

# MIDDLE AVENUE COMPLETE STREETS STUDY

## PROJECT GOALS

Improve safety, comfort, and access for all users in a sustainable and equitable manner

### Planning History

- 2013 - Complete Streets Policy
- 2016 - General Plan Circulation Element
- 2017 - Middle Plaza Development Approved
- 2020 - Speed Limit Survey
- 2020 - Transportation Master Plan
- 2021 - High Priority Project

## EXISTING CONDITIONS

### Roadway Width



- 65' City Right-of-Way
- 42' wide with 2 vehicle lanes
- Edge lanes with parallel parking
- No separation for bicyclists

### Speeds

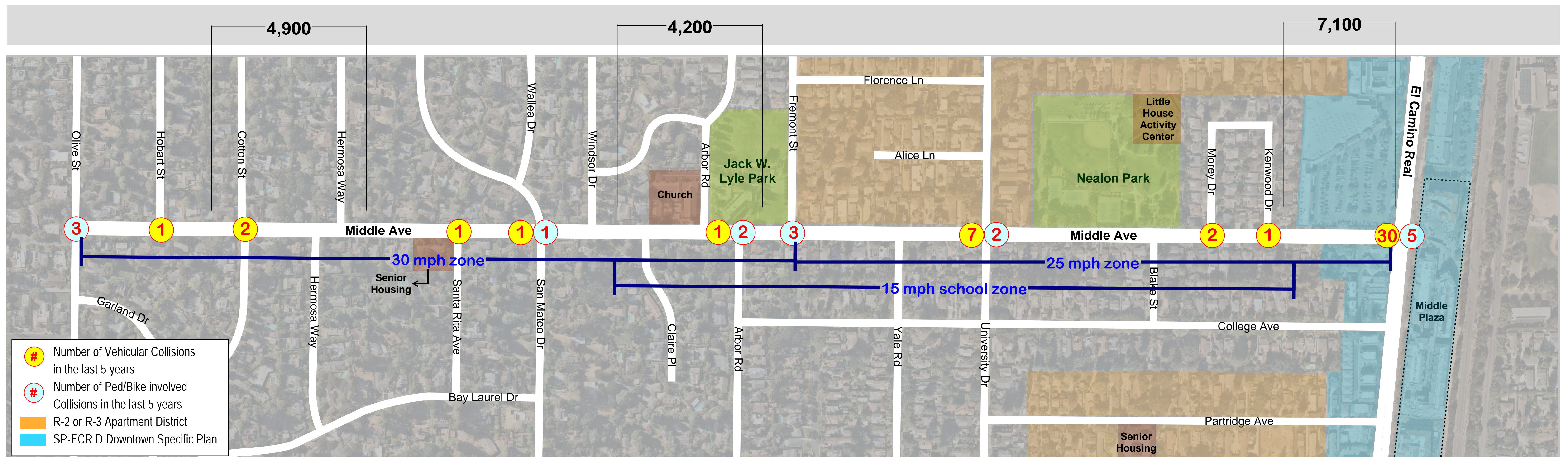


**University Drive - El Camino Real**  
 Speed Limit: 25 mph  
 Observed Speed: 29.8 mph

**Olive Street - University Drive**  
 Speed Limit: 30 mph  
 Observed Speed: 32.7 mph

New 15 mph school zone when children are present (coming soon)

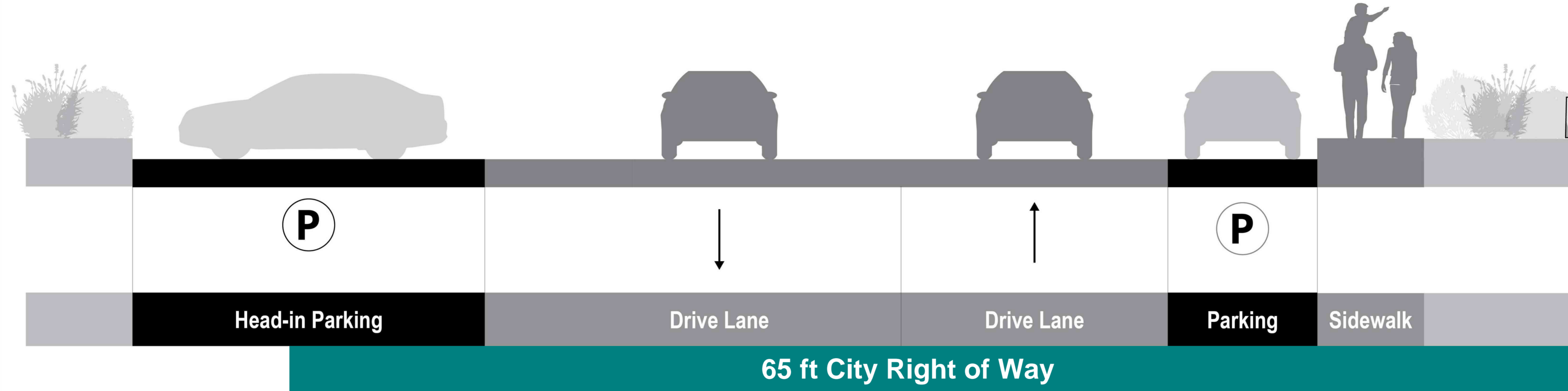
## AVERAGE DAILY TRAFFIC (2021)



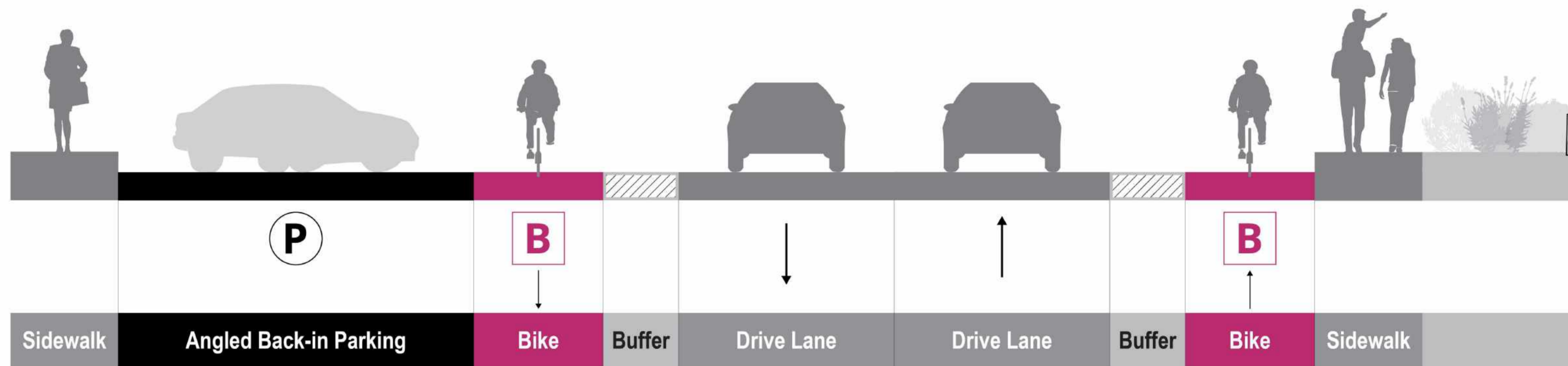
# MIDDLE AVENUE COMPLETE STREETS STUDY

## NEALON PARK FRONTAGE

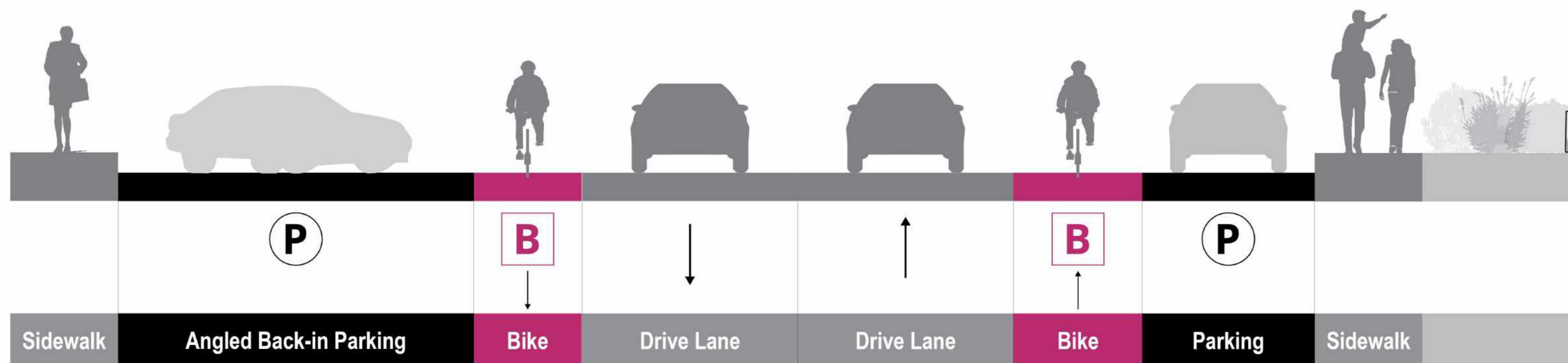
EXISTING



OPTION 1



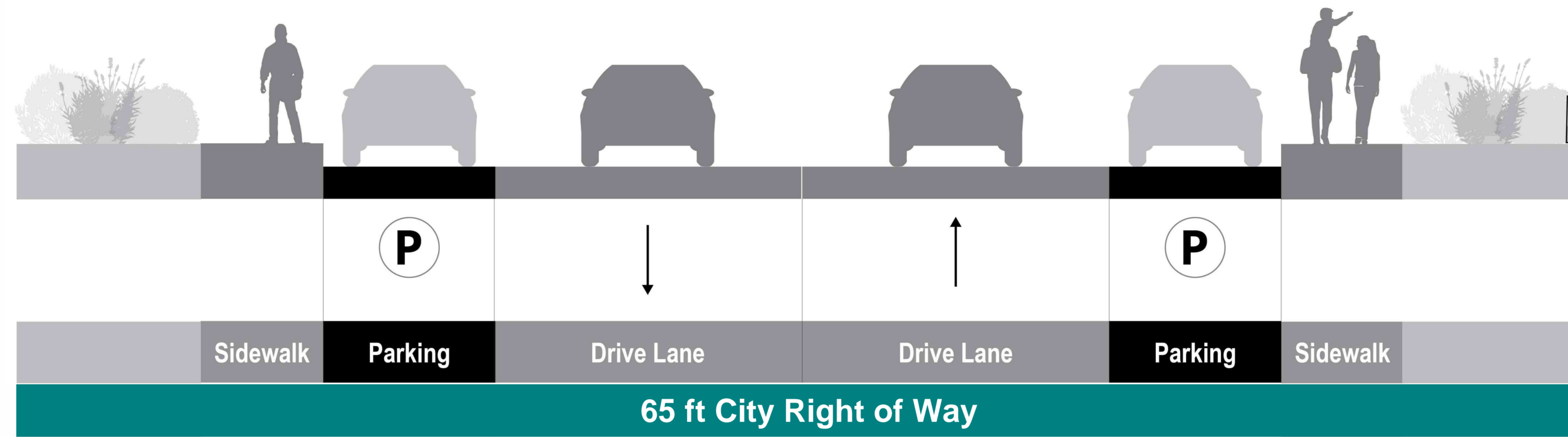
OPTION 2



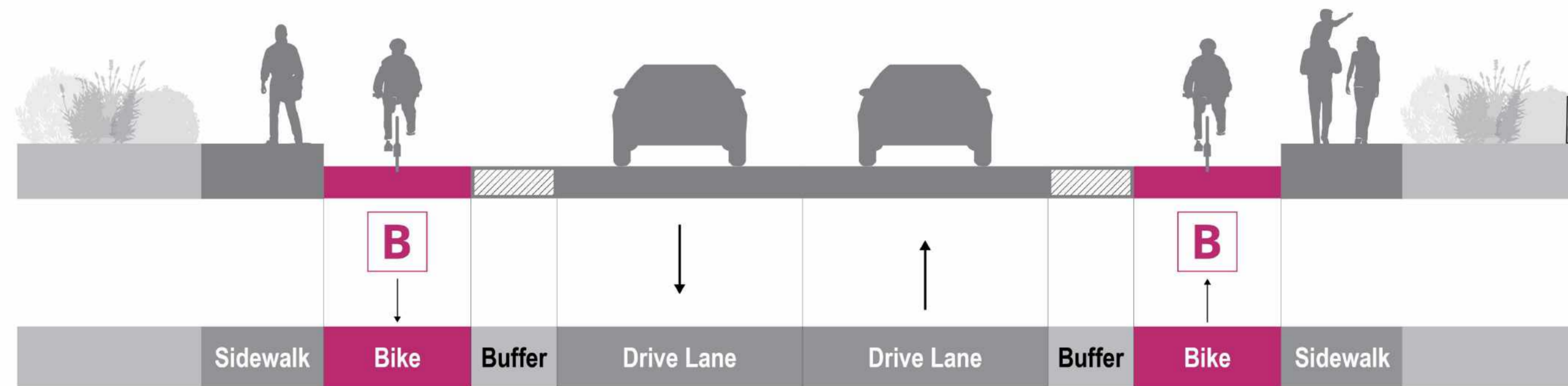
# MIDDLE AVENUE COMPLETE STREETS STUDY

## RESIDENTIAL

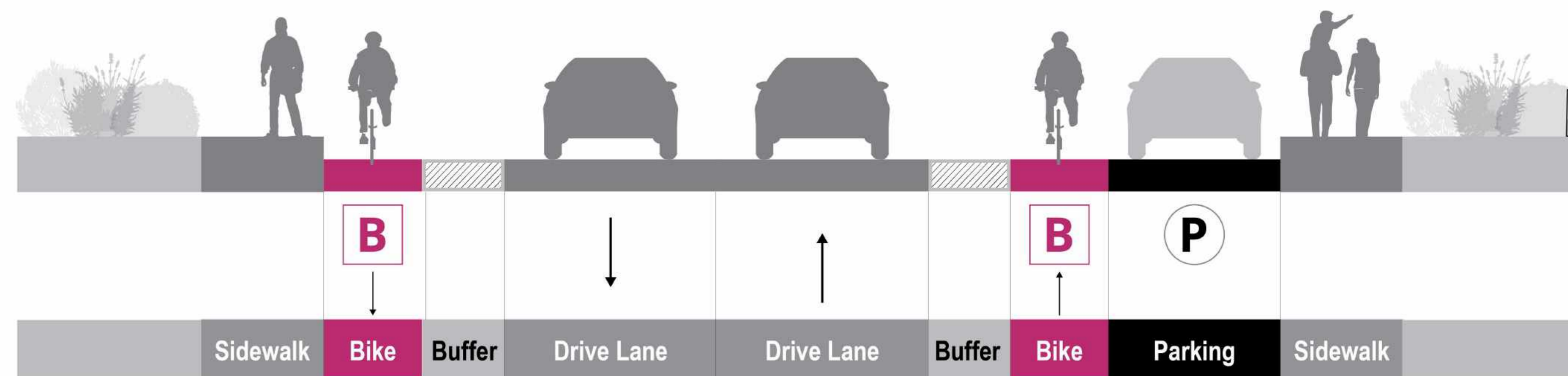
EXISTING



OPTION 1

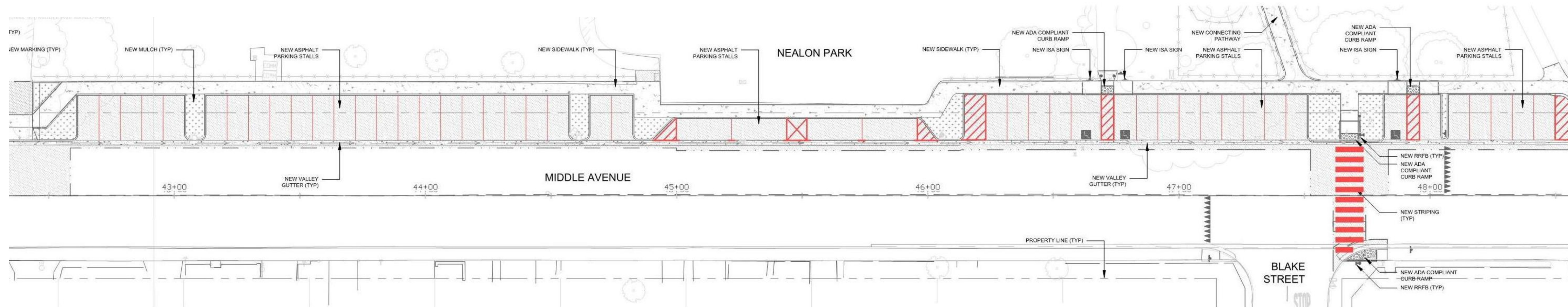


OPTION 2

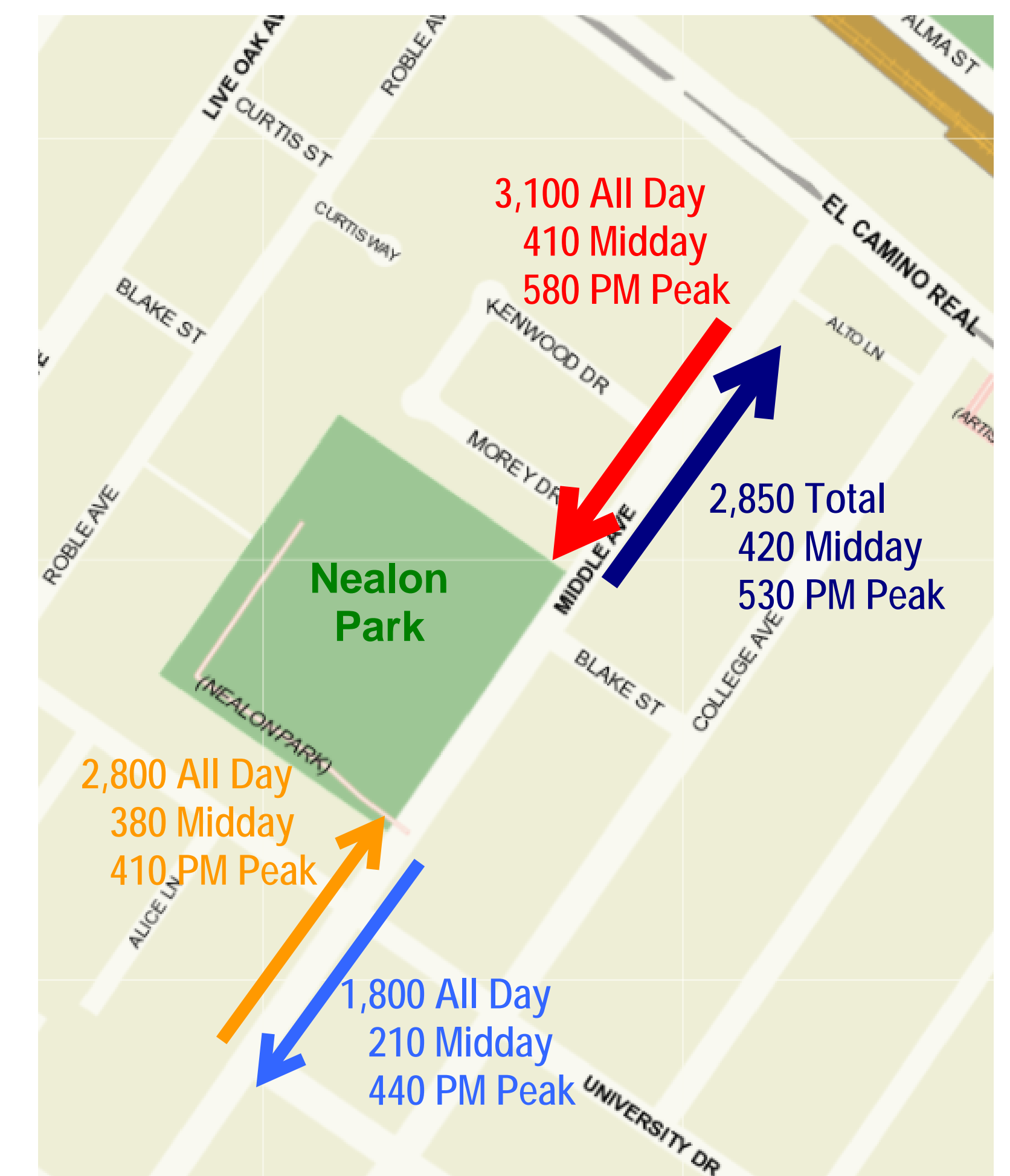
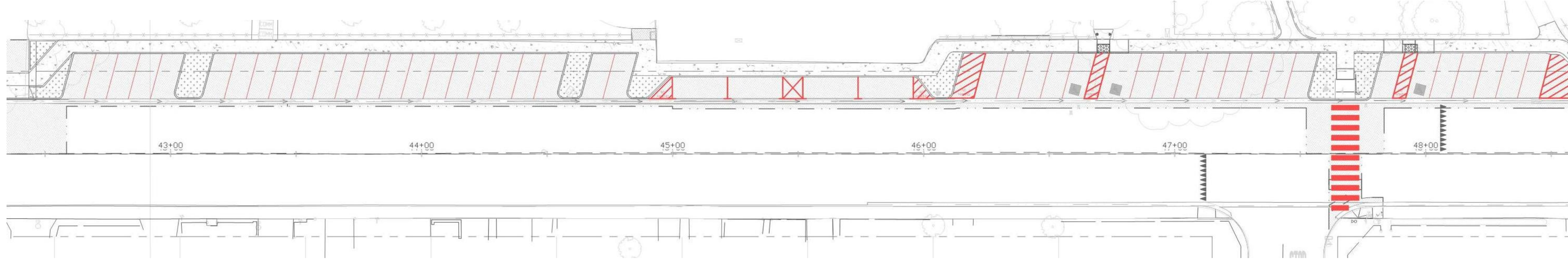


# MIDDLE AVENUE COMPLETE STREETS STUDY

## CURRENT PARKING CONFIGURATION



## BACK-IN ANGLE PARKING CONFIGURATION



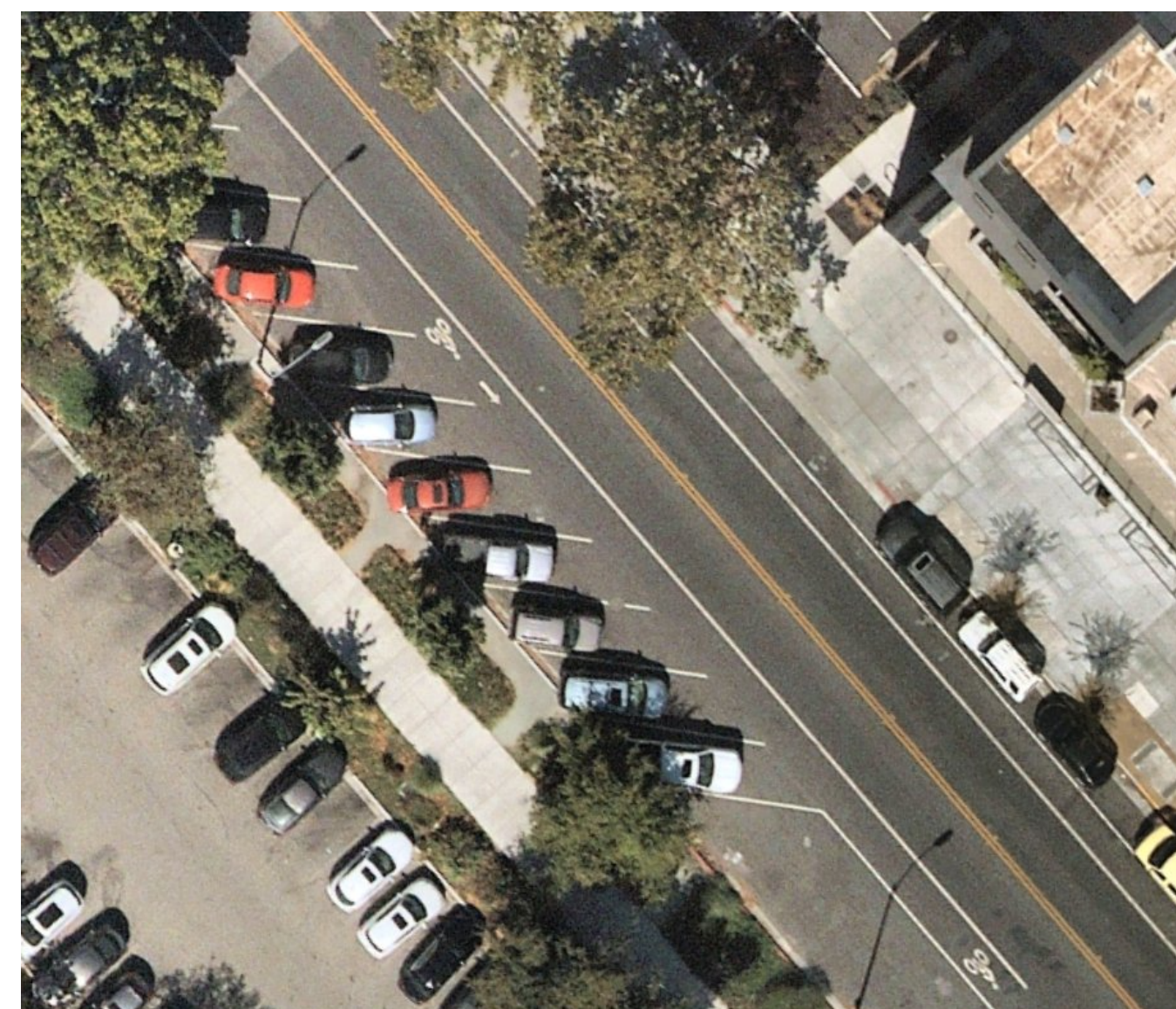
## BACK-IN ANGLE PARKING IMPROVES SAFETY FOR ...



Palo Alto, CA

### Vehicle Occupants

When open, car doors direct passengers, especially children, to the sidewalk, rather than the street



San Jose, CA

### Other Road Users

When parking or leaving a parking space, drivers can see oncoming traffic, including bicyclists



Oceanside, CA

### Drivers

Drivers no longer have to back out blindly from their parking space.



Vancouver, WA

### Loading and unloading

Trunks face sidewalk, allowing loading and unloading to occur at the curb instead of in the street

How does it work?

Just like parallel parking:

1. Signal a right turn to warn other drivers.
2. Pull past the parking spot and stop.
3. Reverse into the parking spot.



# MIDDLE AVENUE COMPLETE STREETS STUDY



**Intersection Crossing Marking**  
Increases the visibility of bicyclists, raising awareness of potential conflict areas



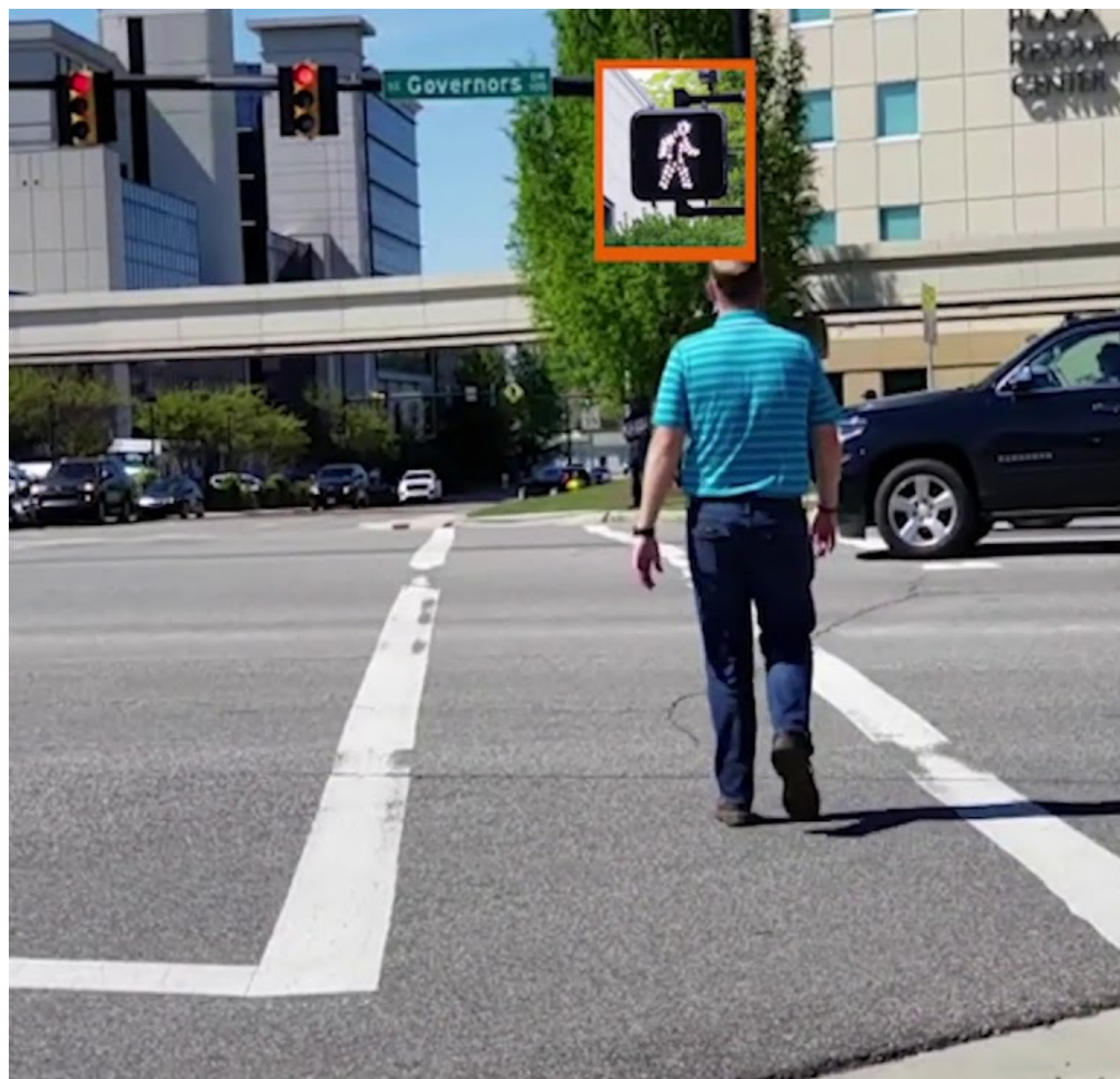
**Blank out sign**  
Used to restrict turning movement conflicts between turning vehicles and bicycles/pedestrians



**Wayfinding Signs**  
Makes navigation easier for pedestrians and bicyclists



**Middle Ave Pedestrian/Bicycle Rail Crossing and Middle Plaza**



**Leading Pedestrian Interval**  
Allows pedestrians (and potentially bicyclists) to enter crosswalk before vehicles, reinforcing pedestrian presence in the crosswalk



**Bicycle Signal**  
Provides separate signal phase for bicyclists, reducing conflicts with vehicle movements



**Protected Intersection**  
Provides separate path of travel for bicyclists, improving visibility and reducing crossing distance

# MIDDLE AVENUE COMPLETE STREETS STUDY



## Vision Zero Policy

Eliminate traffic fatalities and reduce the number of non-fatal collisions by 50 percent by 2040

## How Speeds Impact Safety

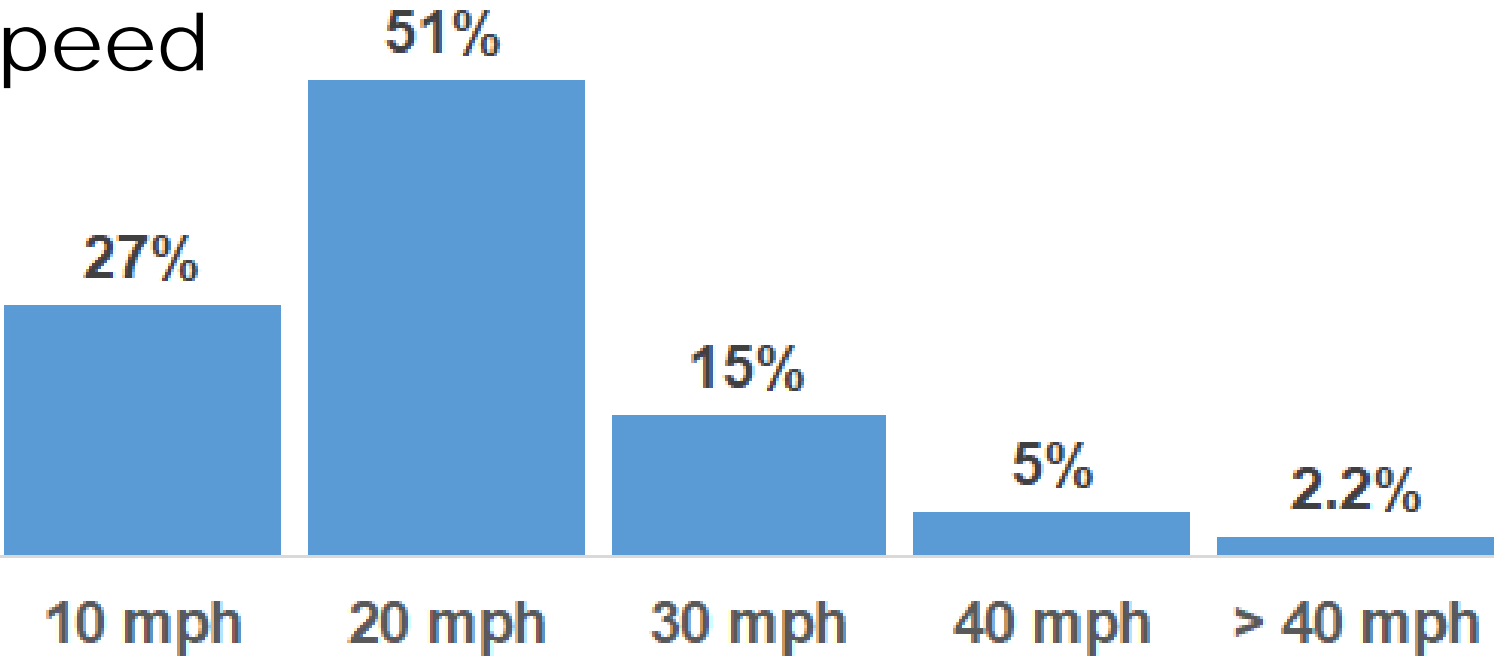
### Vehicle Speed vs Pedestrian Injury and Fatality



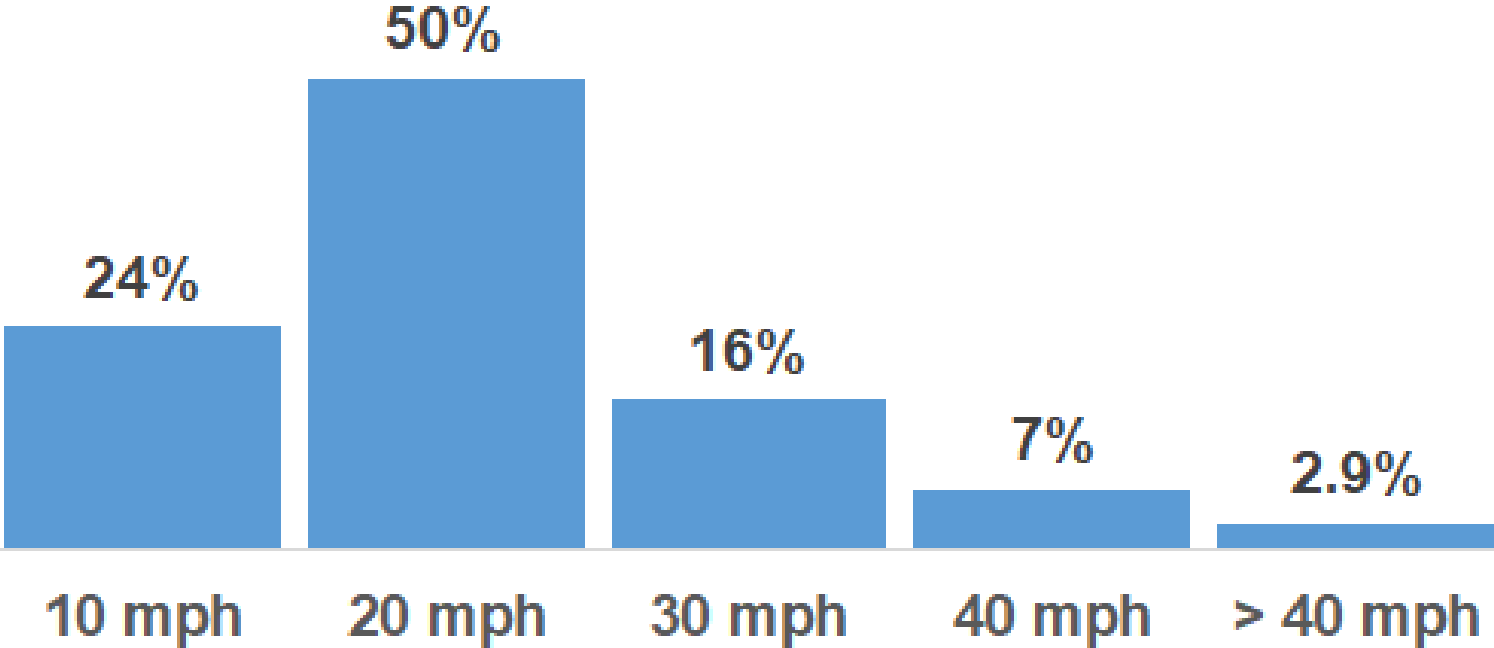
Image credit: San Francisco MTA Vision Zero Action Plan, February 2015

## Average Daily Speed

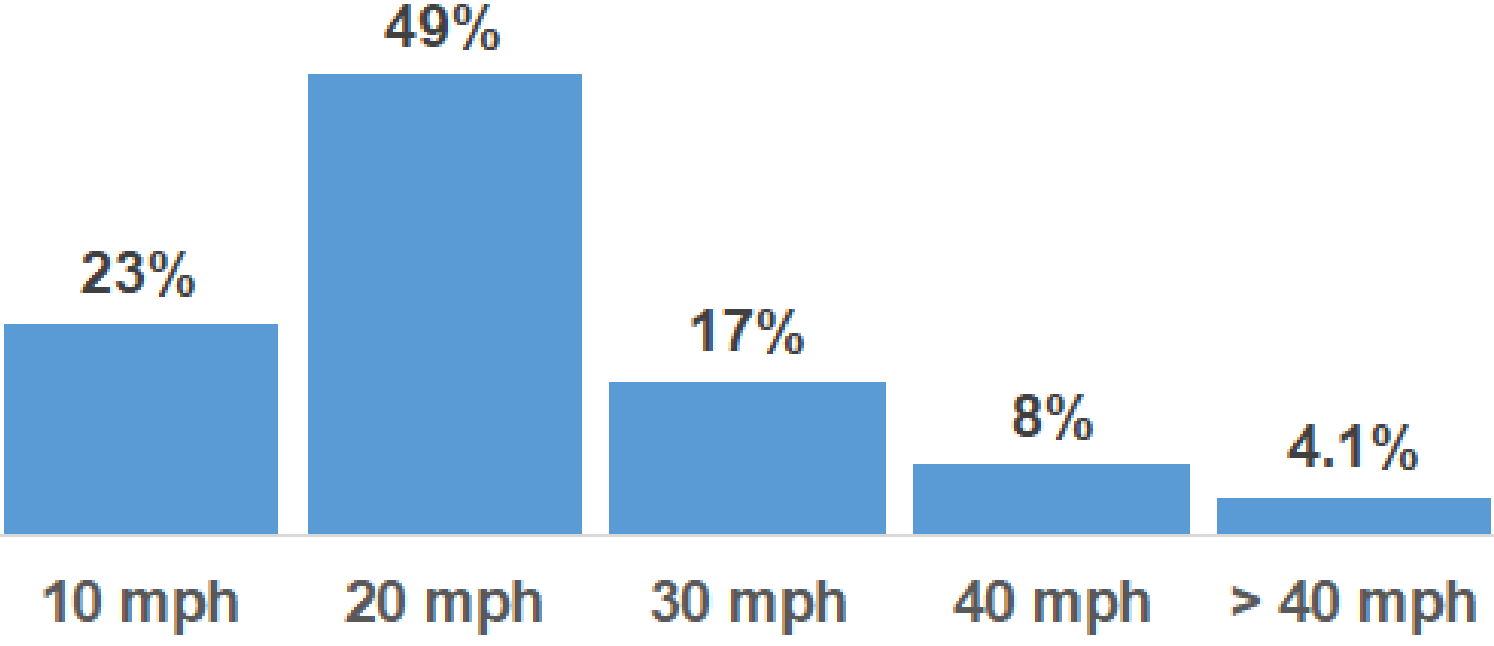
### Middle Ave at El Camino Real



### Middle Ave at Arbor Rd



### Middle Ave at Cotton St



# MIDDLE AVENUE COMPLETE STREETS STUDY



## Flashing Beacon (RRFB)

Rectangular Rapid Flashing Beacons increase the visibility of pedestrians using a crosswalk. The beacon is activated by push button and flashes in a rapid flickering pattern to draw the attention of drivers.



## Bulb-Outs

Bulb-outs extend the sidewalk into the parking lane to narrow the roadway at intersections. They shorten crossing distance, make crossing pedestrians more visible, and reduce turning speeds of vehicles.



## Wayfinding

Wayfinding provides guidance to pedestrians, bicyclists, and vehicles to key destinations within the community.



## Raised Crosswalk

Raised crosswalks are speed tables striped with crosswalk markings and signage that provide pedestrians with a level street crossing. Raised crosswalks make pedestrians more visible to approaching motorists and reduces vehicle travel speed.



## Speed Humps

Speed humps are raised areas placed across the road with striping and signage that slow vehicle speeds. They typically have a design speed of 15 MPH. Some speed humps have 'slots' between multiple humps for use by emergency vehicles.



## New Sidewalks

New sidewalks can fill existing gaps in the pedestrian network improving mobility and accessibility.