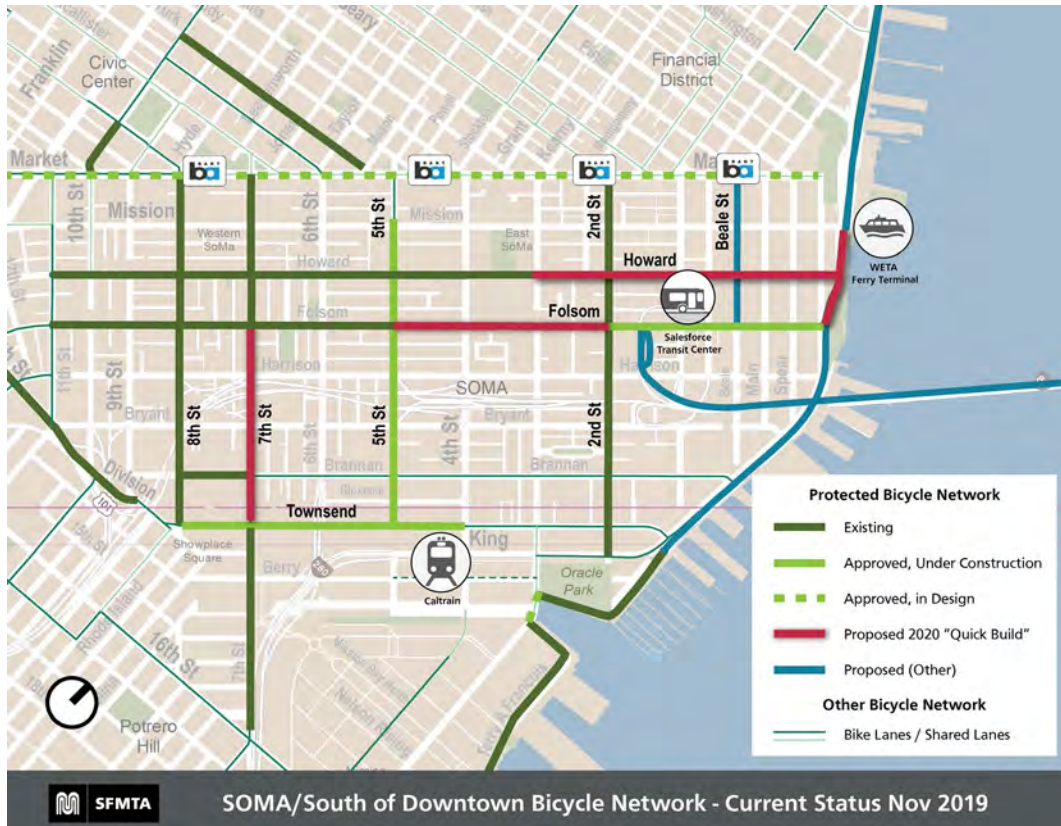
Short segment of two-way, water-side bikeway helps connect Ferry Terminal users with rapidly expanding SOMA protected bicycle network; also allows preview/testing of new bikeway concept, including bike signals

Safer Pedestrian Crossings:

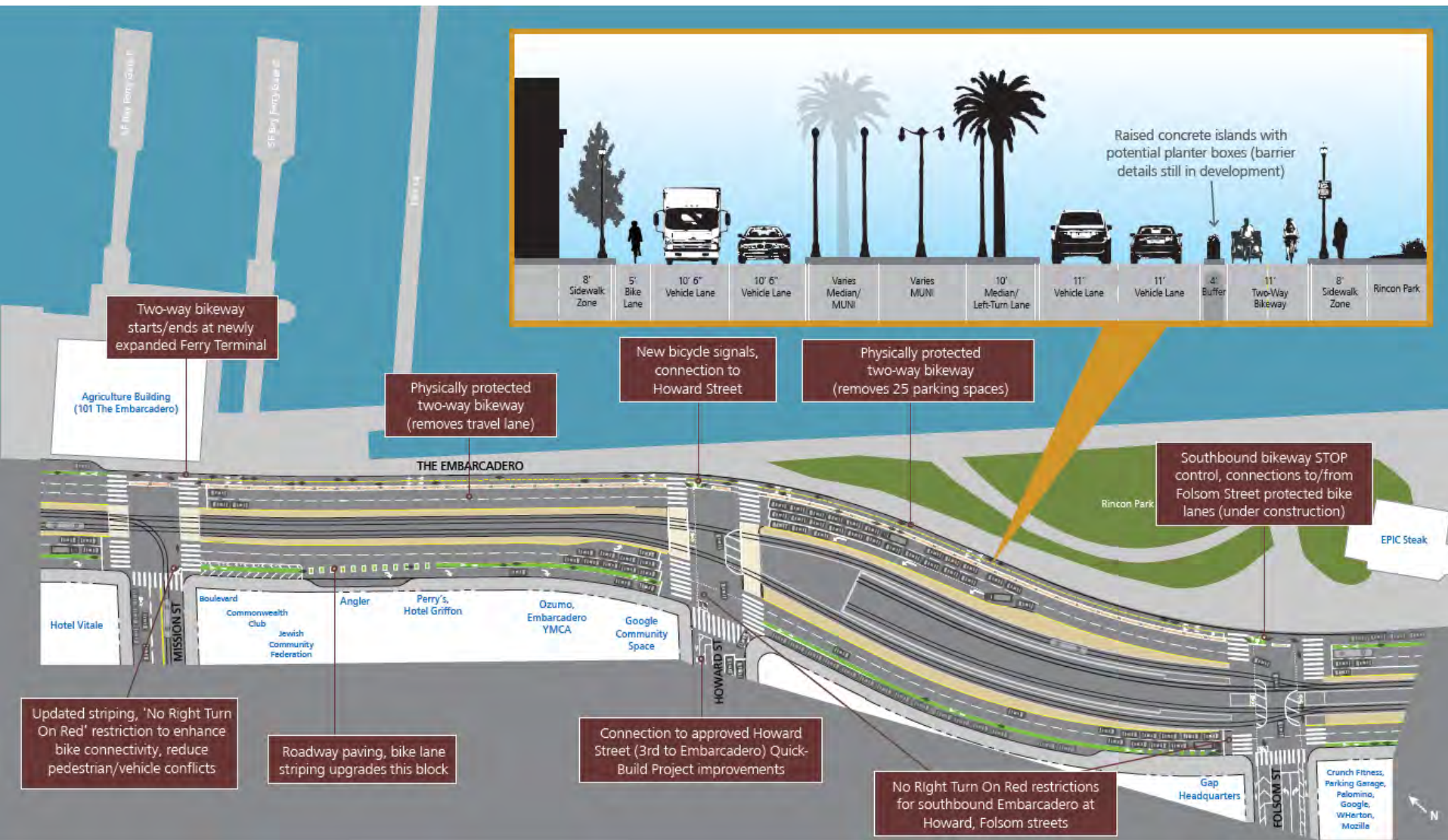
Right-turn on red restrictions, 'painted safety zones,' one block of vehicle lane reduction to calm busy intersections; calmer promenade with reduced bicycle/scooter traffic

Spot Pavement Repair:

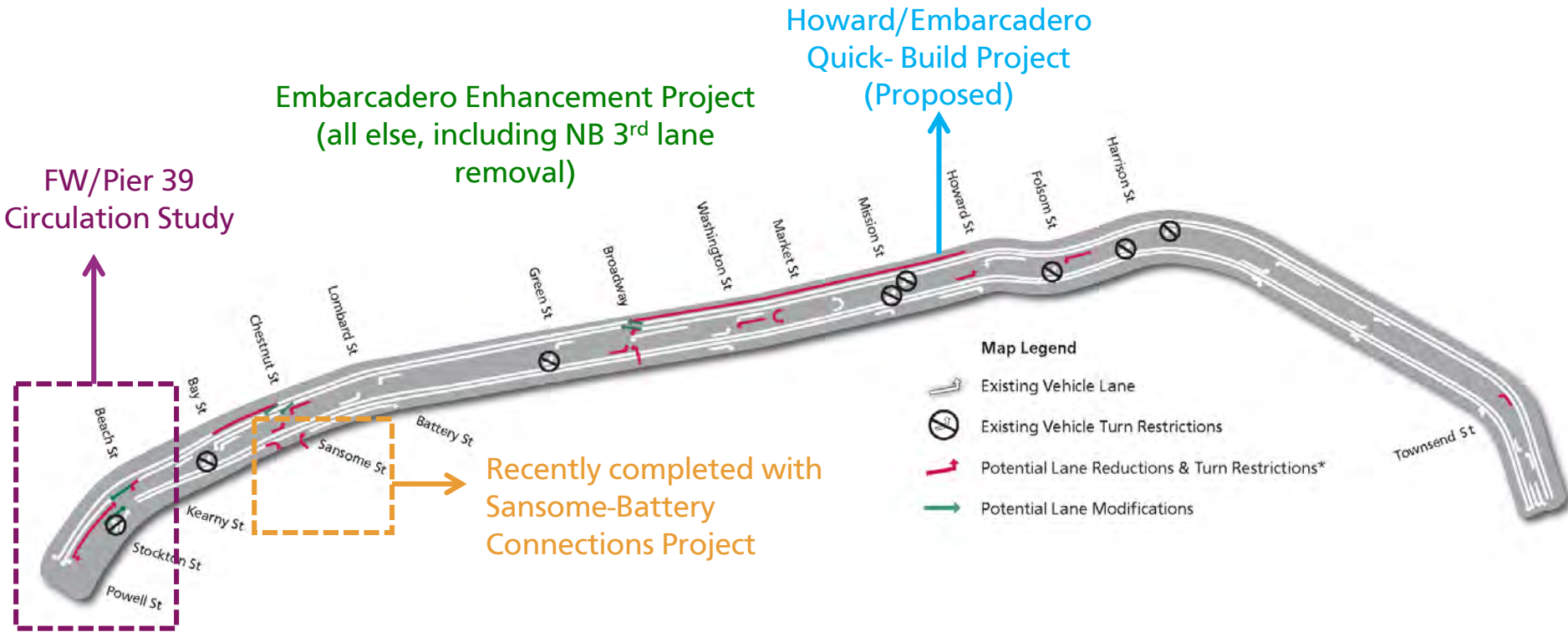
Smoother, safer rides for everyone



Folsom to Mission Quick-Build Proposal



Design Direction - Circulation



Planning Phase Assumptions

- Maintain two vehicle through lanes (except at NB approach to Bay Street)
- Seek to remove double-turn lanes if feasible (except at Bay Street)
- Simplify select intersections for safety, bikeway design, and/or for efficiency/transit travel time

Design Direction - Bikeway

Mission to Broadway:

- Road diet (removal of third NB travel lane) allows potential quick-build opportunity, although approach to Broadway is a major pinchpoint
- SFMTA preparing traffic analysis, trade-offs matrix between quick-build and larger capital project for public feedback
- Potential Washington and Clay left-turn lane changes, city-side pedestrian improvements not essential to bikeway but remain under study

Sansome to North Point:

- 3rd NB travel lane removal opportunities, Sansome to Bay; approach to Bay Street would leave one through travel lane, double-left turn lanes onto Bay Street
- Pier 35 (Bay to North Point): 2020 quick-build could be converted to two-way bikeway

Folsom to Harrison block:

- 2020 quick-build to protect existing northbound (NB) bikeway
- Two-way bikeway requires narrowing center median, restricting northbound left-turns (onto Folsom)

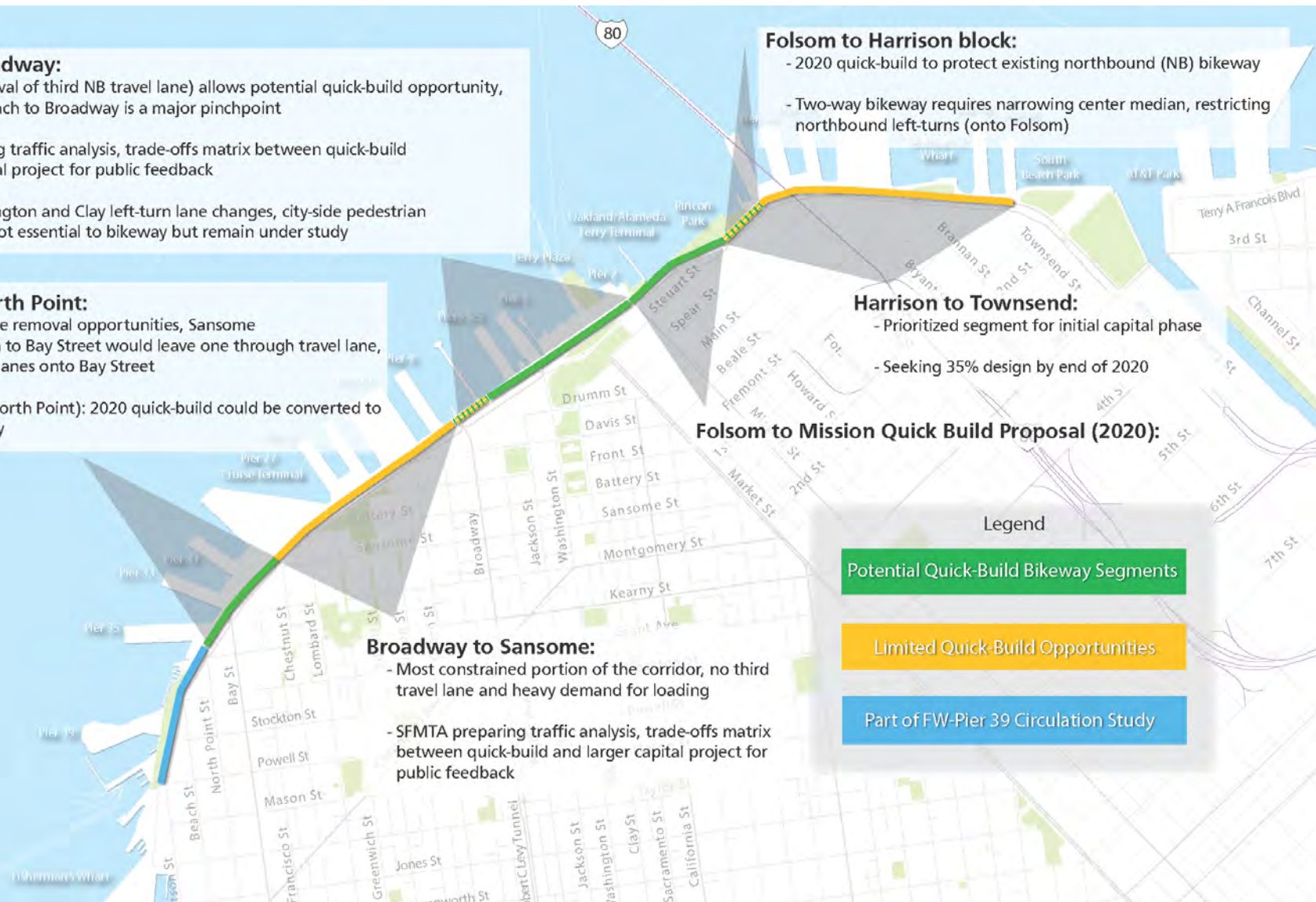
Harrison to Townsend:

- Prioritized segment for initial capital phase
- Seeking 35% design by end of 2020

Folsom to Mission Quick Build Proposal (2020):

Broadway to Sansome:

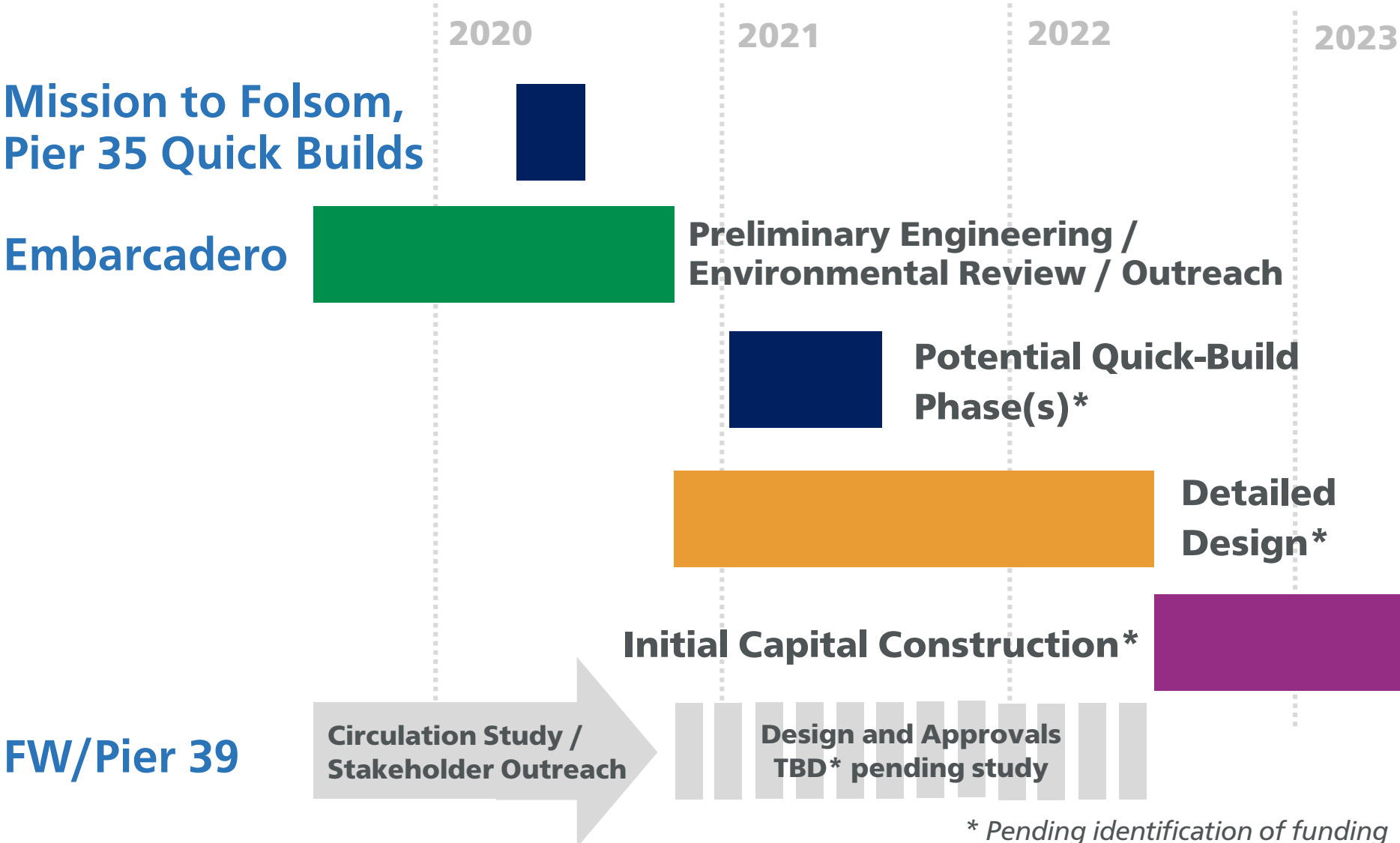
- Most constrained portion of the corridor, no third travel lane and heavy demand for loading
- SFMTA preparing traffic analysis, trade-offs matrix between quick-build and larger capital project for public feedback



Design Direction - Loading

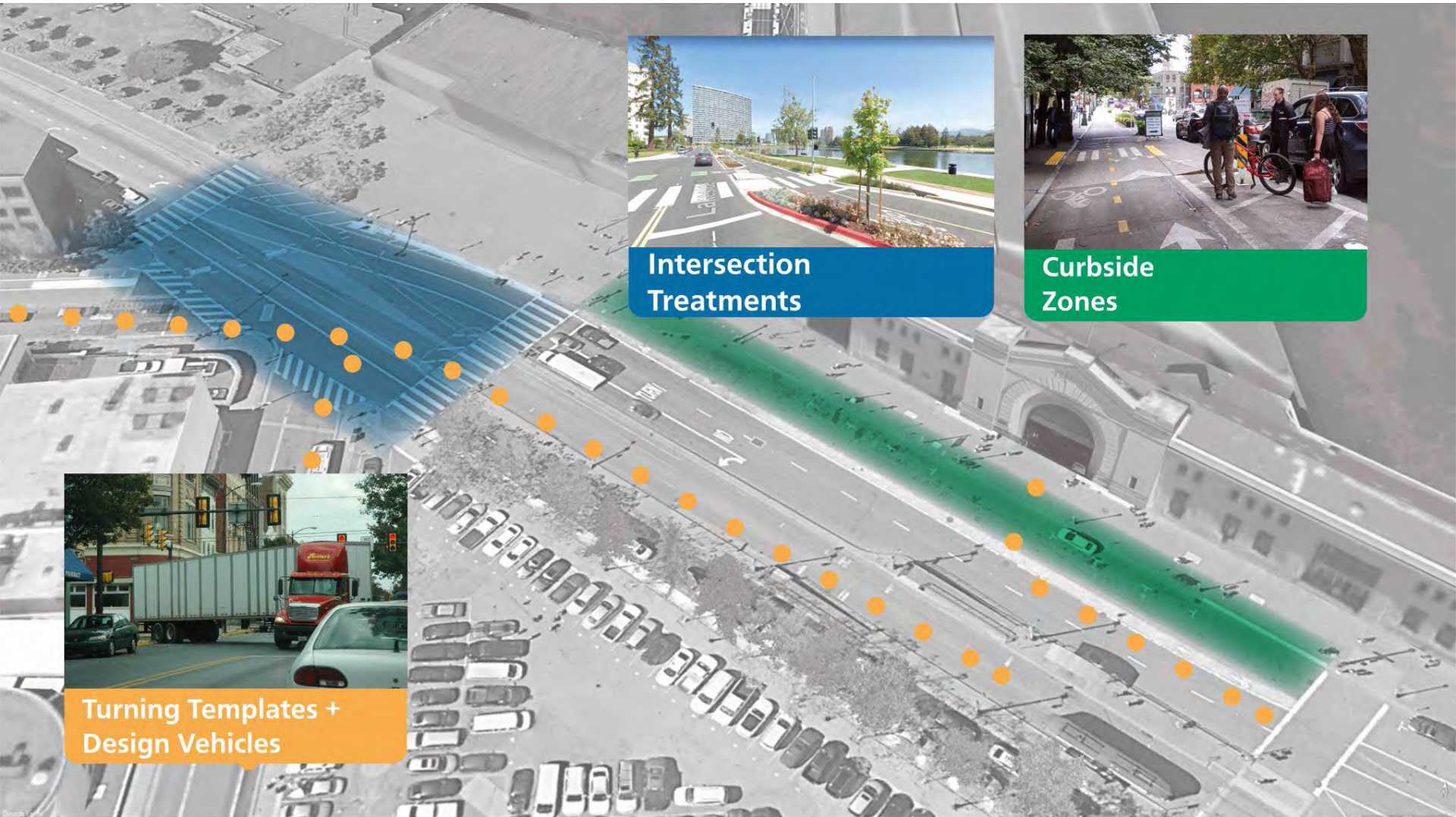


Project Timelines (subject to change)



* Pending identification of funding

Design Considerations

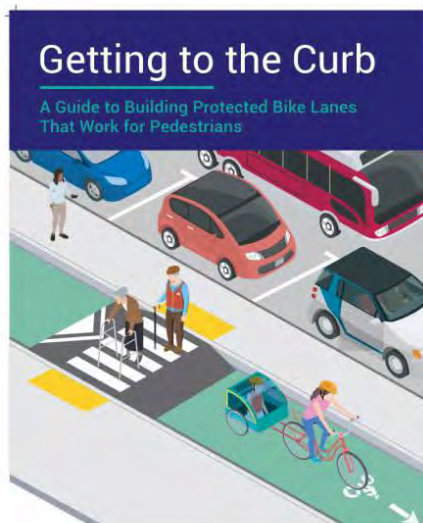
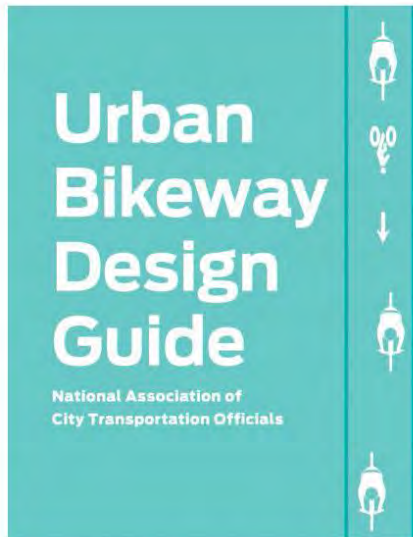


Intersection Treatments

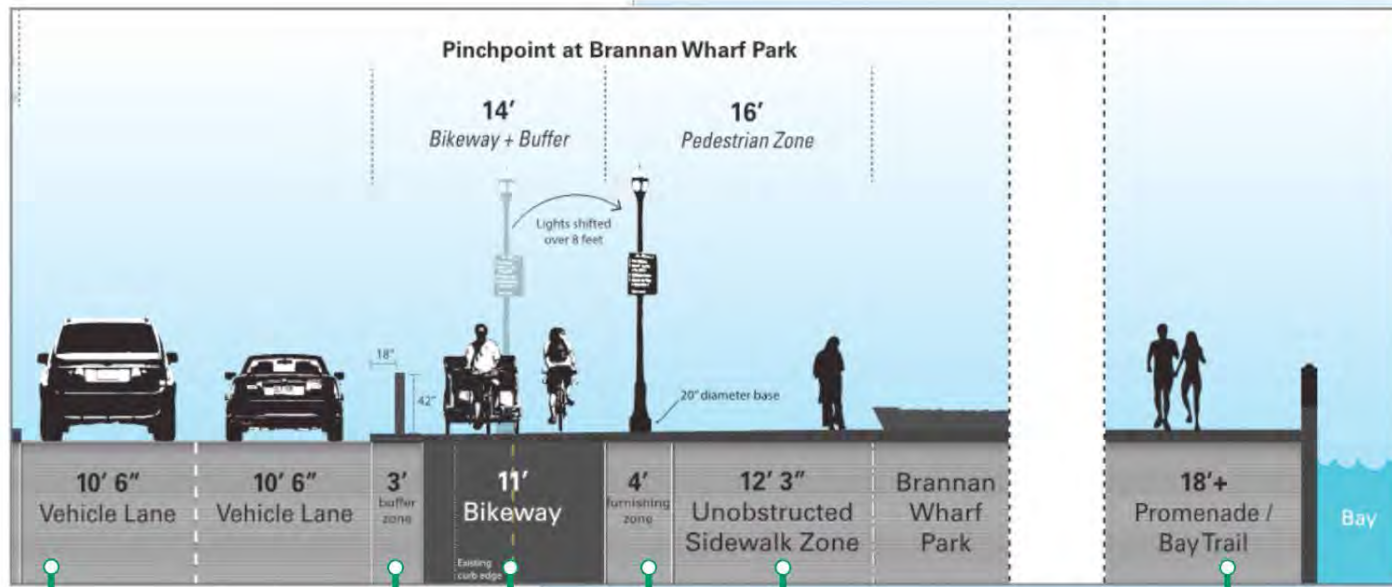
Curbside Zones

Turning Templates + Design Vehicles

Design Guidance



Cross Section Elements



Motor Vehicle Travel Lanes

The space in which motorists operate vehicles, including autos, trucks and buses.

Separated Bikeway

The space in which the bicyclist operates. It is located between the street buffer and the sidewalk buffer.

Street Buffer

The Street Buffer separates the bikeway from motor vehicle traffic.

Amenity Zone/Sidewalk Buffer

The sidewalk buffer and amenity zone separates the bikeway from the pedestrian through zone and includes street furniture and amenities such as benches, lighting, refuse containers, bicycle parking, public art, and wayfinding signs.

Pedestrian Through Zone

Primary accessible pedestrian pathway paralleling the street and bikeway. The through zone ensures pedestrians have a safe and comfortable place to walk.

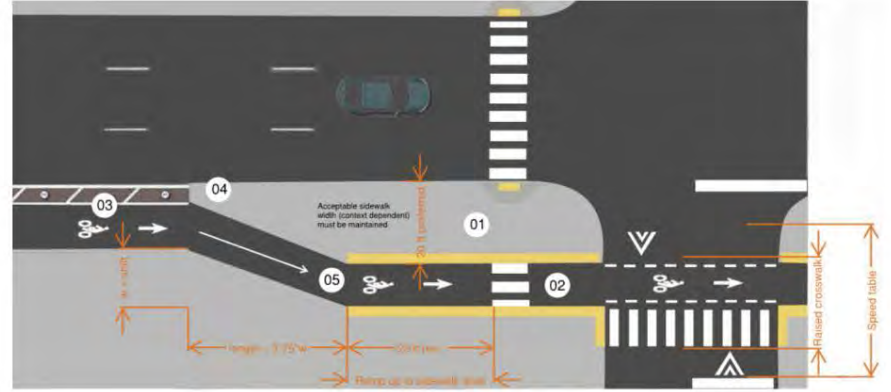
Sidewalk/Promenade

The Embarcadero Promenade is the major continuous waterfront walkway and multiuse pathway along the Port of San Francisco's northern waterfront.

Intersection Treatments



Protected Intersection

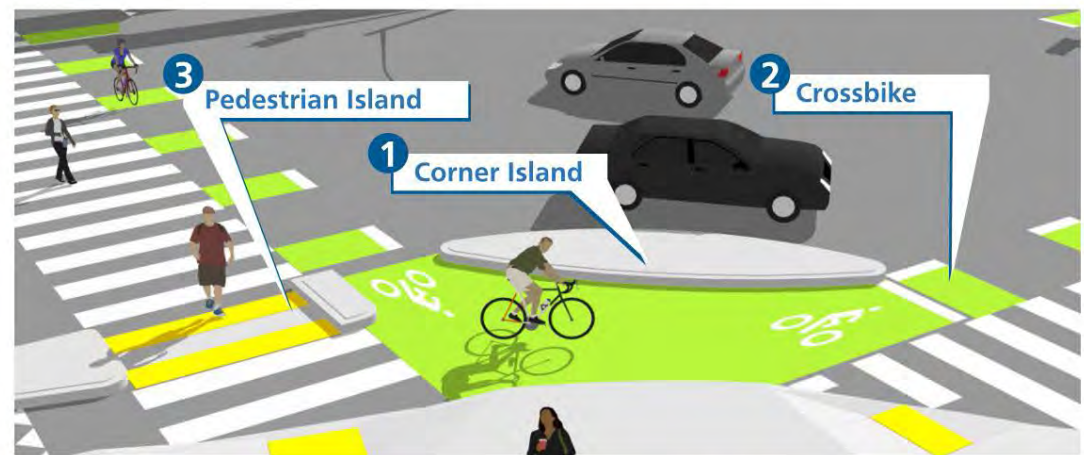
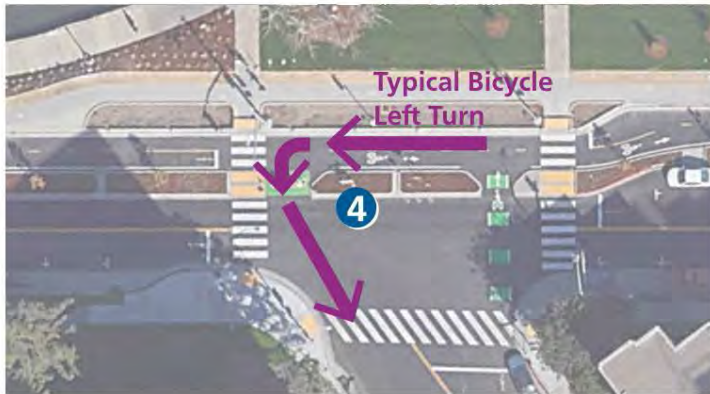


Bikeway Bend Out



Raised Bikeway Crossing

“Protected Intersection” Features



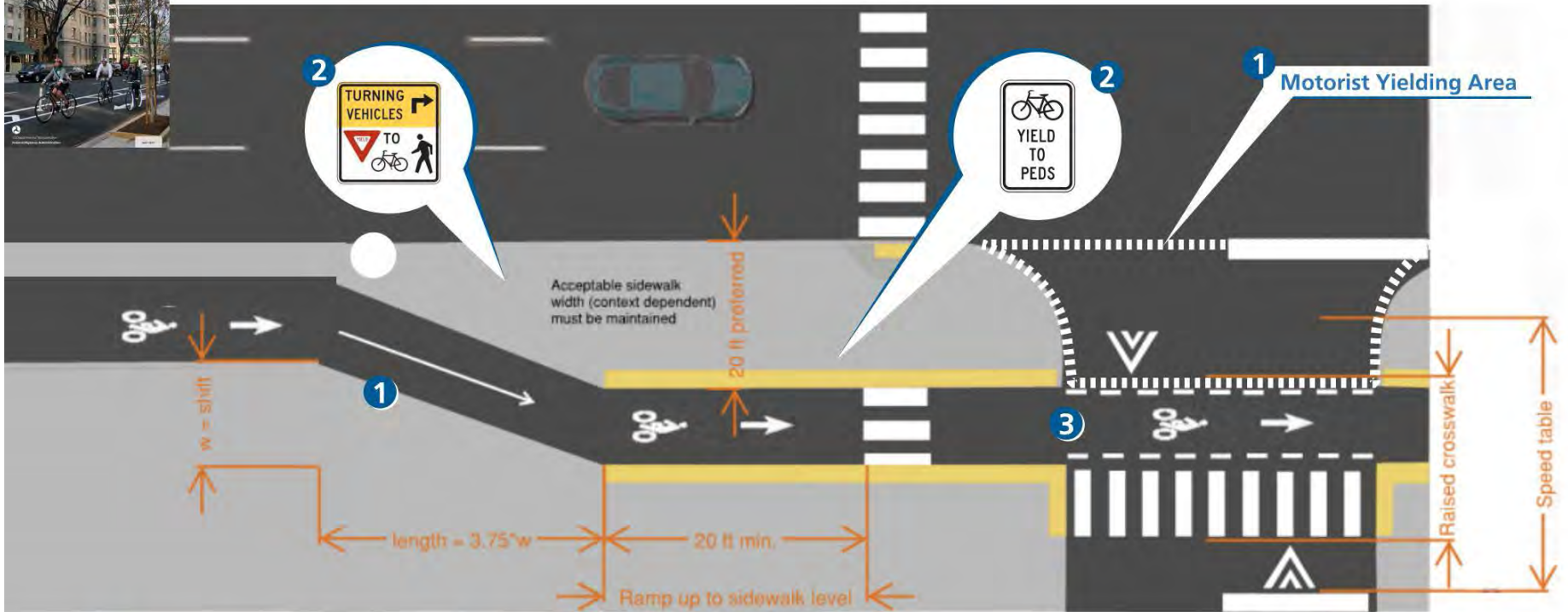
1 Buffer + Corner Island
Provides space for the **bicycle left turn queuing area** and **pedestrian refuge**. The buffer is a corner island **when motor vehicles cross** the bikeway

2 Signage + Markings
Crosswalk markings identify conflict areas and guide users through the intersection

3 Pedestrian Island
Islands reduce crossing distances and improve visibility by keeping the intersection clear. **Wider islands** support large pedestrian volumes.

4 Bicycle Queue Area
Bicyclists can wait ahead of the crosswalk for a green signal and accommodates the natural position of bicyclists turning onto connecting bikeways.

Driveway “Bend-Out” Features



1 Bend-Out Configuration
Provides opportunity for an ample **pedestrian refuge** and **motorist yielding area** between the through street and intersecting street

2 Signage + Markings
Motor vehicle and bicycle-oriented signage and markings **identify right-of-way** and **warn** users of conflict areas.

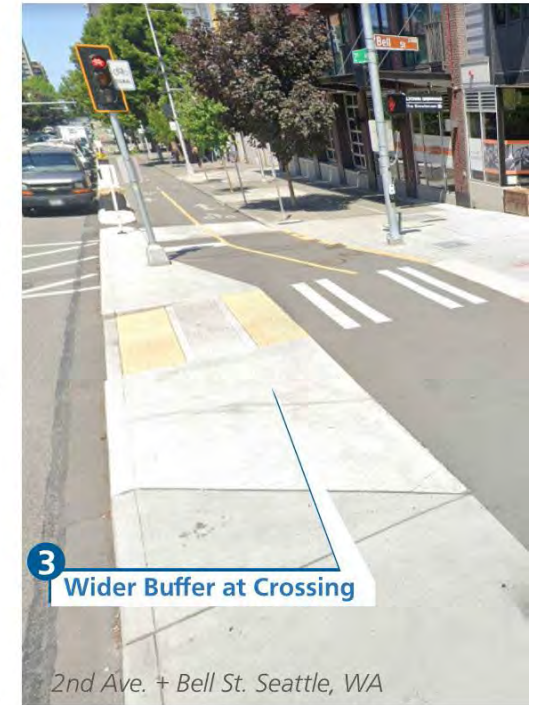
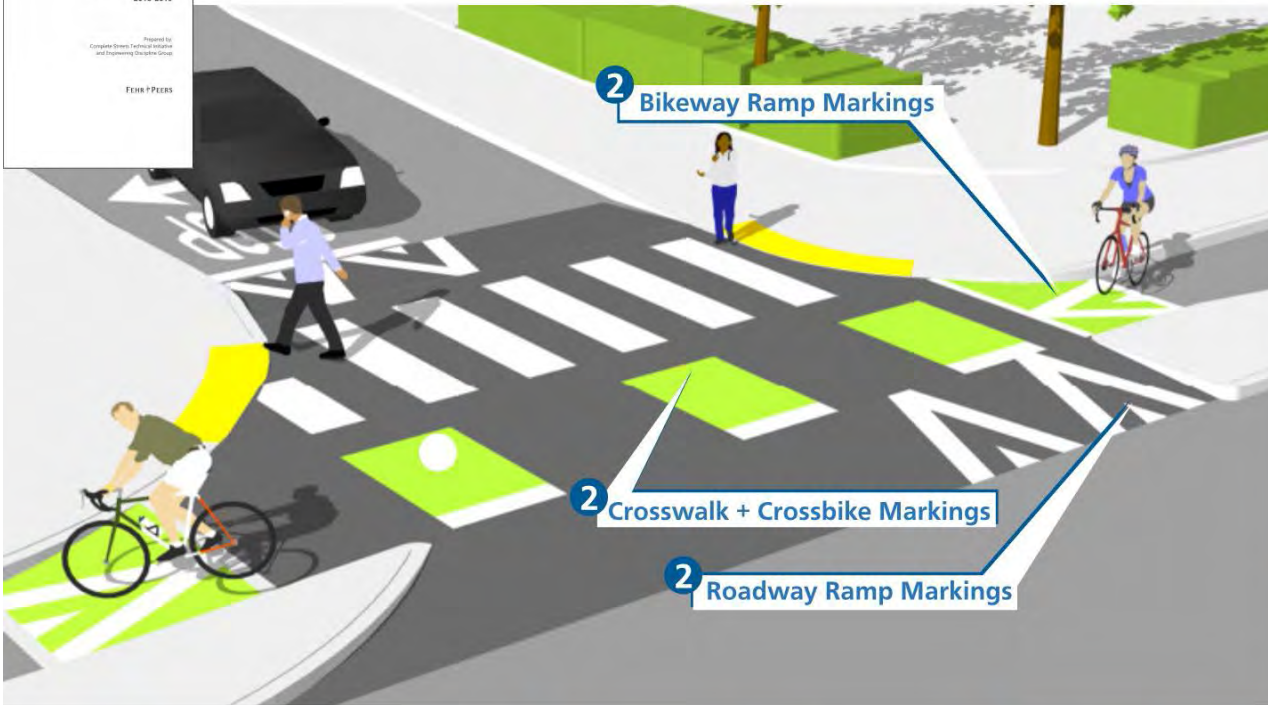
3 Raised Crossing
The bikeway and pedestrian crossing area may be raised above street grade to **slow and alert motorists** to crossing pedestrians and bicyclists

“Raised Crossing” Features

Engineering Handbook
2018-2019

Prepared by
Complete Street, Technical Solutions
and Engineering Directorate Group

FERR P PERS

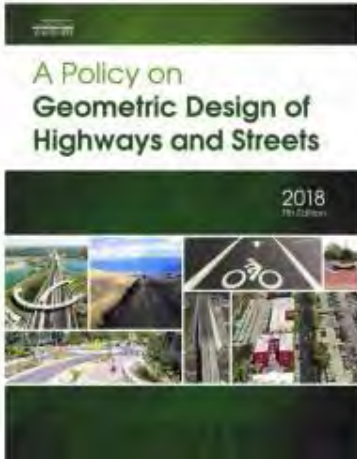


1 Raised Roadway Crossing
Alerts motorists to crossing bicyclists and pedestrians. **8%** max. grade requires about **seven feet** of bikeway street buffer space.

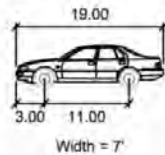
2 Signage + Markings
Motor vehicle and bicycle-oriented signage and markings **identify right-of-way** and **warn** users of conflict areas.

3 Bikeway Buffer Width
The bikeway buffer width must increase at the crossing to accommodate the roadway ramp width.

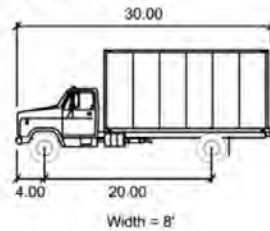
Design Vehicle Considerations



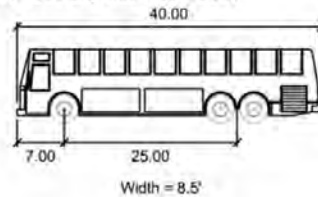
Passenger Car (P)



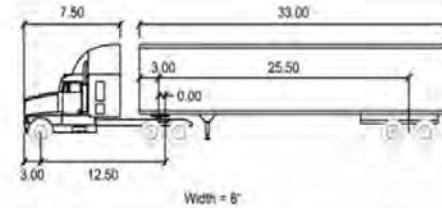
Single Unit Truck (SU)



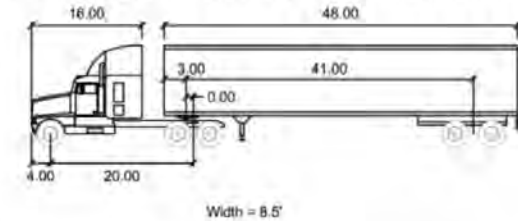
40-foot City Bus (CITY-BUS)



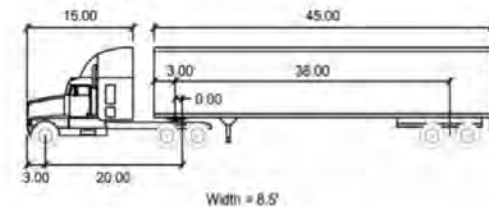
Semitrailer (WB-40)



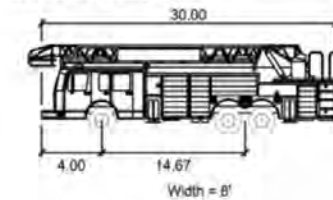
Surface Transportation Assistance Act Semitrailer (STAA-STD-50)



California Legal Semitrailer (CA LEGAL-50)



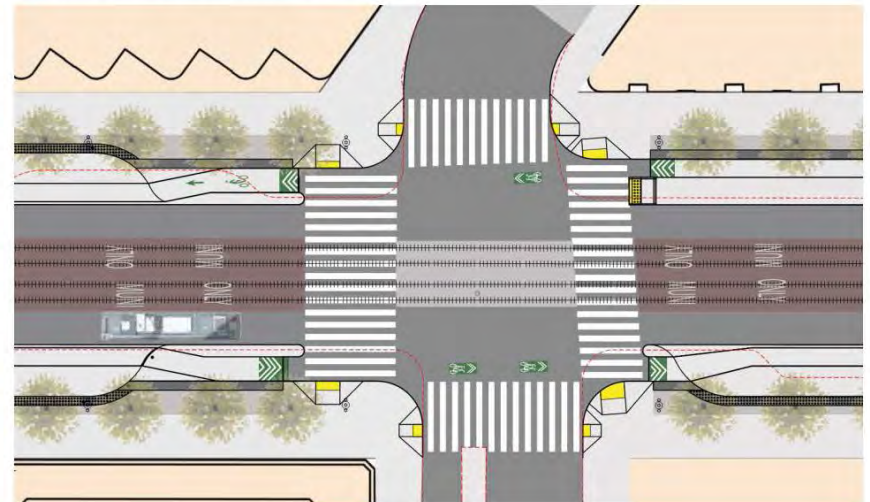
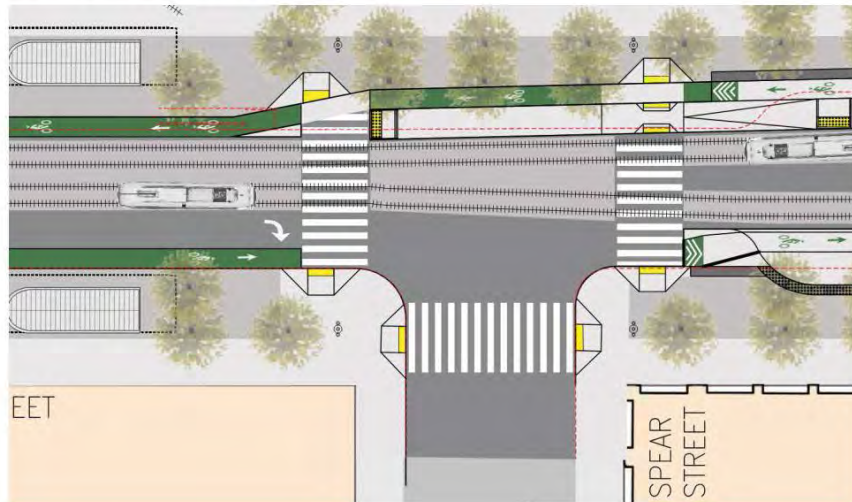
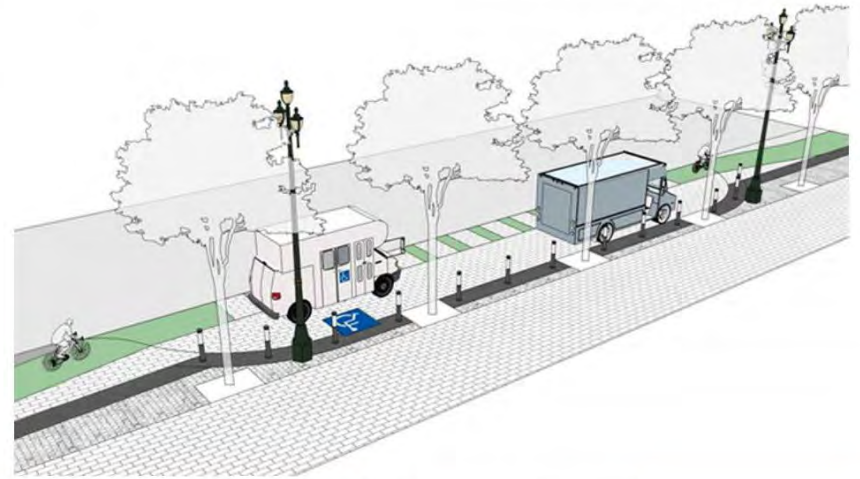
Fire Truck (Example)



Recent Inspiration

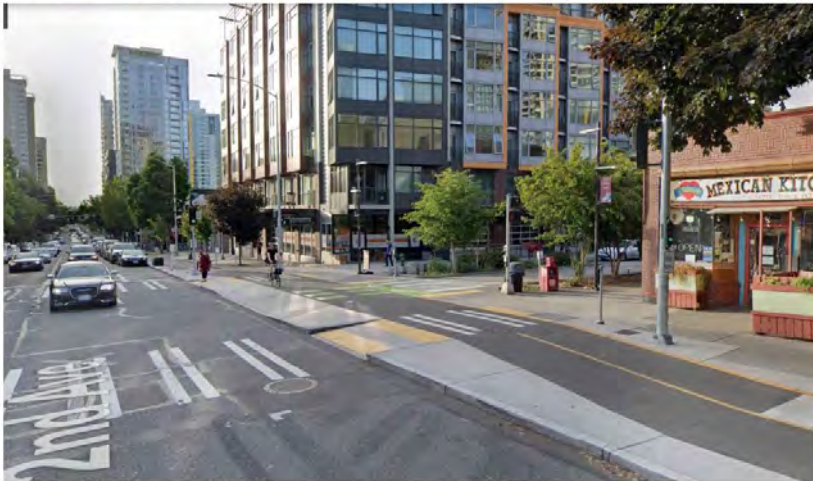


Better Market Street



Sample Projects

Seattle, WA



Sample Projects

Lake Merritt, Oakland



Context-Sensitive Design



Curb Management



Data Dashboard

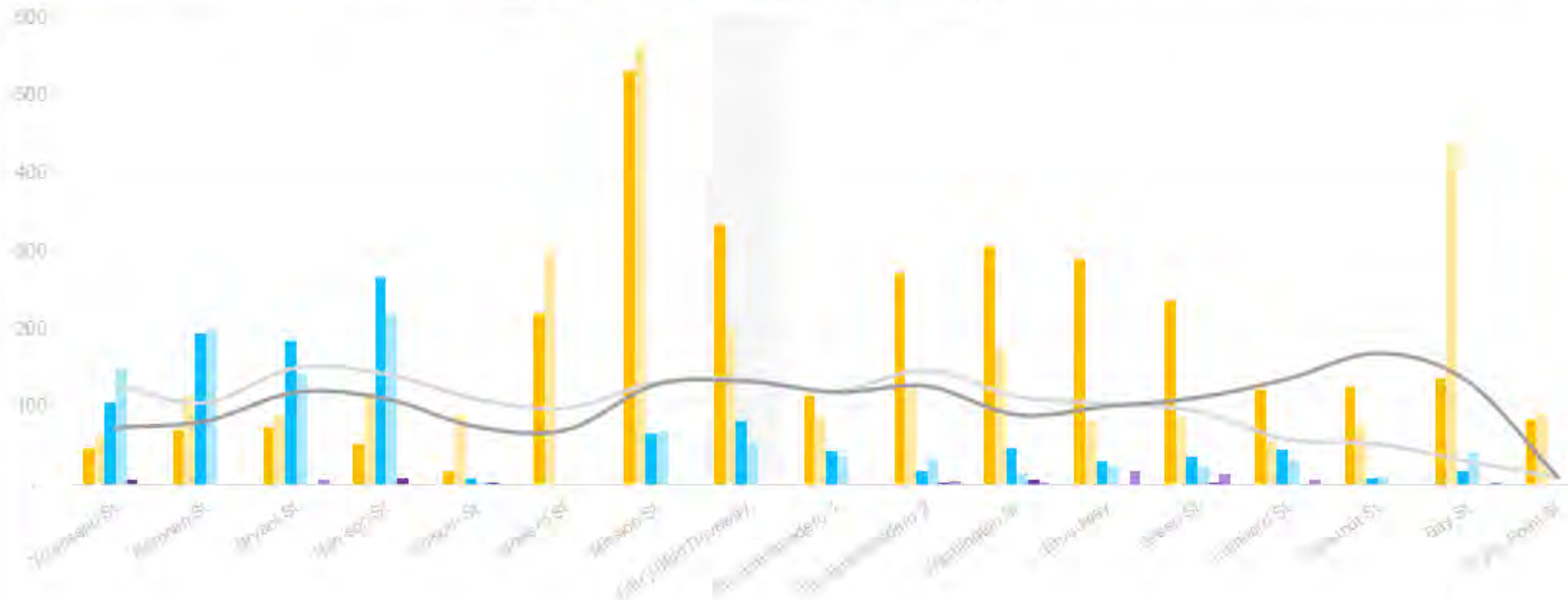
Time Period

AM Peak

Intersection Drilldown

Promenade Activity by Intersection Along Embarcadero

■ Promenade Peds NB
 ■ Promenade Peds SB
 ■ Promenade Bikes NB
 ■ Promenade Bikes SB
 ■ Promenade Scooters NB
 ■ Promenade Scooters SB
 — NB Bike Lane Bike + Scooter
 — SB Bike Lane Bike + Scooter



Data Dashboard

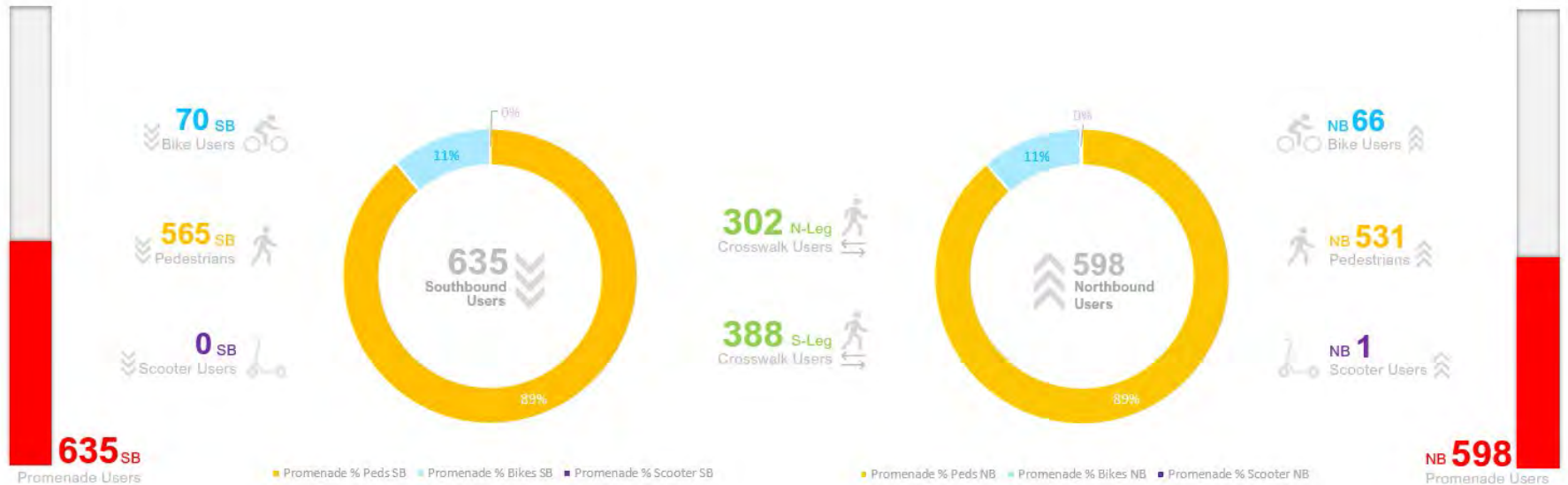
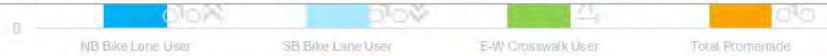
Intersection

Mission St

Time Period

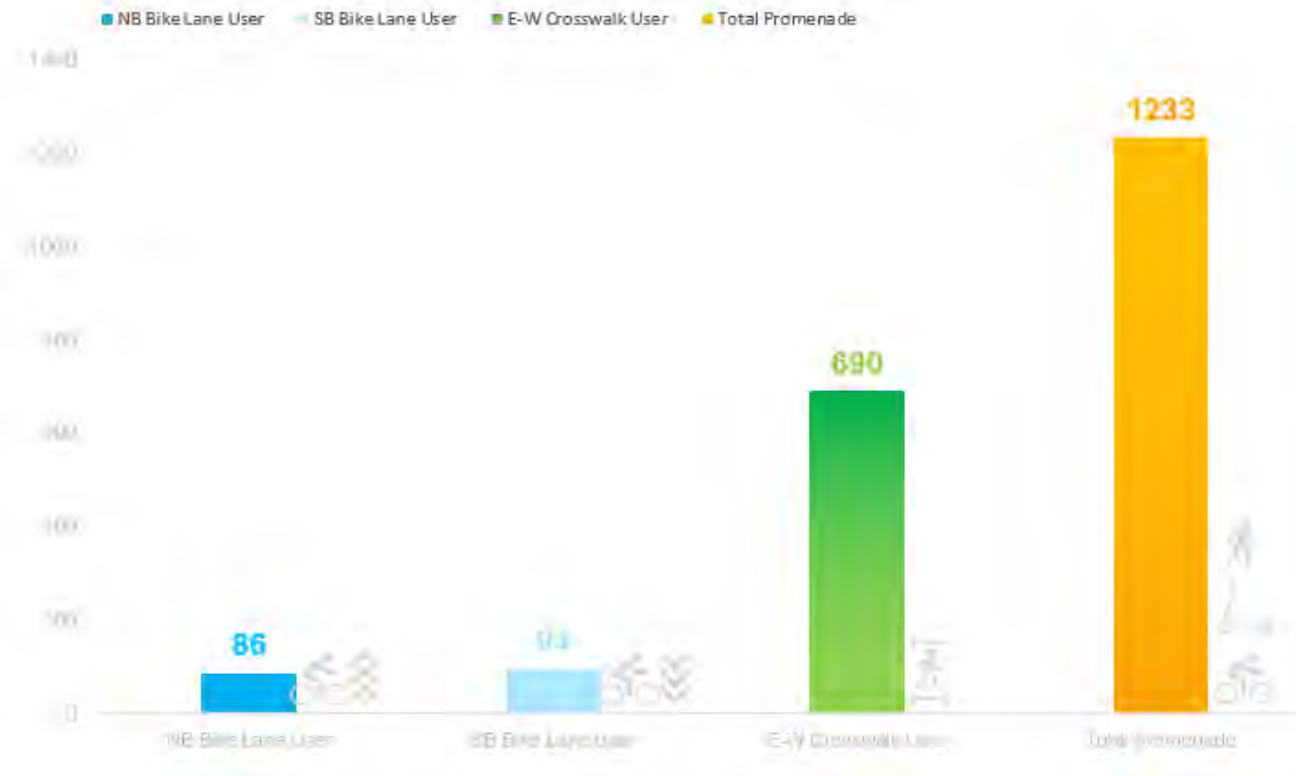
AM Peak

Back to Corridor

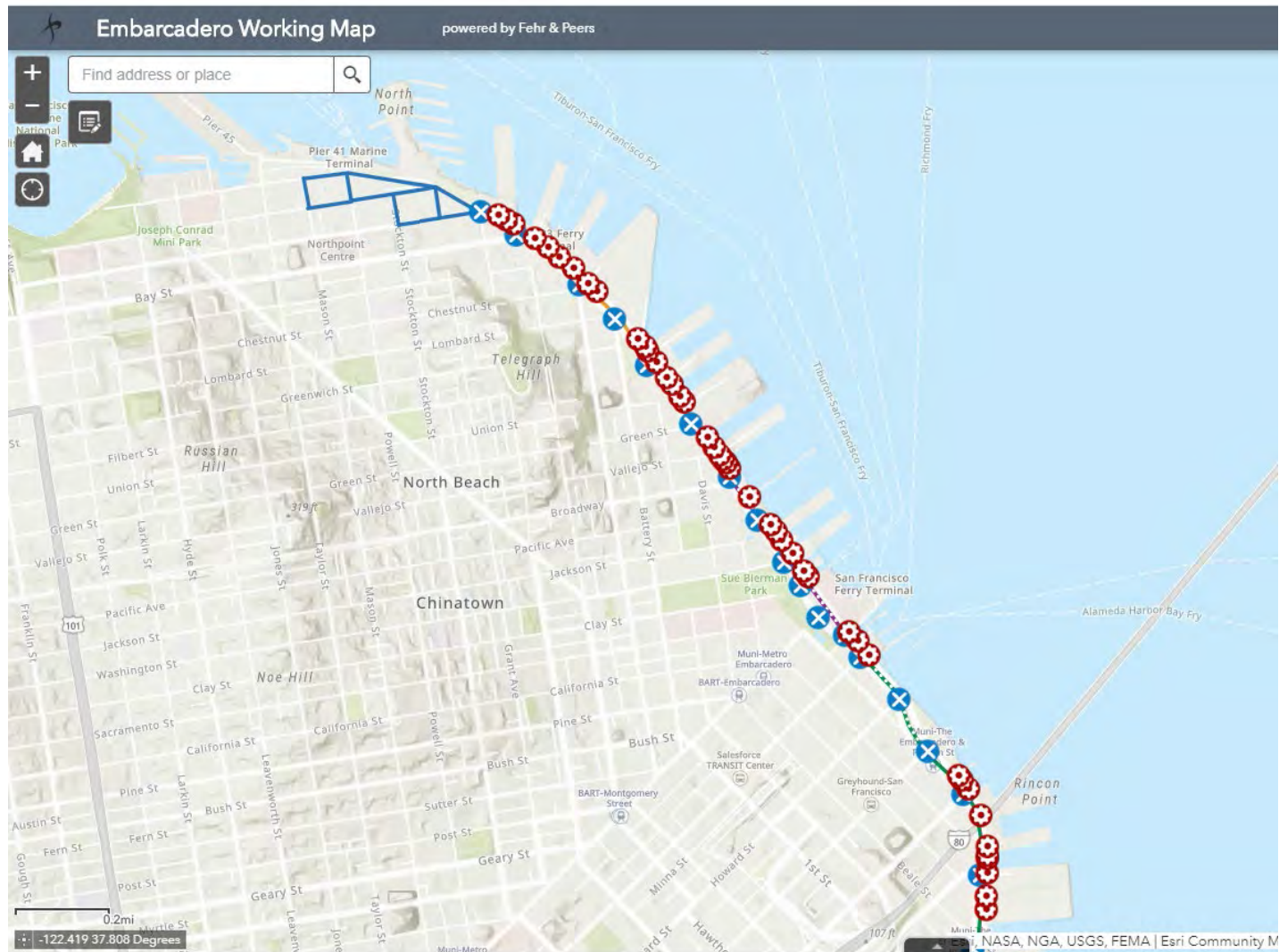


Data Dashboard

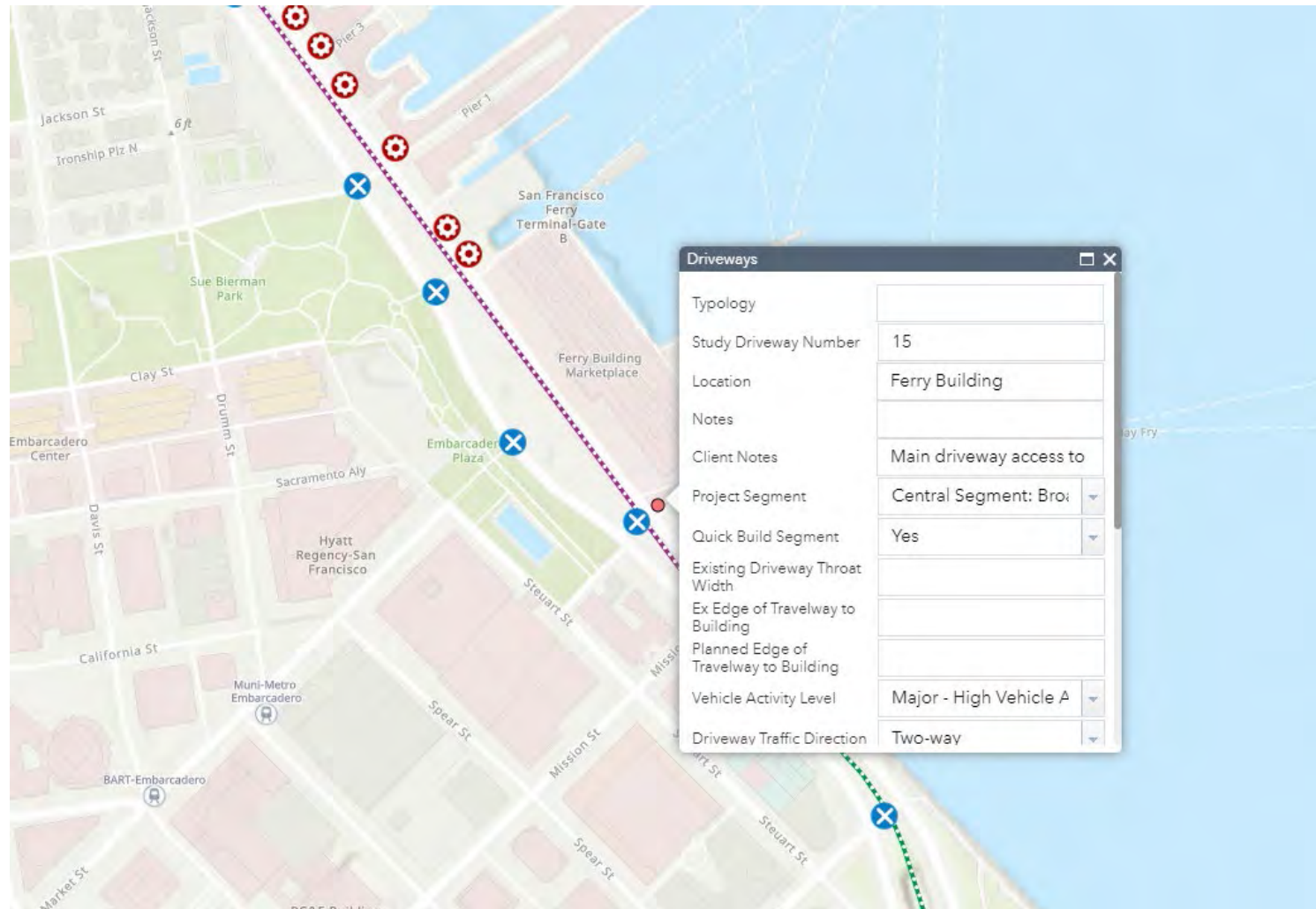
Promenade Activity Breakdown at Mission St



Webmap Collaboration



Webmap Collaboration



Thank You!

Questions?

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