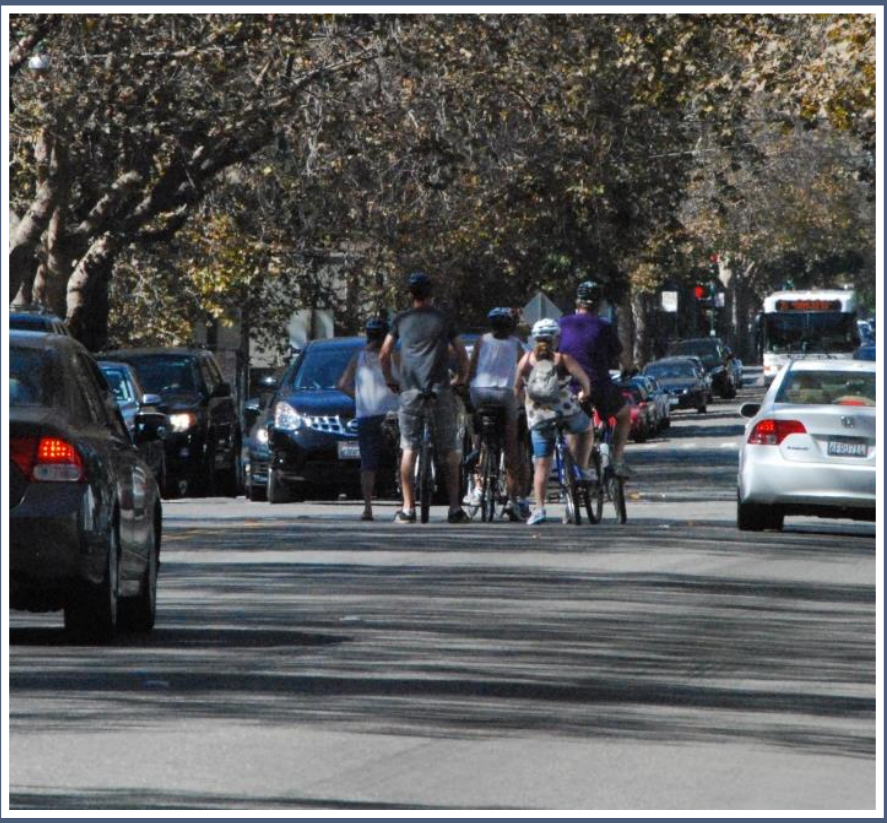
PLACEWORKS

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING



Central Avenue

Recommended Safety Improvements

City Council | February 24, 2016

Agenda

- Overview & Purpose
- Outreach
- Safety Improvement Recommendations
- Next Steps
- Q & A

Overview

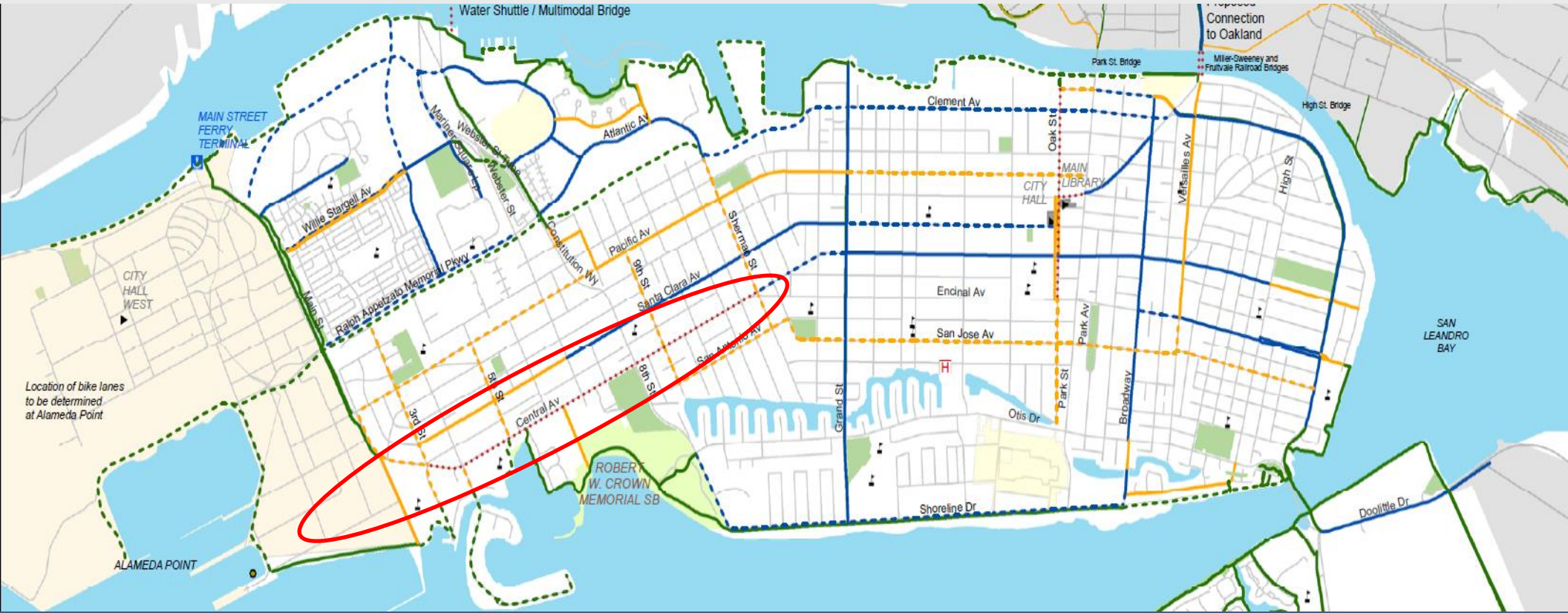
- Creates Substantial Safety Benefits in Area Concentrated with Schools
- Adds Improvements Making It Easier and Safer to Walk, especially at Encinal High
- Installs Continuous Bikeway for 95% of Corridor Compared to 12% Existing
- Creates Bay Trail connection
- Implements General Plan and Bike Plan
- Minimizes Motorist Delay
- Provides Net Gain of Parking - No Loss Near Webster Street

Overview: Stakeholder Support

- Caltrans (owns Sherman-Webster)
- Paden School (315 students)
- Encinal High School / Junior Jets (1,330 students)
- AUSD Superintendent
- Alameda PTA Council
- San Francisco Bay Trail (proposed 500 mile trail)
- Bike Walk Alameda

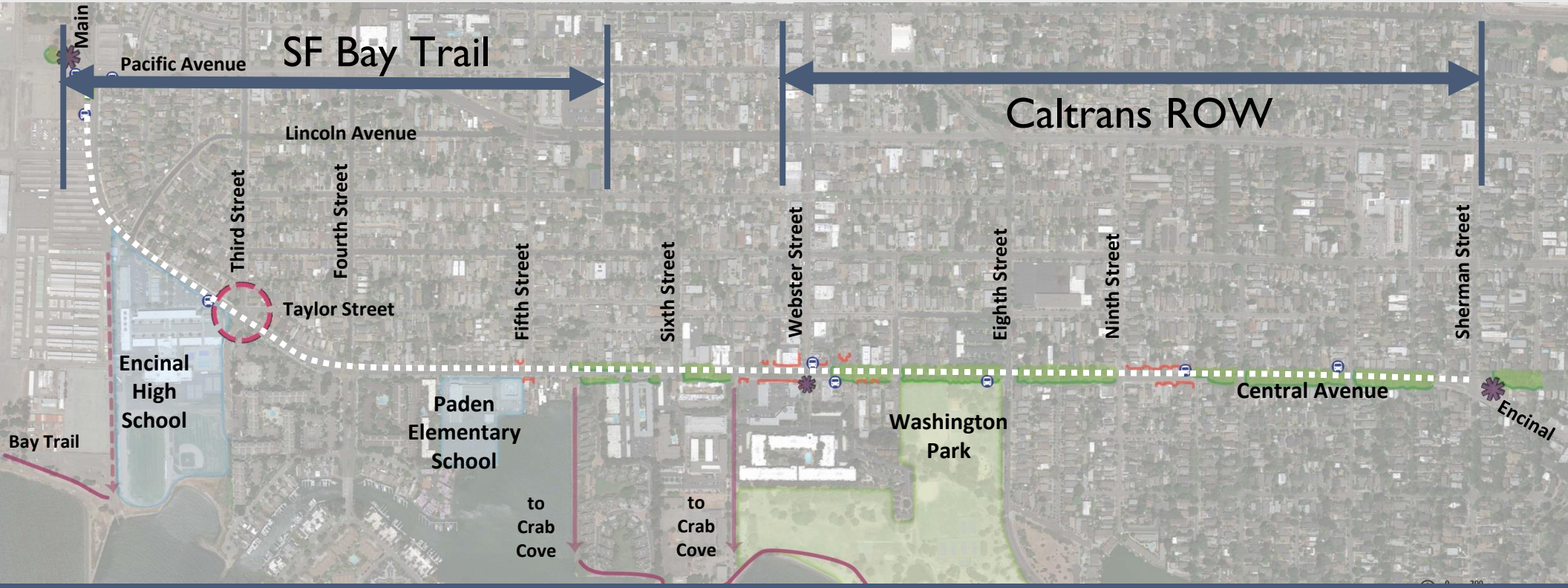
Implementing General Plan

- General Plan - Transportation Element (2009)
  - Truck Route
  - Transit and Bicycle Priority Streets
- City of Alameda Bicycle Plan (2010)



Issues to Balance

- 1.7 mile study area / residential area
- AC Transit, truck, commercial, jobs and ferry access
- Partial SF Bay Trail / Partial Caltrans facility – SR 61
- Multiple schools (over 5,000 students/12 schools)



Central Avenue Proposed Street Concept

Schools

- ***West Alameda*** (approx. 4,000 students)
  - Academy of Alameda School ★
  - Alameda Community Learning Center ★
  - Alameda Science and Technology Institute ★
  - **Child Unique Montessori School** ★
  - **Encinal Junior/Senior School** ★
  - Island High School ★
  - Nea Community Learning Center ★
  - **Paden Elementary School**
  - Ruby Bridges Elementary School

- ***Central Alameda*** (approx. 1,150 students)
  - Maya Lin School ★
  - Franklin Elementary School
  - Wood Middle School ★

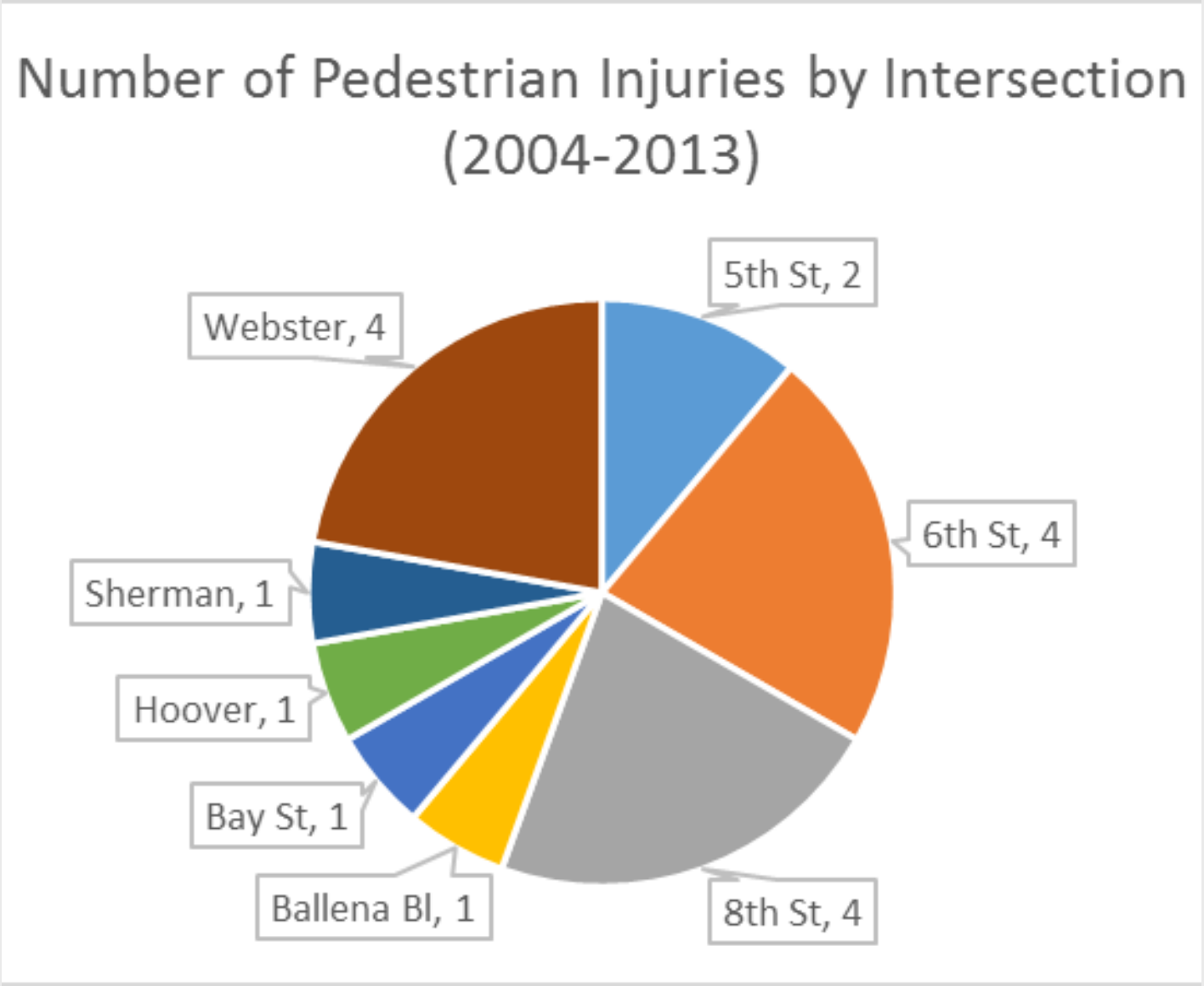
Alternatives Considered

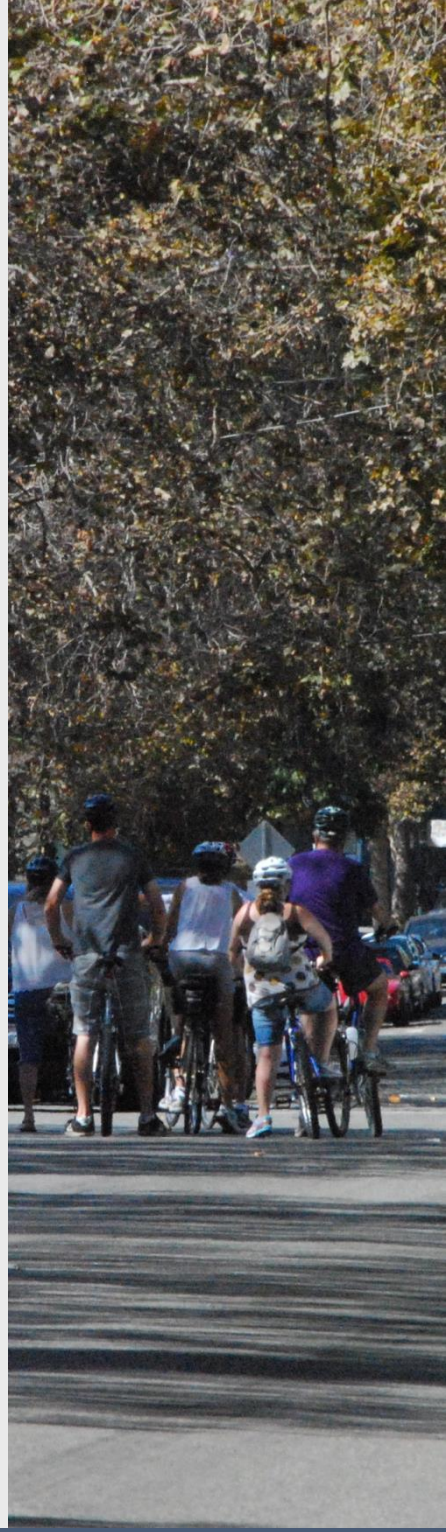
- Do nothing different – leave as is – status quo
- Santa Clara Avenue
- Sharrows
- East End Section:
  - Buffered Bike Lanes
  - Separated Bikeways
- Education/Enforcement
- Washington Park Bike Lane

Safety

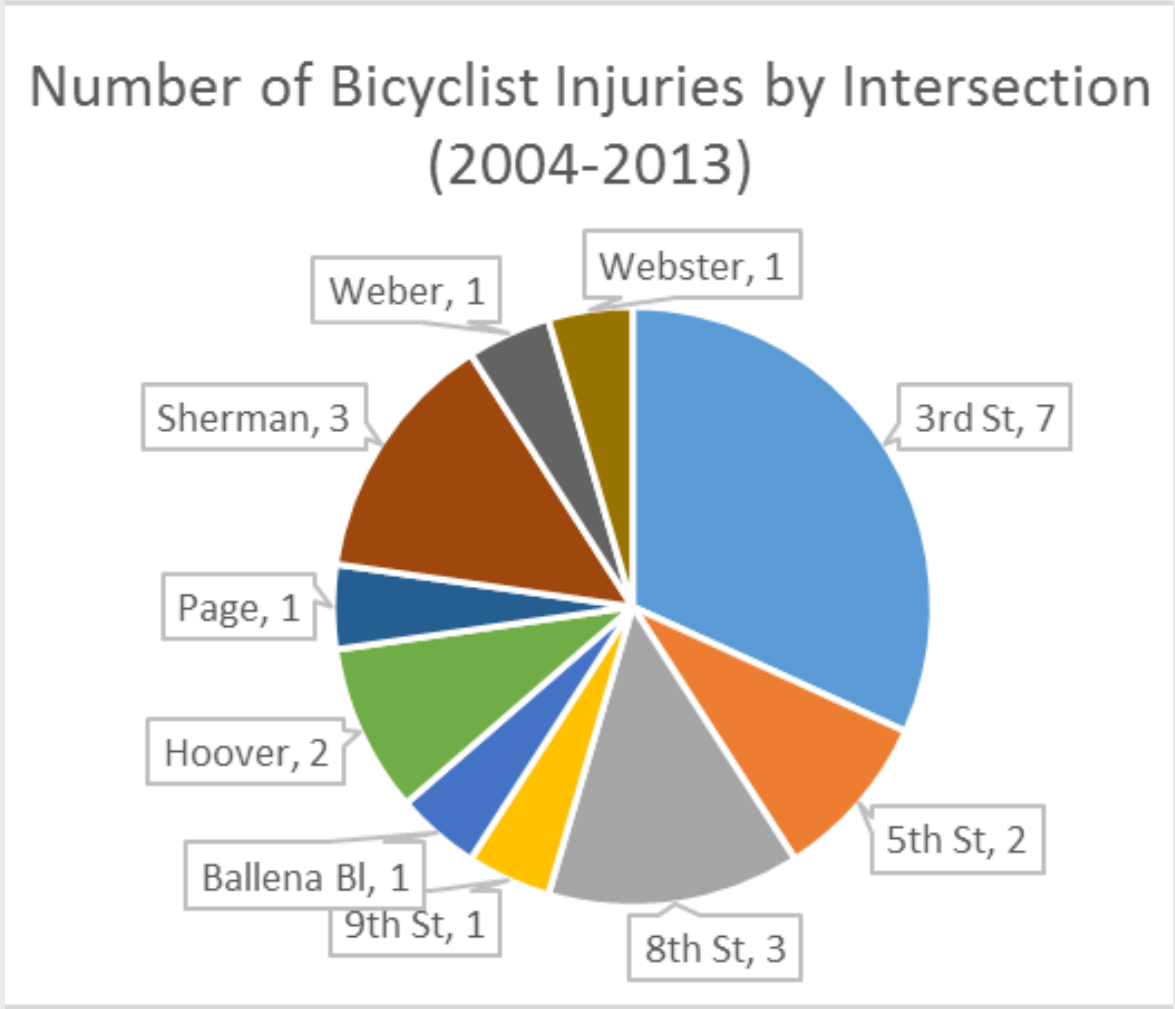
- Roadway Safety
  - Actual Speeds: 30-33 mph
  - 89 injuries from collisions past 10 years
    - 18 walking = 20% (16% citywide)
    - 22 bicycling = 25% (16% citywide)
  - Bicycling/walking injuries = 45% (32% citywide)
  - Study Area mileage = 1.4% of citywide streets
  - Study Area injuries = 4.1% (compared to citywide injuries)

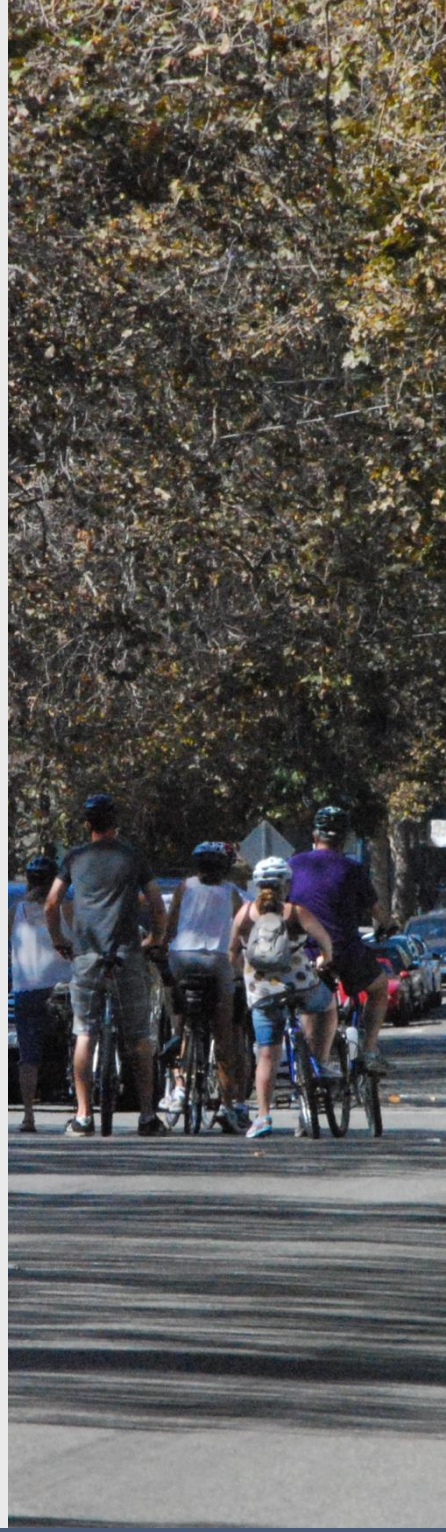
Safety: Ped Injuries at Uncontrolled Intersection and Highly Concentrated Areas



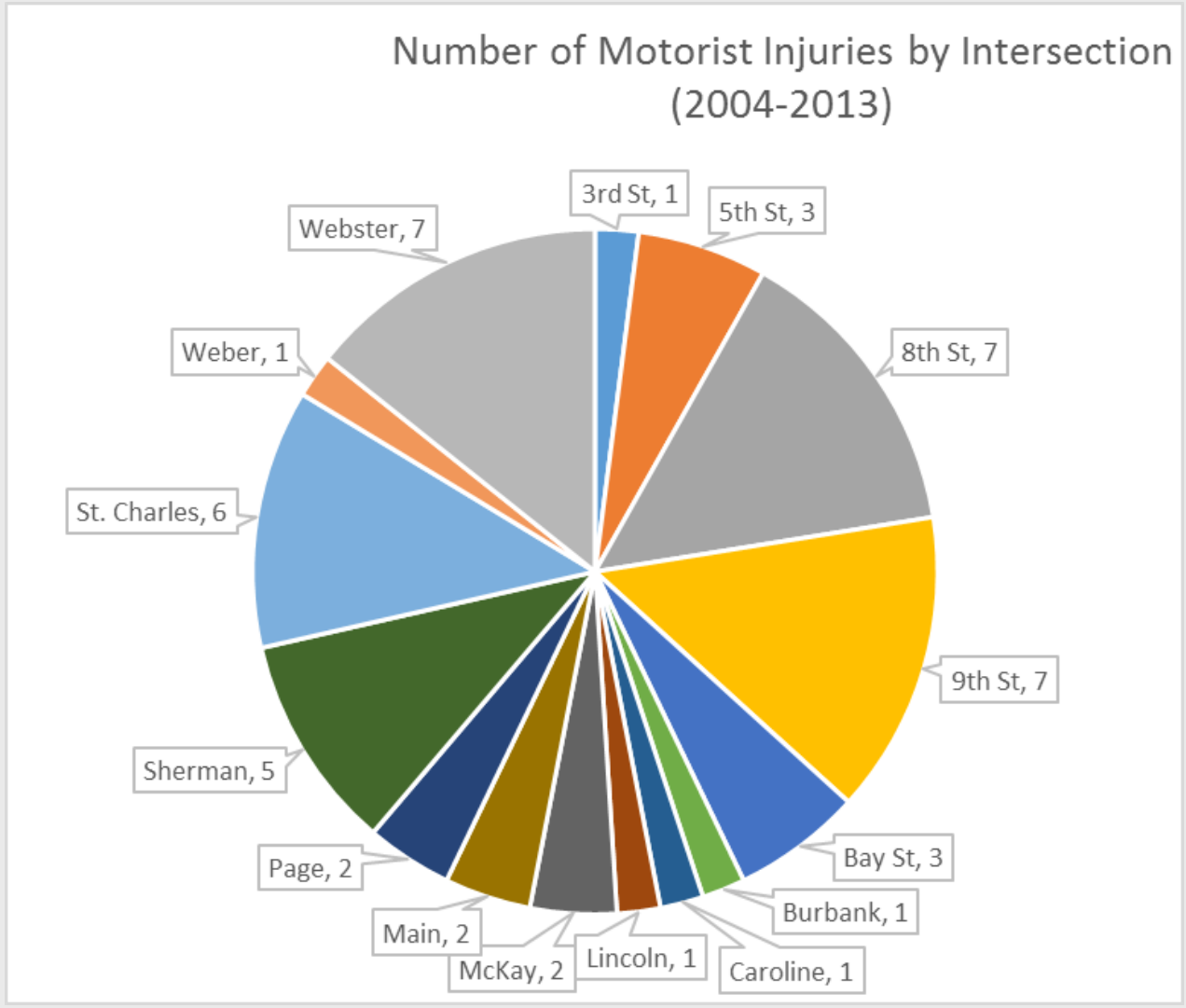


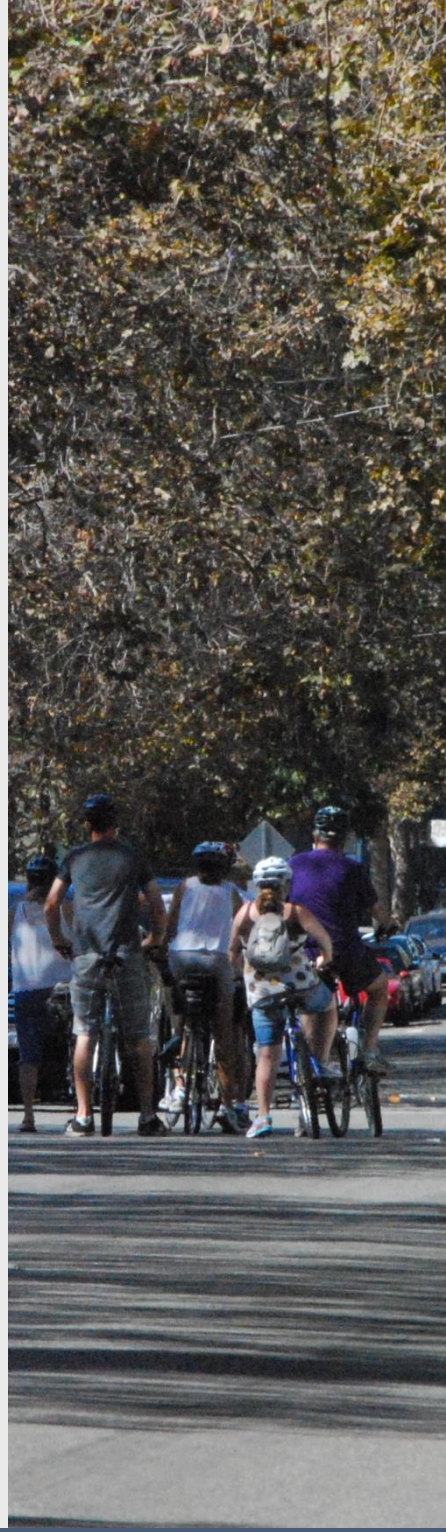
Safety: Bike Injuries Concentrated at Third Street near Encinal High and 5 out of 7 during Drop-Off/Pick-Up Times





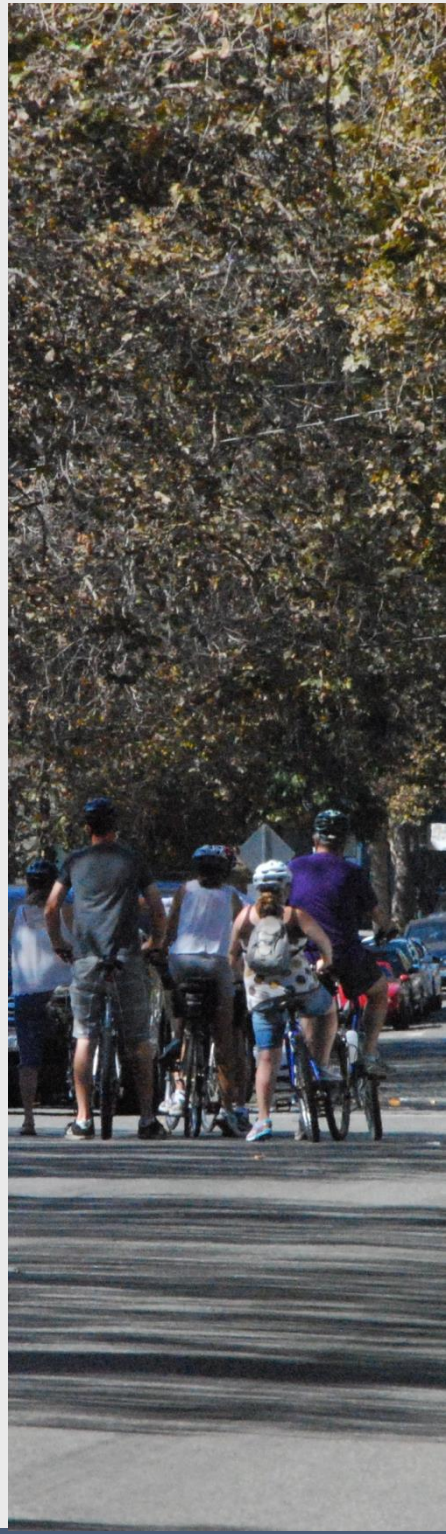
Safety: Motorist Injuries More Dispersed throughout Study Area



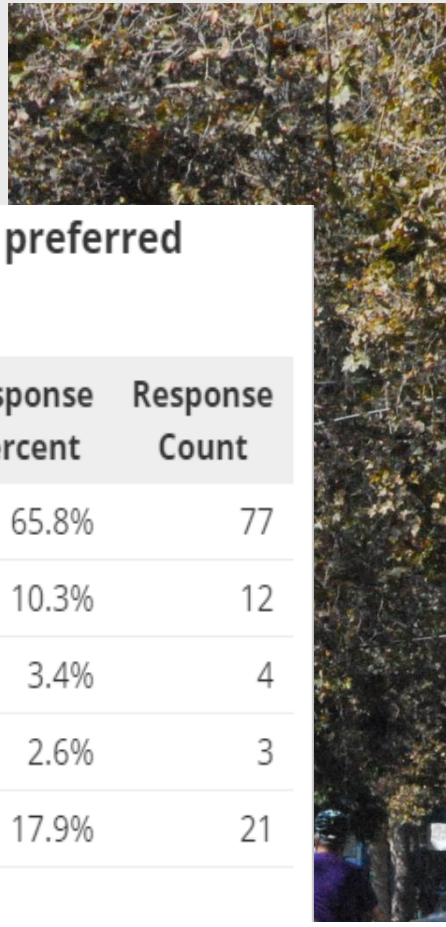


Outreach: Process

- Advisory Committee: met three times and individually
- Community Workshops: April, June and September
- Transportation Commission Meetings: May and Nov.
- Commission on Disability Issues: December
- Engineer Reviews: five different teams
- Project Email List Serv: 484 emails and growing
- Web Page: http://alamedaca.gov/public-works/central-avenue-complete-street
- Open Forum: http://alamedaca.gov/public-works/open-forum - attracted 522 visitors
- City Council: Recommended Concept



Outreach: Survey Results



- Two-way separated bikeway in West End = favorable response

How would you rank Corridor Segment #1's preferred option? (1 as favored and 5 as not favored)

	Response Percent	Response Count
1	65.8%	77
2	10.3%	12
3	3.4%	4
4	2.6%	3
5	17.9%	21

- Bike lanes in east section = mixed support

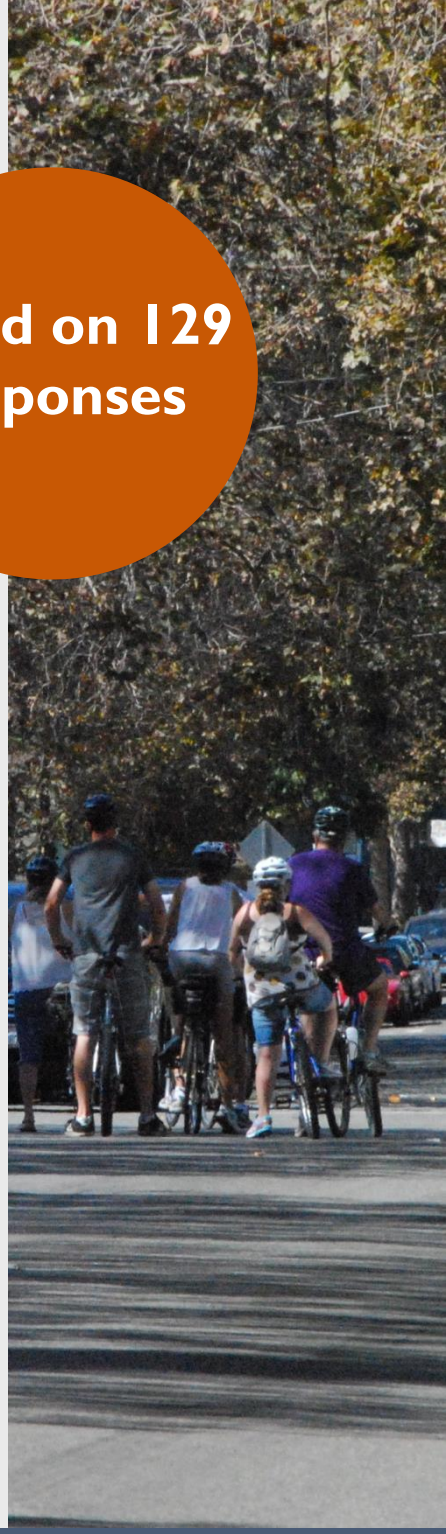
How would you rank Corridor Segment #4's preferred option? (1 as favored and 5 as not favored)

	Response Percent	Response Count
1	28.4%	33
2	18.1%	21
3	12.1%	14
4	16.4%	19
5	25.0%	29

Concept: Goals

1. **Encourage bicycling and walking**
2. **Improve safety**
3. **Improve the streetscape**
4. **Traffic calming**
5. **Encourage transit use**
6. **Revitalize West Alameda**
7. **Improve public access to the SF Bay**
8. **Minimize disruption to motorists**
9. **Improve truck access**

Based on 129 responses



Concept: Demographics

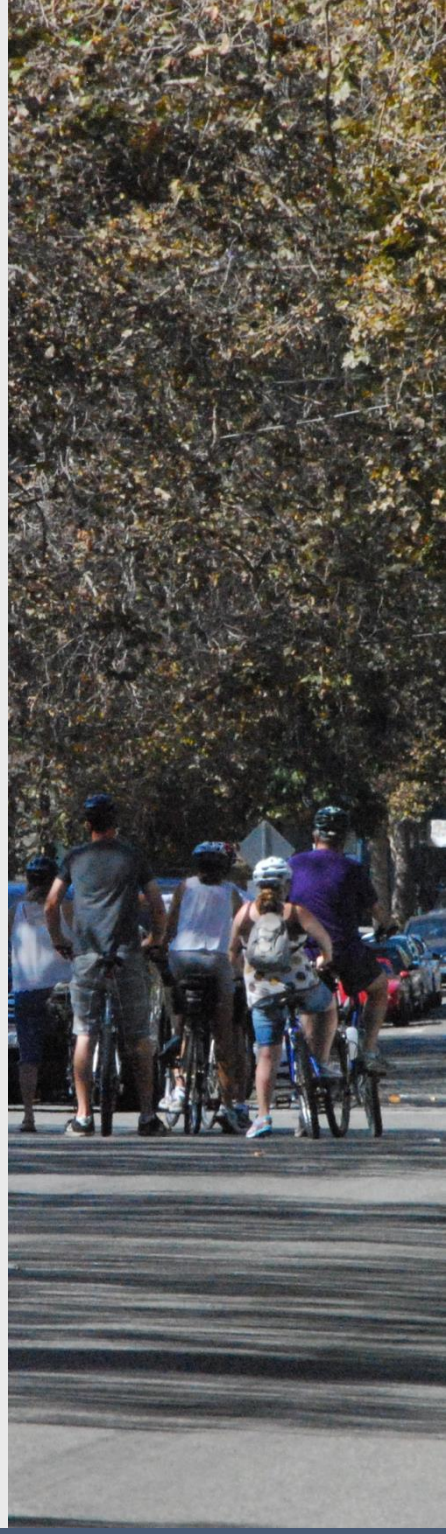
- **Walked to Work/School**
  - **Millennials: 32%**
  - **Generation X: 19%**
  - **Baby Boomers: 13%**

  Source: National Association of Realtors and Portland State

- **22% of young people plan on never getting a driver's license**

  Source: University of Michigan survey

- **Encinal HS student parking lot is not full**



Recommended Concept

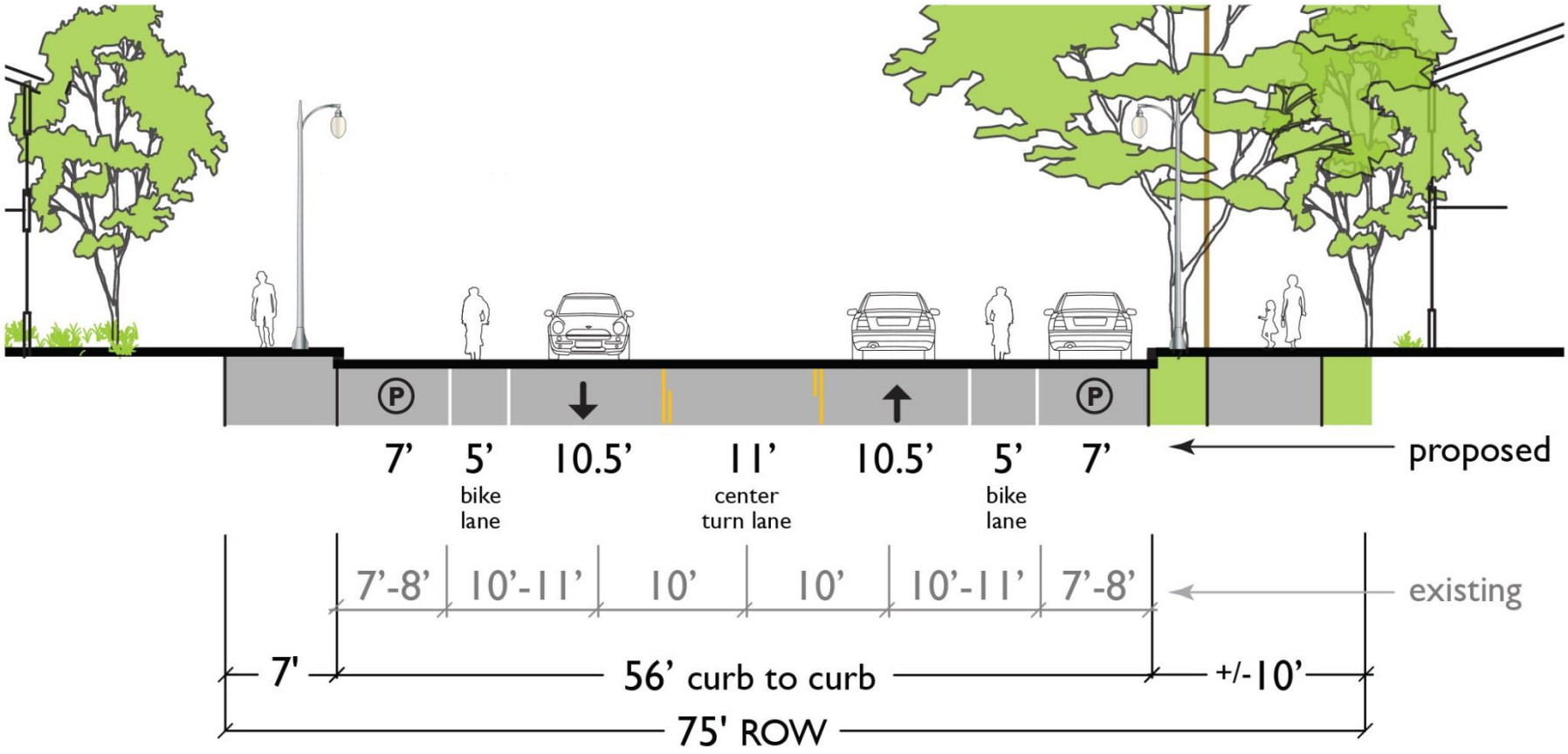
- East End Section
  - Three Lane Street with Bike Lanes
- West End Section
  - Two-way Separated Bikeway
  - Westbound Bike Lane

Central Avenue Proposed Street Concept

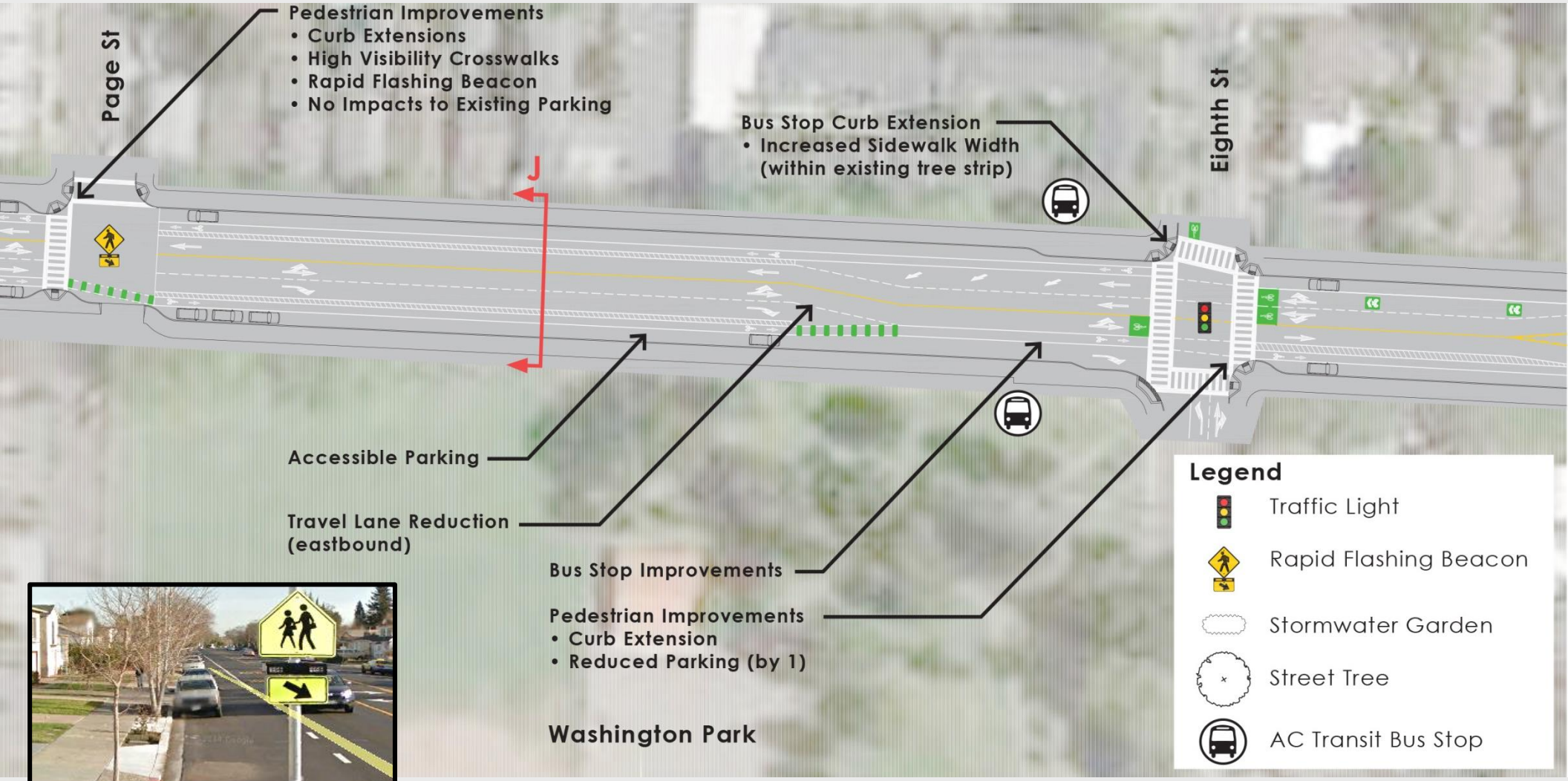
Concept: Bikeway (Sherman-Paden School)

- Do nothing different
- Sharrow markings
- Bike lanes + center turn lane
- Two-way separated bikeway
- One-way separated bikeway
- Buffered bike lanes

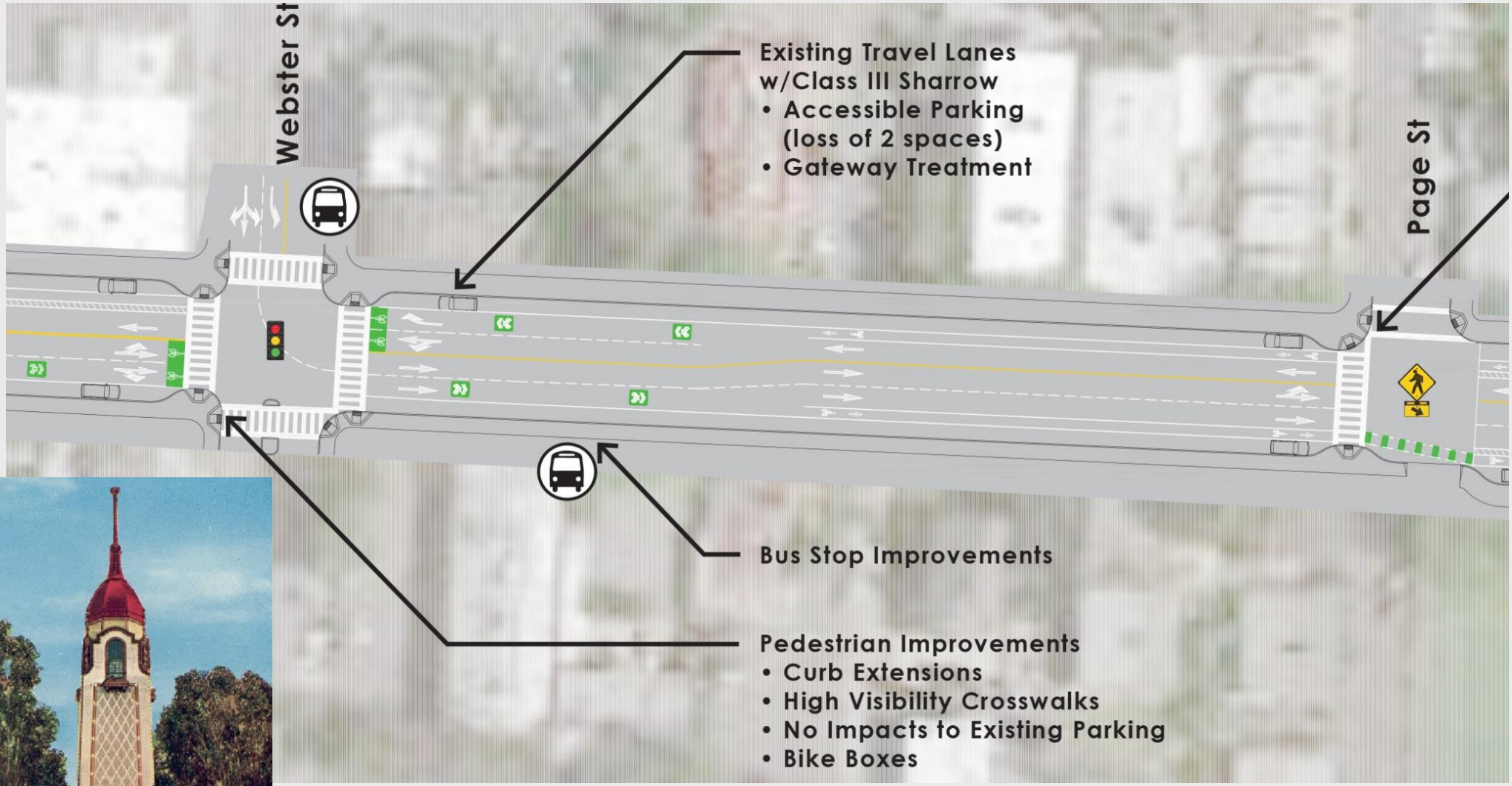
Concept: Sherman – Paden School



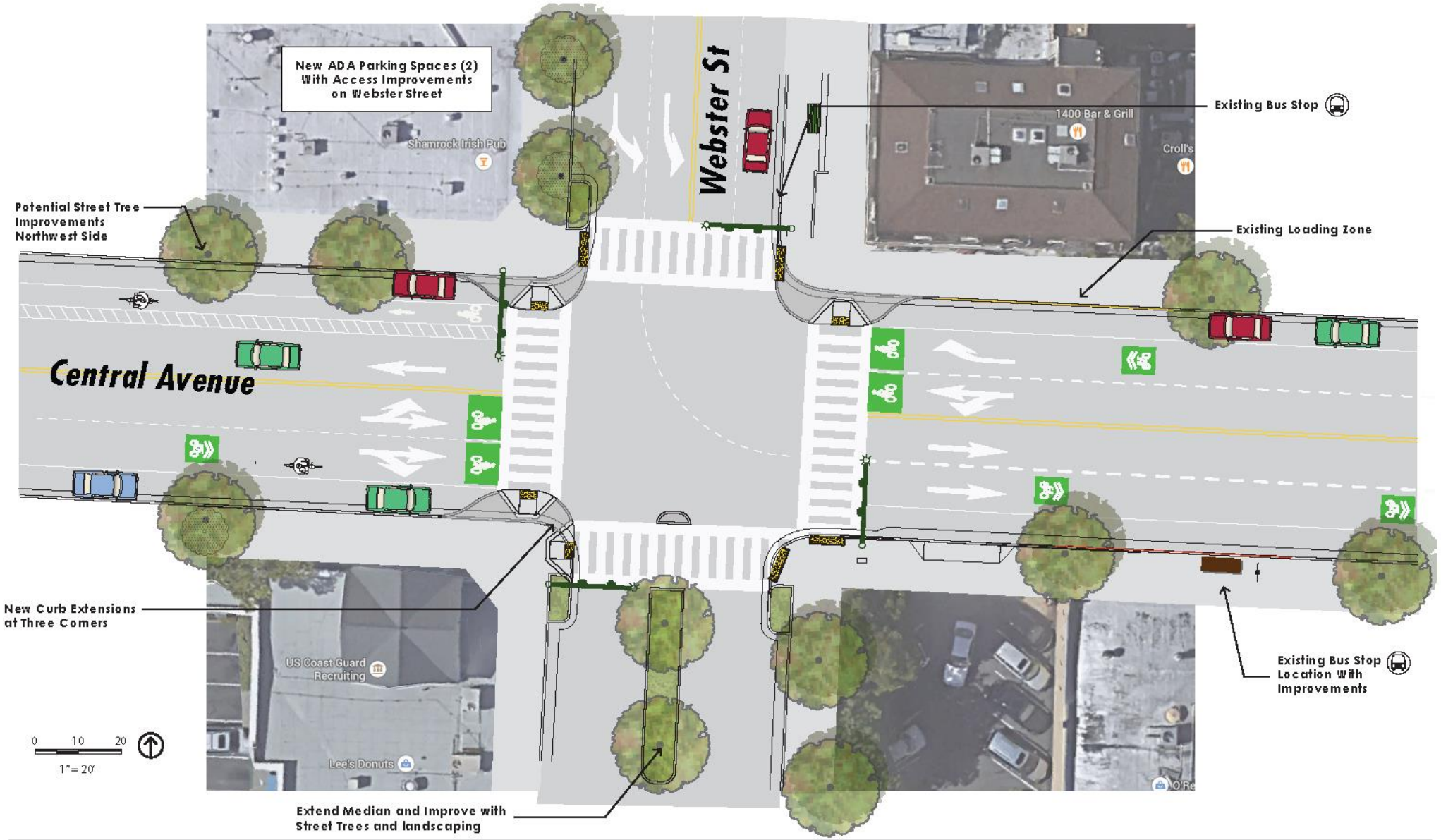
Concept: Eighth St - Page St



Concept: Page St – Webster St



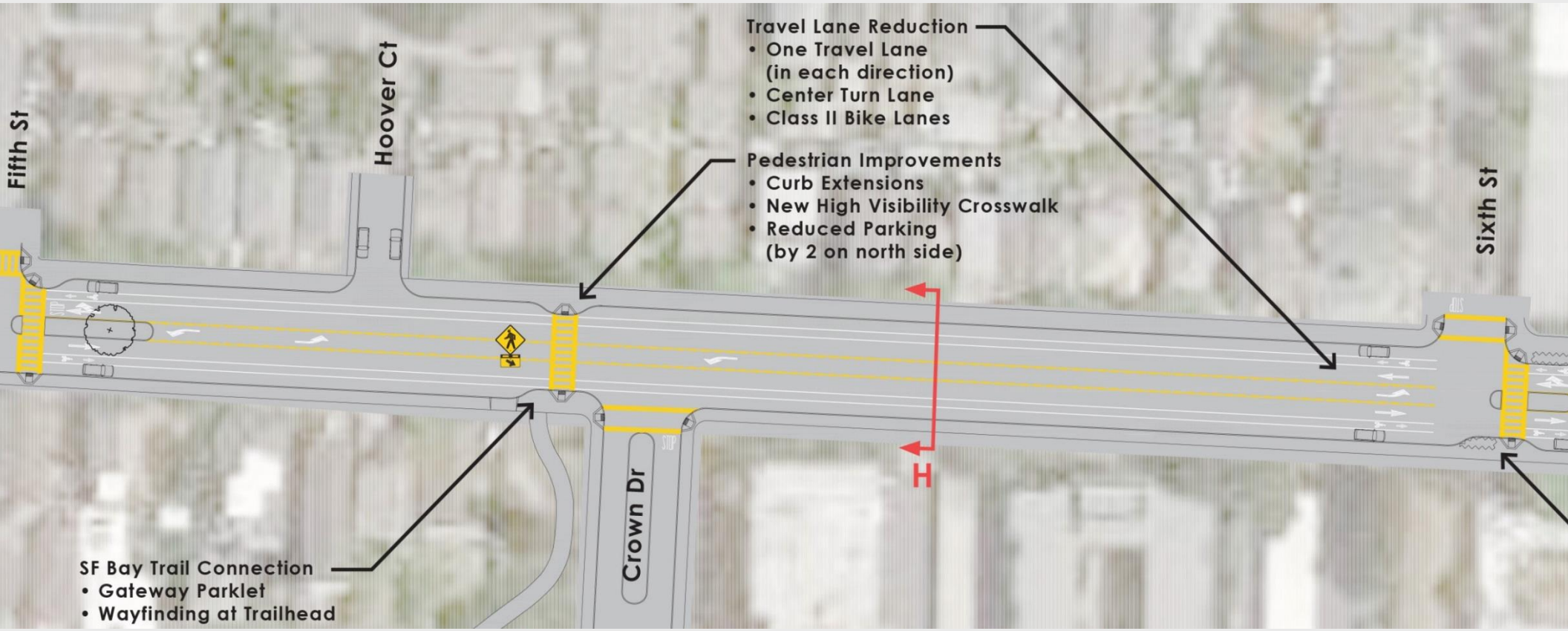
Webster Street – Two Lane Approaches and No Parking Loss



Webster Intersection Detail

Central Avenue Proposed Street Concept | January 2016

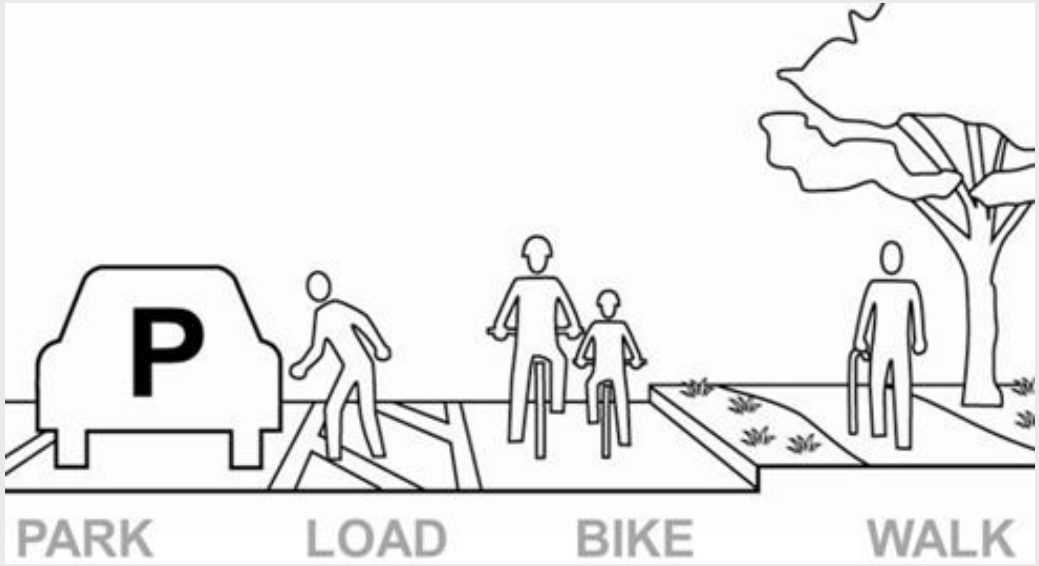
Concept: Fifth St – Sixth St



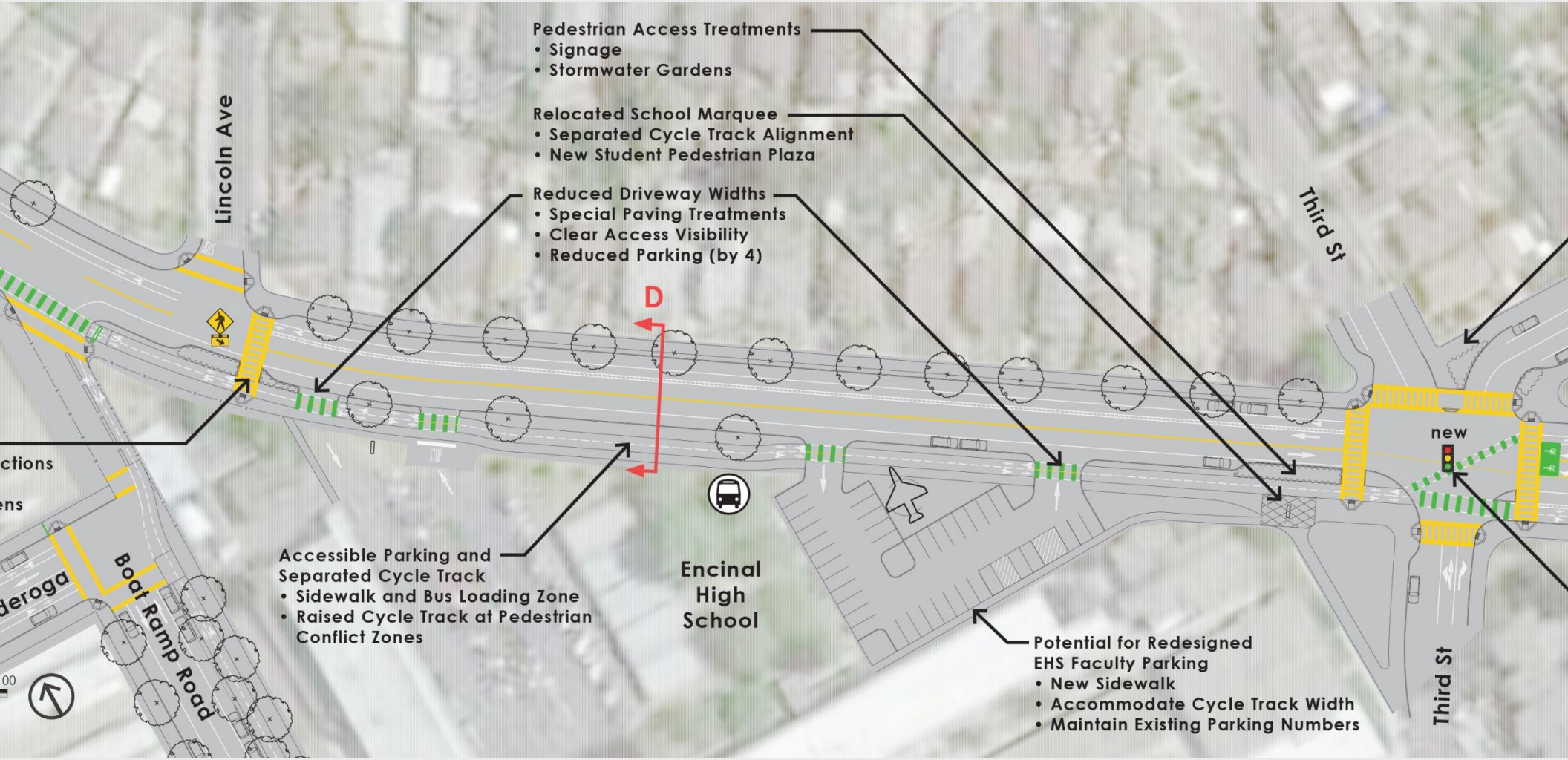
Concept: Bikeway - West End

- Two-way separated bikeway:
  - Alameda Point
  - Paden, Encinal and Junior Jets Schools
  - SF Bay Trail

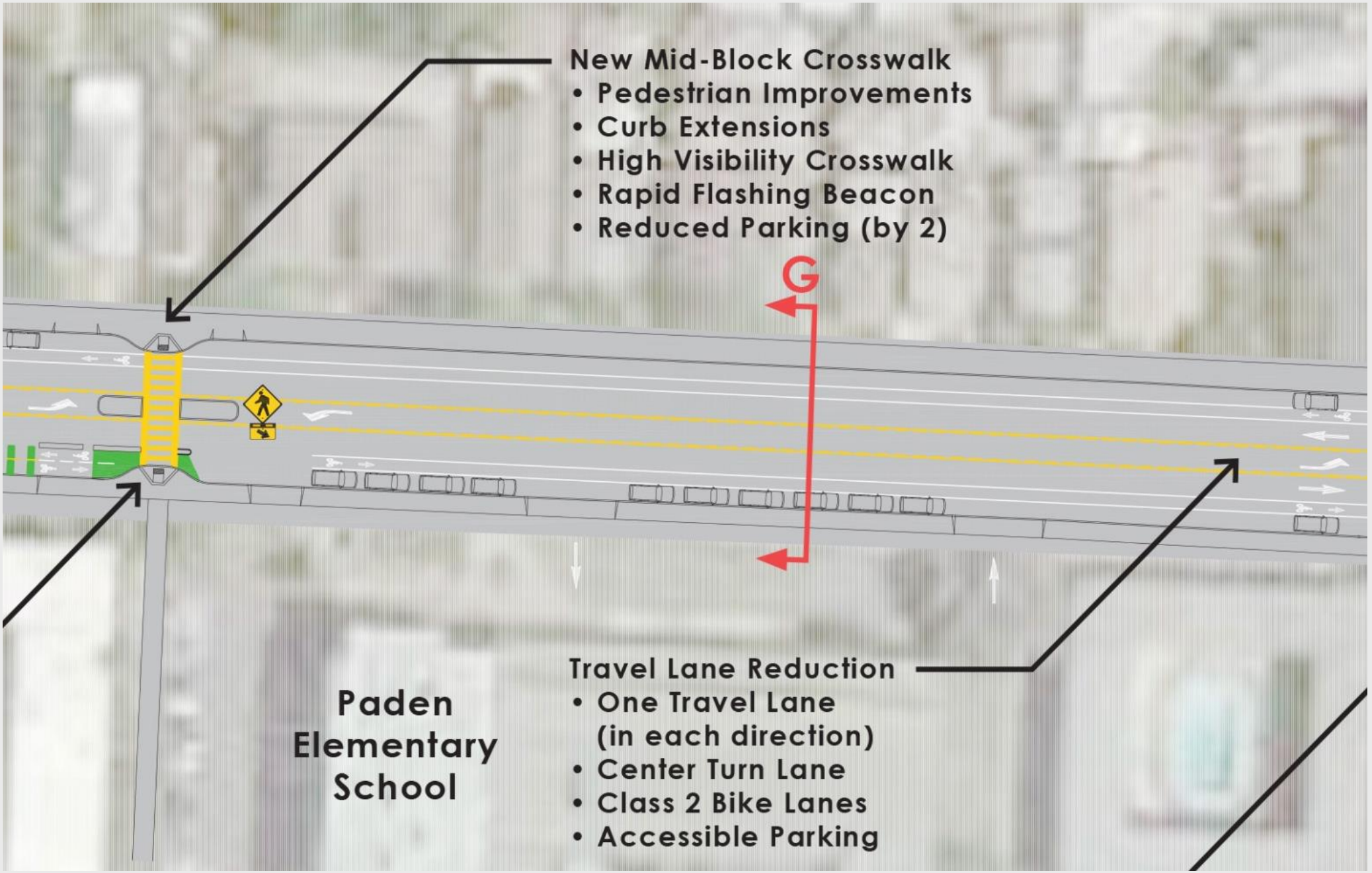
- Westbound bike lane



Concept: Encinal High School



Concept: Paden School



Concept: Improves Safety

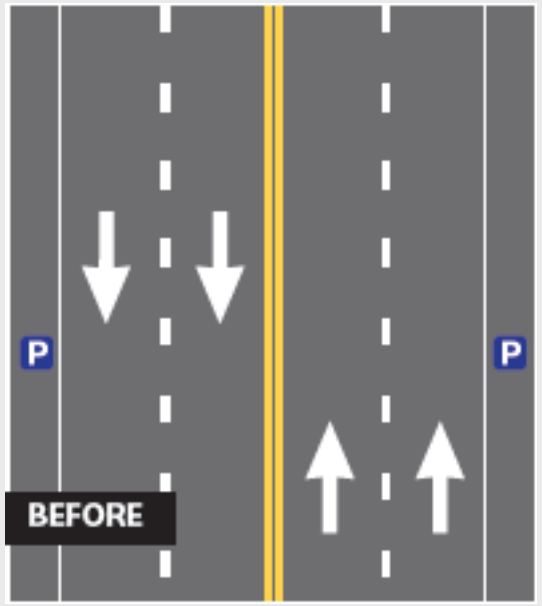
Federal Highway Administration (FHWA) identifies volumes below 20,000 motorists/day as feasible for lane reduction.

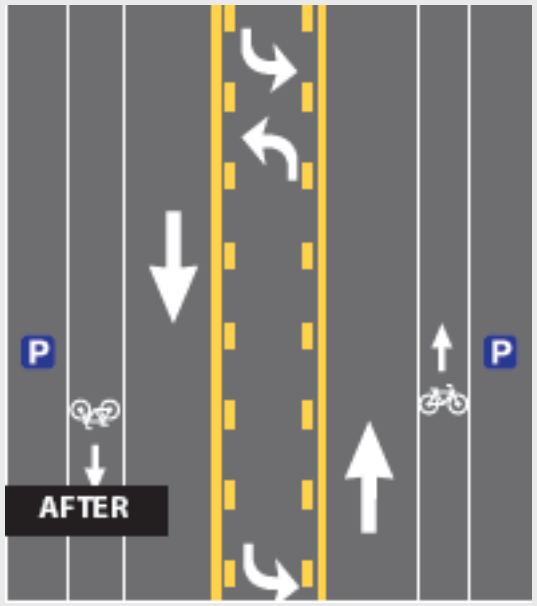
Street Name	**Veh/Day**
Atlantic Ave. (Buena Vista to Constitution)	10,709
Broadway (Santa Clara Ave to Otis Dr)	12,332
Fernside Blvd. (Otis Dr to Washington St)	17,950
Central Avenue (max.)	**8,400**
Central Avenue: FUTURE (average)	**12,000**
Central Avenue: FUTURE (max.)	**16,000**

Concept: Benefits

According to FHWA:

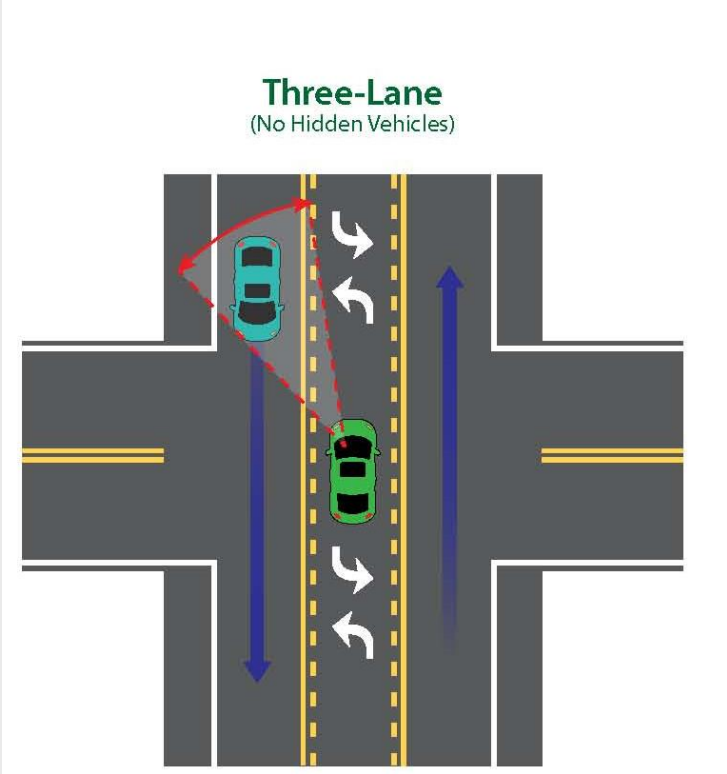
- Reduces collisions by at least 19%
- Reduces speeds by at least 3 mph
- Less severe collisions
- Fewer vehicle lanes to cross
- Better visibility of pedestrians
- Space for bicyclists
- Smoother travel flow





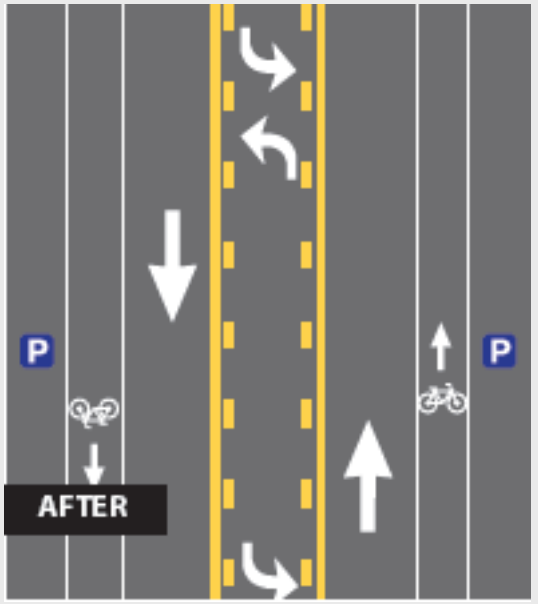
Concept: Motorist Safety

- Simpler crossings for side street motorists
- Fewer conflict points for sideswipe and rear-end collisions
- More visibility for left turning vehicles



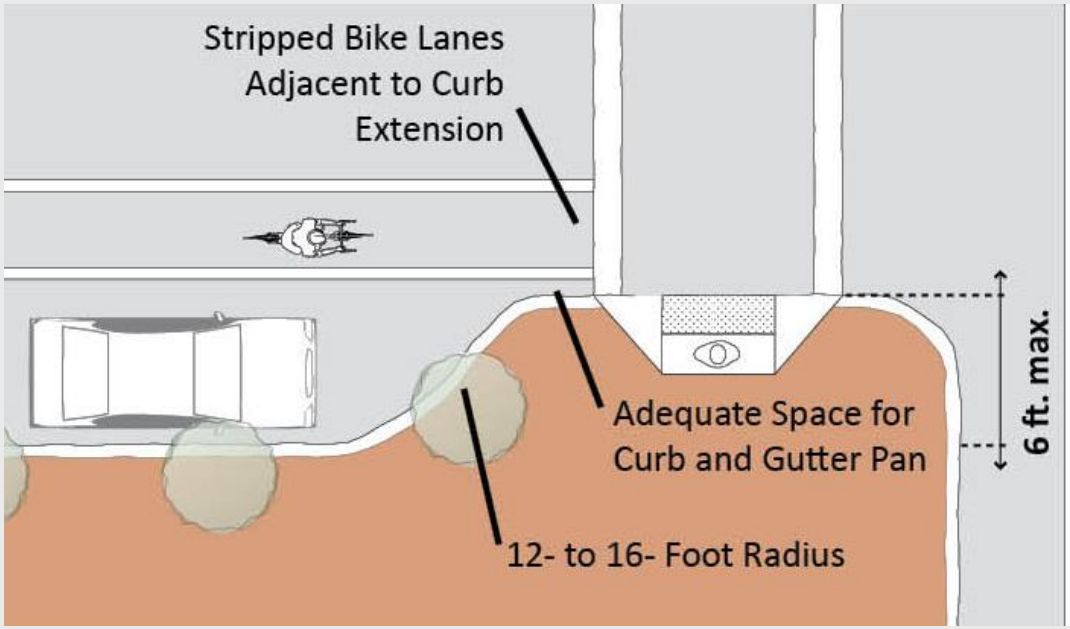
Concept: Pedestrian and Bicyclist Safety

- Fewer motor vehicle travel lanes to cross
- More visibility for pedestrians and bicyclists
- Space for bicyclists
- Slower vehicle speeds lead to fewer and less severe crashes
- Shorter pedestrian crossing distances



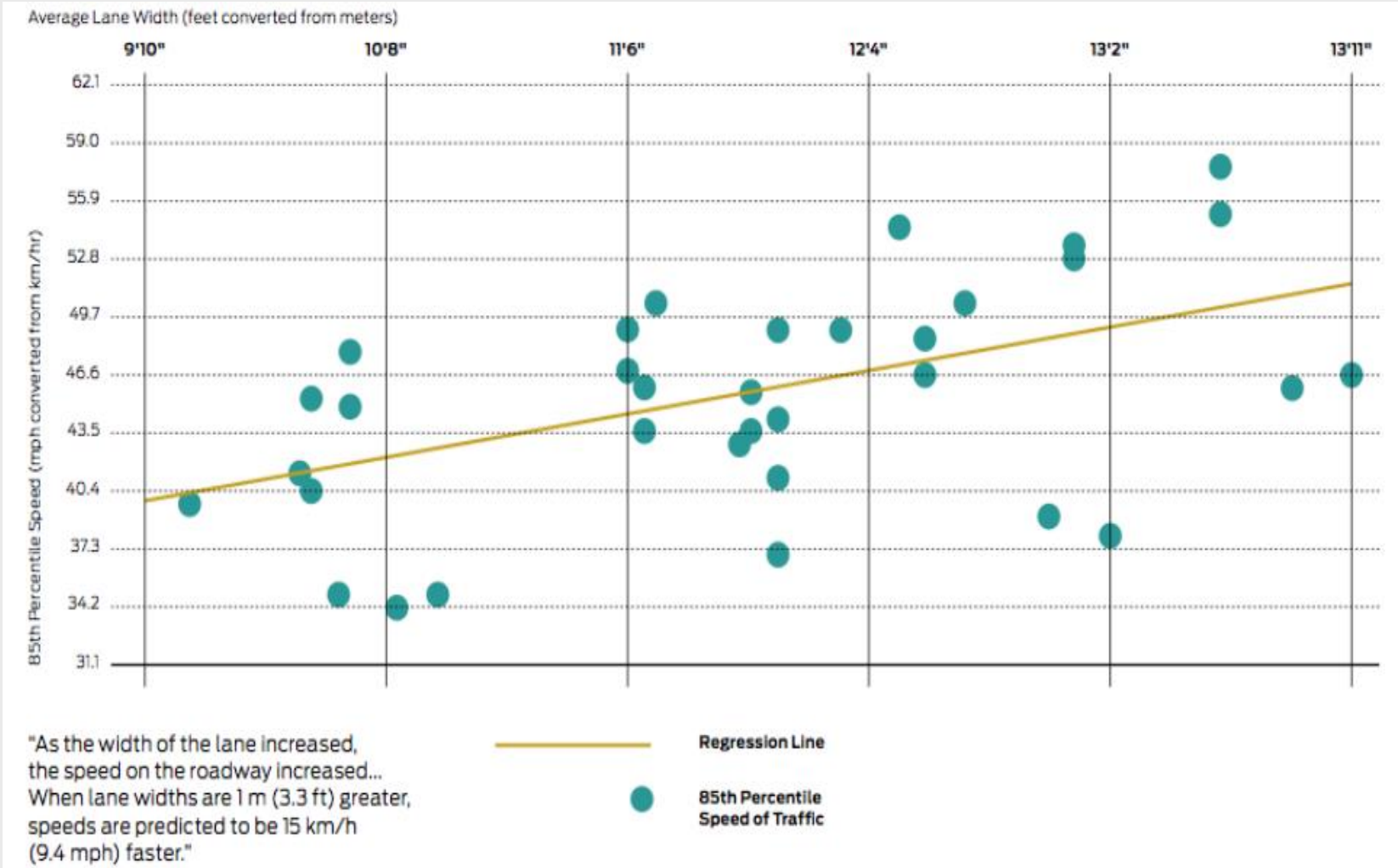
Concept: Achieves Key Goals

- **Safer Street – Center Lane**
- **Bikeway**
- **Pedestrian Improvements**
- **Streetscape Improvements**
  - **gateway, trees, stormwater, landscape**
- **SF Bay Trail Access**
- **Minimizes Motorist Delay**
- **Net Gain of Parking**



Concept: Addresses Concerns

- Accessible parking
- Minimal delay
- Bus/truck access



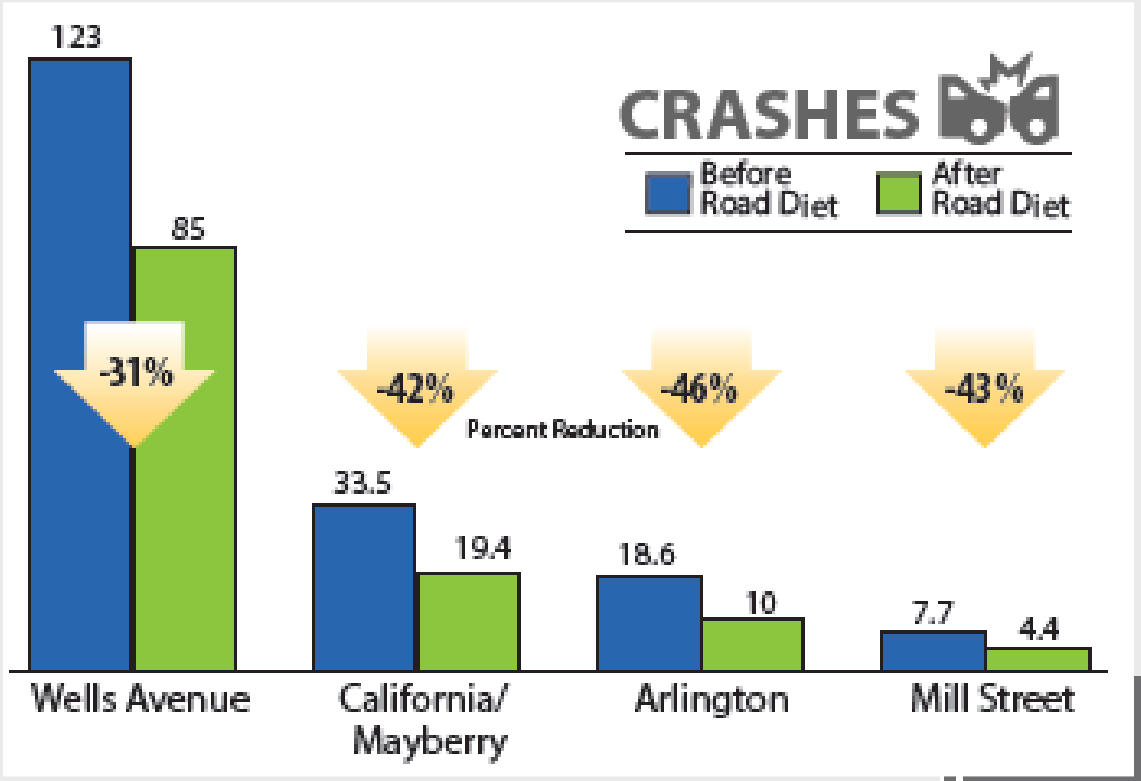
Concept: Most Comparable Local Streets

- Broadway (mid-section)
- Atlantic Avenue
- Fernside (San Jose-Otis)
  - Two-way separated bikeway installed in 2009
  - Slower speeds
  - Increase in bicycling and driving
  - One bicyclist/motorist collision in bikeway

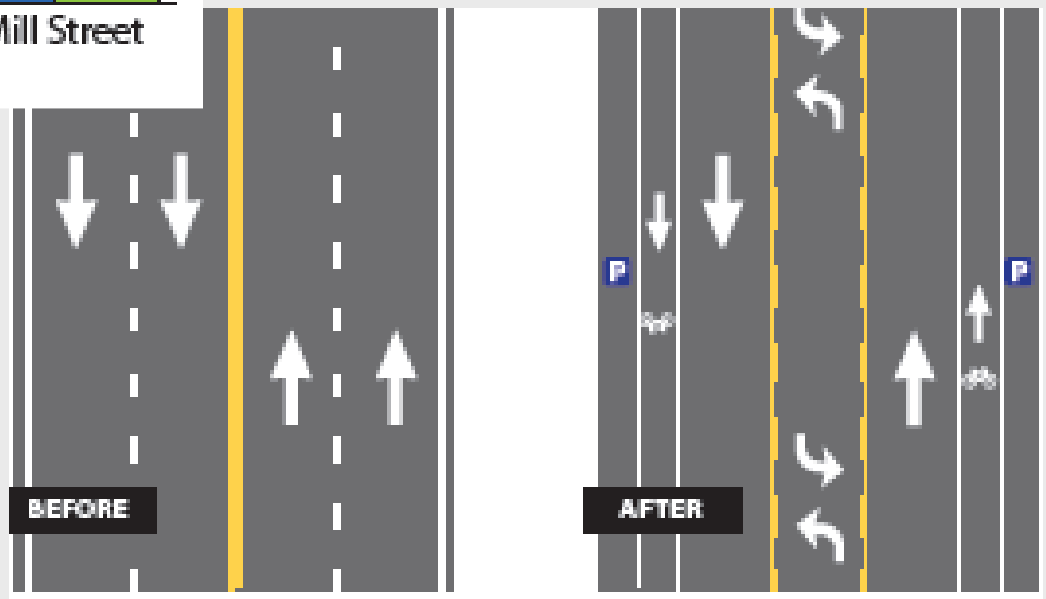
Concept: Shoreline Bikeway Example

- Lane reduction from four to two or three lanes
- Two-way separated bikeway installed in March 2015
- Preliminary data:
  - Slower speeds
  - Fewer collisions
  - Decrease in driving
  - Increase in bicycling

Concept: Lane Reductions



- Reno, Nevada corridors
  - Reduction in collisions between 31% and 46%



Concept: Lane Reductions (cont.)

Ocean Park Boulevard looking east at 16th Street

- Santa Monica – Ocean Park Blvd
  - 65% reduction in collisions
  - 60% reduction in injury collisions

Concept: Lane Reductions (cont.)

- Seattle, Washington – Stone Way
  - More than 80% reduction in top speeders
  - 14% reduction in collisions
  - 33% reduction in injury collisions
  - 80% reduction in pedestrian collisions
  - 35% increase in bicyclists
  - No motorist diversions

Concept: Lane Reductions (cont.)

- Valencia St in San Francisco

- Lakeshore Avenue by Lake Merritt in Oakland

Concept: Lane Reductions (cont.)

- People Mean Business
  - ***New York***: Retail activity increased 49% on 8th & 9th Avenues with new bikeways, compared to 3% increase borough-wide (Source: Measuring the Street, NY DOT)
  - ***San Francisco***: People who walk to Polk Street spend more money overall than people who drive (Source: SFMTA)
  - ***Salt Lake City***: Study show sales increased at local businesses with new bike lanes (Source: Division of Transportation)
  - ***Portland***: Survey of businesses showed pedestrians & bicyclists spend up to 50% more than drivers (Source: Portland State Uni)
  - ***Toronto***: Survey of merchants and patrons found people arriving by foot and bicycle visit the most often and spend the most money per month (Source: Clean Air Partnership)

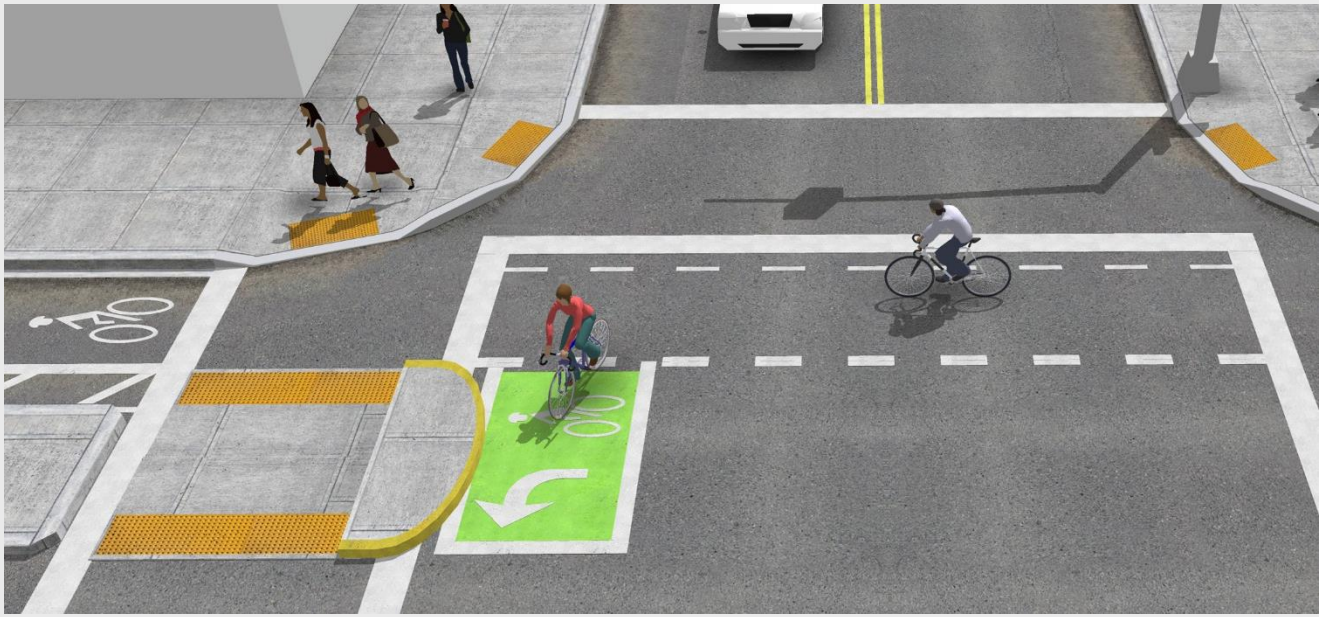
Concept: Lane Reductions (cont.)

- Denmark and Sweden

Recommendation

- Approve the Central Avenue concept
- Extend the westbound merge lane at Eighth Street
- Add four loading zones
- Use two-stage turn queue boxes

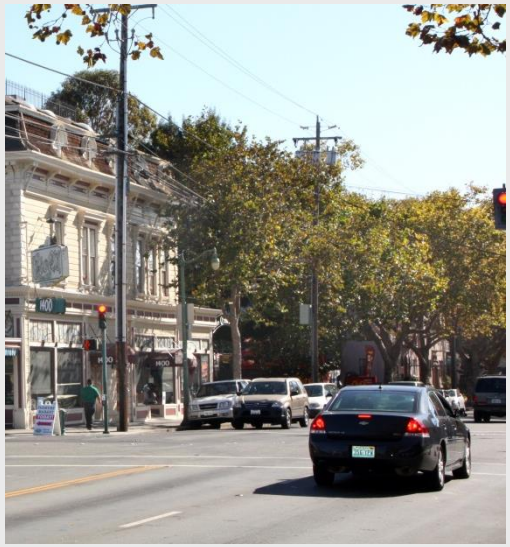
Source: NACTO



Next Steps

- City Council Approval
- Next Phase
  - Seek Funding
  - Design
  - Transportation Commission Design Approval
  - City Council Approve Construction Bid

Comments or Questions?



Contact:

Gail Payne
510-747-6892 or
gpayne@alamedaca.gov

Project web page:

http://alamedaca.gov/public-works/central-avenue-complete-street

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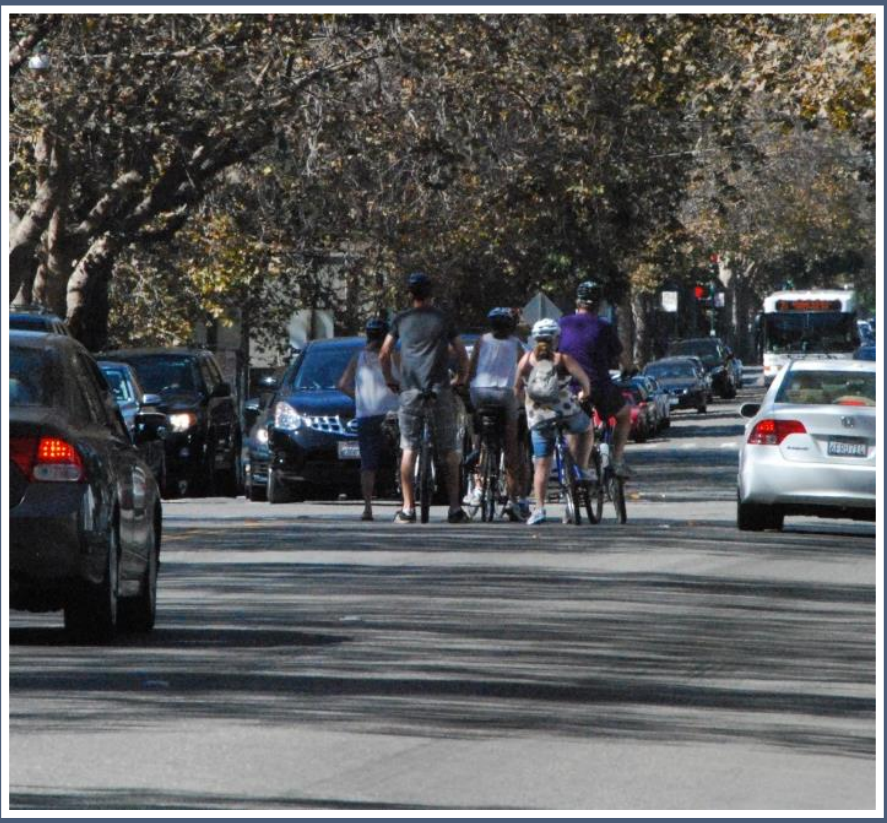
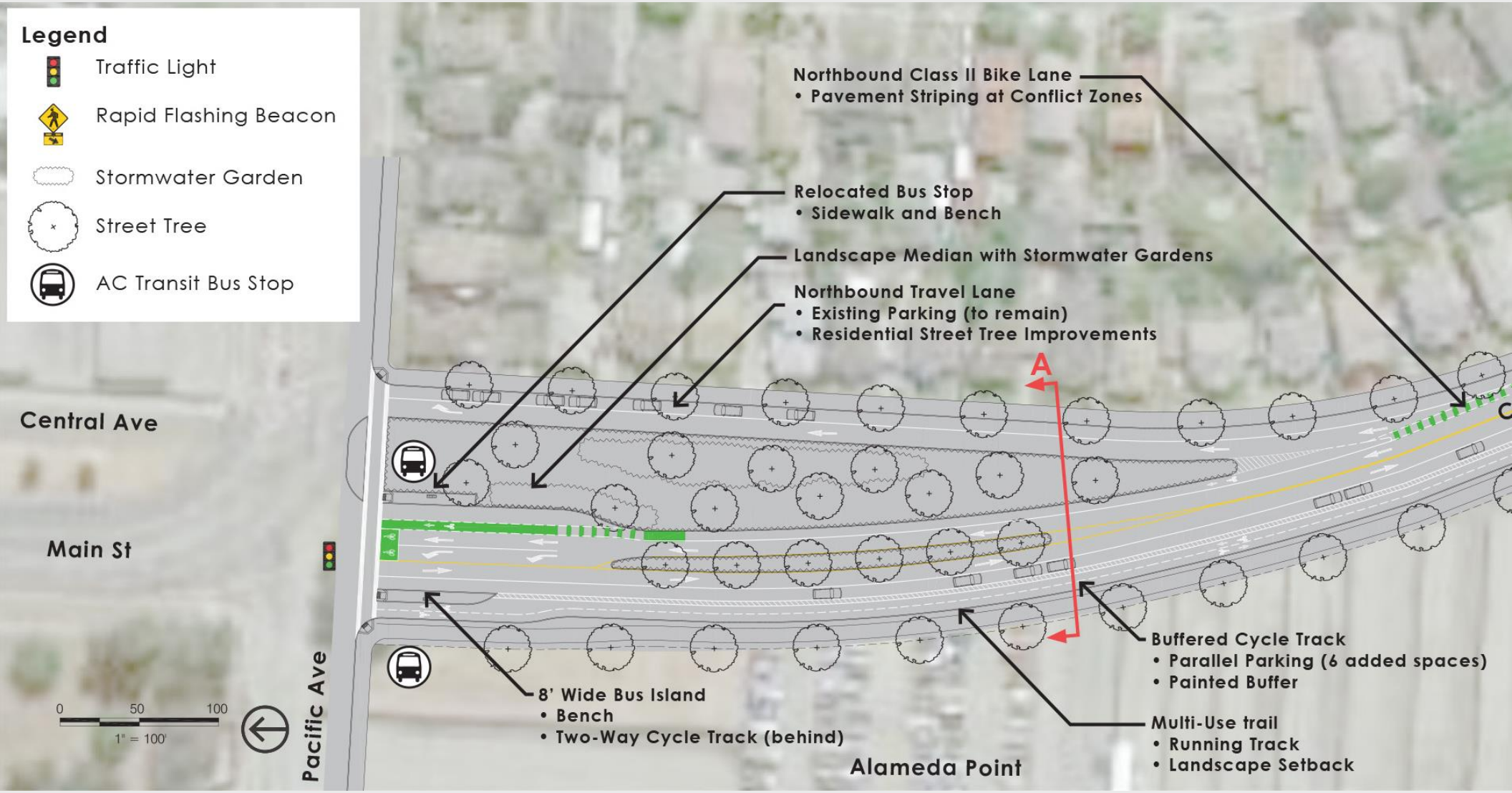


Central Avenue

Recommended Safety Improvements

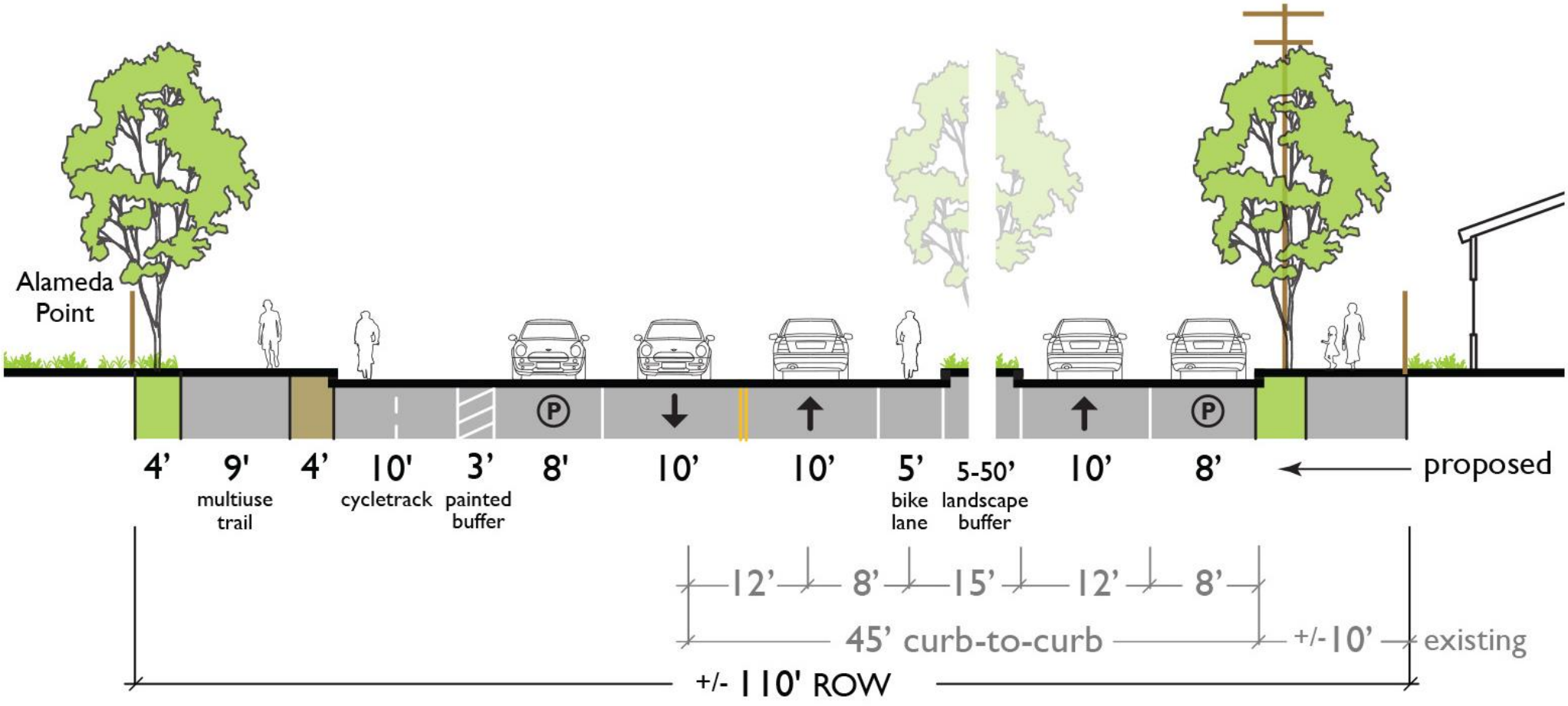
City Council | February 24, 2016

Concept Design: Pacific/Main/Central



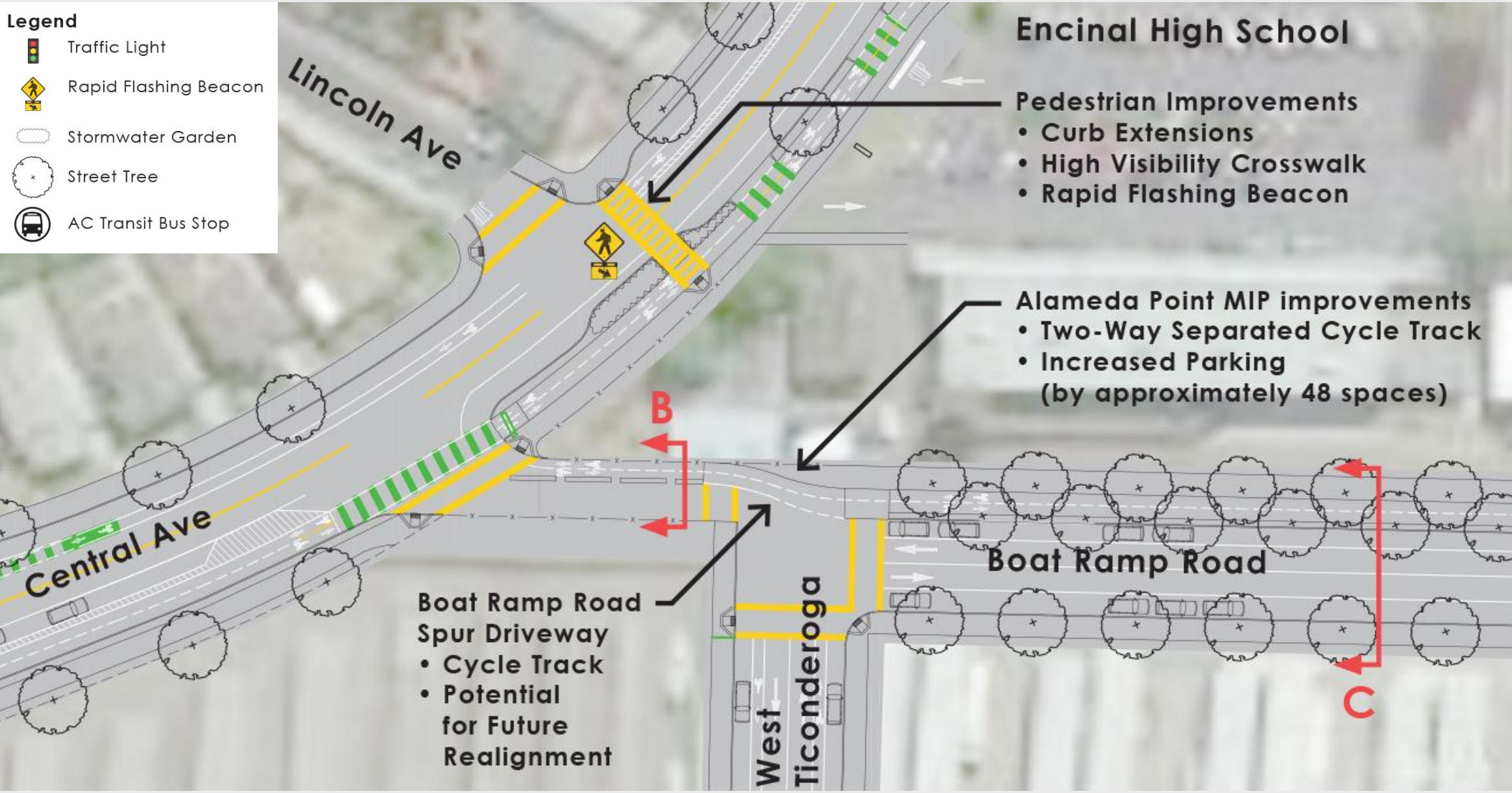
Central Avenue Proposed Street Concept

Concept Design: Pacific/Main/Central



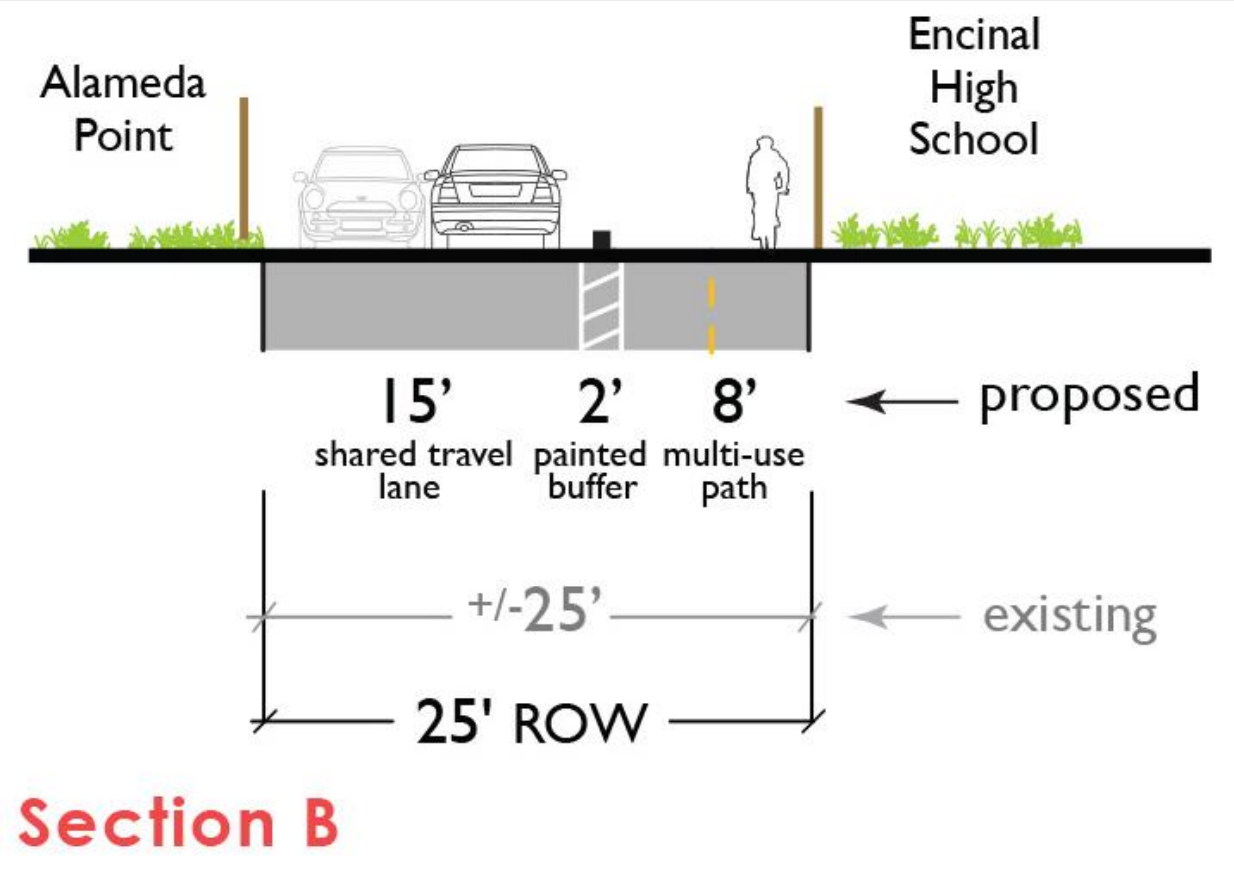
Section A

Concept Design: Lincoln/Boat Ramp

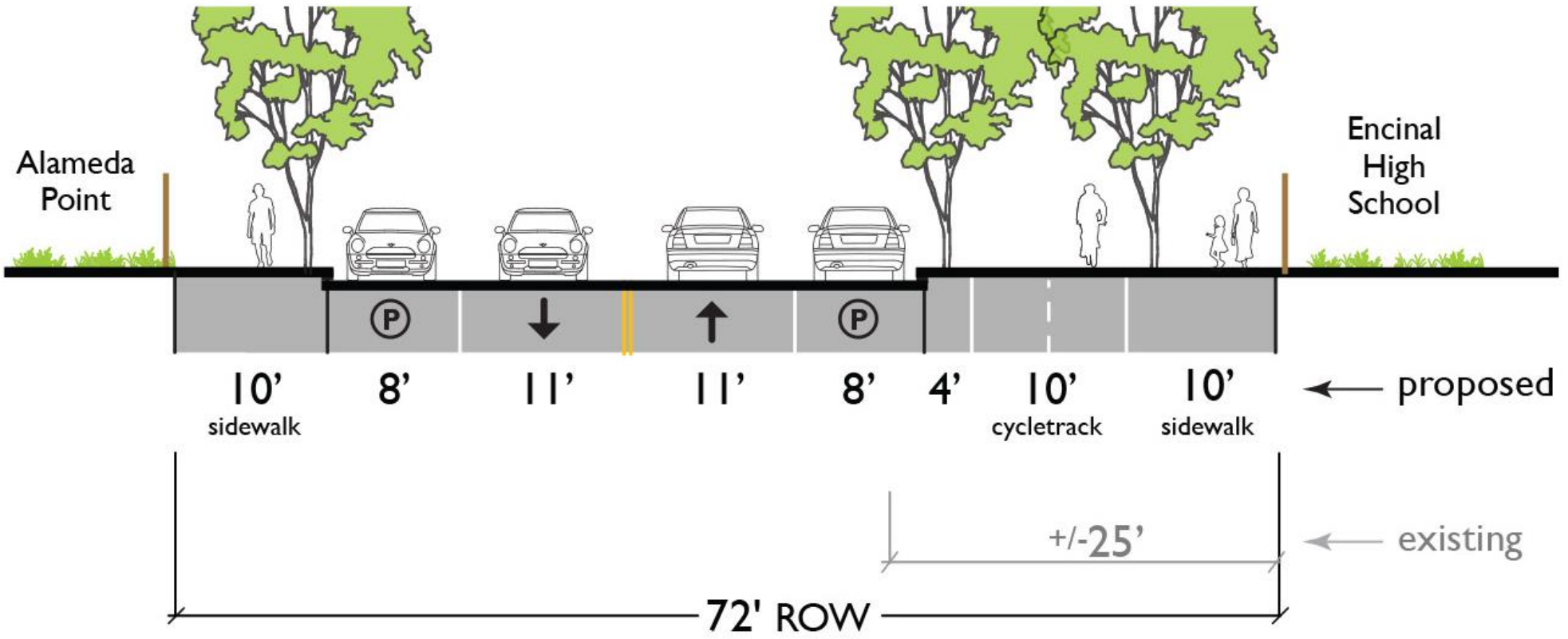


Central Avenue Proposed Street Concept

Concept Design: Boat Ramp Road

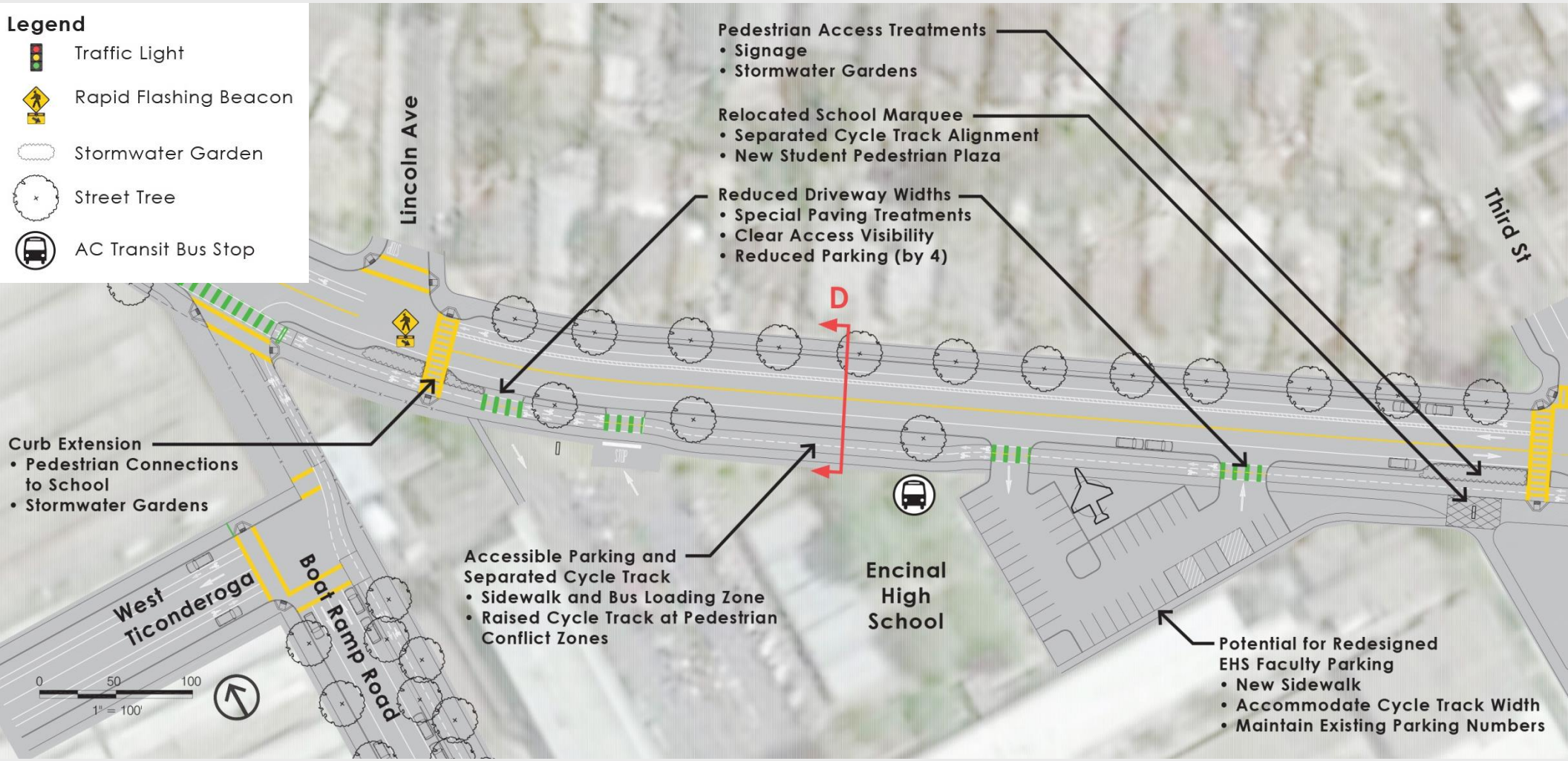


Concept Design: Boat Ramp Road



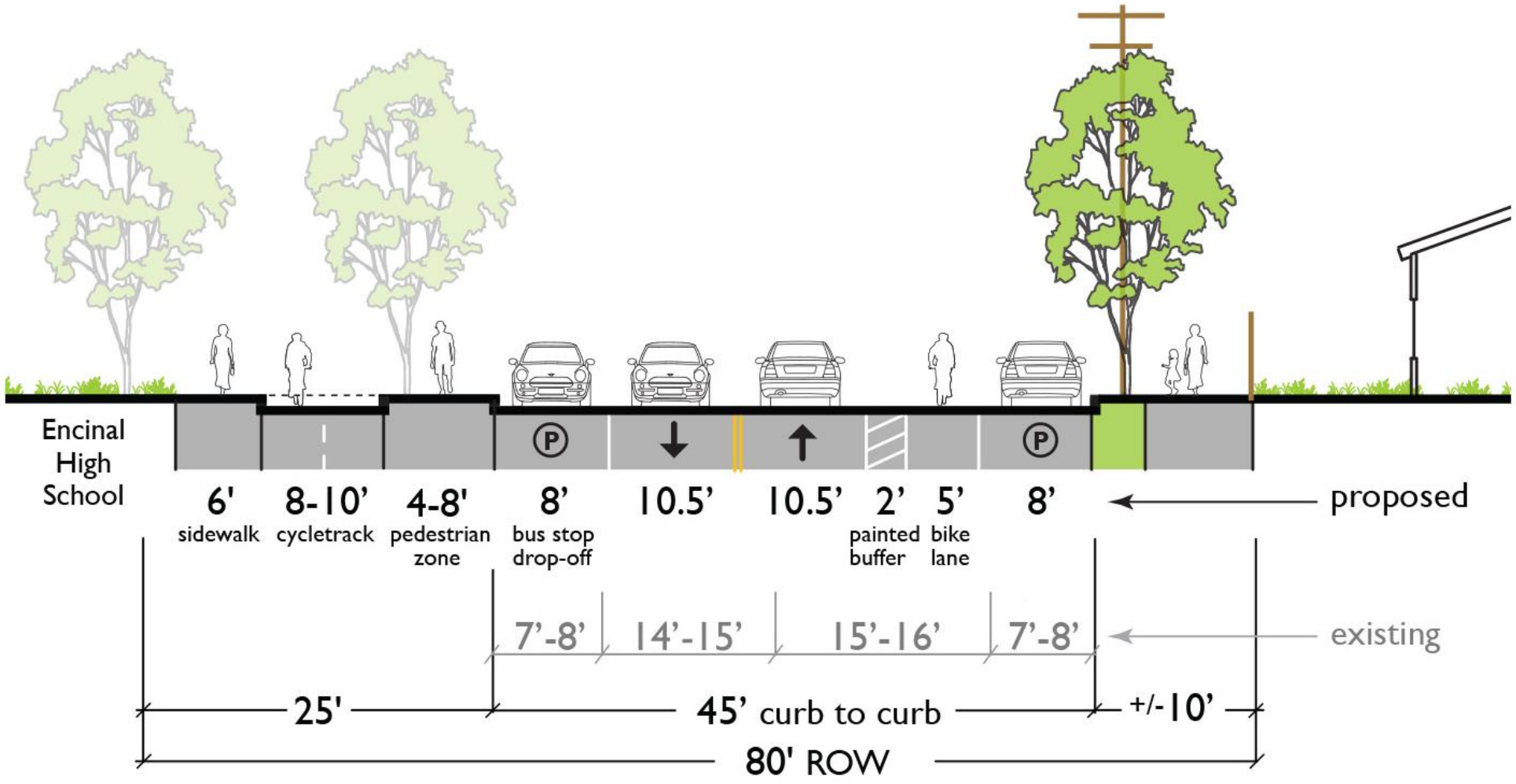
Section C

Concept Design: Encinal High School



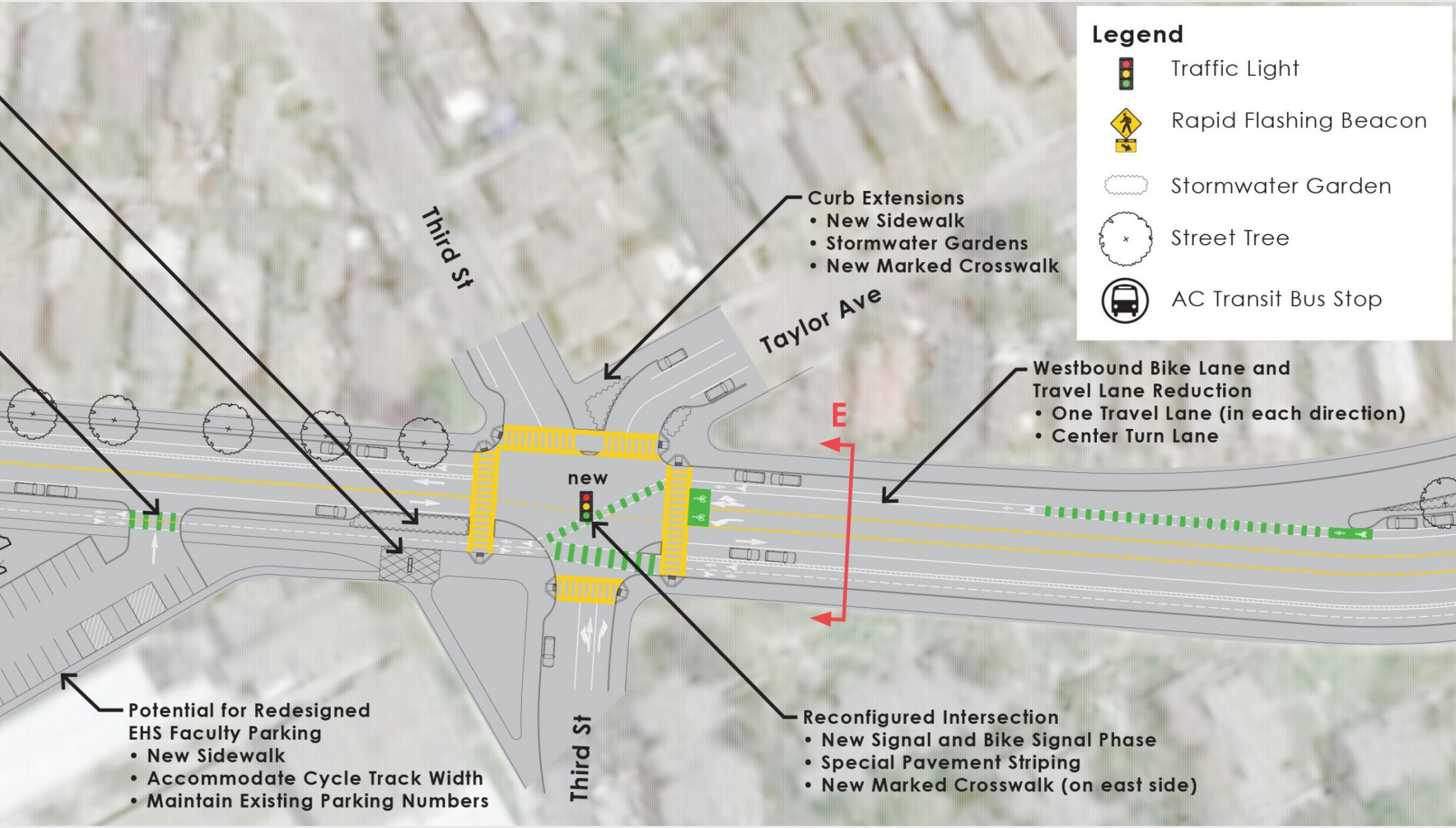
Central Avenue Proposed Street Concept

Concept Design: Encinal High School



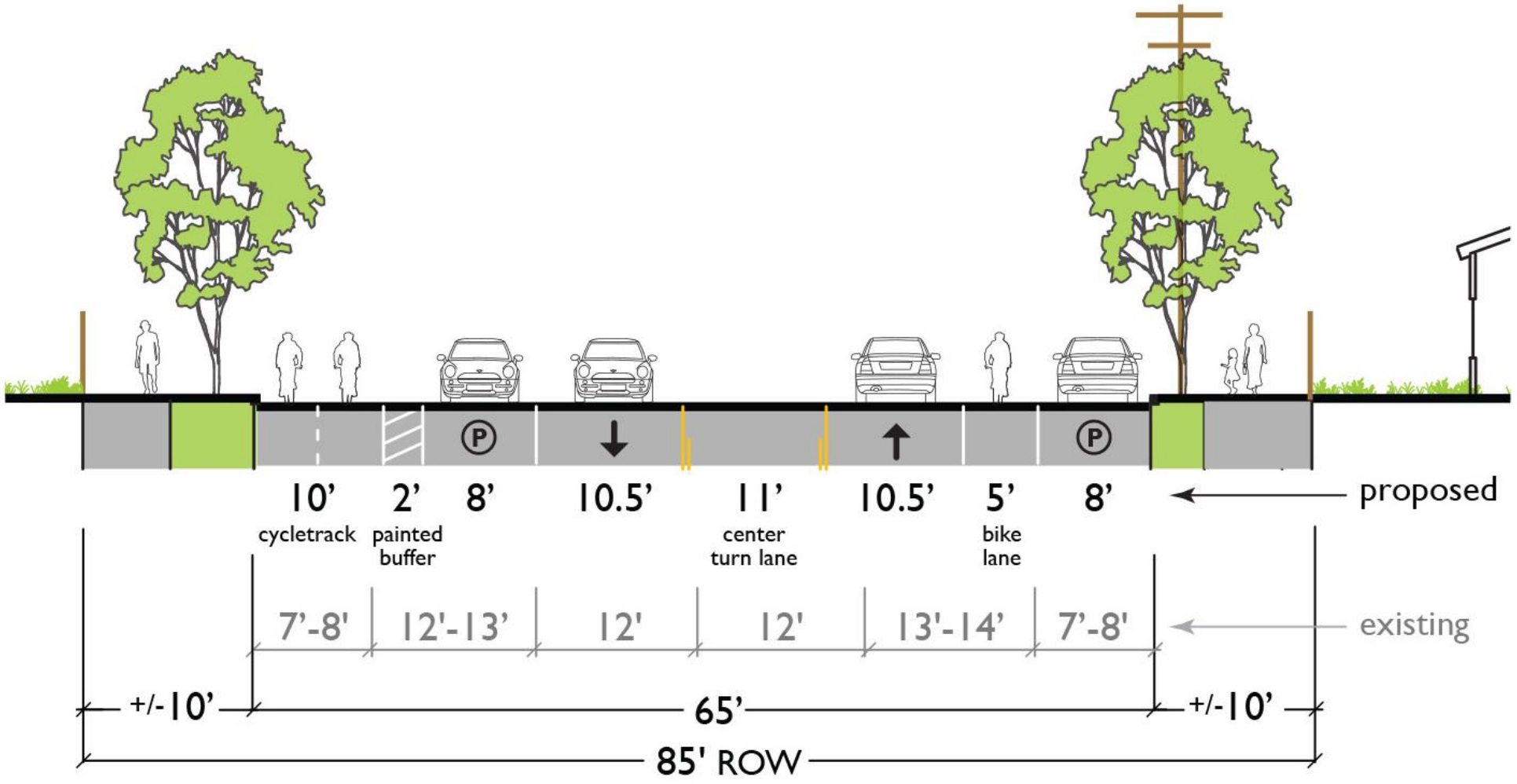
Section D

Concept Design: Third/Taylor/Central



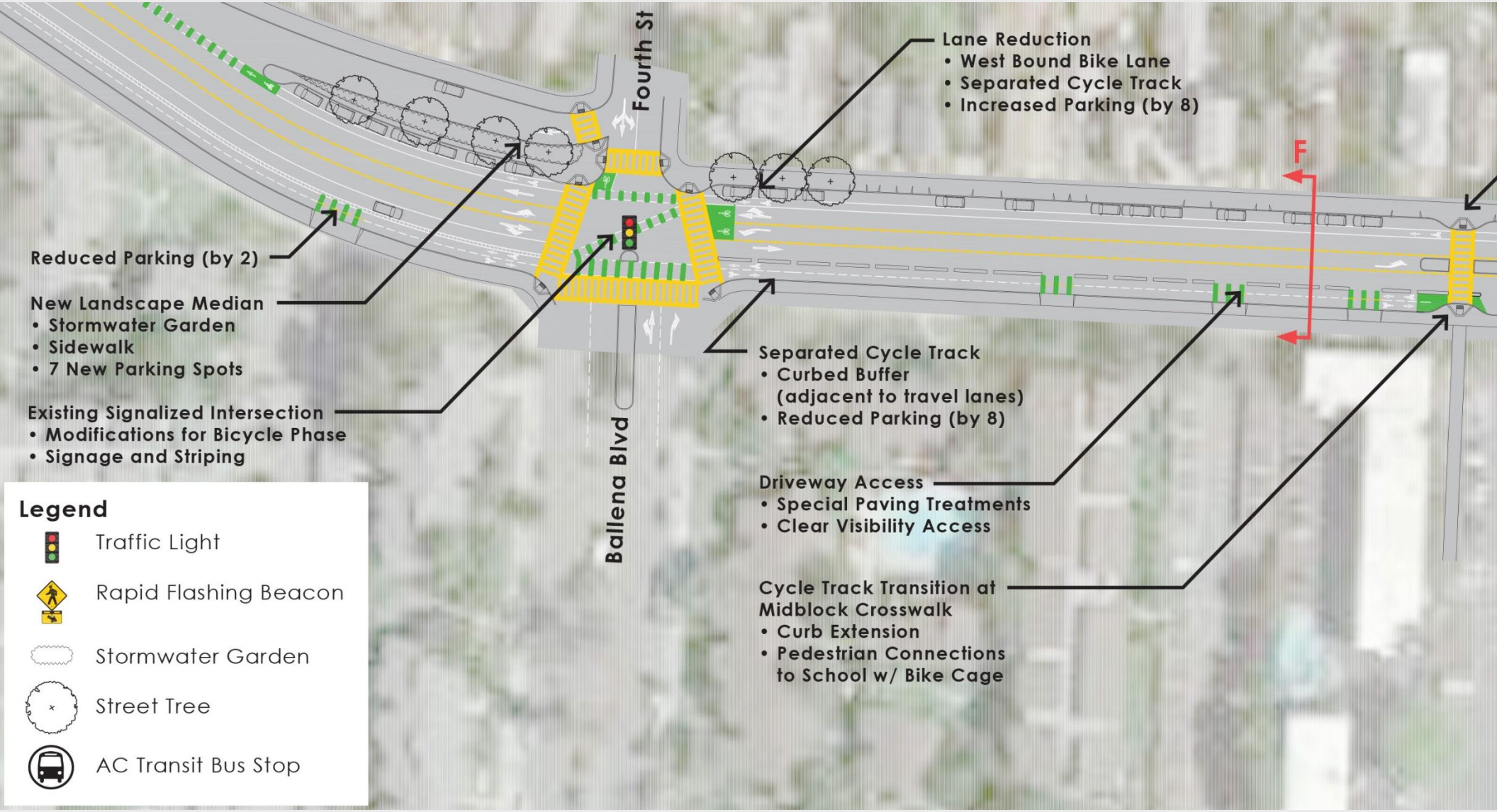
Central Avenue Proposed Street Concept

Concept Design: East of Third/Taylor

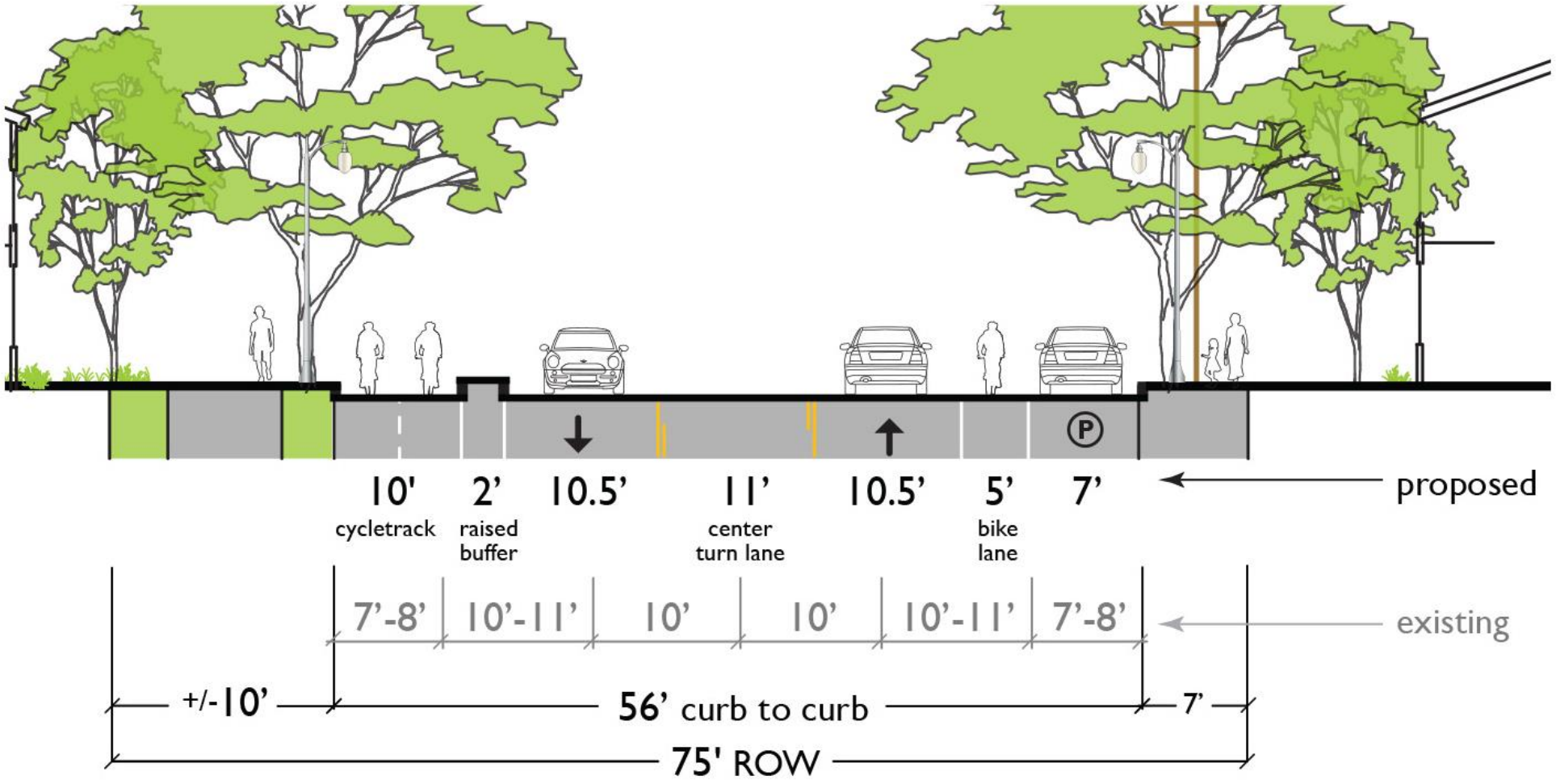


Section E

Concept Design: Fourth/Ballena/Central

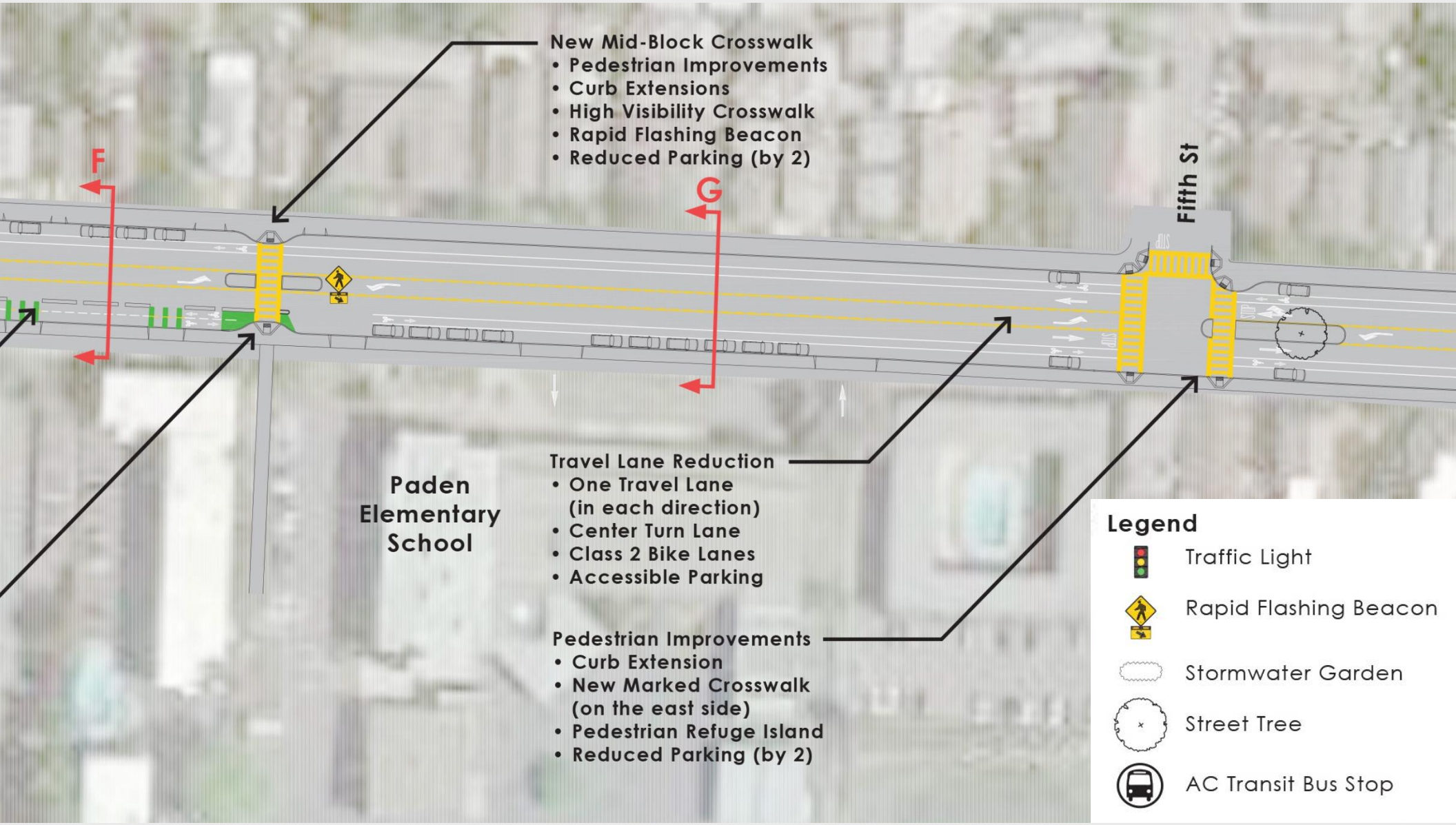


Concept Design: West of Paden

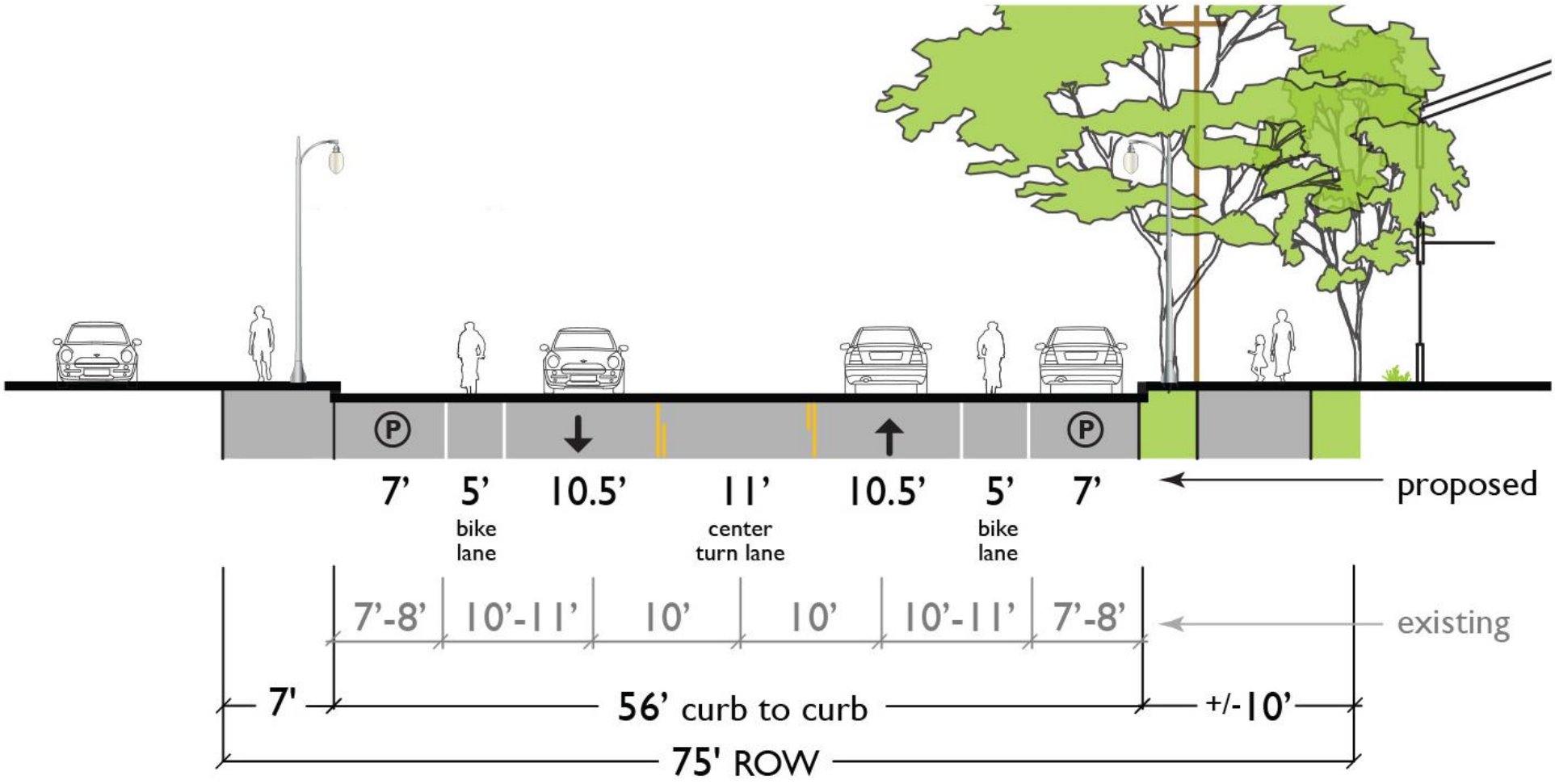


Section F

Concept Design: Paden Elementary

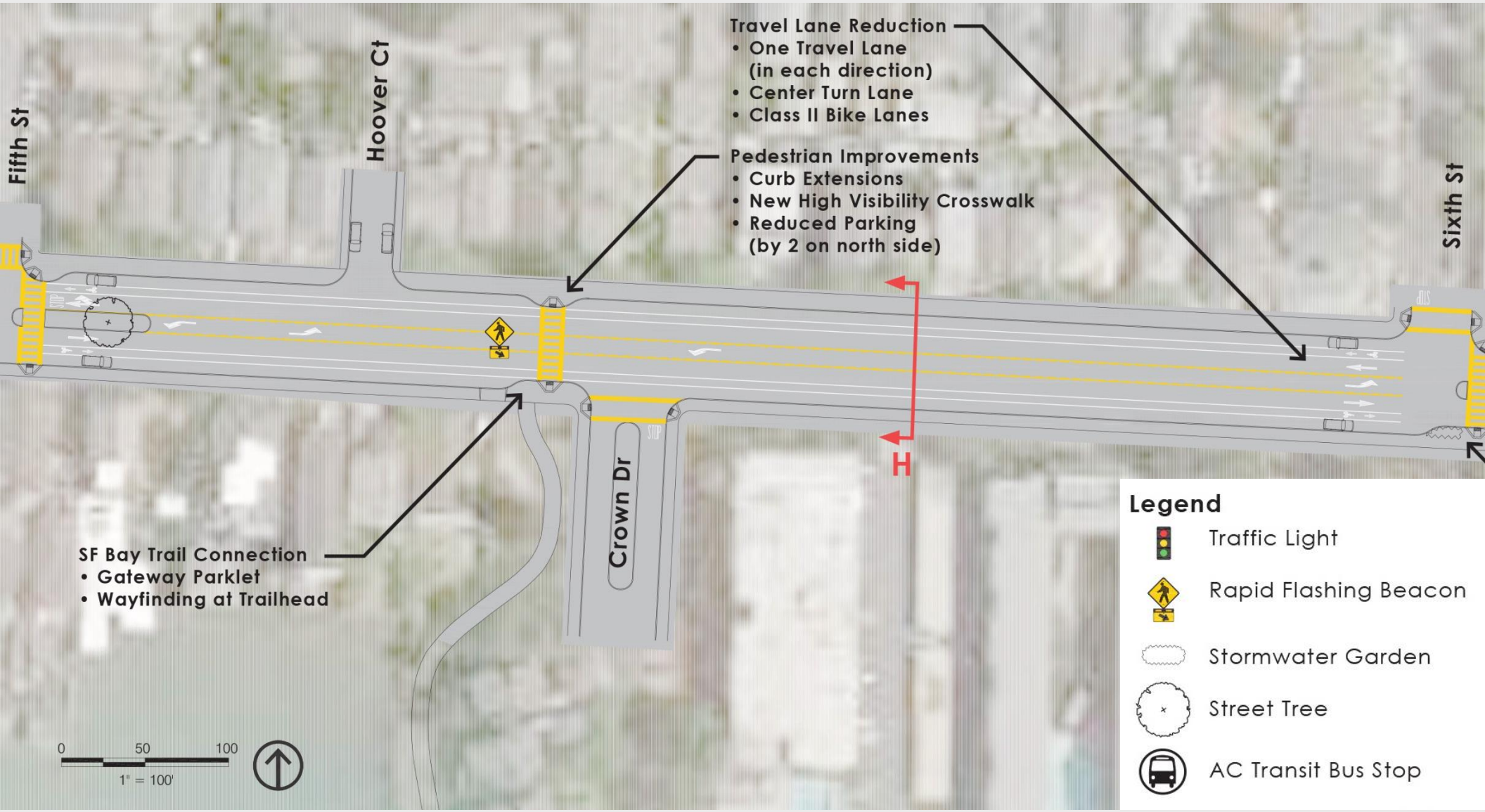


Concept Design: East of Paden

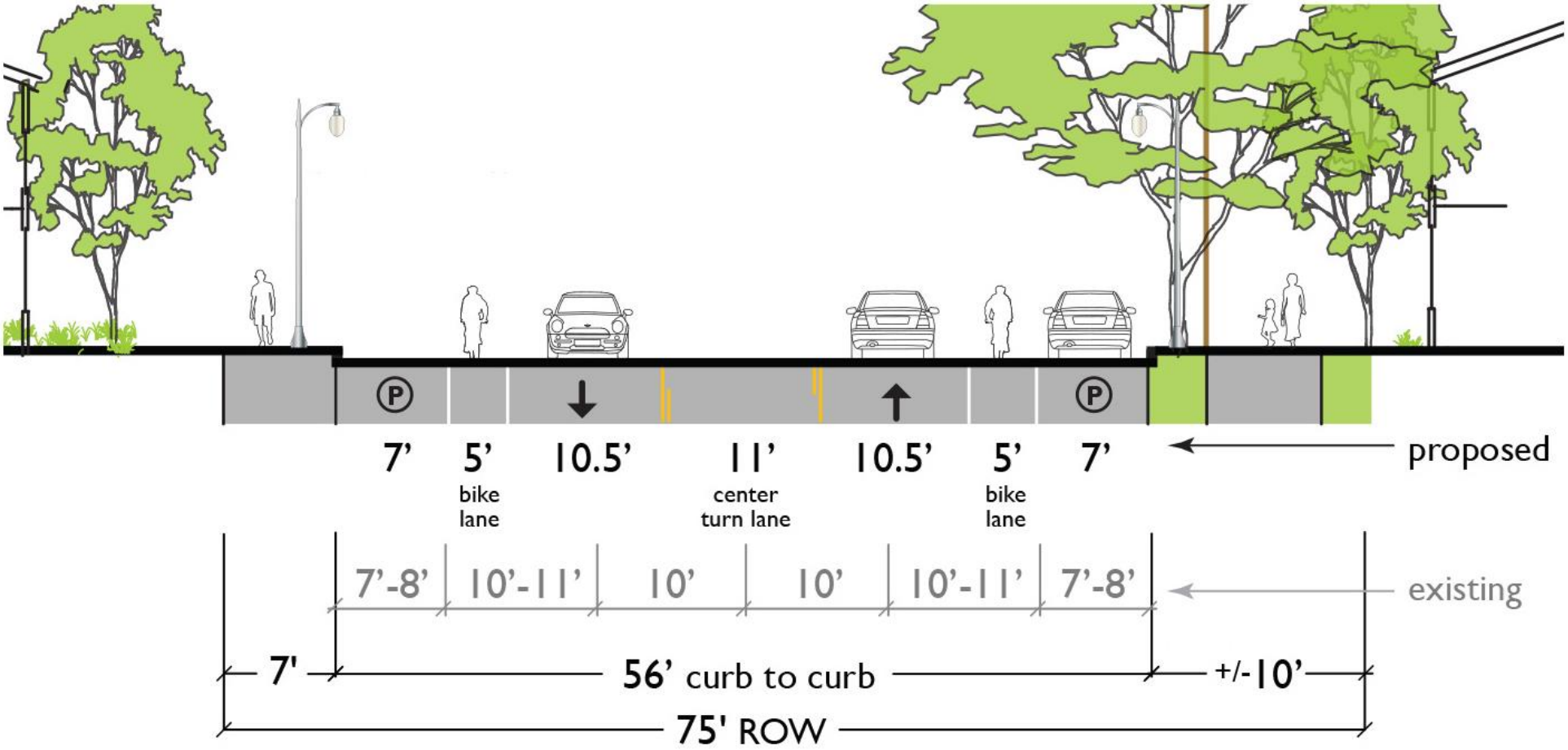


Section G

Concept Design: Fifth to Sixth

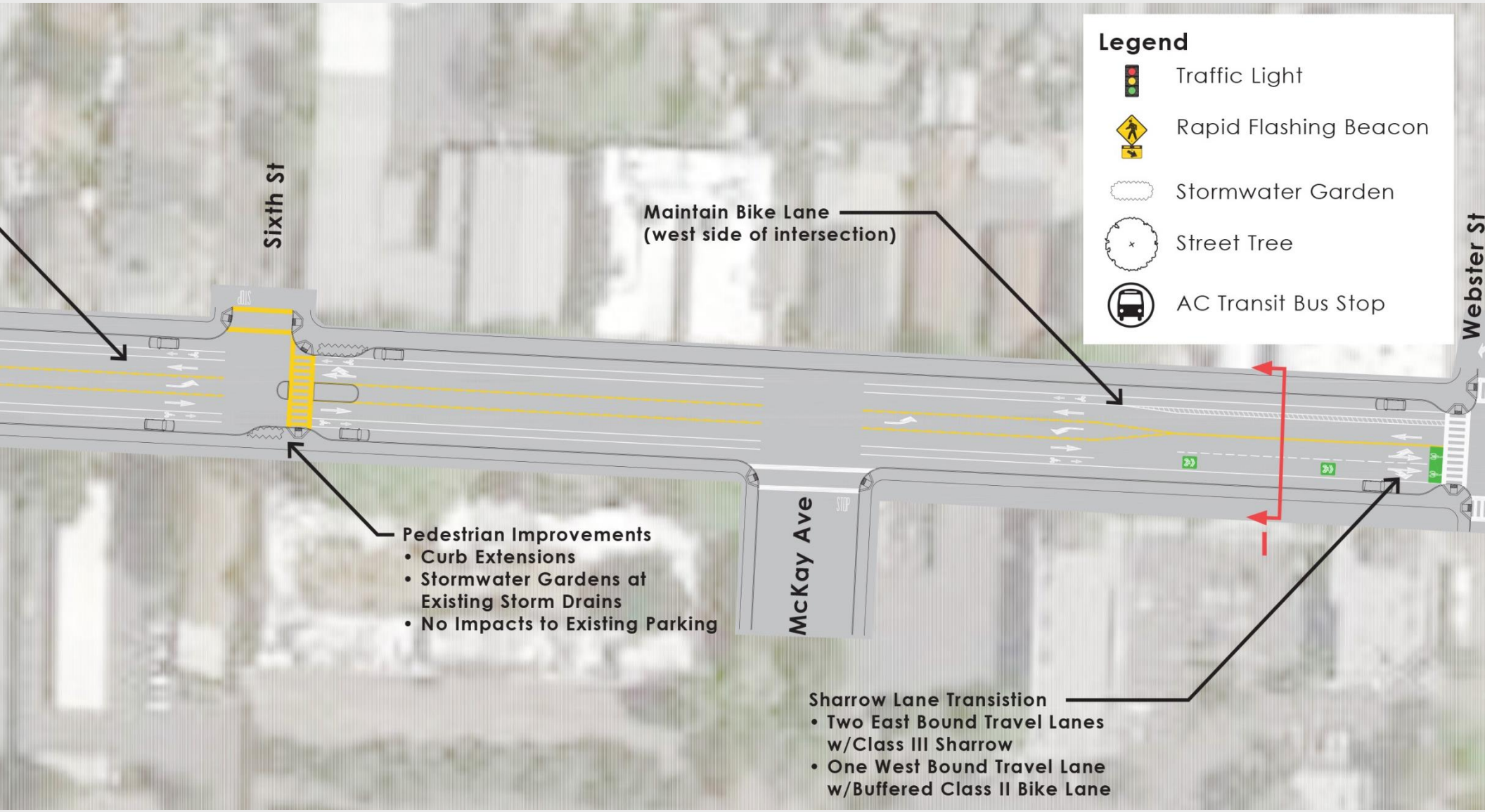


Concept Design: Fifth to Sixth

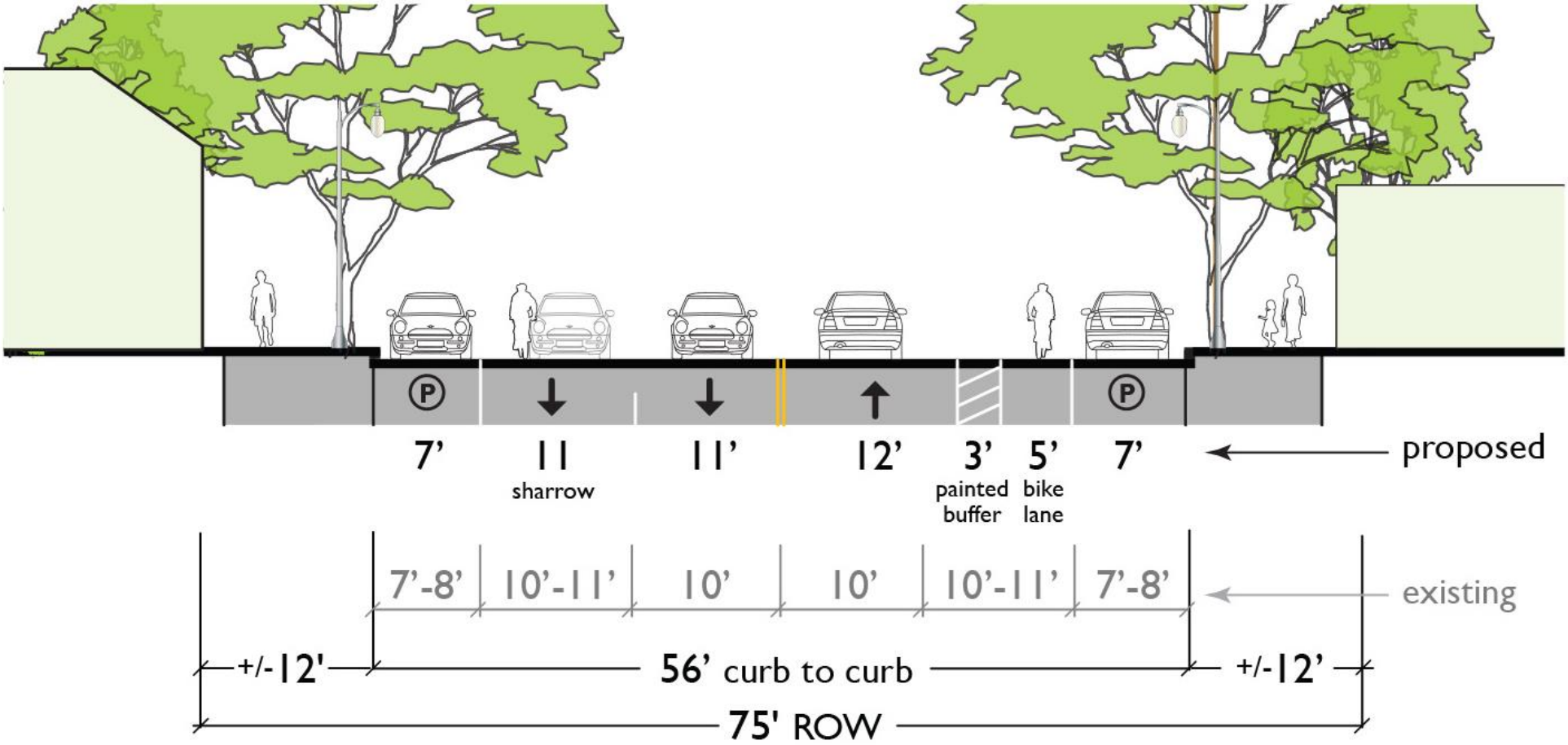


Section H

Concept Design: Sixth to Webster

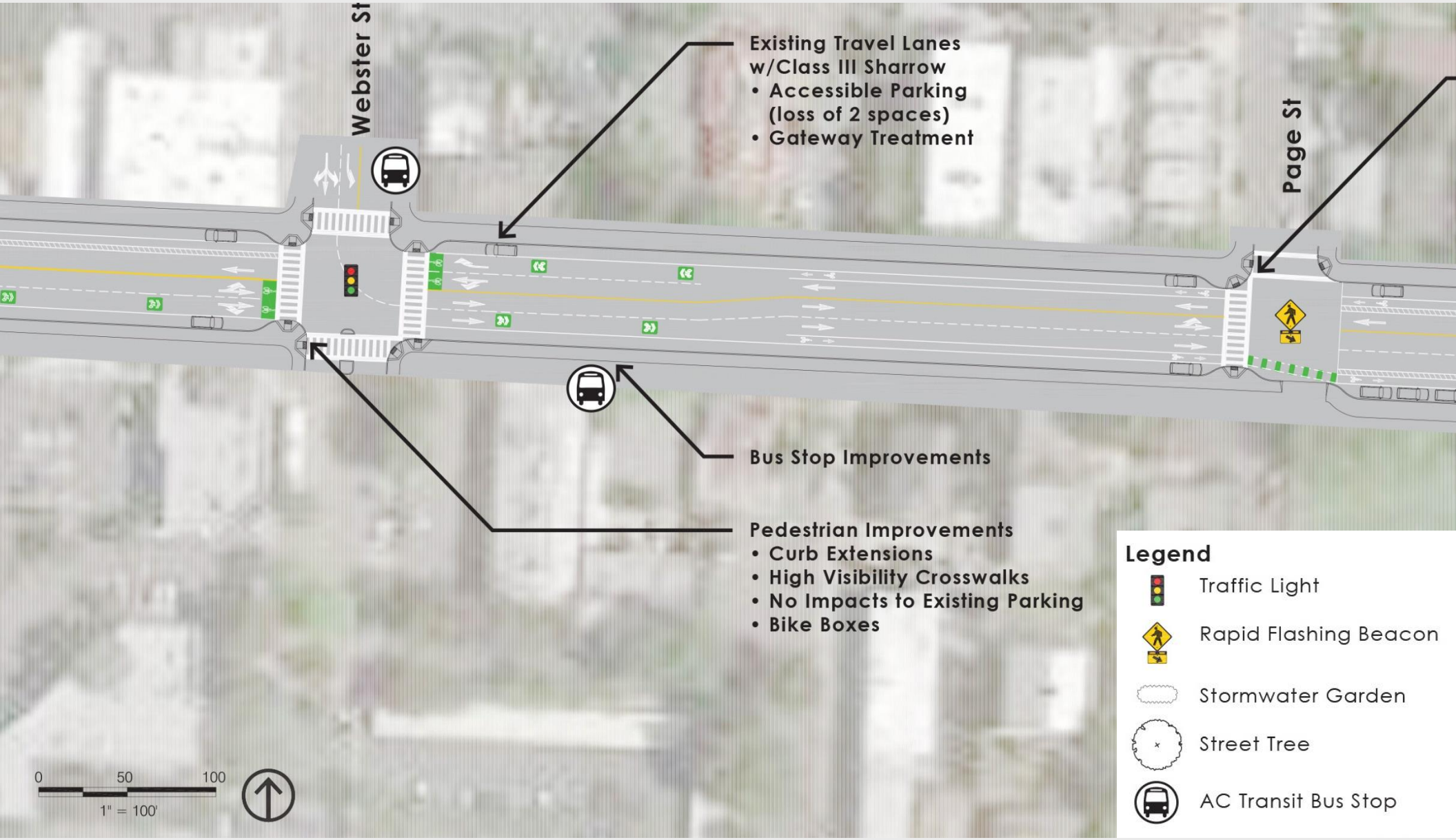


Concept Design: Sixth to Webster

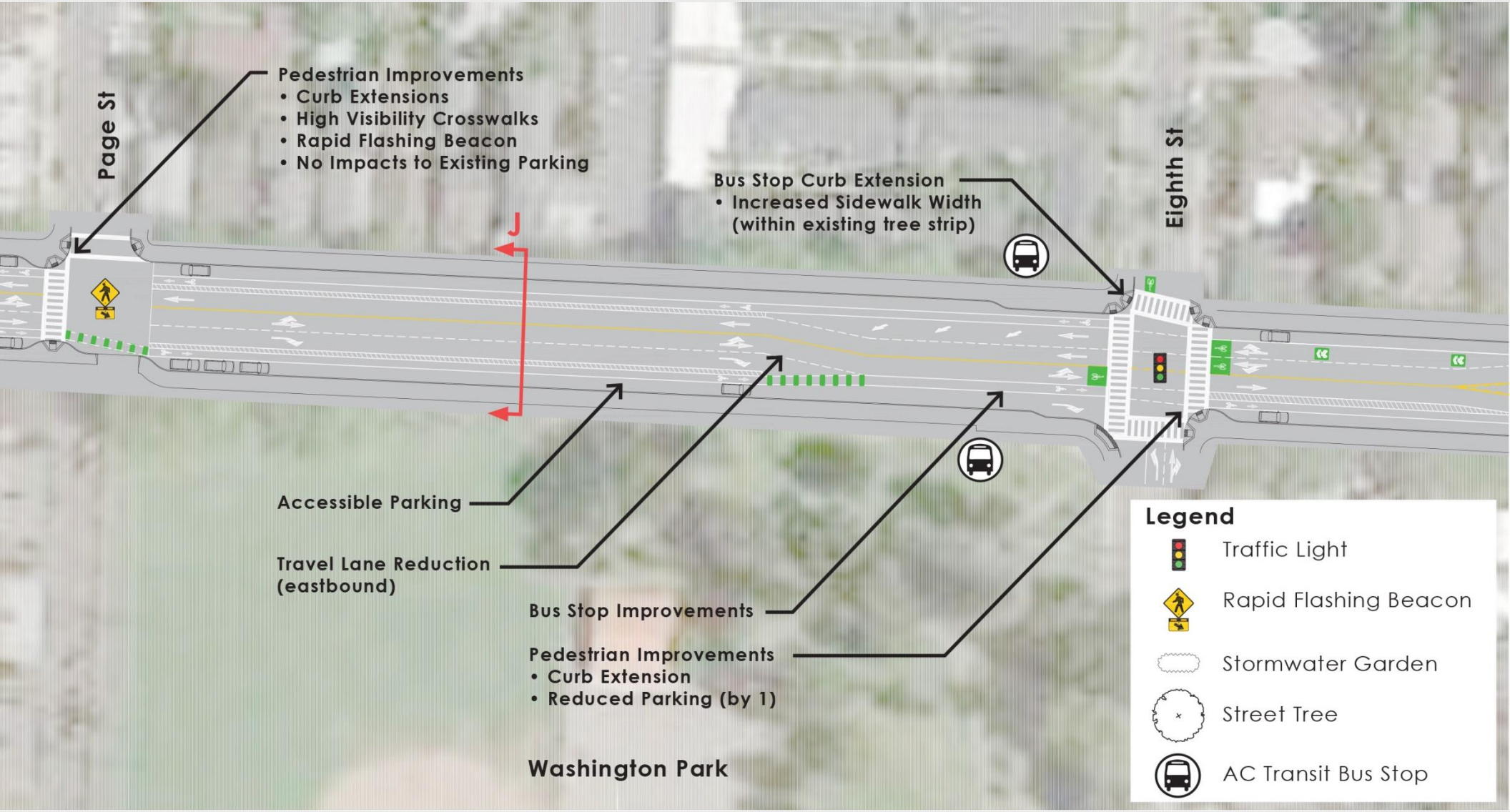


Section I

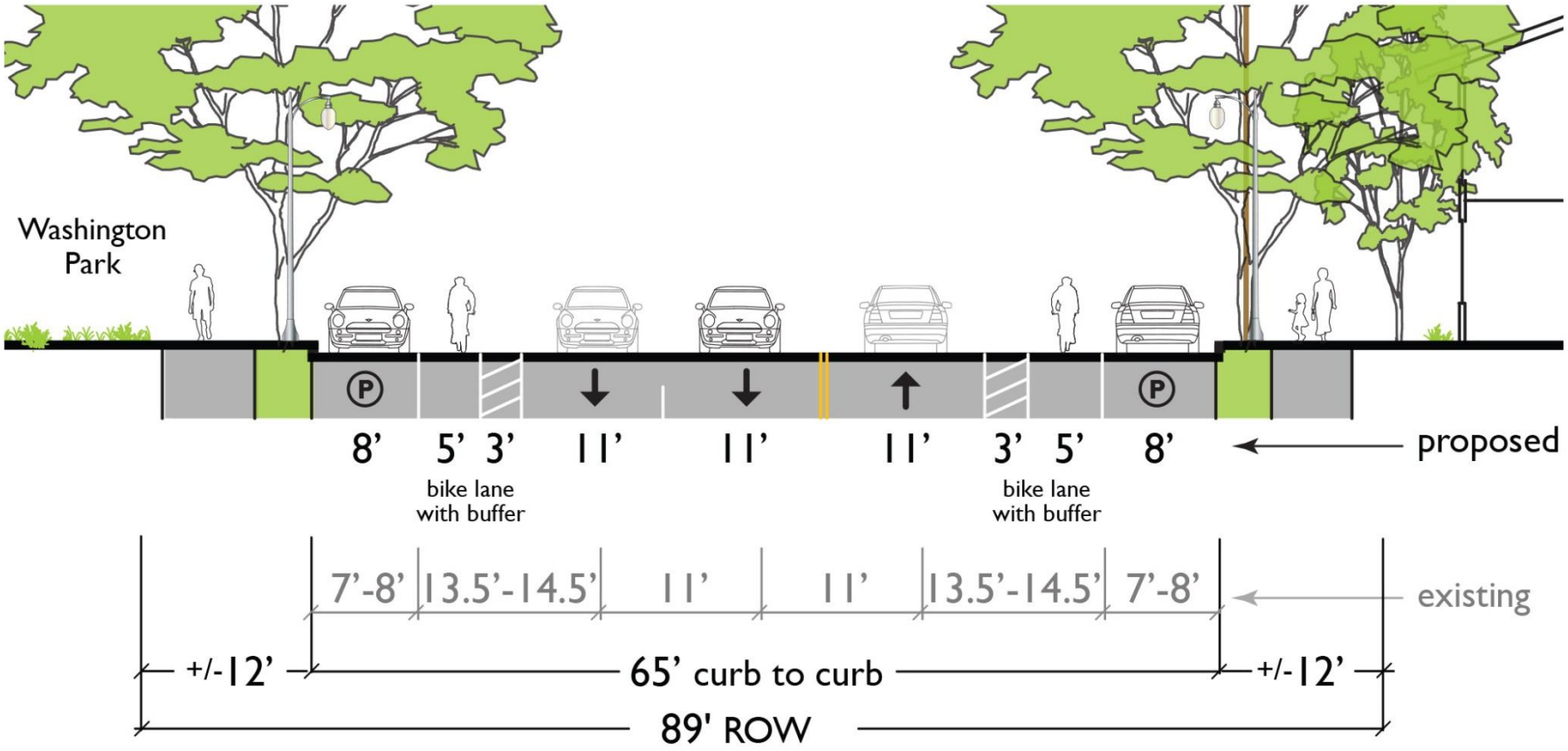
Concept Design: Webster to Page



Concept Design: Page to Eighth

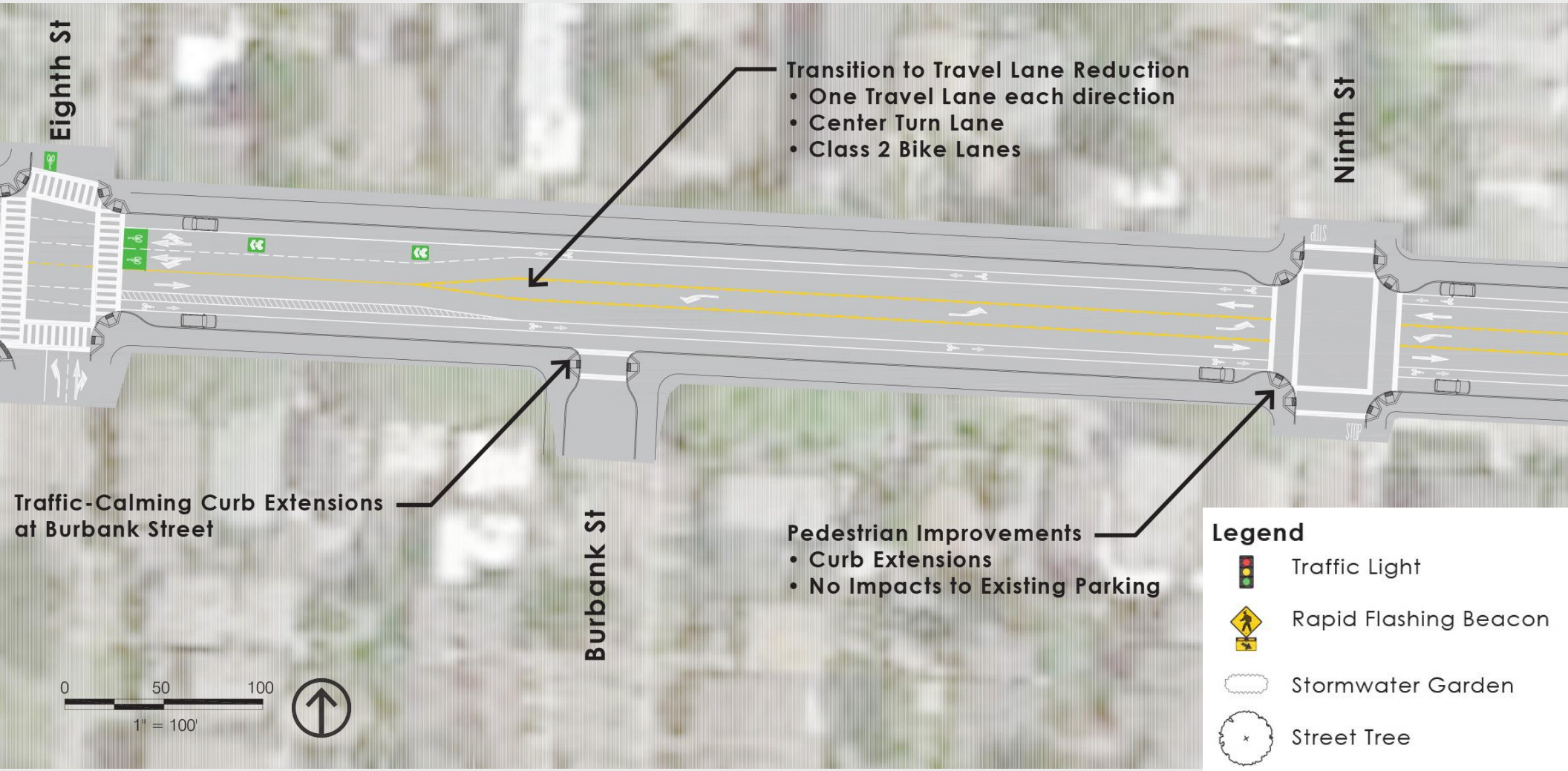


Concept Design: Page to Eighth

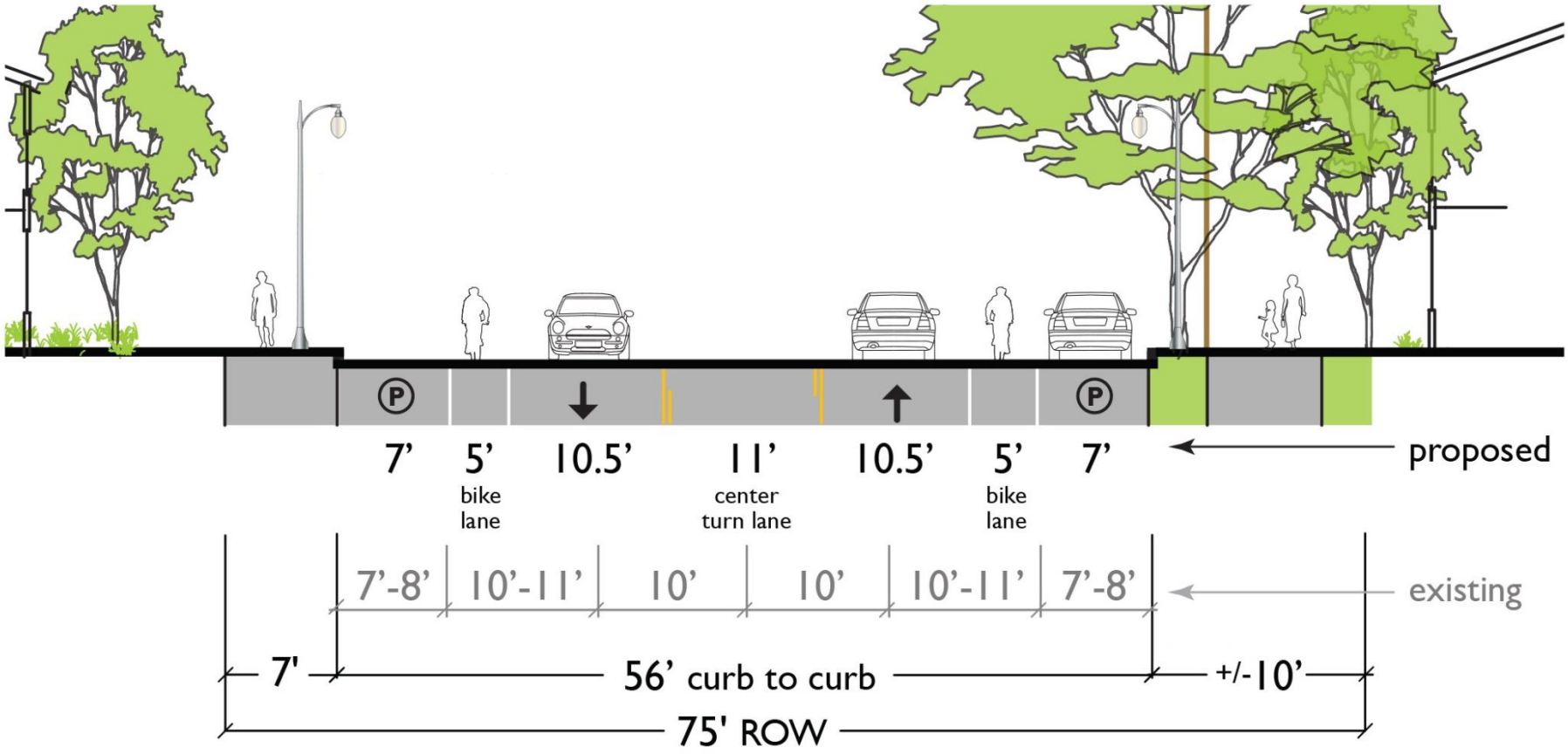


Section J

Concept Design: Eighth to Ninth

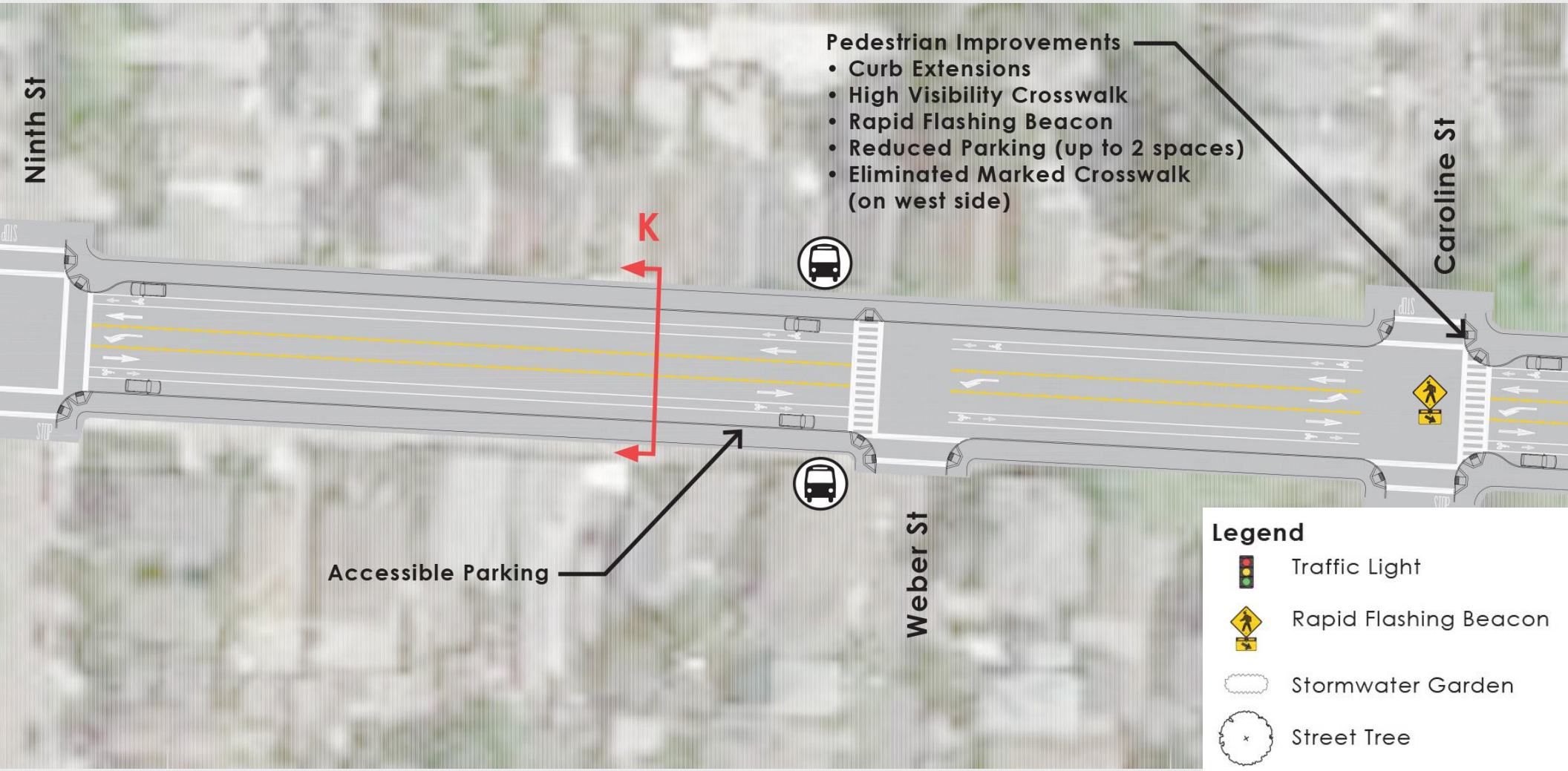


Concept Design: Eighth to Sherman

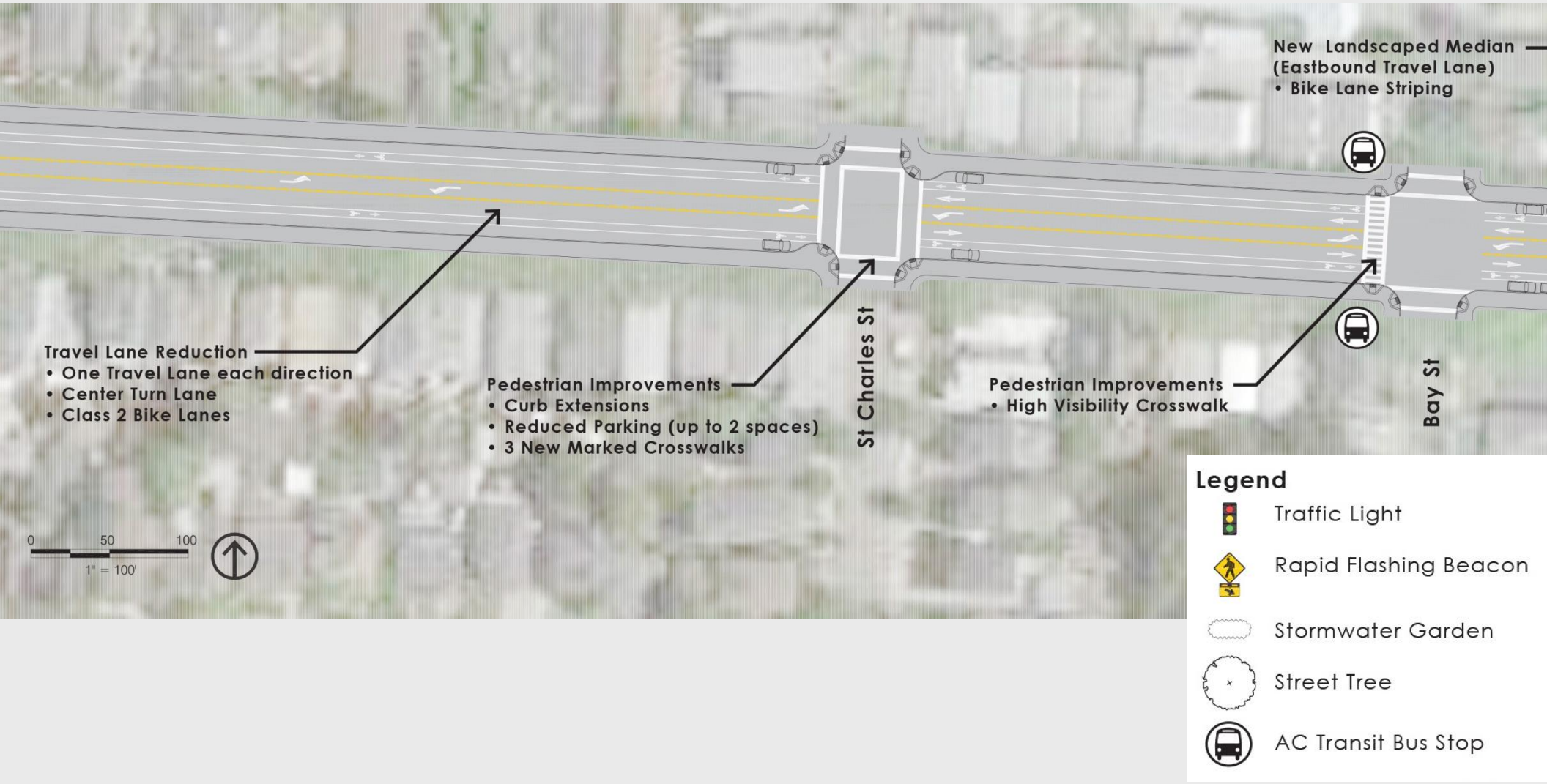


Section K (see next sheet)

Concept Design: Ninth to Caroline

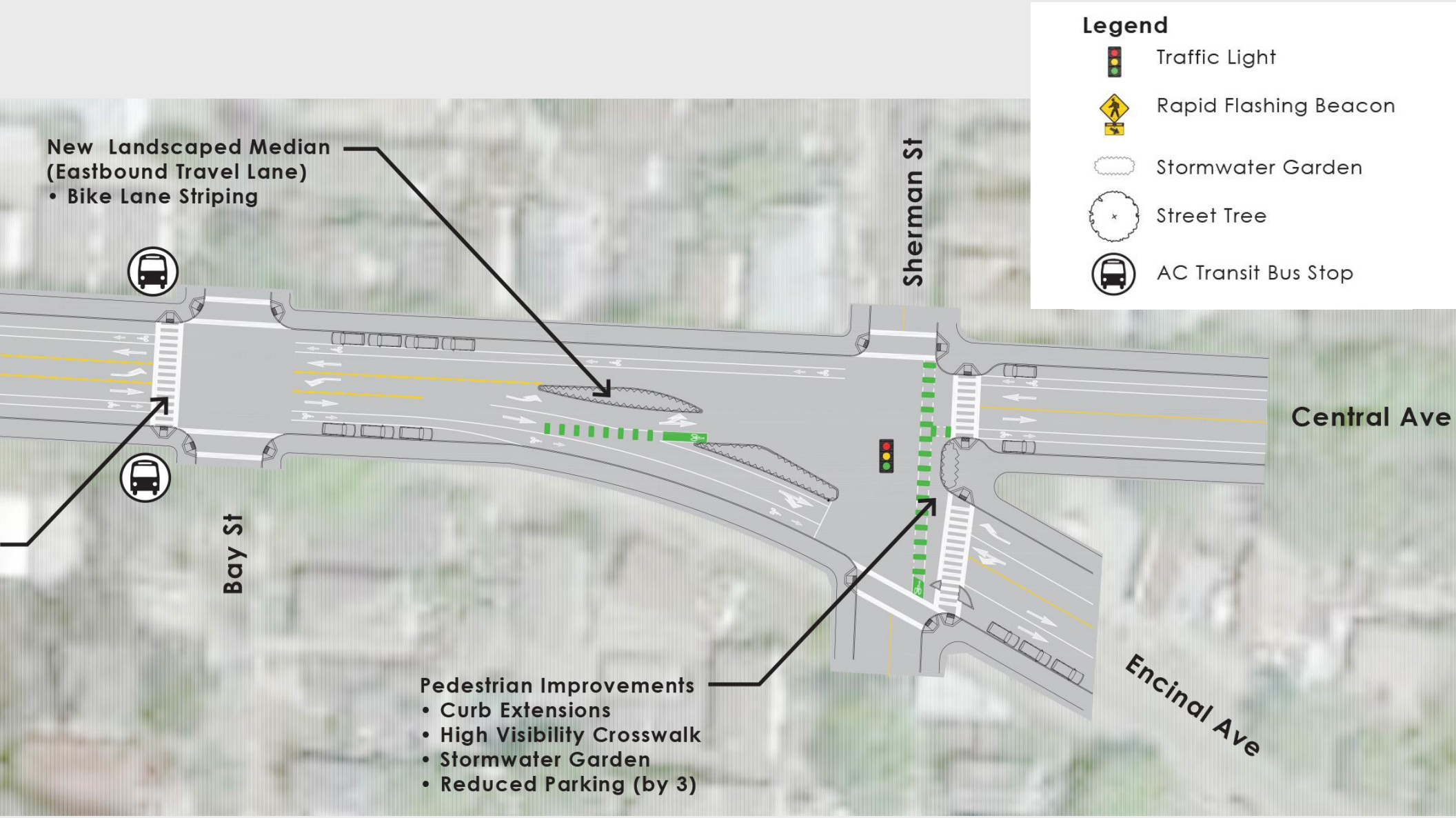


Concept Design: Caroline to Bay



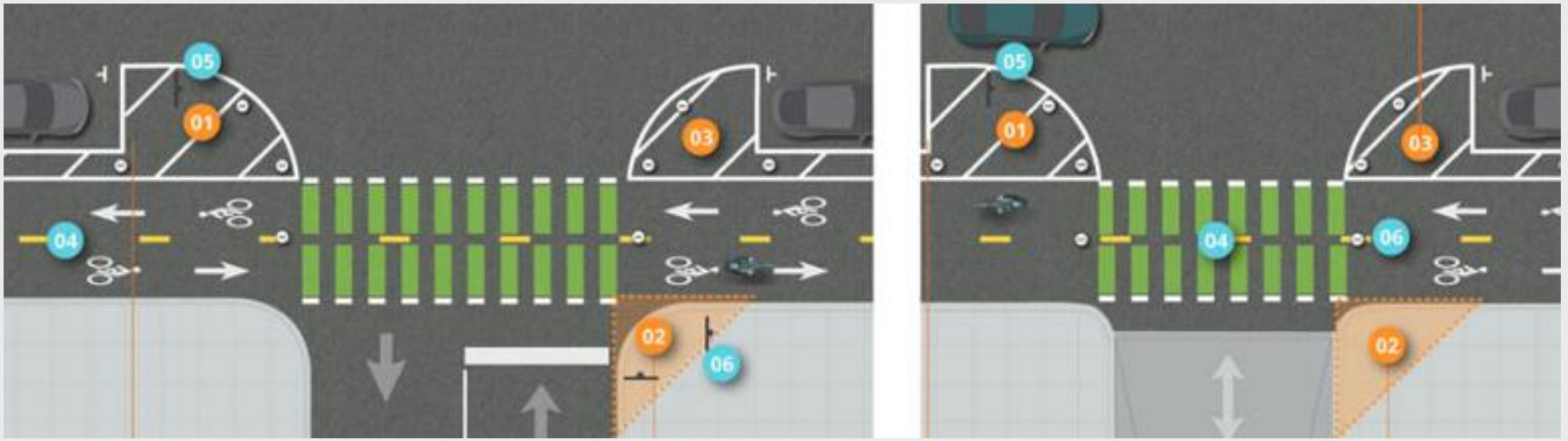
Central Avenue Proposed Street Concept

Concept Design: Sherman/Encinal



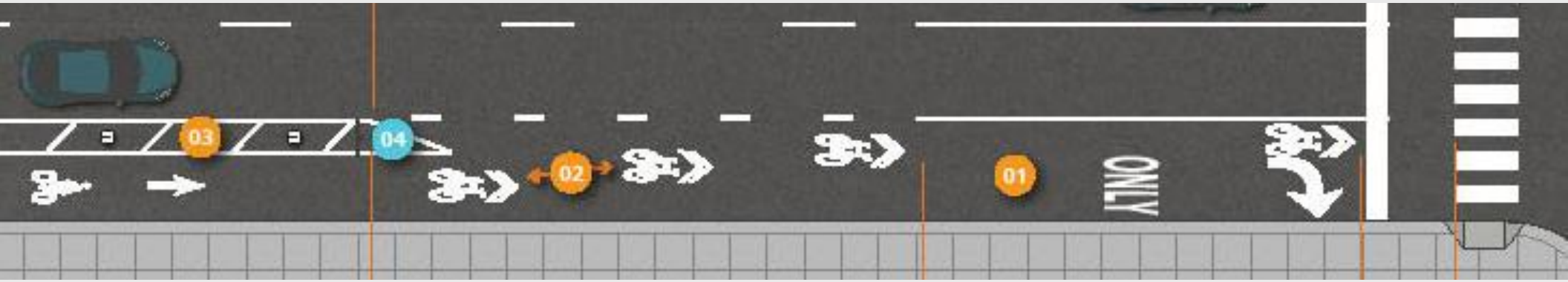
FHWA Guidelines

- **TWO-WAY SEPARATED BIKE LANE (CYCLETRACK)**
  - Prohibit parking within 20’ from edge of driveway, and landscape/street-side elements within 15’
  - Skip Striping at Conflict Areas
  - Signs: “DO NOT ENTER” with “EXCEPT BICYCLES”, or “BIKE LANE” (and/or use a delineator post on the centerline)



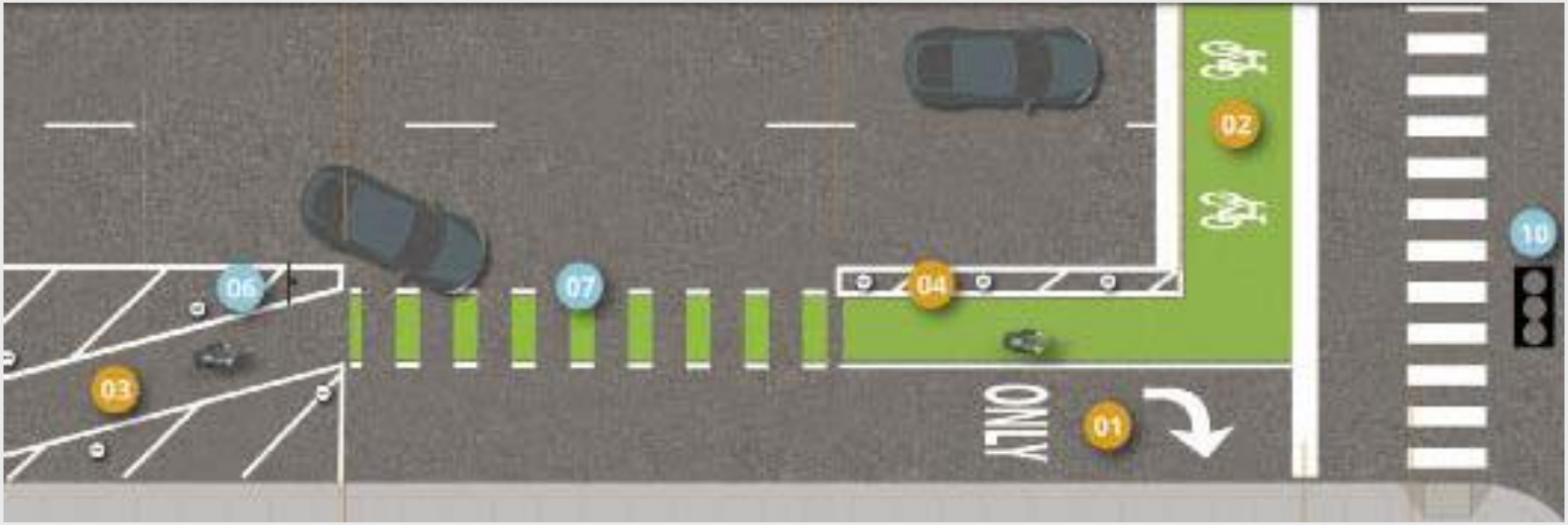
FHWA Guidelines

- **MIXING ZONE**: an area where bicyclists and right-turning automobiles merge into one travel lane approaching an intersection.
  - Shared Lane Markings (“Sharrows”)
  - Signs: “BEGIN RIGHT TURN LANE YIELD TO BIKES”



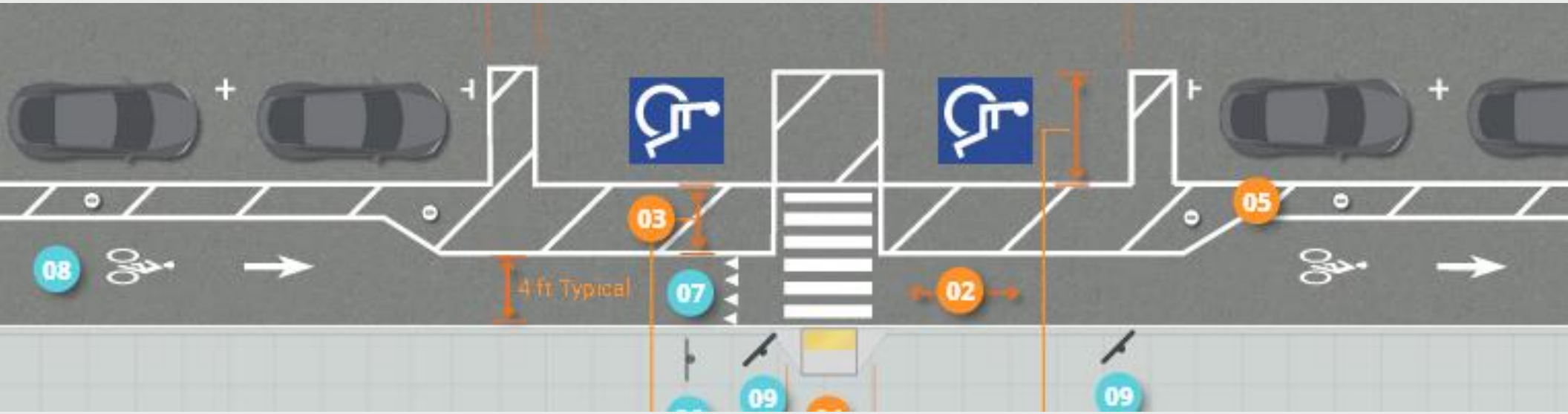
FHWA Guidelines

- **LATERAL SHIFT**: moves cyclists to the left of the motor vehicle right turn lane before vehicles can move right.
  - Skip Striping in Conflict Areas and Bike Boxes
  - Signs: “BEGIN RIGHT TURN LANE YIELD TO BIKES”



FHWA Guidelines

- **ACCESSIBLE PARKING**
  - 5’ wide minimum access aisle provided at street level, and 3’ wide front and/or rear aisles
  - Crosswalk and curb ramp connecting access aisle to sidewalk
  - Signs: “YIELD HERE TO PEDESTRIANS” at crosswalk



Traffic Analysis (cont.)

Driveway Counts:

	North/East	South/West	Total
Pacific/Main to Lincoln	14	1	15
Lincoln to Third/Taylor	12	4	16
Third/Taylor to Fourth	9	1	10
Fourth to Sherman/Encinal	86	70	156
Total	121	76	197