

Bike and Pedestrian Safety Improvement Study

El Camino Real: Between Maple and Charter Streets

February 25, 2019



Timeline

2017

2018

2019

December
2017

City Council
Adopts ECR
Corridor Plan

January - March
2018

Initiate Study:
Data Collection
& Analysis

March - April
2018

Public Input on
Draft Concepts

May - Sept
2018

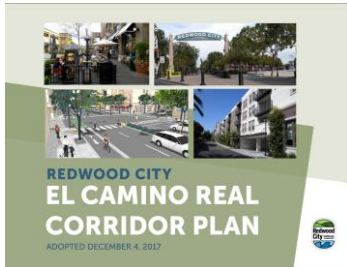
Refine Draft
Concepts based
on Input

October
2018

Public Input on
Revised
Concepts

February
2019

Final Report
Presentation:
Conclude Study



Collision
Trend Analysis



Community
Input



Iterative
Design



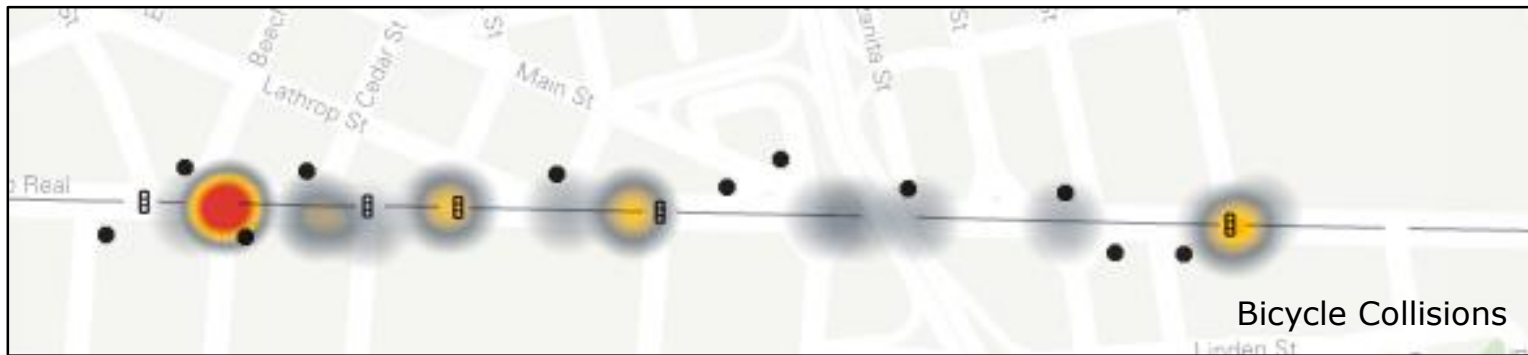
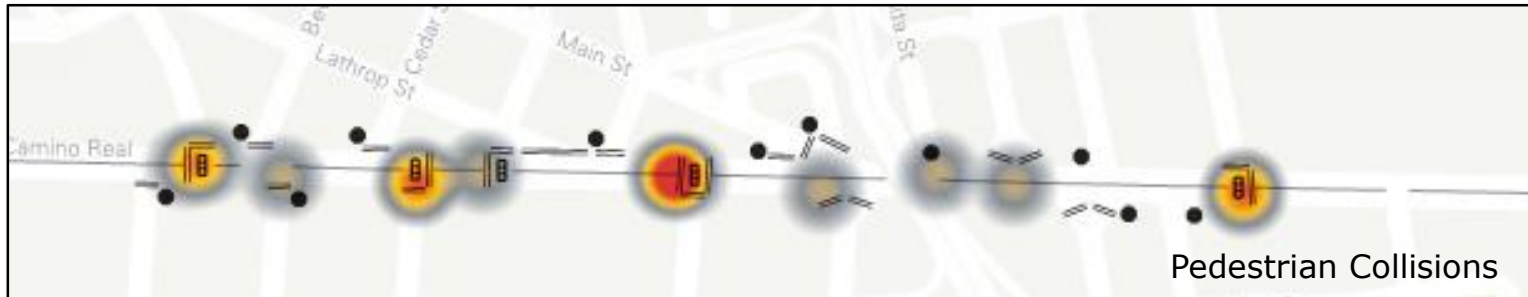
Agenda

- Why study El Camino Real from Maple to Charter?
- Overview of Outreach
- Design Concepts
- Implementation / Next Steps



Why study El Camino Real?

2006-2015: **39 people** walking or biking were involved in a collision



Crosswalk Violations at Signals



Complex Intersections



Exiting Side Streets



Pedestrians in Road



Broadside at Signal



Exiting Side Streets and Driveways



Full Access Unsignalized Intersections



Other Factors

Why study El Camino Real?

The Most Common Bicycle Collision Profiles on El Camino Are:

Broadside at Signal

Broadside collisions occur when the front of an auto collides with the side of a bicyclist. These typically occur when either a vehicle or a bicyclist fails to observe the red light or yield on a signalized turn. Potential countermeasures include:

- updating signal timing to lengthen red time
- updating signal timing to separate bicyclist and vehicle turning movements
- adding bicycle visibility treatments at intersections, such as green paint

Exiting Side Streets and Driveways

These collisions occur when a vehicle enters El Camino from a side street or driveway, and fails to yield to a bicyclist. Unclear sight lines at side streets, limited gaps in traffic for vehicles exiting a side street or driveway, and high vehicle speeds all increase the likelihood for this collision type. Potential countermeasures include:

- daylighting (removing one parking space before and after an intersection or driveway) to improve sight lines
- adding green paint across side streets and driveways to improve visibility of bicyclists
- implementing traffic calming at intersections to reduce speeds

Full Access Unsignalized Intersections

These collisions occur when a vehicle makes either a left turn into a side street or cuts across El Camino in a location where there is no center median. Limited gaps in traffic at intersections and high vehicle speeds on El Camino increase the likelihood of this collision type. Potential countermeasures include:

- restricting side street access (e.g., installing medians) at these locations
- adding a new signal at these locations

... Other Factors

The mix of issues observed on the corridor reflect the complexity of navigating El Camino as a bicyclist. Other collision factors observed include:

- complex intersections where side streets are skewed or intersect at an offset
- "right hooks" when a driver is traveling in the same direction as a bicyclist and turns right across the rider's path
- wrong way bicycling
- high traffic speeds while bicyclists and vehicles share the same lane
- parking-related issues



The Most Common Pedestrian Collision Profiles on El Camino Are:

Crosswalks Violations at Signals

Collisions that occur in marked crosswalks are often the result of red light violations by a vehicle or pedestrian. Permitted turns (either left or right), which conflict with pedestrian walk signals, and inadequate pedestrian crossing times are possible causes of collisions at signalized intersections. Potential countermeasures include:

- giving pedestrians a "head start" for their walk signal (called a leading pedestrian interval)
- increasing pedestrian crossing time
- installing pedestrian median refuges
- restricting right turns on red
- implementing a protected left-turn phase for vehicles

Complex Intersections

Offset intersections along the corridor result in long and sometimes unclear crossings with multiple conflict points between vehicles and pedestrians. Intersection geometries such as right turn slip lanes and skewed approaches allow vehicles to enter/exit El Camino at a high speed. Potential countermeasures include:

- consolidating access to side streets and driveways at signalized intersections, to reduce the number of conflict points to fewer, controlled locations
- redesigning intersection approaches to encourage slower vehicle turning speeds and improved pedestrian visibility

Exiting Side Streets

These collisions occur when a vehicle enters El Camino Real from a side street and does not yield to a pedestrian. Obscured sight lines for vehicles turning off of side streets, limited gaps in traffic on El Camino, and high vehicle speeds all increase the likelihood of this collision type. Potential countermeasures include:

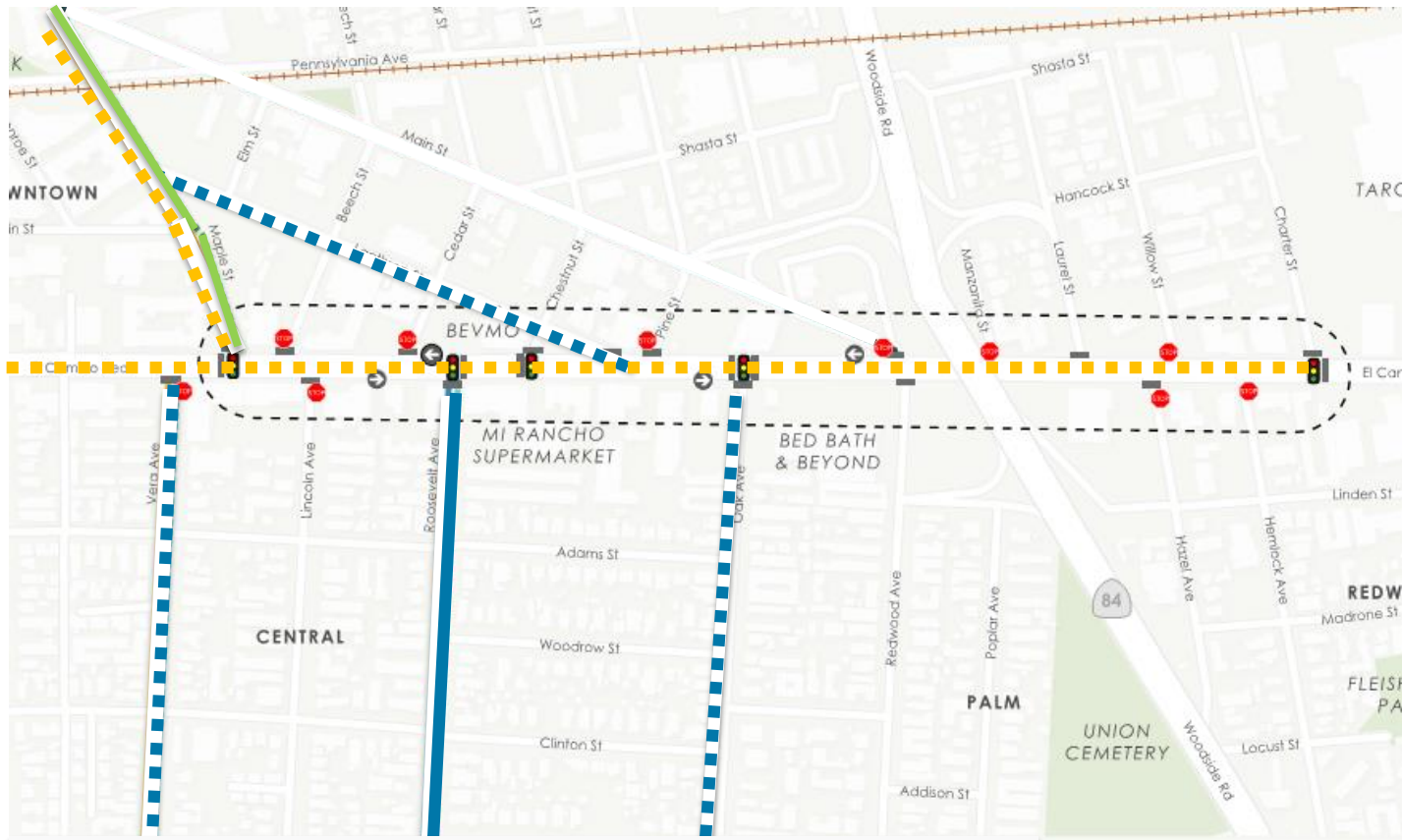
- daylighting (removing one parking space before and after an intersection) to improve sight lines
- installing signals at stop-controlled side streets with limited gaps in traffic to provide better access for both vehicles and pedestrians

Pedestrians in Road

Pedestrians may walk in the roadway when there are sidewalk gaps or in the event that they need to access on-street parking. Potential countermeasures include:

- closing sidewalk gaps adjacent to El Camino (such as along both sides of Maple Street) to ensure pedestrian access remains continuous
- implementing traffic calming through visual cues and reduced lane widths
- increasing parking lane widths or removing on-street parking

Why study El Camino Real?



- Existing Bike Boulevard
- Proposed Bike Boulevard
- Existing Bike Lanes
- Proposed Protected Bike Lanes

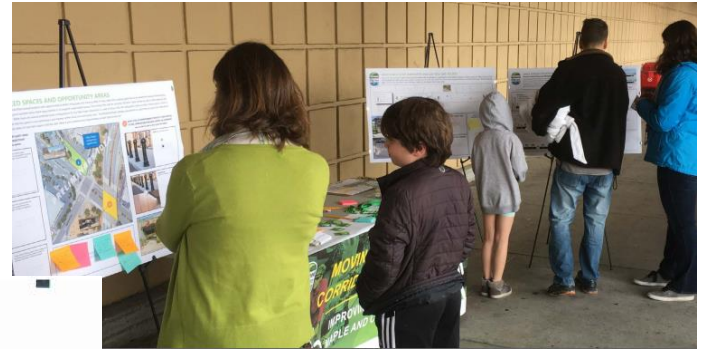
Outreach Overview

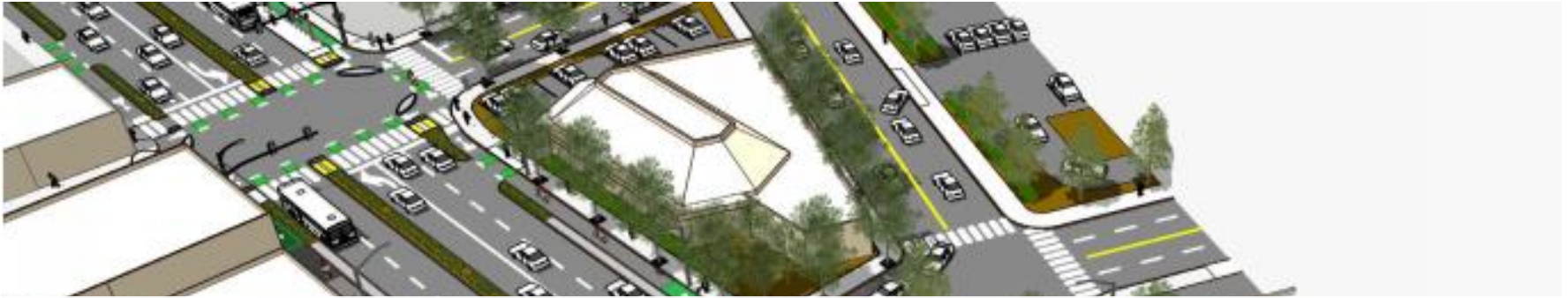
Stage 1 Outreach: Moving the Corridor Plan forward

- March 17th: Target Shopping Center
- March 28th: BevMo
- March 29th: Neighborhood Association Roundtable
- April 13th: Fair Oaks Community Center
- Late March thru early May: Online Survey

Stage 2 Outreach: Living Preview

- Oct 20th: Protected Bikeway Demo
- October-November: Online Survey



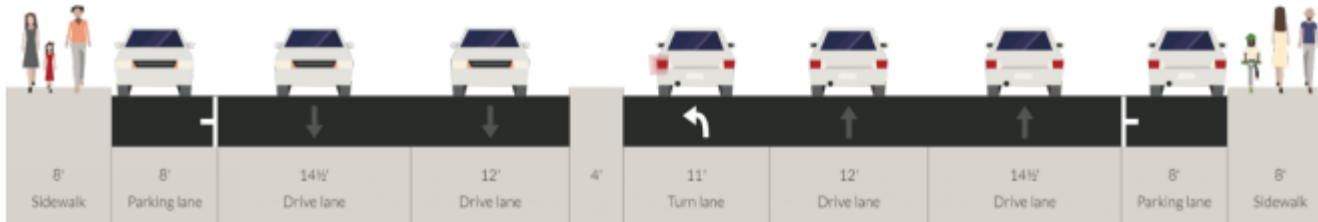


DESIGN CONCEPTS

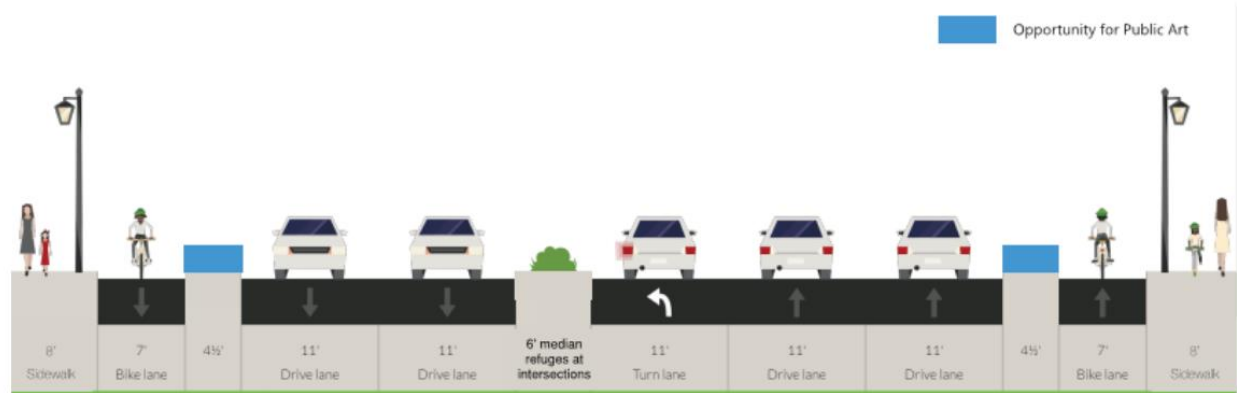


Protected Bike Lanes

North Segment: Maple to Redwood (84 feet total, 4 travel lanes)



Existing



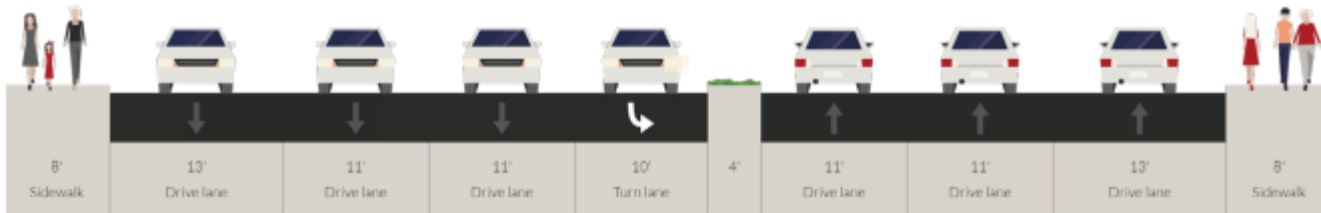
Proposed

17' median with canopy trees midblock

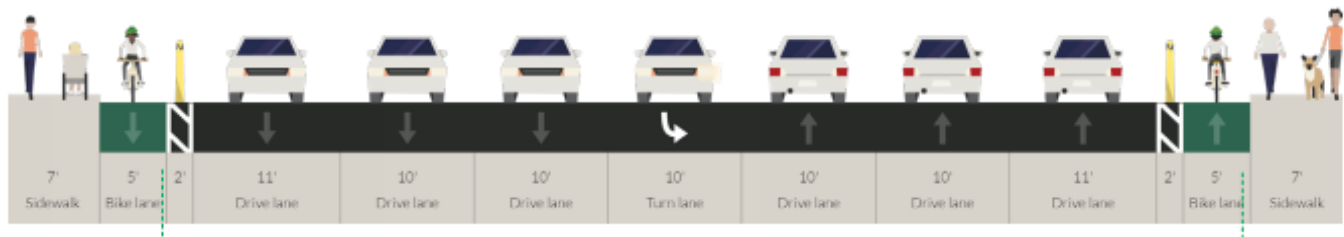


Protected Bike Lanes

South Segment: Redwood to Charter (84 feet total, 6 travel lanes)



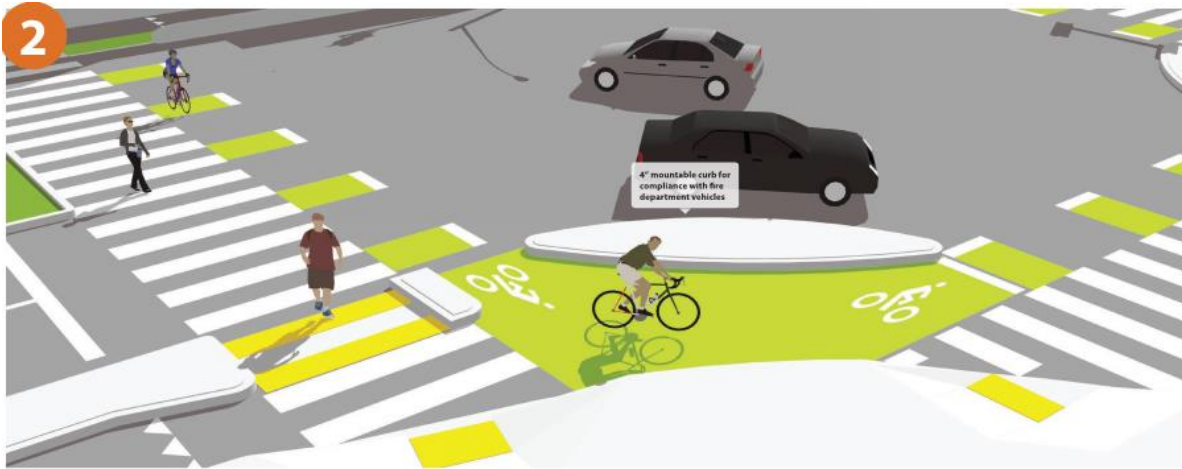
Existing



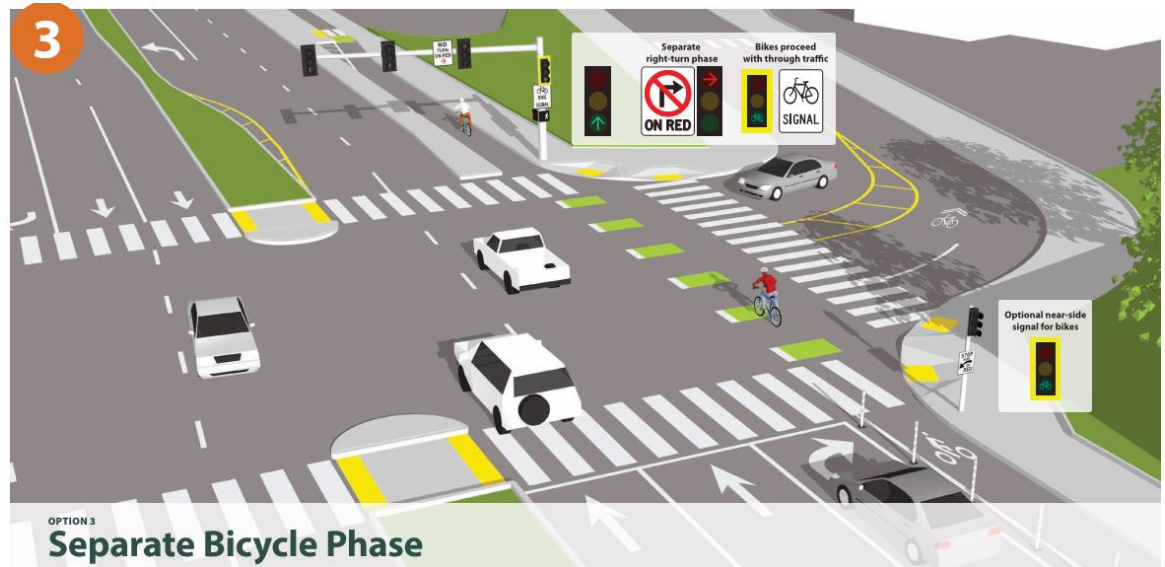
Proposed



Protected Bike Lanes



OPTION 2
Protected Corner/Intersection



OPTION 3
Separate Bicycle Phase

Crosswalks



WHERE DO YOU WANT TO CROSS EL CAMINO REAL?

The first step in identifying potential crosswalk locations is understanding how many people might use the crosswalk. You're the local expert - tell us which potential crosswalk locations are likely to have the highest demand. Add stars to key destinations and mark your walking route!

Downtown Redwood City

25 votes

PUBLIC INPUT



Use a dot sticker to say...
cross (or want to cross) the street here



Use a blue marker to say...
I walk (or want to walk) here



Use a star sticker to say...
Important Destination

LEGEND

Existing Crosswalks



Signalized Intersection



Transit Stops



Study Area



Summary of Comments

- Permissive left turns are a pedestrian safety concern
- Consider mid-block crossing near Pine Street, transit access

Crosswalks



Existing



Proposed

Crosswalks



Existing



Proposed



Street Alignments



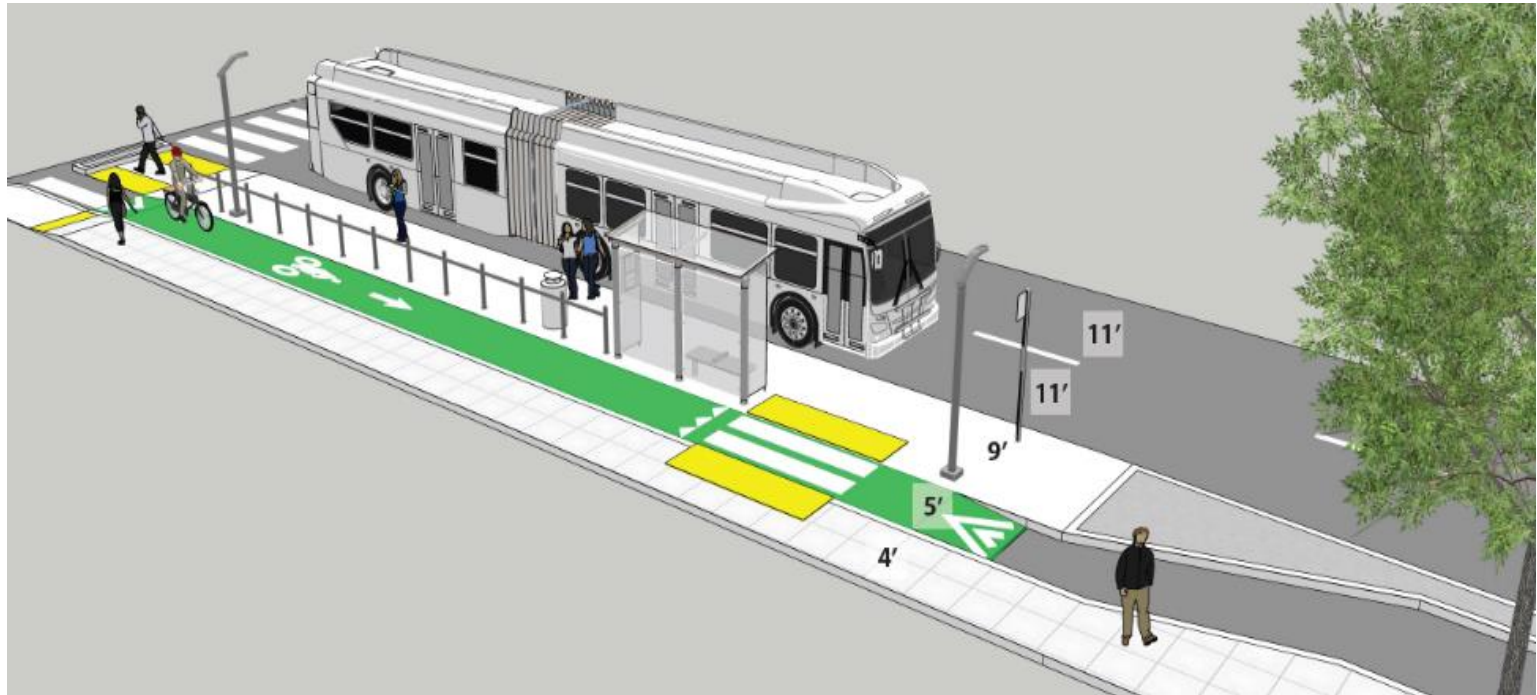
Existing



Proposed



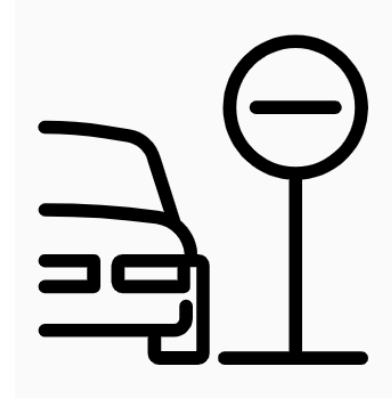
Bus Stops



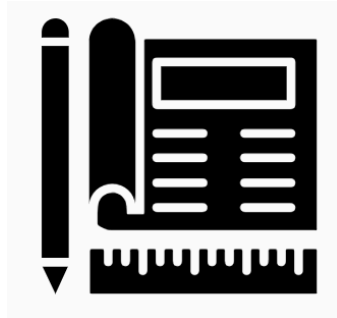
Next Steps / Implementation



**Ongoing Coordination and
Continue Public Dialog**



Curbside Management



**Detailed Design and
Environmental Review**



**Council
Authorization and
Funding**

Discussion

