Embarcadero Enhancement Project (EEP)

January 20, 2021

Northern Advisory Committee

Update Topics

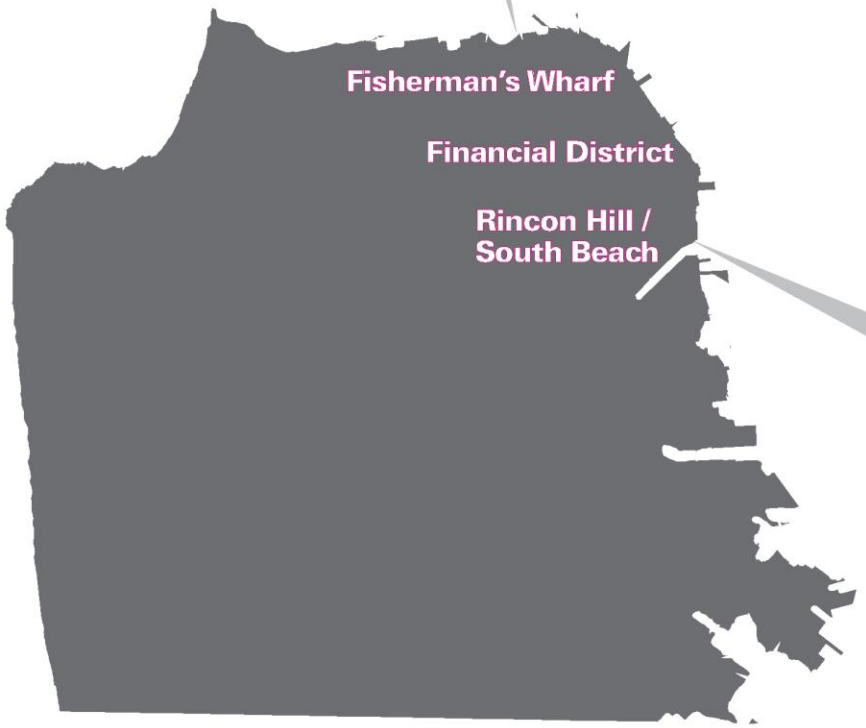
1. Embarcadero Transportation Planning
2. EEP Phasing Plan
3. Phase 1 Overview
4. Future Phasing & Coordination

Planning Phase

Northern Segment
Broadway to North Point

FW-Pier 39 (separate & related study)
North Point to Jefferson/Mason

Central Segment
Folsom to Broadway



Southern Segment
Folsom to Townsend

Embarcadero Transportation Goals

- Safety
- Access
- Mobility
- Connectivity
- Economic Recovery

VISION FOR A BETTER EMBARCADERO

Sansome & Battery Connections Project

- Substantially completed in July 2019
- Dedicated bike lanes off The Embarcadero, Chestnut to Jackson Street
- Major safety upgrades to Chestnut/Sansome intersection, including:

- ✓ Simplified intersection (SB turn restrictions)
- ✓ New marked crosswalk & painted safety zones
- ✓ Reconfigured Sansome turn lane(s)
- ✓ Bike/ped 'head start'

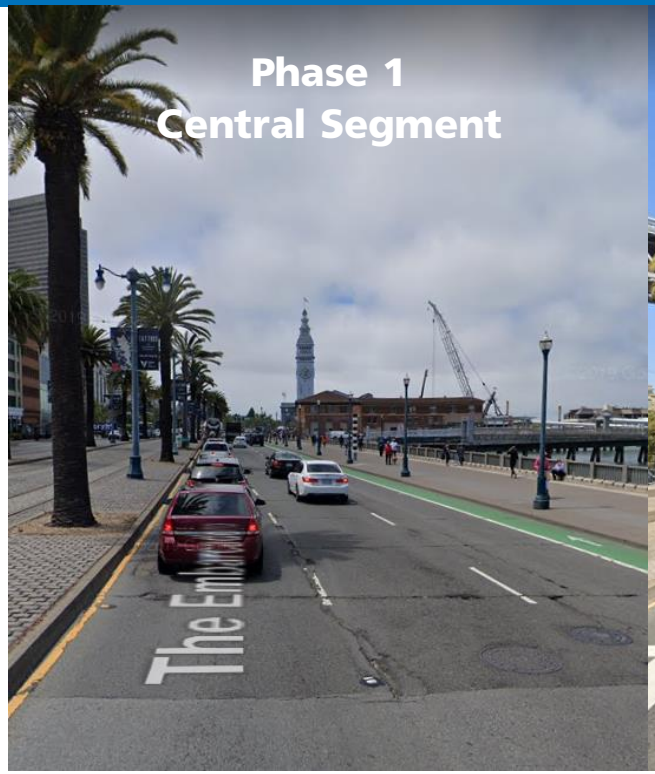
2020 Quick-Builds

Ferry Terminal

Rincon Restaurant Zone

Pier 35

Preliminary Engineering *Analysis*



- ✓ 3rd travel lane provides room for relatively quick, cost-effective improvements
- ✓ No 3rd lane but promenade generally wider, fewer loading conflicts, median narrowing opps
- $? No 3rd lane, loading challenges, higher infrastructure costs, other uncertainties

Phased Approach

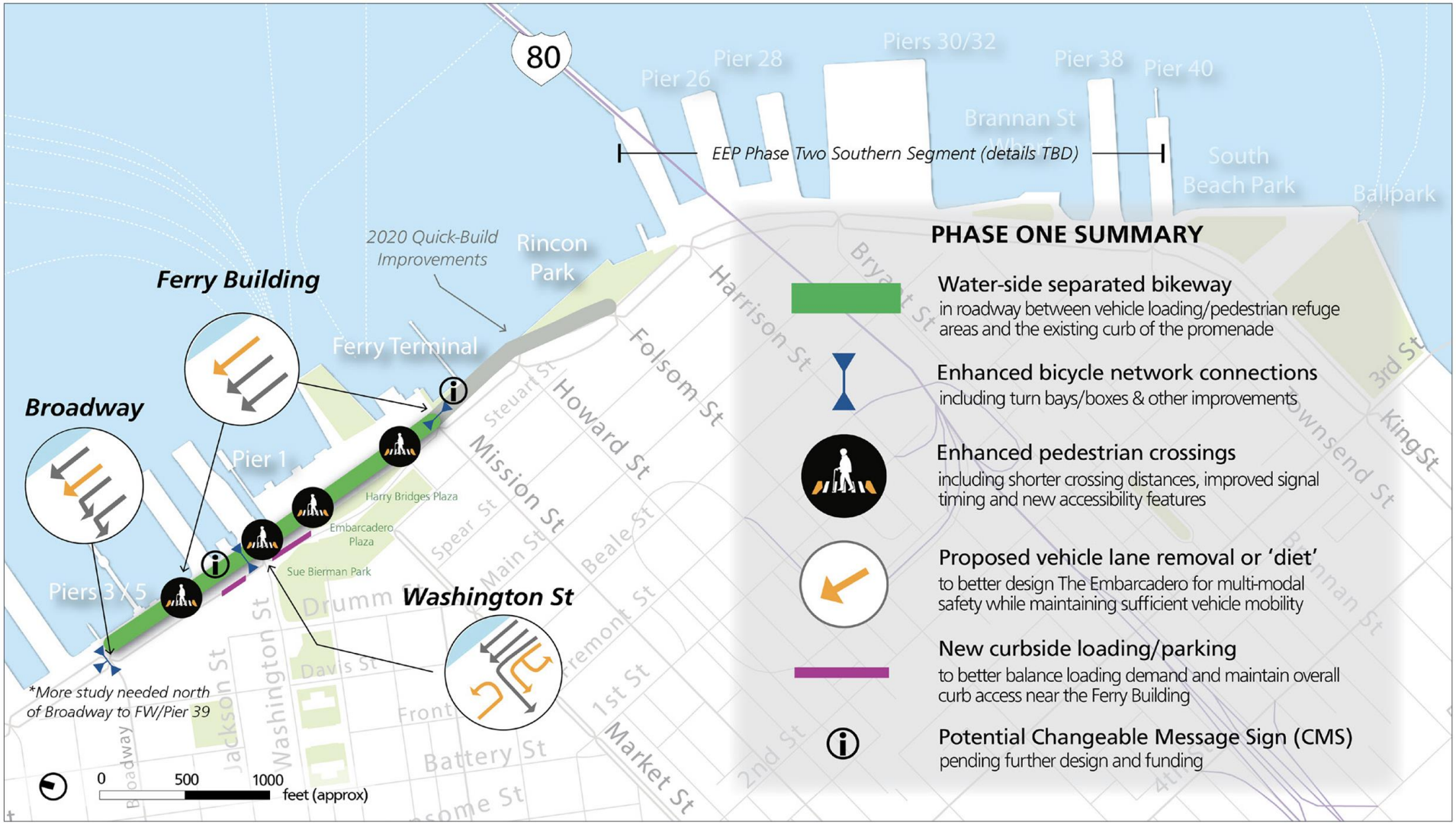
		Target Construction	Budget (est.)
EEP Phase 1A	Central Segment **Mission to Broadway**	2021/22	$1m*
EEP Phase 1B	Central Segment **Mission to Broadway**	2023/24 (tentative)	$2-4m*
EEP Phase 2	Southern Segment **Folsom to Townsend**	TBD	$15-20m*

**Rough estimates, subject to change*

Phase 1 Overview

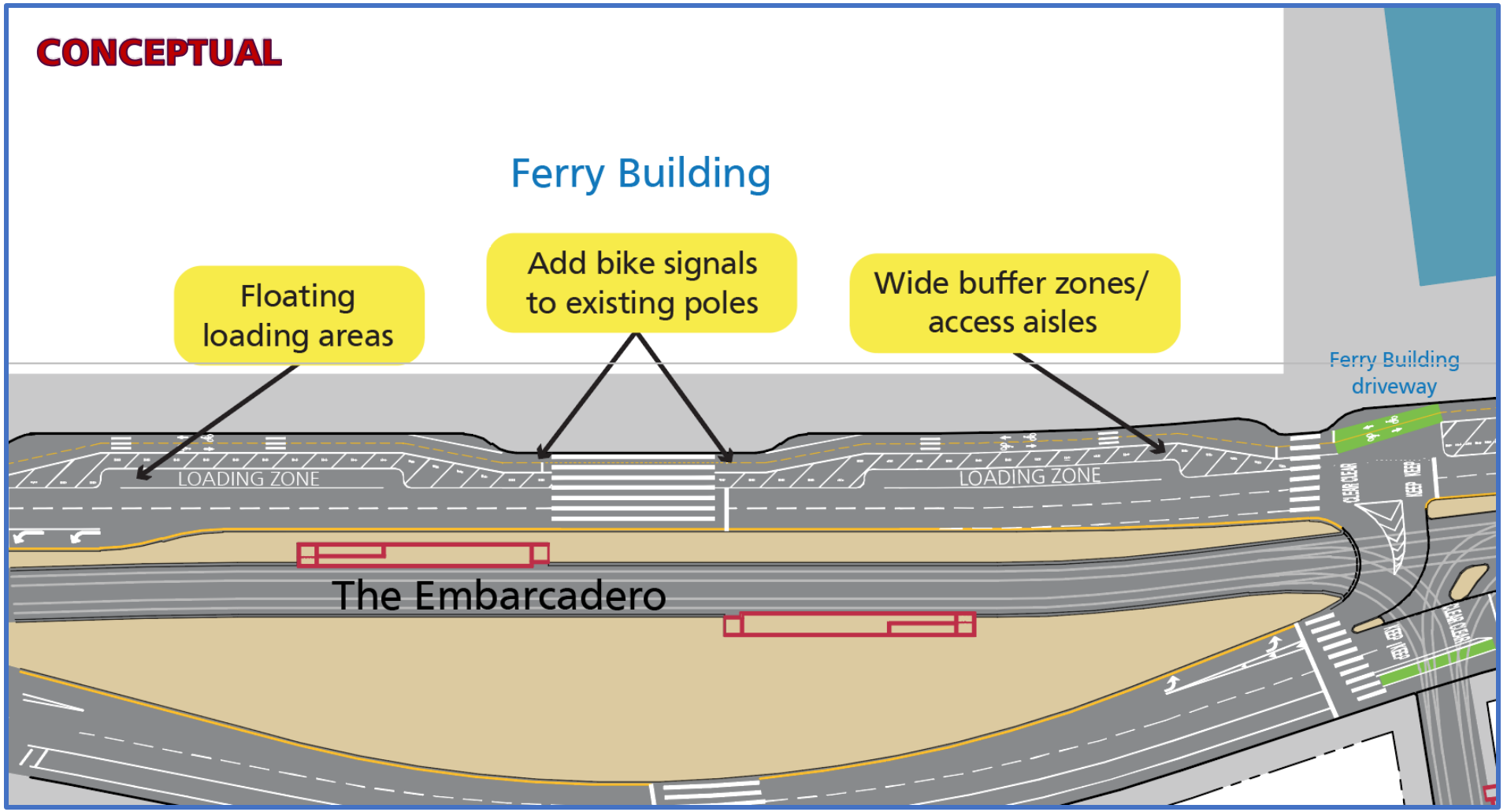
Phase 1 Overview

Mission Street to Broadway



Phase 1 Overview

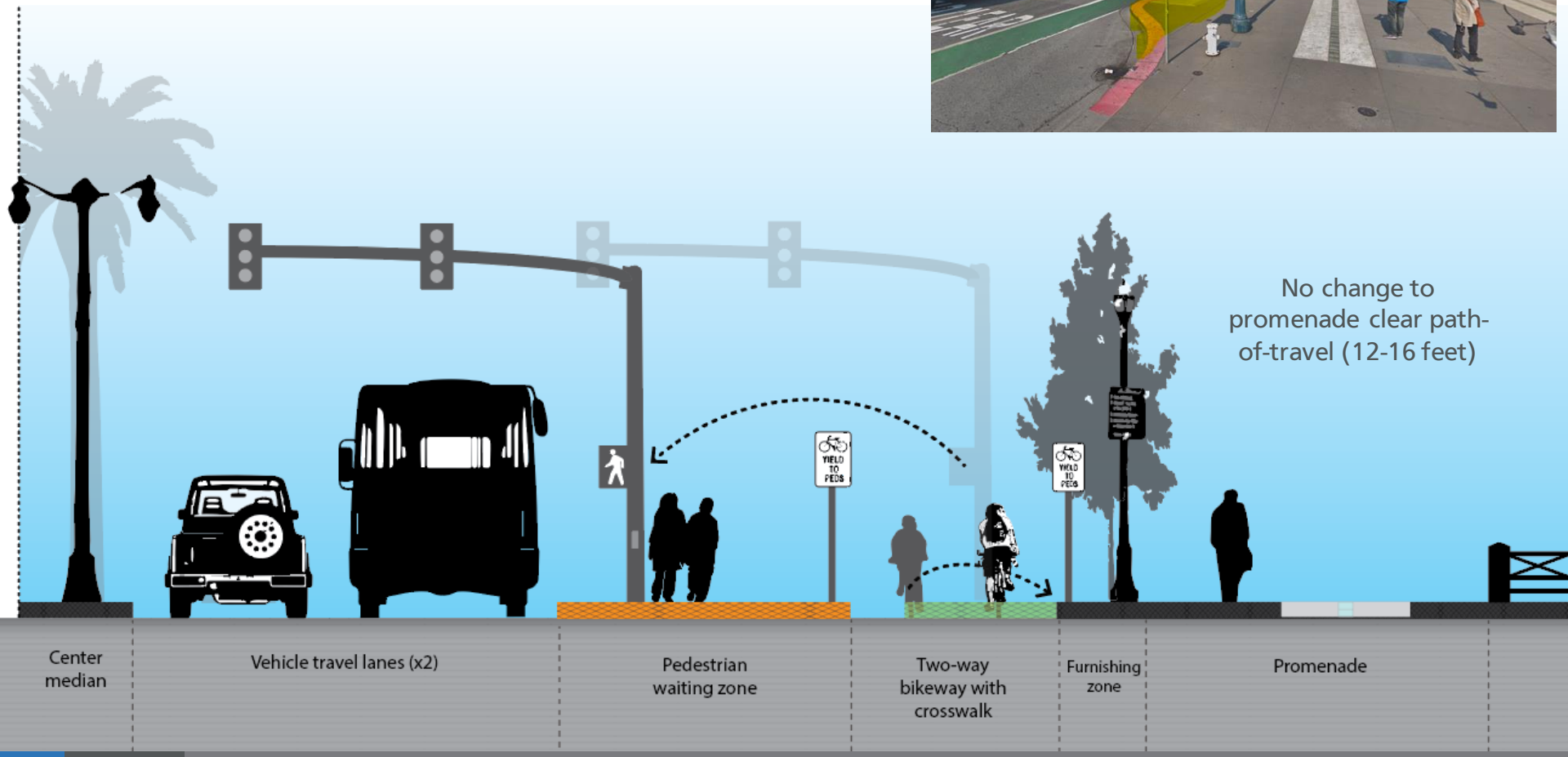
Phase 1A

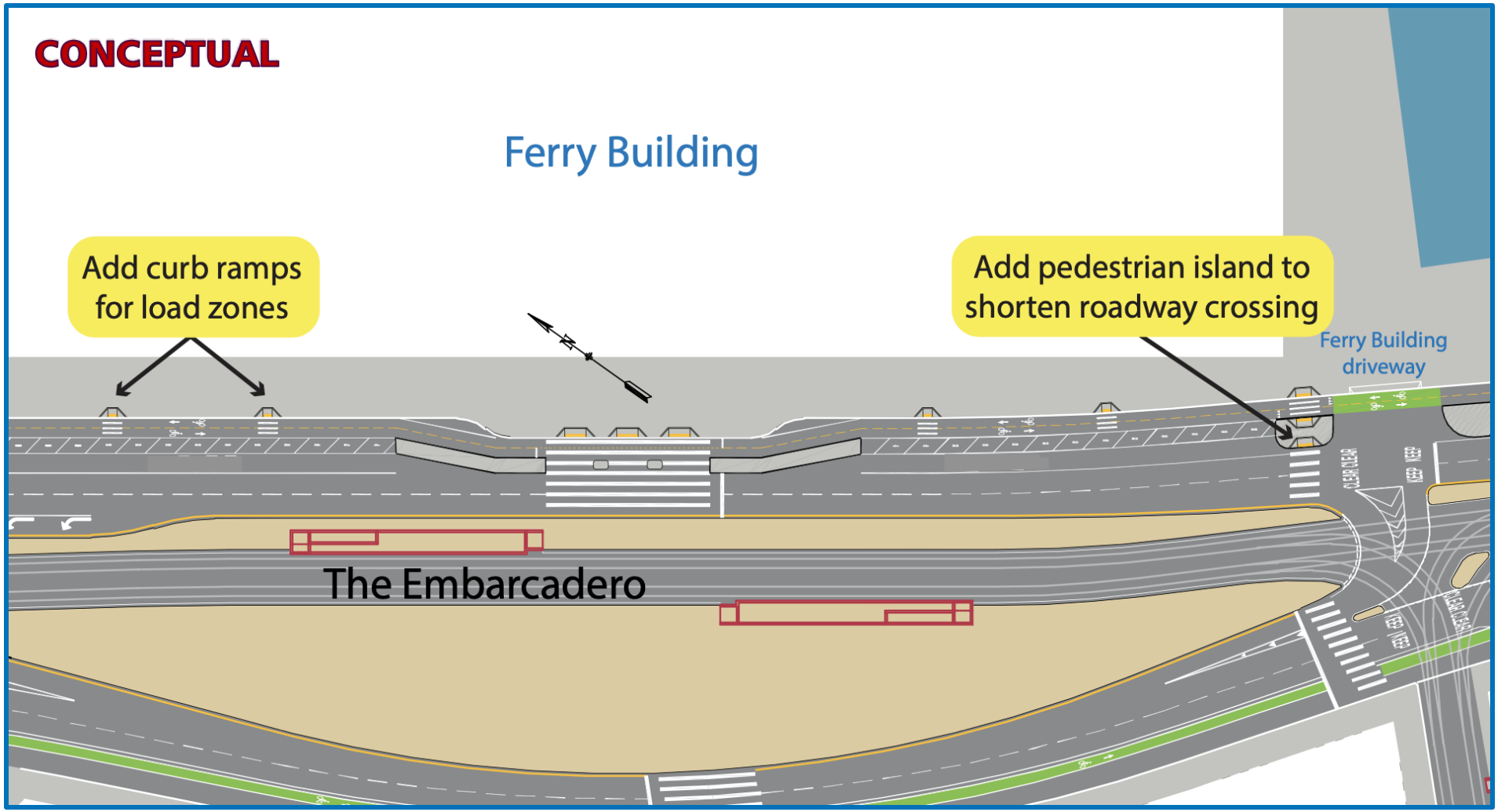

CONCEPTUAL
Ferry Building
Floating loading areas
Add bike signals to existing poles
Wide buffer zones/ access aisles
Ferry Building driveway
LOADING ZONE
LOADING ZONE
The Embarcadero

Phase 1B

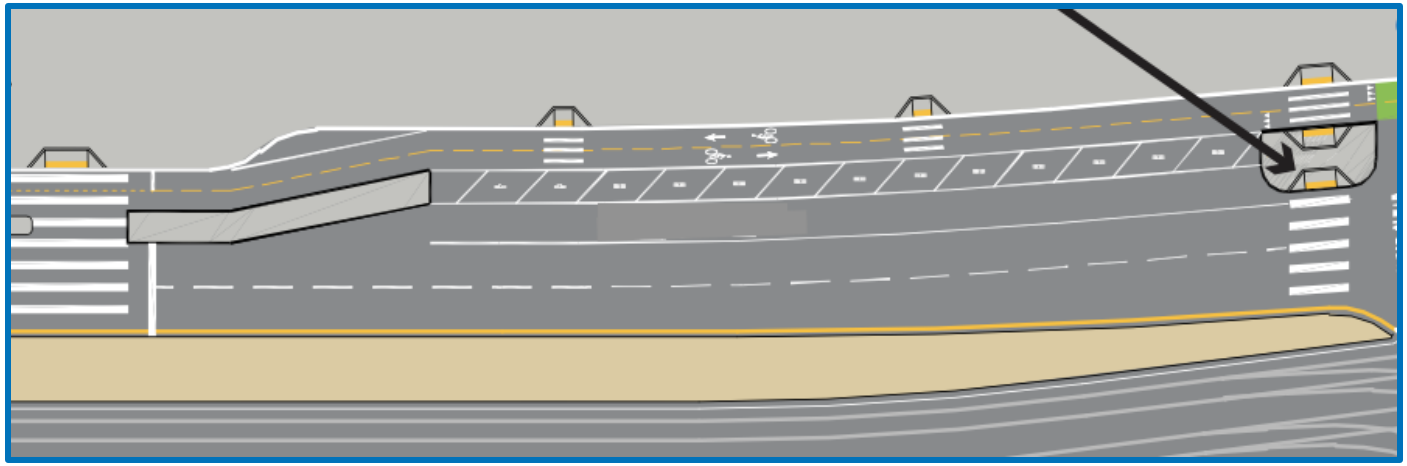
Pedestrian crossing distance with islands:

Existing: 38 feet Potential: 22 feet




CONCEPTUAL
Ferry Building
Add curb ramps for load zones
Add pedestrian island to shorten roadway crossing
Ferry Building driveway
The Embarcadero

Parking & Loading

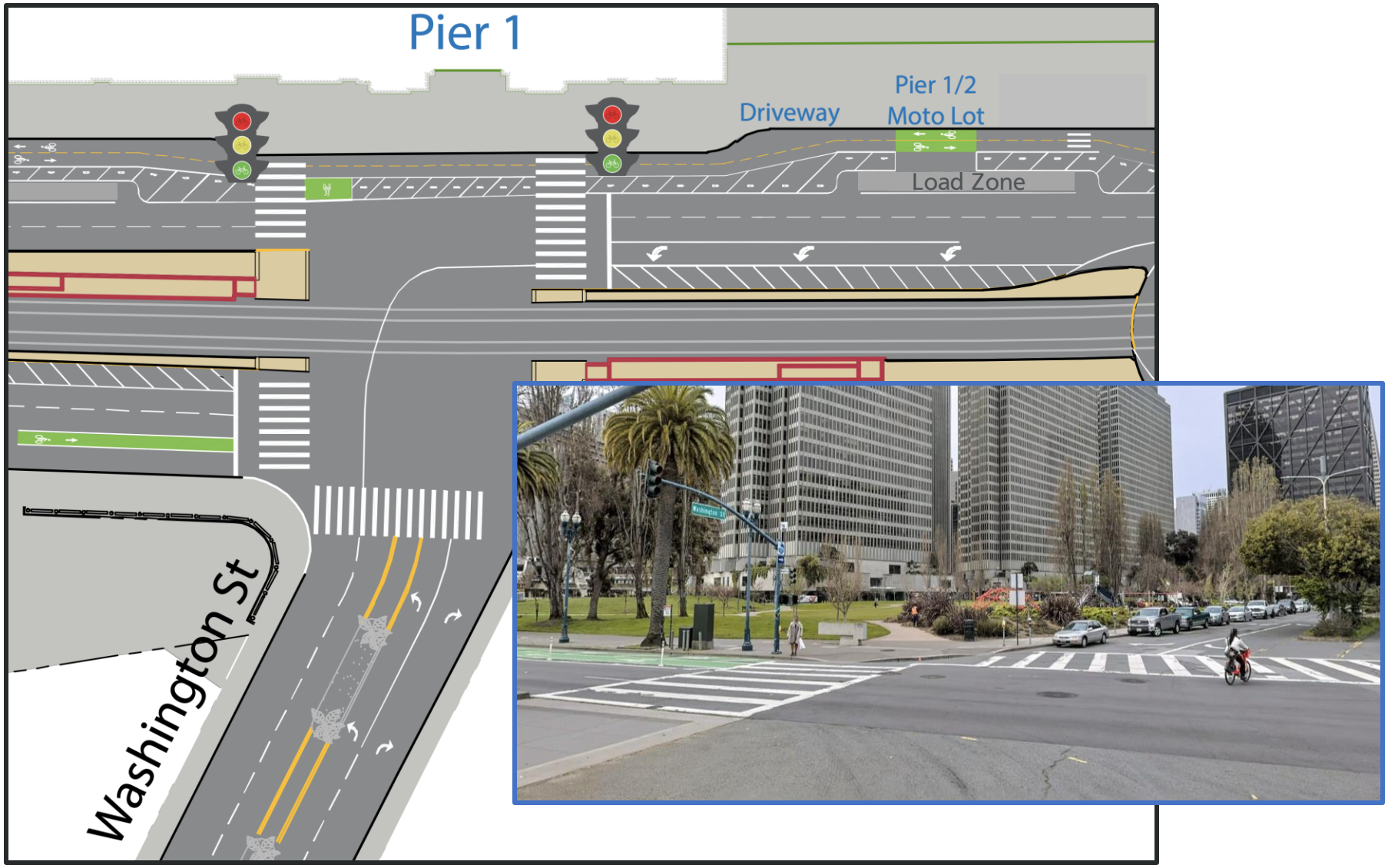


Water side loading, Mission - Broadway:

- Existing: ~1,091 ft
- Phase 1A: 750 ft
- Phase 1B: 840 ft

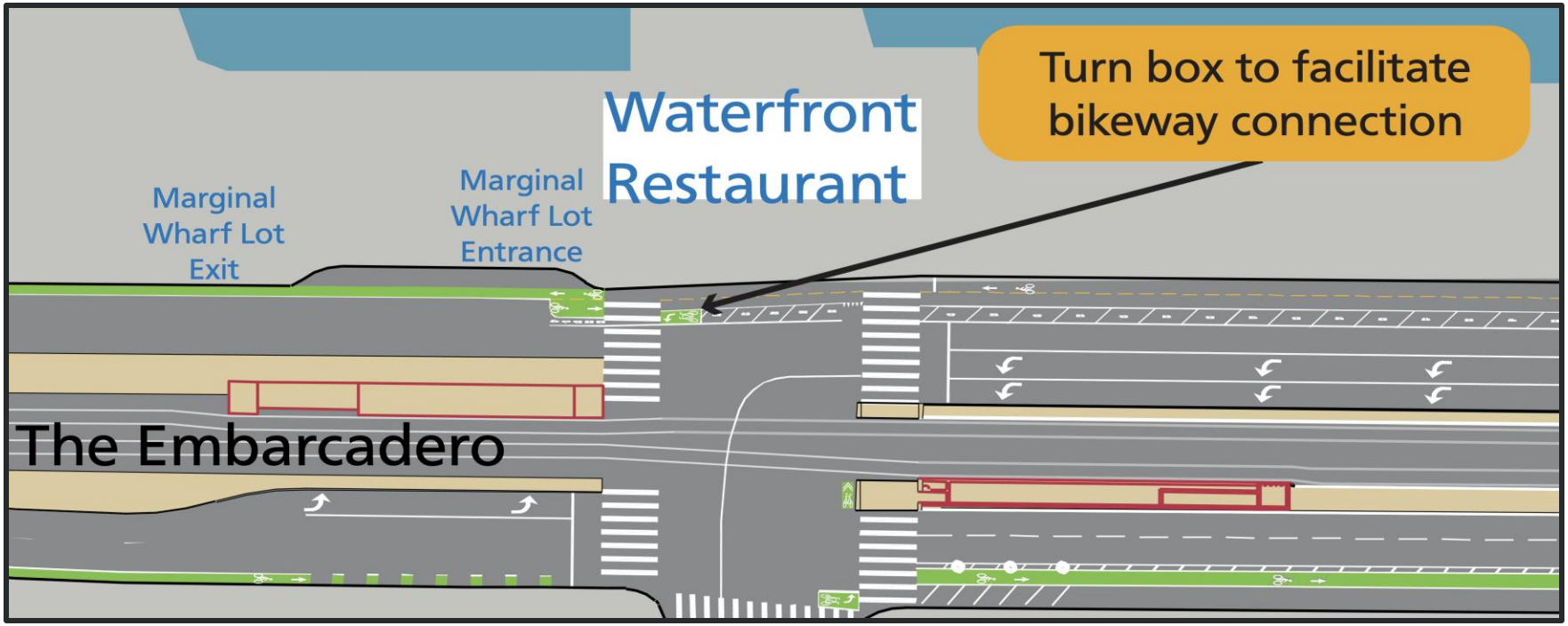
Opportunity to add new curbside loading or parking for ~15 vehicles on the city side, north and south of Washington Street

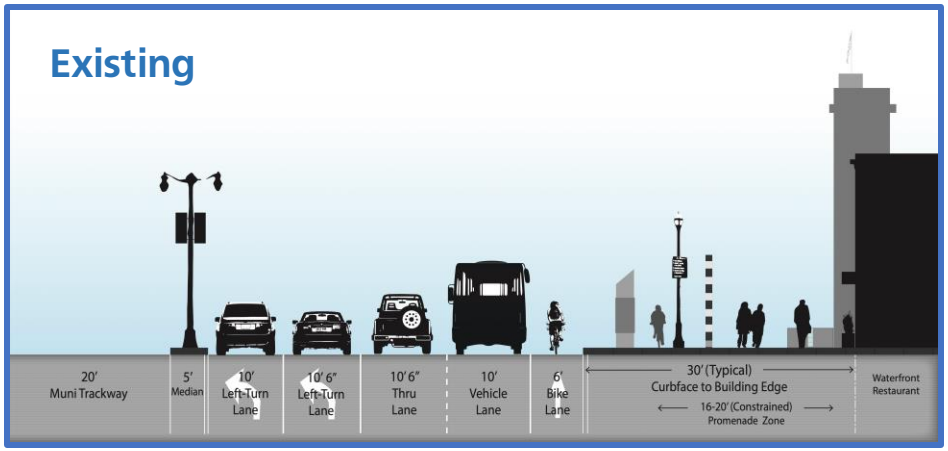
Washington St

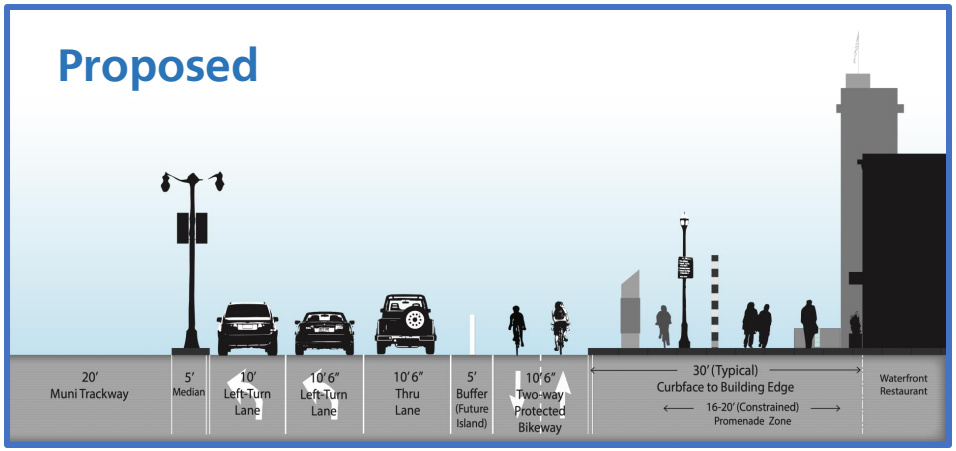


Broadway

Broadway

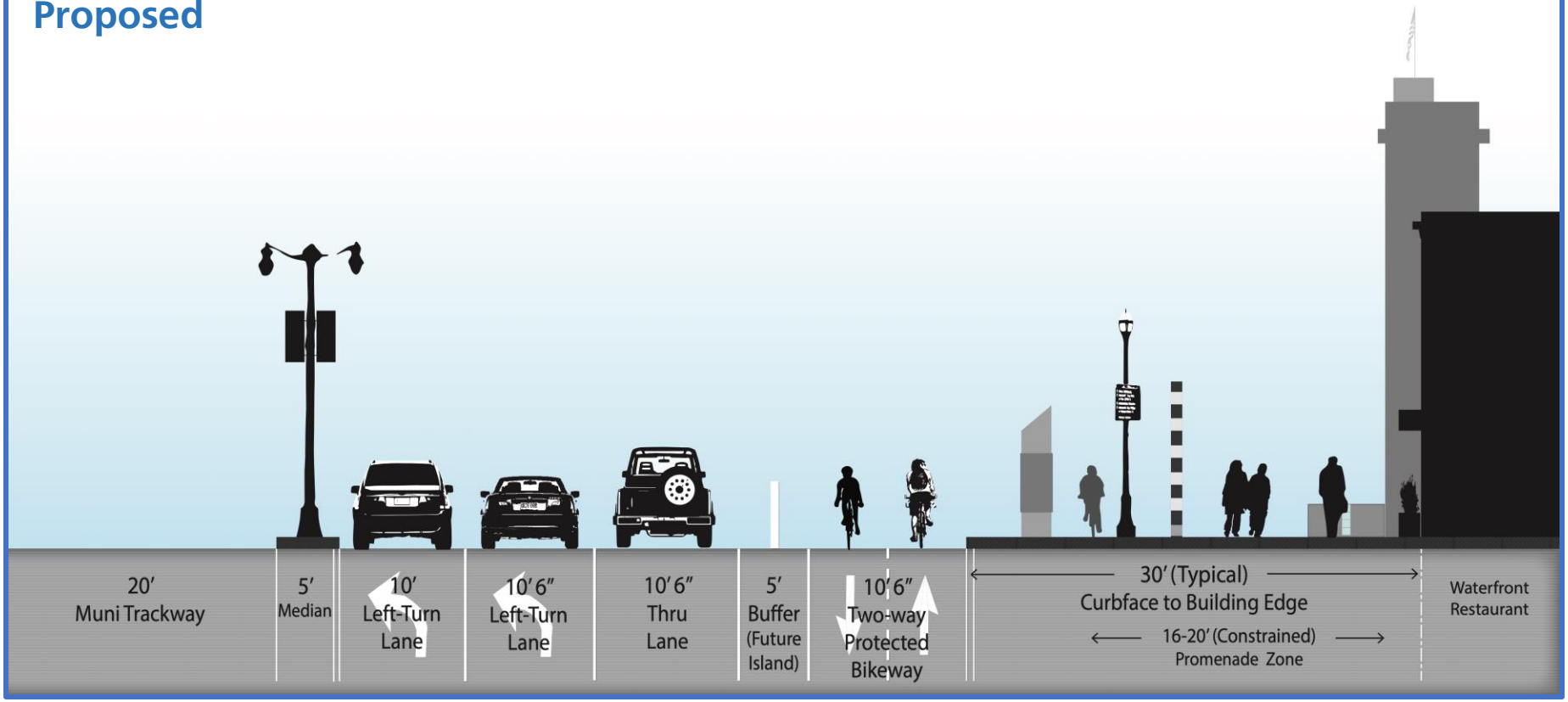

Turn box to facilitate bikeway connection
Waterfront Restaurant
Marginal Wharf Lot Exit
Marginal Wharf Lot Entrance
The Embarcadero


Existing
20′ Muni Trackway
5′ Median
10′ Left-Turn Lane
10′ 6″ Left-Turn Lane
10′ 6″ Thru Lane
10′ Vehicle Lane
6′ Bike Lane
30′ (Typical) Curbface to Building Edge
16-20′ (Constrained) Promenade Zone
Waterfront Restaurant


Proposed
20′ Muni Trackway
5′ Median
10′ Left-Turn Lane
10′ 6″ Left-Turn Lane
10′ 6″ Thru Lane
5′ Buffer (Future Island)
10′ 6″ Two-way Protected Bikeway
30′ (Typical) Curbface to Building Edge
16-20′ (Constrained) Promenade Zone
Waterfront Restaurant

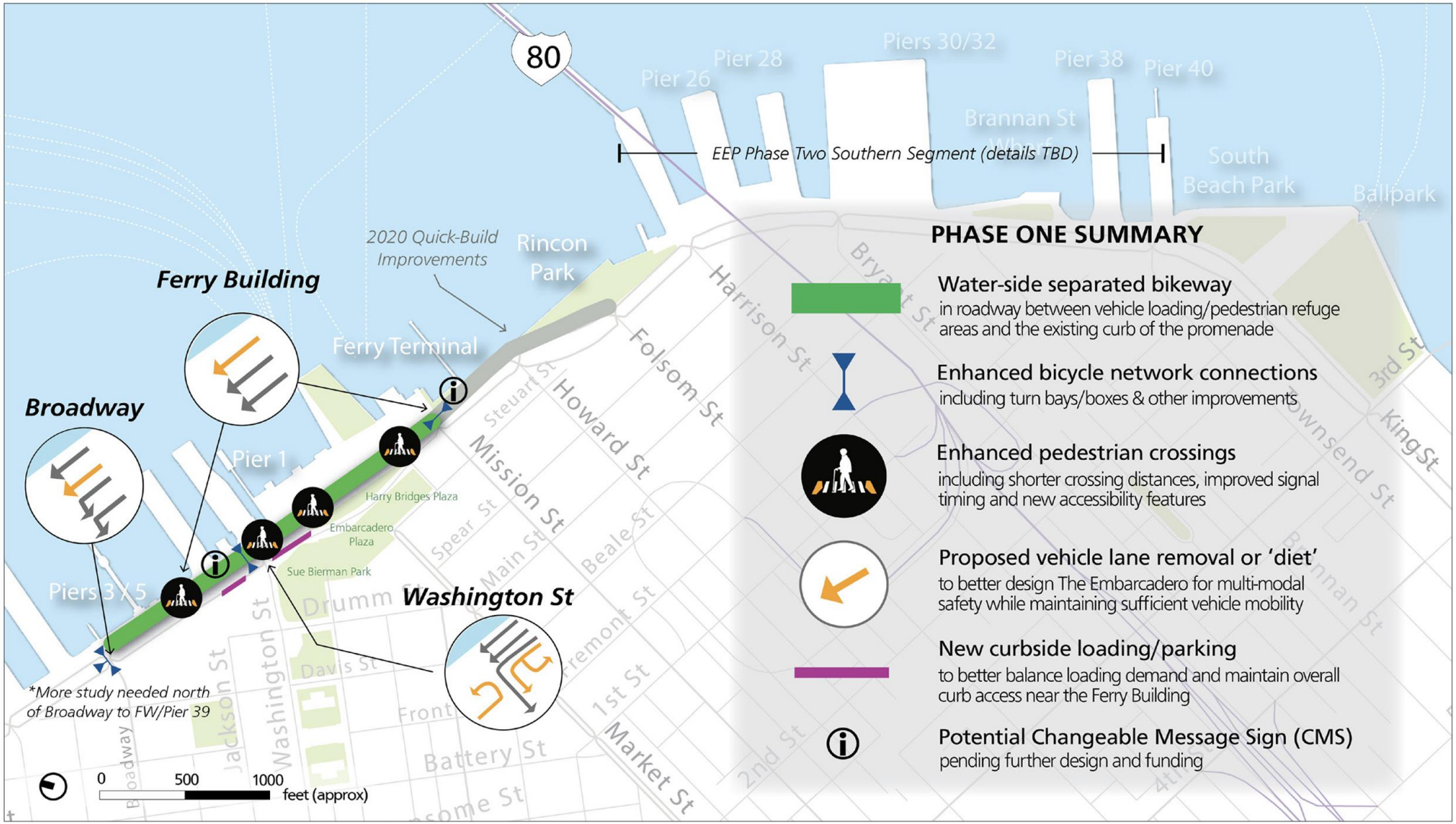
Broadway

Proposed



Phase 1 Overview

Mission Street to Broadway



Phase 1 Schedule

Project Timeline

Late 2020	Winter 2021	Spring 2021	Late '21 / Early '22
Early **Outreach**	**Broad Outreach,** Refine Design	Seek Approvals	Implement Phase 1A

Folsom to Townsend

Significant capital investment (in relatively stable seismic area) to close gap in Bay Trail protected bikeway, support Port pier re-development, and improve Caltrain/ferry transit & ballpark/Mission Rock access

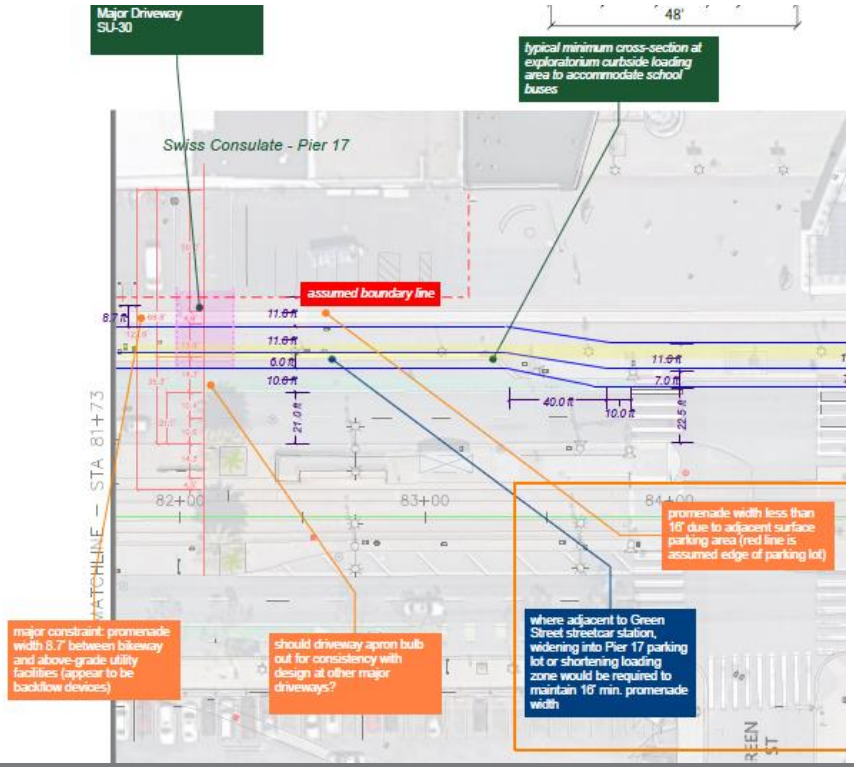
Northern Segment

Two-Way Bikeway with two vehicle lanes

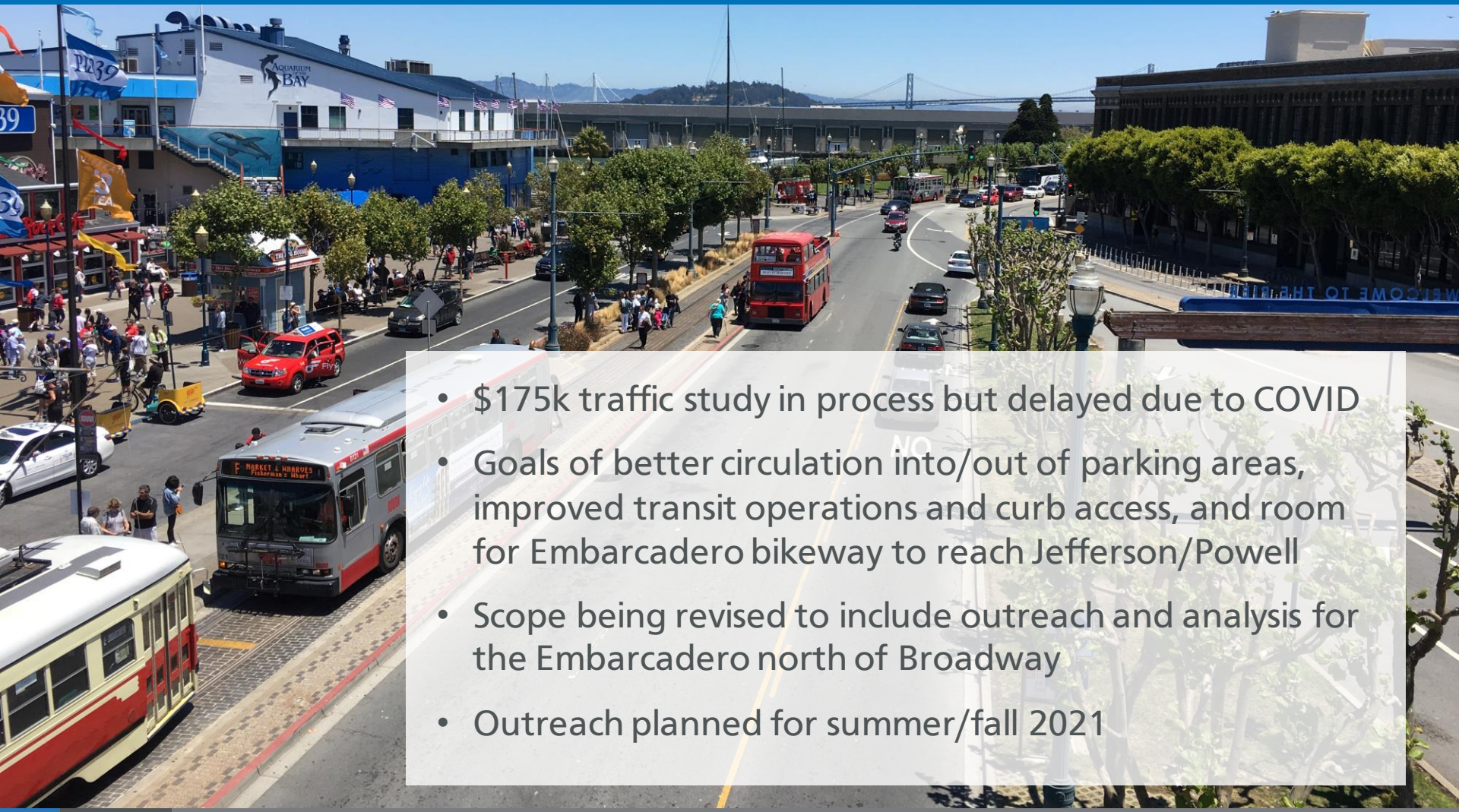
- Preliminary engineering reveals 'fatal flaw' promenade impacts at Pier 17 (Exploratorium) short of relocating bus loading operations & pier upgrades
- Additional pinchpoints, including Piers 9 and 27, would yield minimum width bike facility & promenade
- High cost & complexity = out of EEP scope

Two-Way Bikeway with one vehicle lane

- EEP not considering, but likely considered in future public engagement/planning
- Exploratorium load zone remains a major pinchpoint if existing curbs remain
- Lane diet traffic analysis TBD

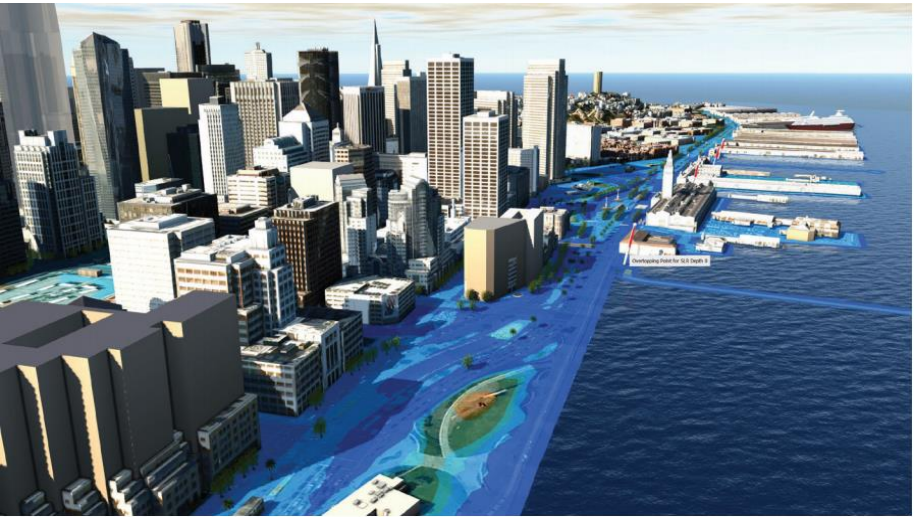


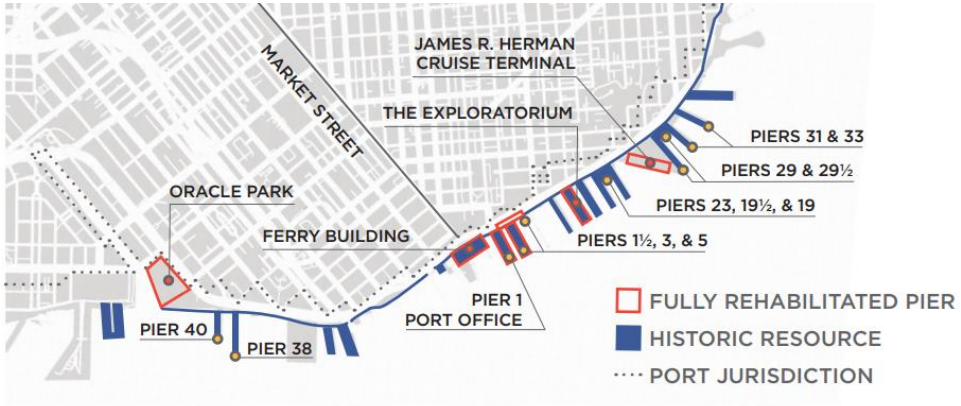
Fisherman's Wharf / Pier 39 Complete Streets Study



- $175k traffic study in process but delayed due to COVID
- Goals of better circulation into/out of parking areas, improved transit operations and curb access, and room for Embarcadero bikeway to reach Jefferson/Powell
- Scope being revised to include outreach and analysis for the Embarcadero north of Broadway
- Outreach planned for summer/fall 2021

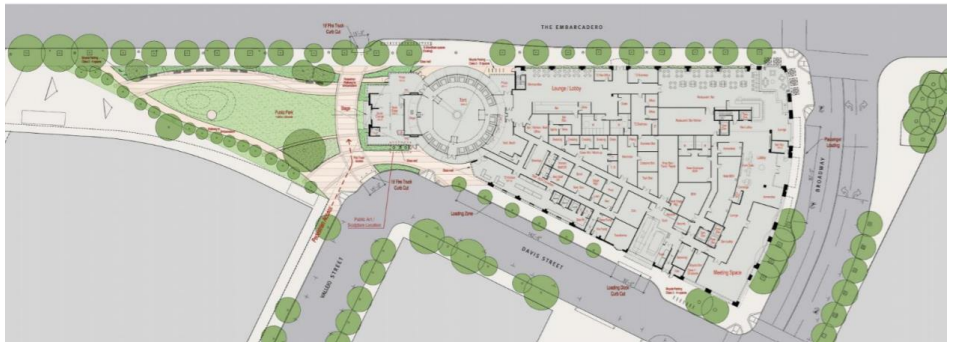
Waterfront Transportation Coordination





Historic Pier Rehabilitation Program

Resiliency Program



Waterfront Land Use Plan Update

Thank You!

sfmta.com/embarcadero

Embarcadero@sfmta.com

PORT OF SAN FRANCISCO

SFMTA

SAN FRANCISCO PUBLIC WORKS

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

VZ SF VISION ZERO SF

Additional Reference Slides

PORT OF SAN FRANCISCO

SFMTA

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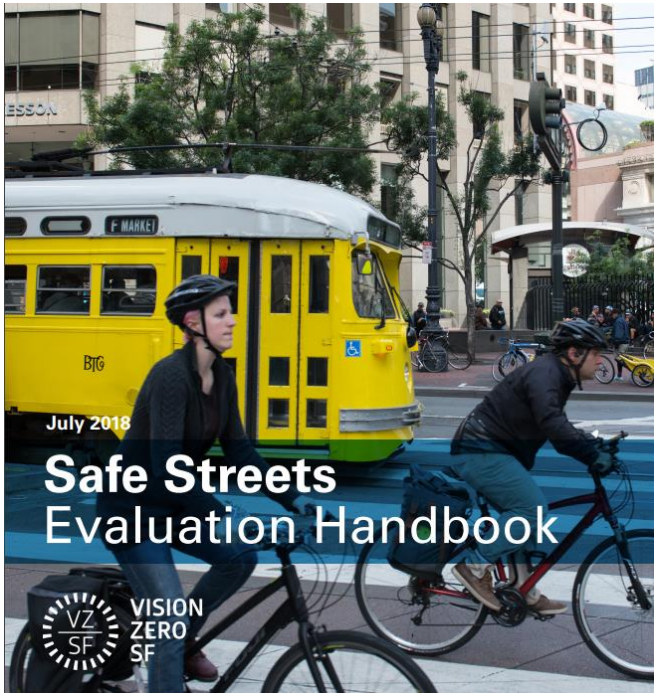
SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

VZ SF VISION ZERO SF

SFMTA Quick-Build Initiative



Double Parking

Passenger vehicles represent the majority of double parking post pilot

93% of commercial vehicles are loading in designated loading zones

PEDESTRIAN/BICYCLIST CONFLICTS

+ Of the total pedestrians observed crossing into the bike lane from the school boarding islands during the morning and afternoon school hours, there were **0 observations** of close calls/near misses, collisions, or spillage into the bikeway

School loading island located at Valencia Street between Clinton Park and Brosnan Street

After School Pick-Up vs. Evening Bike Commute

No conflicts were observed even with a higher number of pedestrians and bikes present

**Staff from the SF Friends School assisted students crossing the bikeway from the loading islands during school drop-off/pick-up hours*

Planning Phase Outreach

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...

Open Houses & Workshops

Vendor Ride-Alongs

Education/Enforcement

Previous Actions

- Documentation and analysis of existing enforcement efforts, 311 complaints
- Updated collision analysis
- Initial geofencing discussions with Uber, Lyft

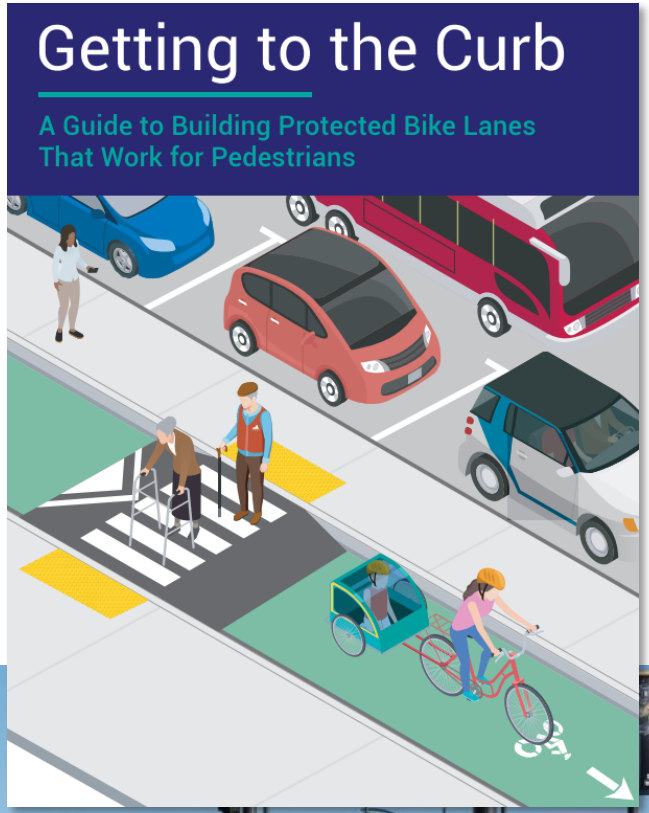
Why

- Inform priorities with regard to potential PCO and SFPD enforcement 'bumps'
- Promote better, safer behaviors in conjunction with initial engineering changes
- Expand Vision Zero messaging & understanding

Challenges

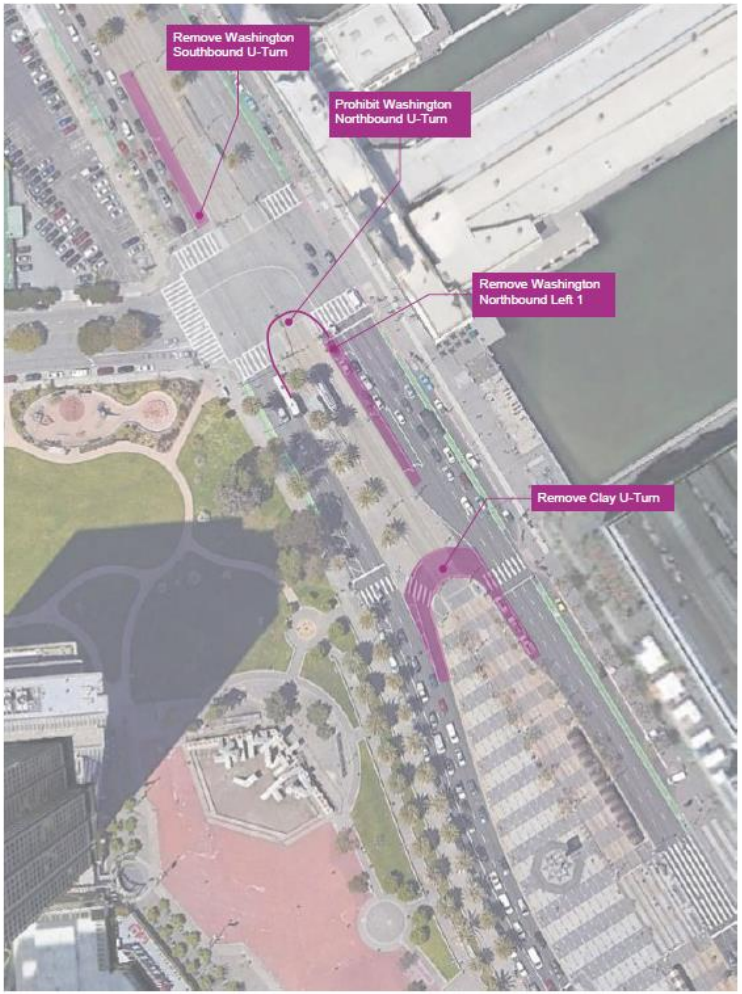
- Limited effectiveness w/o infrastructure changes
- Limited funding & staffing

Design Precedents



Washington Alternatives

Washington Intersection Alternatives



FEHR & PEERS

July 2020

	Alternative	Remove Clay Northbound U-Turn	Remove Washington Northbound Left 1	Prohibit Washington Northbound U-Turn	Remove Washington Southbound U-Turn	Notes For Consideration
	1A		X			
*	1B		X	X		
*	1C		X	X	X	SBU volumes: AM 7, PM 9
	1D		X		X	
*	2A	X				
	2B	X		X		If Samtrans bus stops are relocated to the SB Emb, does this alternative become infeasible? Similarly if Ferry Plaza Freight Vehicles Use these lanes (video indicates in AM/PM mostly personal vehicles using U-turn)
	2C	X		X	X	If Samtrans bus stops are relocated to the SB Emb, does this alternative become infeasible? Similarly if Ferry Plaza Freight Vehicles Use these lanes (video indicates in AM/PM mostly personal vehicles using U-turn)
*	2D	X			X	
*	3A	X	X			
	3B	X	X	X		If Samtrans bus stops are relocated to the SB Emb, does this alternative become infeasible? Similarly if Ferry Plaza Freight Vehicles Use these lanes (video indicates in AM/PM mostly personal vehicles using U-turn)
	3C	X	X	X	X	If Samtrans bus stops are relocated to the SB Emb, does this alternative become infeasible? Similarly if Ferry Plaza Freight Vehicles Use these lanes (video indicates in AM/PM mostly personal vehicles using U-turn)
*	3D	X	X		X	

* Combination of Changes that provides a blend of benefits to safety, operations and access

Proposed Improvement	Safety Benefits	Operational Effects	Access/Circulation Considerations
Remove Clay Northbound U-Turn	Removes motorized traffic from pedestrian/bicycle crossing Allows for potential shortening of crossing distance with removal of turn lane	Increased green time for Southbound traffic	Would divert trips to alternate routes (Washington Northbound U-turn, Broadway Northbound U-turn, Howard Northbound Left)
Remove Washington Northbound Left 1	Allows removal of 1 Westbound Washington Lane (shorter ped crossing distance on west leg) Allows shift of other Northbound lanes down (shorter pedestrian crossing distance on south leg) Likely slows Southbound right turns	May require additional Northbound left green time to accommodate demand Shortened pedestrian crossing reduces green time for Eastbound approach (~8-10s), allowing for longer North/South green time	Could divert some trips to alternate routes
Prohibit Washington Northbound U-Turn	?	Allows for Overlap Eastbound Right, less volume would need to be accommodated	Would divert trips to alternate routes (Clay Northbound U-turn, Broadway Northbound U-turn, Howard Northbound left)
Remove Washington Southbound U-Turn	Allows for wider pedestrian median and shorter crossing distance	Allows for longer Northbound through Green time (~15s)	Would divert trips to alternate routes (Ferry Building Southbound U-turn, Broadway Southbound U-turn[1])

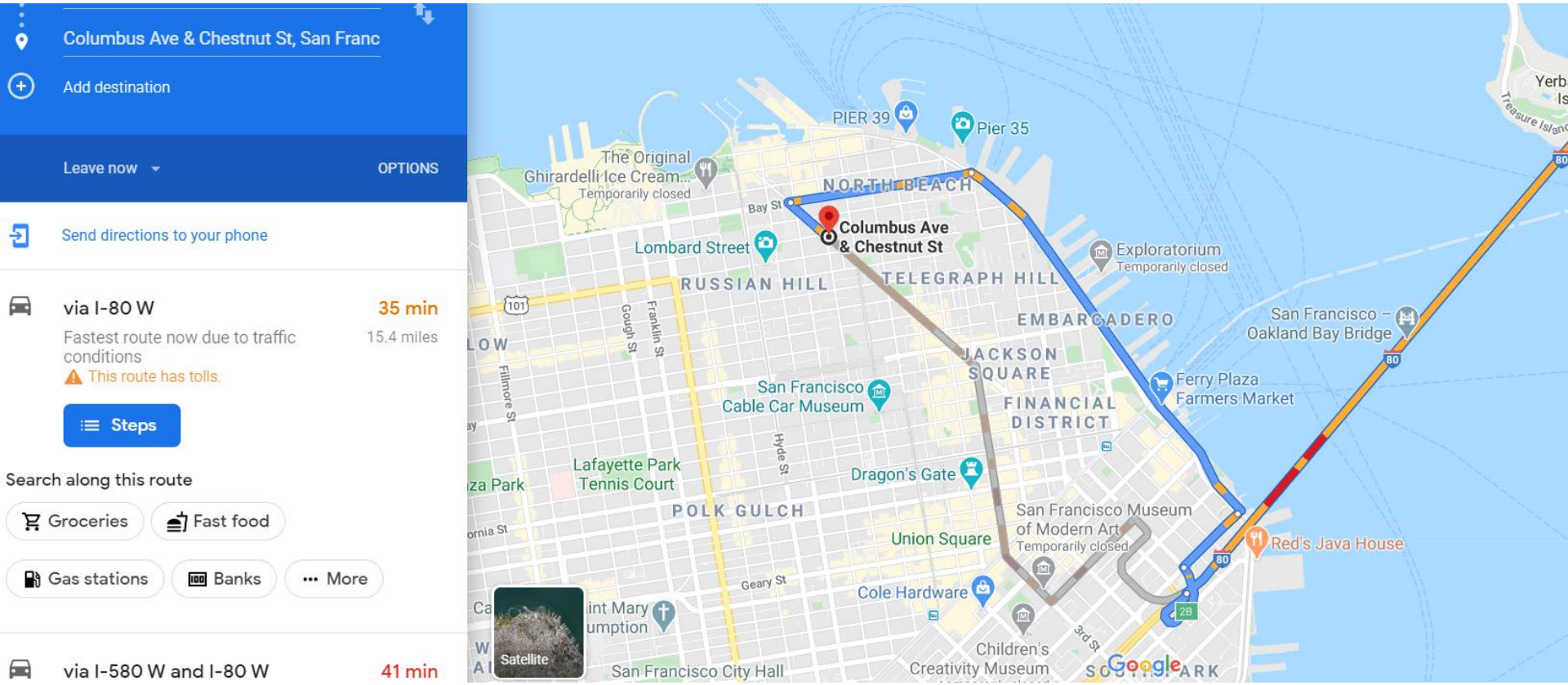
Note:

1. Broadway SBU likely to be removed in the ultimate configuration

Dark Green- greater improvement
Light green- moderate improvement
Yellow- moderate issue
Orange- greater issue

EEP Phase 1 | EEP Phase 2

Circulation Analysis



EEP Phase 1 | EEP Phase 2

Circulation Analysis

Big-Data Approach to Evaluate Traffic Conditions Under the Proposed Phase One Improvements (Mission Street to Broadway)

Key components of the analysis:

- Origin-Destination (OD) data from the StreetLight platform
- Top Routes for OD pairs from the StreetLight platform
- Travel time data for the Top Routes from the Inrix platform
- Traffic operations and travel times based on calibrated Synchro models

Travel Time Summary (minutes)

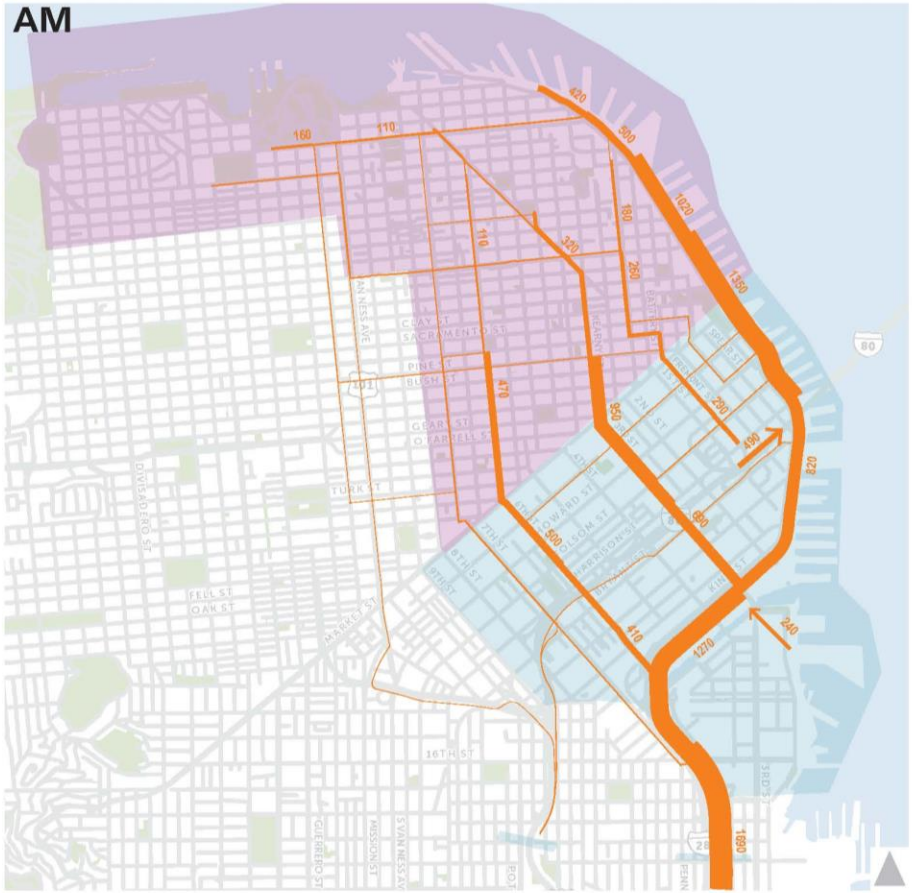
	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Shifted Vehicles	Travel Time	Shifted Vehicles	Travel Time
Existing Conditions	0	6.9	0	6.7
Proposed Phase One - No Volume Shift	0	12.4*	0	12.9*
Proposed Phase One - 50% Volume Shift	250	9.0*	200	8.7
Proposed Phase One - 100% Volume Shift[A]	500	6.8	400	6.8

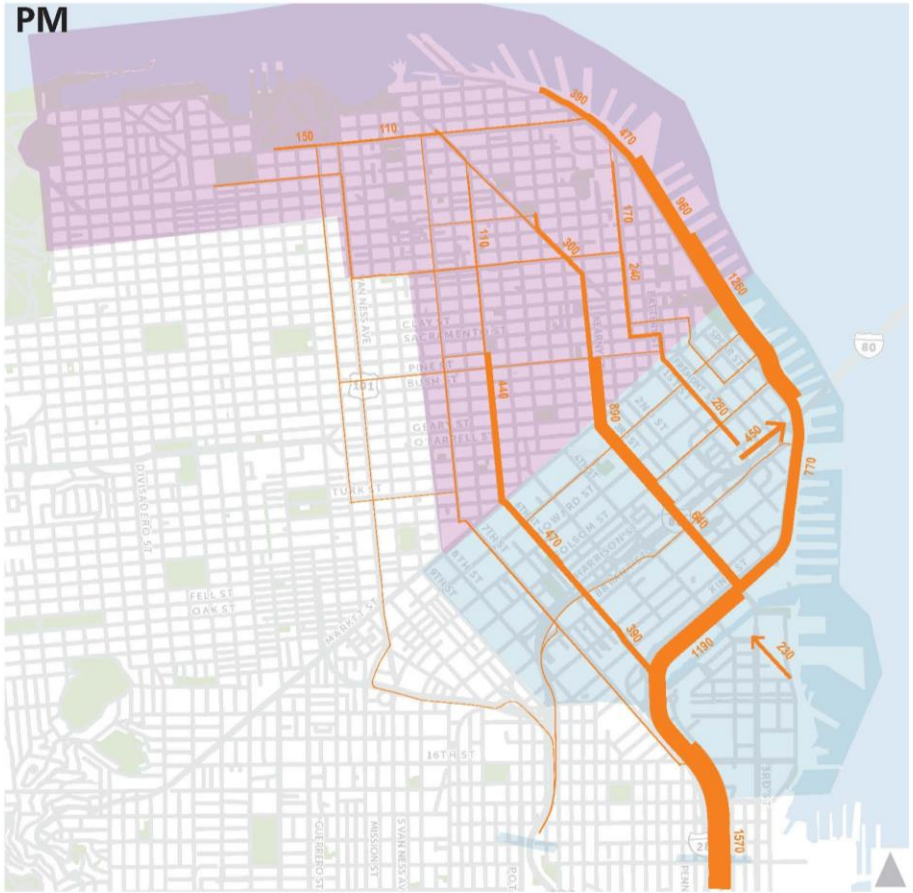
*Travel times may be worse due to over capacity conditions and queue spillback (bottleneck at Washington Street)

[A] Desired volume shift to maintain existing travel times and current levels of congestion with the reduction of one NB lane (and no signal timing changes)

Circulation Analysis

Sept 2019 – Estimated Travel Demand





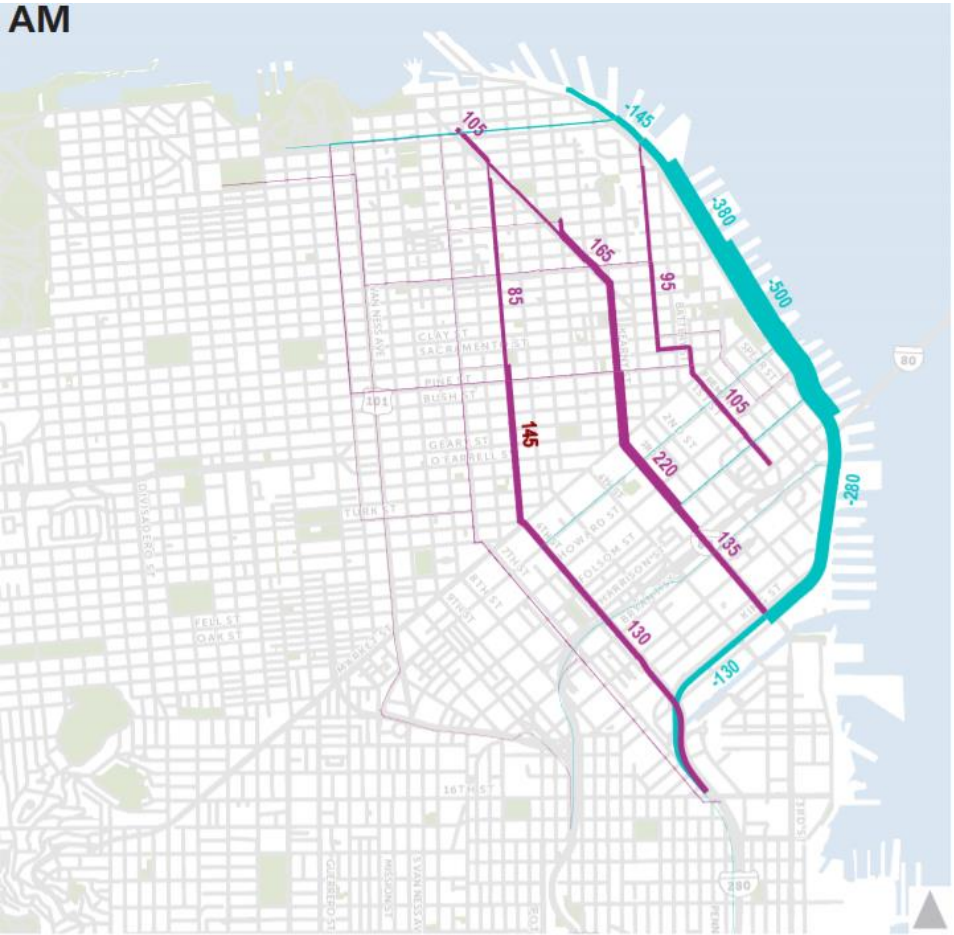
0 400 800 1600
Peak Hour Volumes

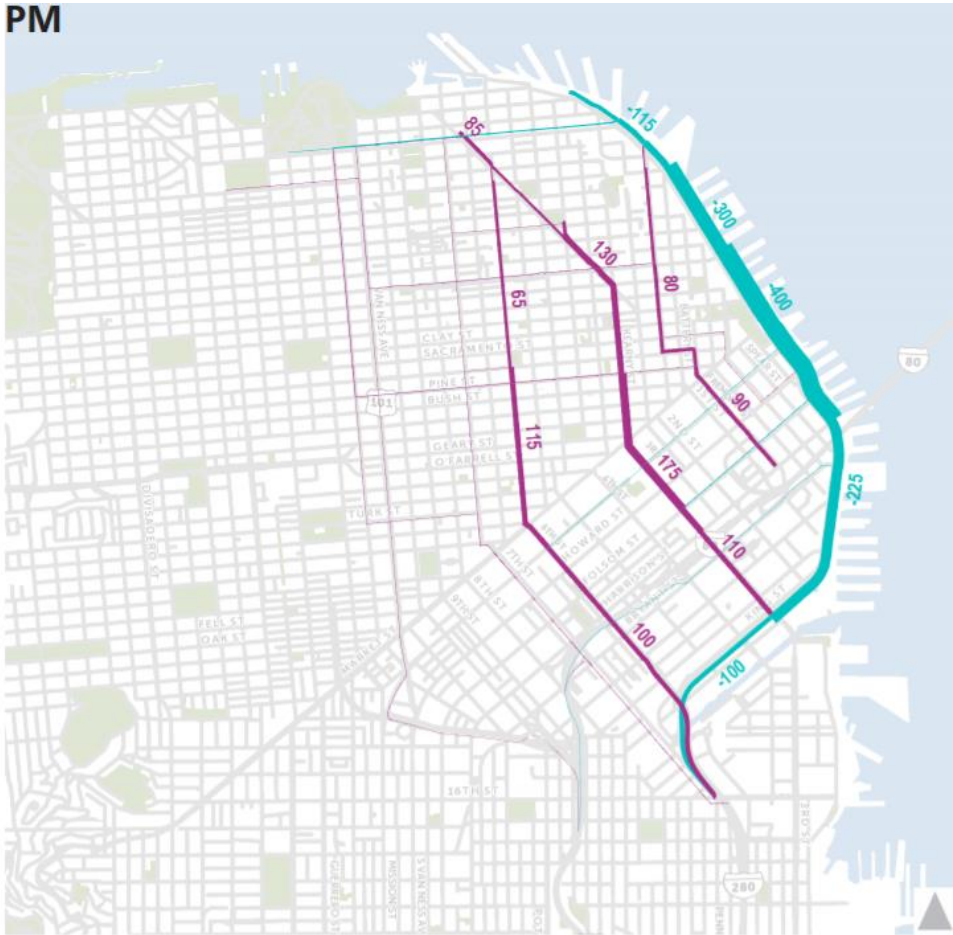
Origins
Destinations

Relative volumes - for OD pairs that have Embarcadero as one of the top routes, this plot shows the aggregated volumes along Embarcadero and the alternative routes. The purpose of this analysis is to visualize and evaluate potential alternate routes for trips currently using the proposed Phase One segment of Embarcadero.

EEP Phase 1 | EEP Phase 2

Circulation Analysis





0 125 250 500
AM Peak Hour Volume Shift (100%)

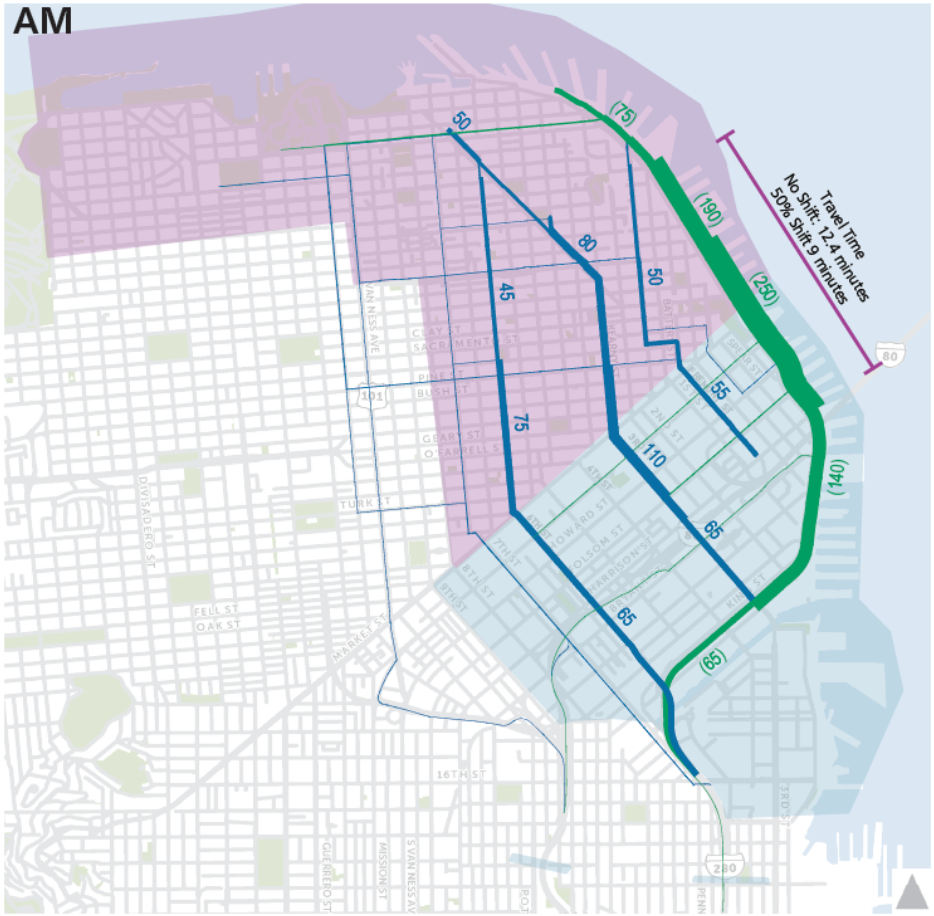
Decrease in volume
Increase in volume

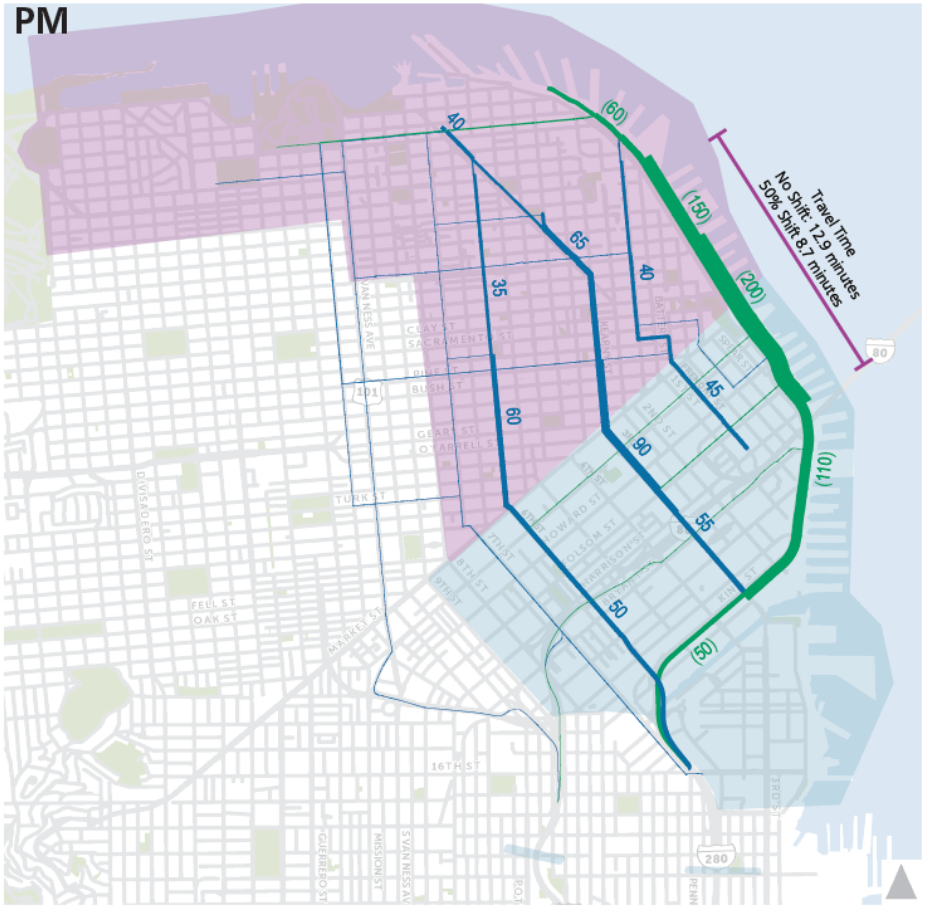
These plots show the desired traffic diversions to maintain existing travel times and current levels of congestion on Embarcadero. These diversions are estimated based on an inverse relationship of the ODs identified in Step 1 and the travel times in Step 2.

*Desired volume shift to maintain existing travel times and current levels of congestion

EEP Phase 1 | EEP Phase 2

Circulation Analysis





0 65 (-#) 125 250
Peak Hour Volume Shift

Decrease in volume (-#)
Increase in volume
Origins
Destinations

50 percent of desired traffic diversions (to maintain existing travel times and current levels of congestion on Embarcadero with the reduction of one northbound lane along the proposed Phase One segment). These diversions are estimated based on an inverse relationship of the OD volumes and the travel times estimated in the previous steps.

EEP Phase 1 | EEP Phase 2