

EL CAMINO REAL CORRIDOR STUDY

Transportation Commission Presentation
November 12, 2014
City of Menlo Park



Presentation Outline

- Study Objectives and Overview
- Existing Conditions and Survey Results
- Proposed Alternatives
- Input on Alternatives

STUDY OBJECTIVES AND OVERVIEW



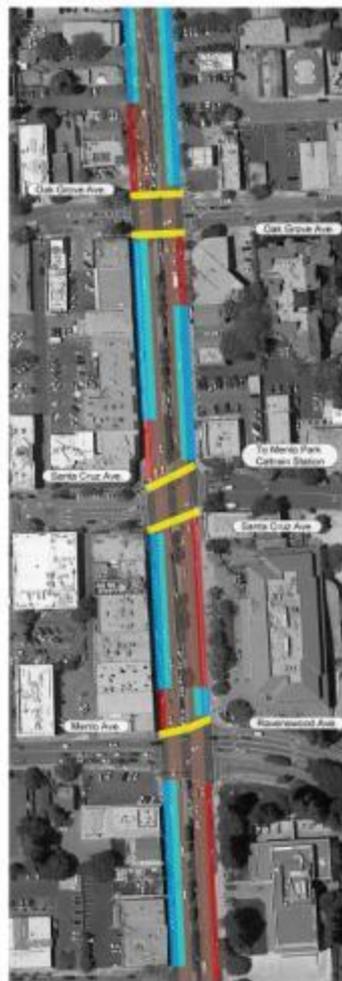
Study Objectives

- Review potential transportation and safety **improvements**.
- **Consider possible alternatives** to allow for the addition of a bicycle lane or an additional through lane.
- Identify potential **reconfiguration** alternatives.
- Evaluate the **feasibility** and potential impacts of up to **three (3)** alternatives to improve **multi-modal** transportation.
- **Impacts** to traffic, active transportation, safety, parking and aesthetics will be addressed.
- Within the limited right-of-way available, assess safety, efficiency and convenience **trade-offs** between motorists and bicyclists.

EL CAMINO REAL CORRIDOR STUDY



Match Line A



Match Line B

Legend

	2 Lane Street
	3 Lane Street
	Right Turn Lane
	Parking
	Wide Lane



Match Line C

Legend

	2 Lane Street
	3 Lane Street
	Right Turn Lane
	Wide Lane w/ Parking
	Wide Lane

Match Line D



Match Line E

Guidelines

- El Camino Real between Encinal Avenue and Sand Hill Road will be evaluated.
- Modifications to side-streets will be considered between the western side of the Caltrain tracks and the eastern side of Curtis Street-Hoover Street-Alto Lane.
- All proposed modifications should be consistent with the El Camino Real/Downtown Specific Plan.
- Only surface improvements will be considered (i.e., no grade separation or tunneling).
- Impacts (both beneficial and adverse) to all modes of travel will be considered in this study.
- Ultimate design and implementation of modifications to El Camino Real will need to meet Caltrans requirements and standards.

Study Elements

- Identify performance metrics
- Community Workshop #1 (complete)
- Document existing conditions
- Community Workshop #2 (complete)
- Develop travel demand forecasts
- ***Develop and analyze alternatives***
- Community Workshop #3
- Prepare conceptual design plans and estimated costs for alternatives
- Based on feedback, a preferred plan will be identified
- Full design plans will be prepared for ECR/Ravenswood intersection
- Environmental analysis will be completed for the preferred plan

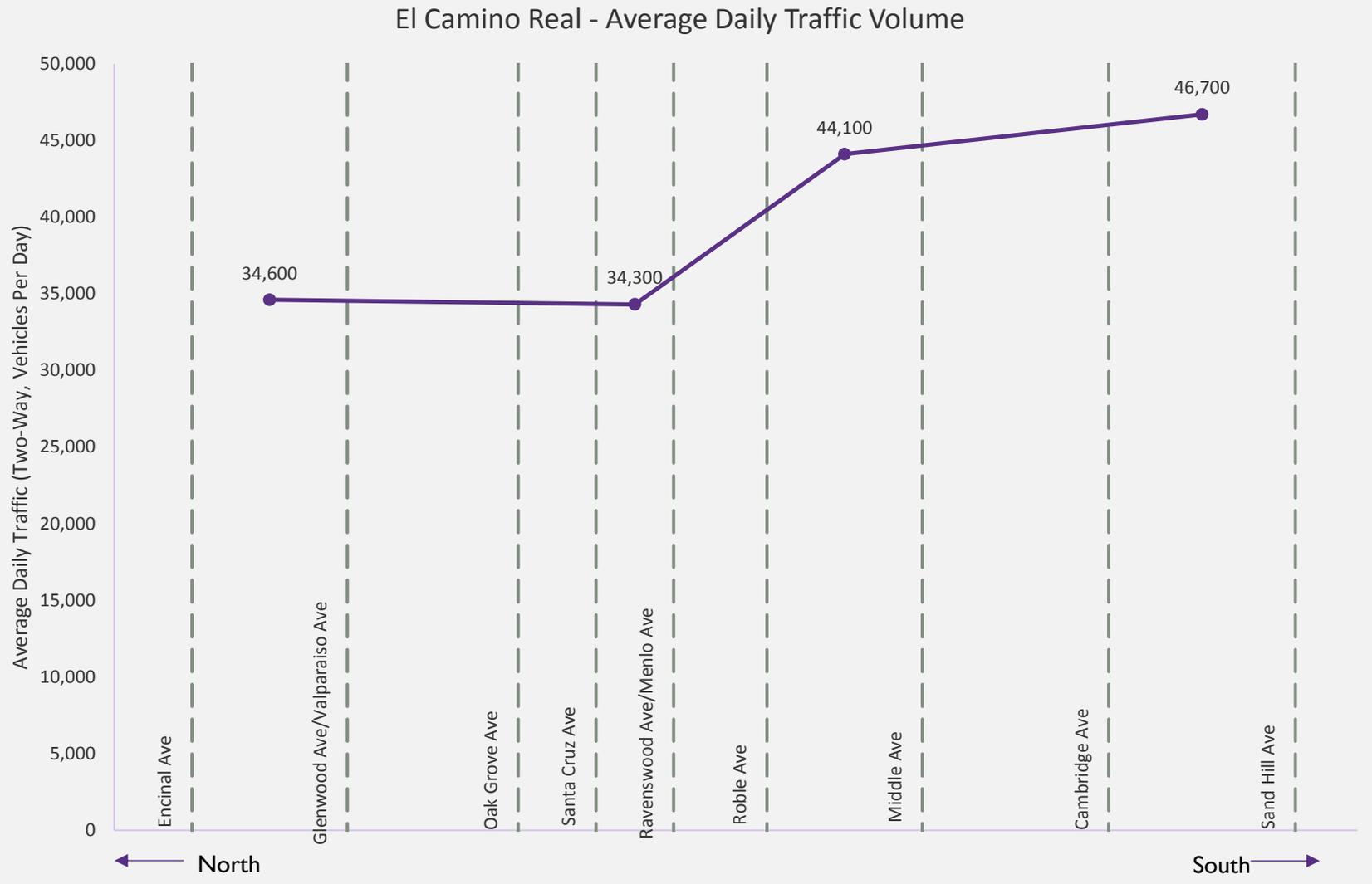
Community Participation Opportunities

- Completed 2 Community workshops (1 forthcoming)
- City Commission and Council Hearings
- Project website
 - www.menlopark-elcamino.com
- Online Survey

EXISTING CONDITIONS AND SURVEY RESULTS



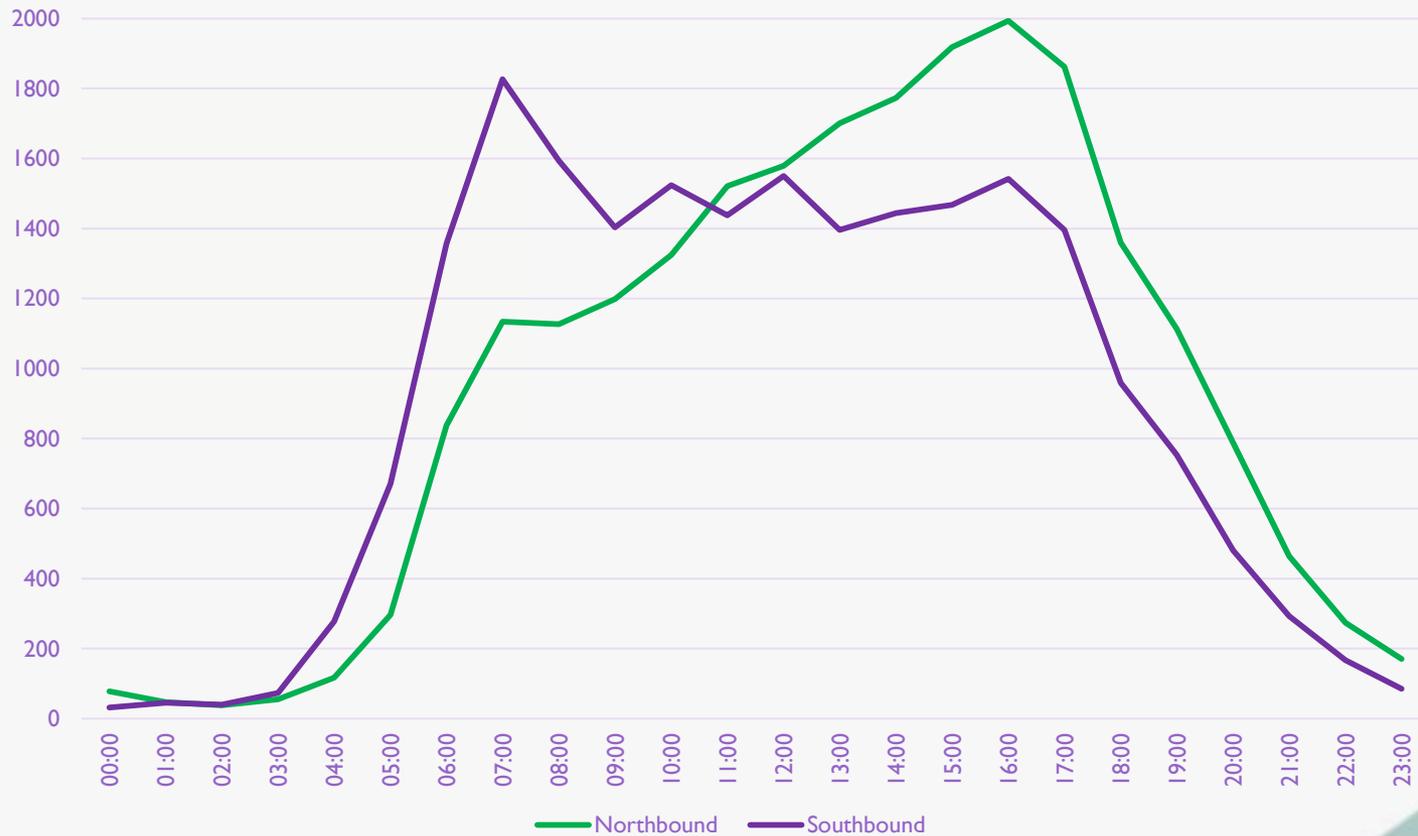
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- Truck traffic: 1.5 - 2% of traffic during the afternoon

Current Conditions

Hourly Traffic Trends – ECR north of Middle Avenue



Current Conditions

	Northbound	Southbound
AM Peak Average Travel Time	3:48	5:06
AM Peak Average Speed	21.5 mph	15.7 mph
Midday Peak Average Travel Time	4:35	3:48
Midday Peak Average Speed	17.5 mph	21.3 mph
PM Peak Average Travel Time	5:24	5:00
PM Peak Average Speed	14.9 mph	16.1 mph

Current Conditions – Pedestrians & Bicyclists

Hourly volumes (morning – afternoon)

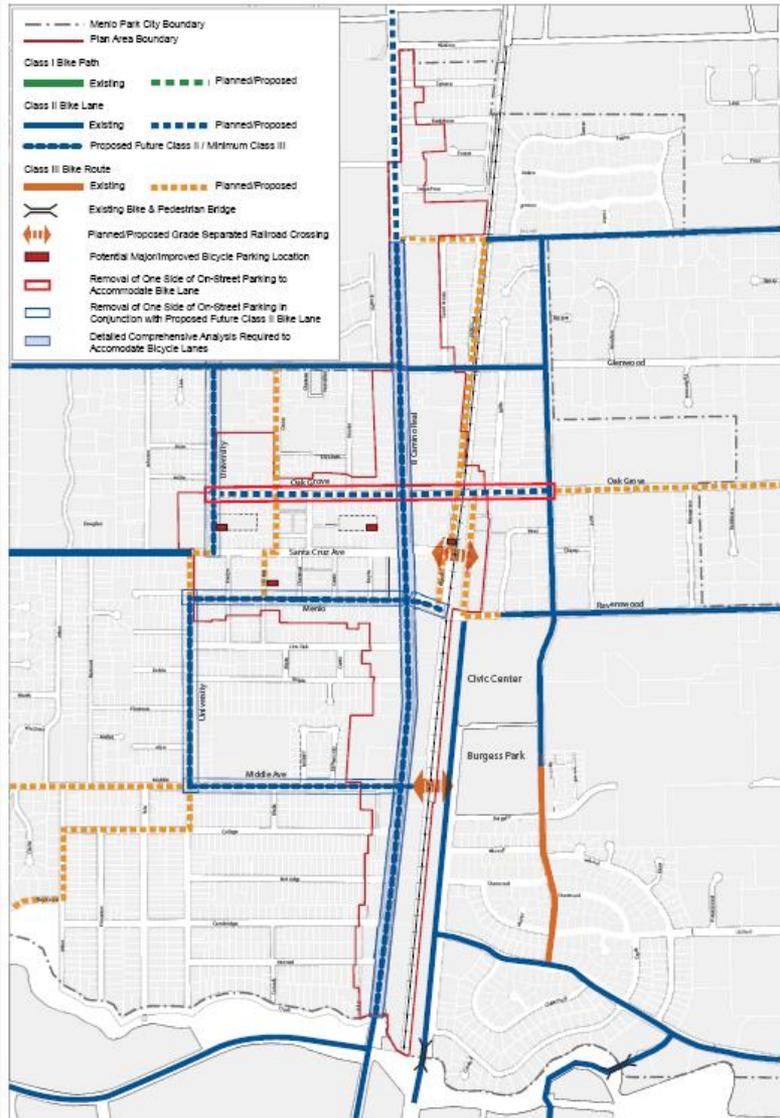
Intersection	Pedestrian	Bicycle
ECR/Oak Grove Rd	53-88	20-7
ECR/Santa Cruz Ave	96-144	19-13
ECR/Ravenswood-Menlo Ave	35-46	26-25
ECR/Middle Ave	13-28	9-17
ECR/Sand Hill Rd	113-41	201-55

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Existing Marked Crosswalks

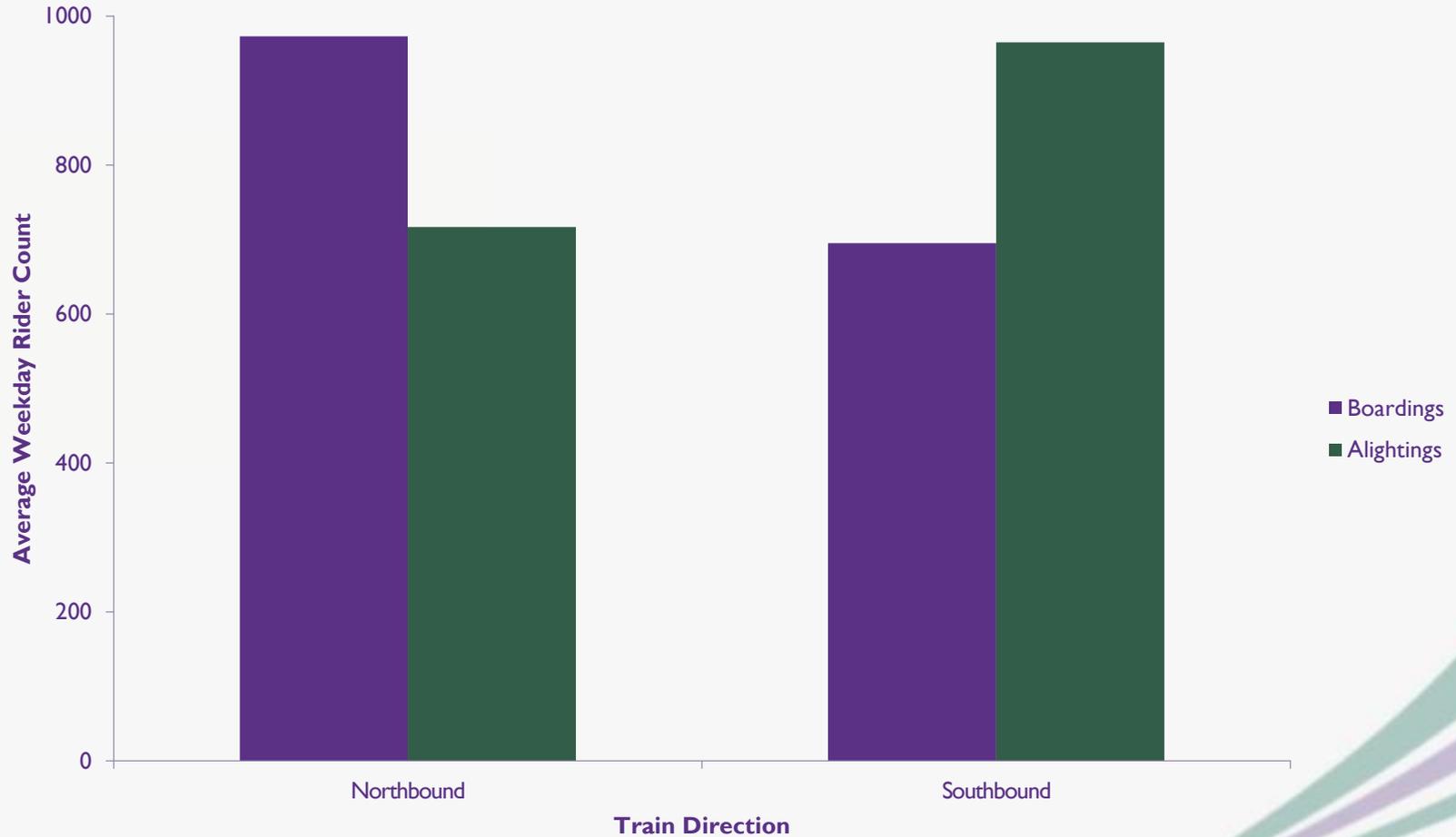


Bicycle Facilities Plan



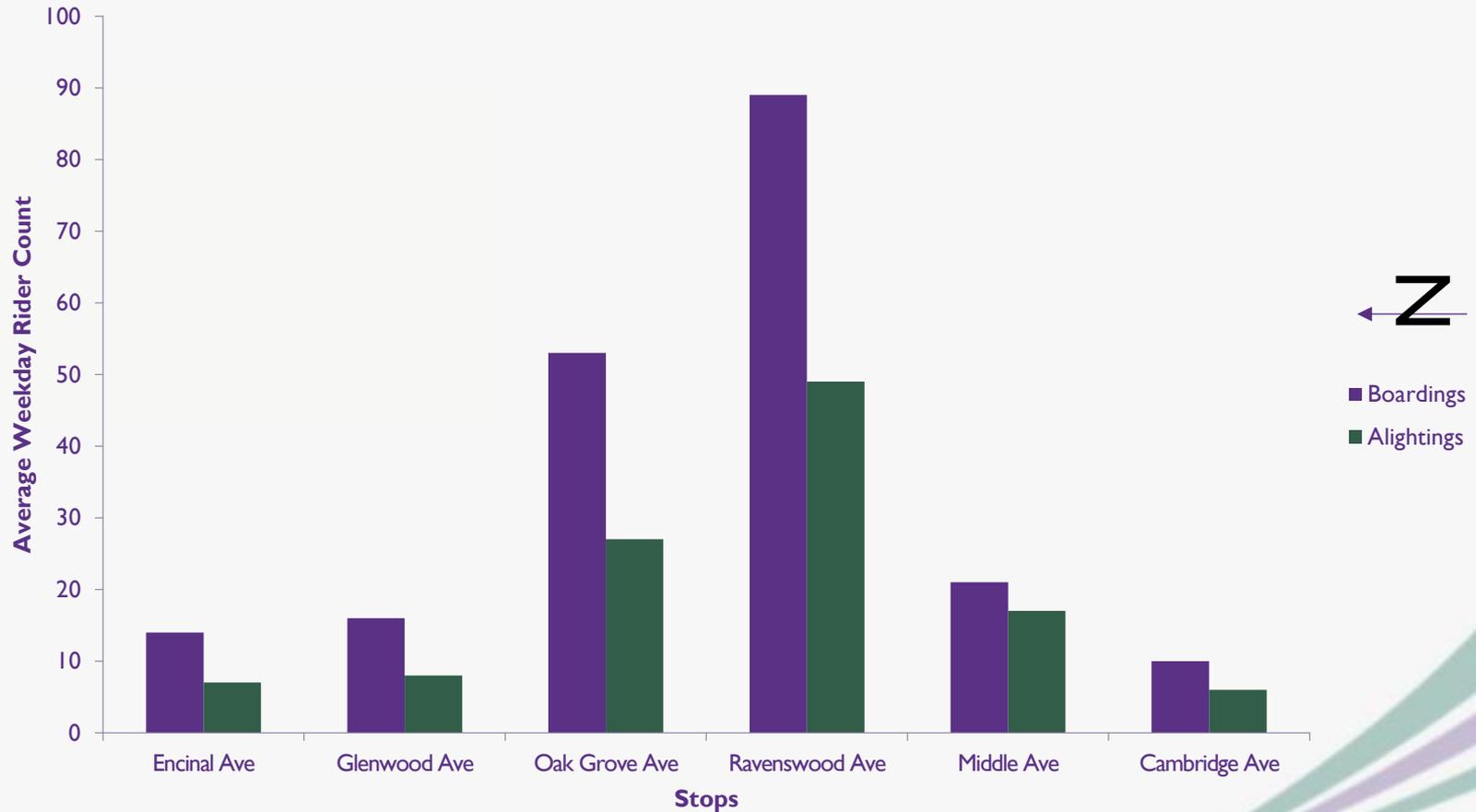
Current Conditions

Caltrain Menlo Park Station: Average Weekday Ridership



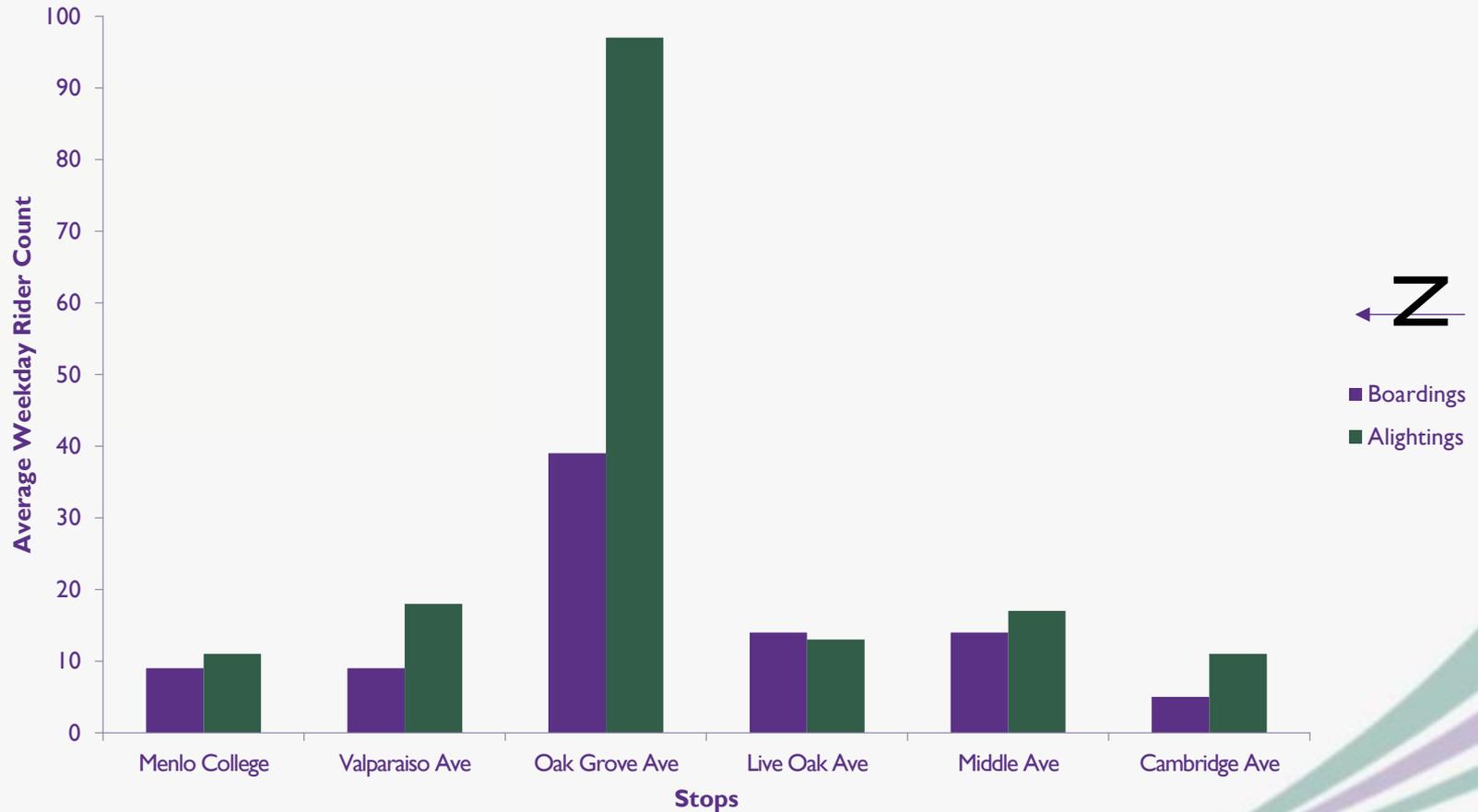
Current Conditions

Samtrans Bus Route ECR Northbound: Average Weekday Ridership



Current Conditions

Samtrans Bus Route ECR Southbound: Average Weekday Ridership



EL CAMINO REAL CORRIDOR STUDY



Online Survey Results

El Camino Real Corridor Study

About the Survey

The survey was conducted online during the initial stage of the El Camino Real Corridor Study following the first community workshop. It was active between June 16 and September 12, 2014 and had a total of 309 participants.

Who took the survey?



The survey asked participants where they live and work.

46% LIVE

18% WORK

in Menlo Park within 1/2 mile of the corridor

33% LIVE

15% WORK

in Menlo Park, farther than 1/2 mile of the corridor

13% LIVE

24% WORK

outside of Menlo Park, within 1/2 mile of the corridor

8% LIVE

43% WORK

outside of Menlo Park, farther than 1/2 mile of the corridor

Why do participants travel on El Camino Real?

- 76%** for **shopping**
- 69%** are patronizing **local businesses**
- 56%** to access **Caltrain**
- 51%** to and from **work**
- 19%** to and from **school**
- 17%** for **physical activity**

Participants also use the corridor...

- ... to connect to other cities in the region
- ... to access the library and recreation center
- ... for events and children's activities
- ... as an east-west crossing
- ... to visit friends and family

Of the Caltrain Users...



Walking to School

19% of participants have children who need to cross El Camino Real to get to school. Comments showed that many participants consider the corridor to be unsafe and would not allow their children to walk there alone.

How they travel on El Camino Real



- 33% multiple times a day
- 14% approximately once per day
- 36% a few times a week
- 17% almost never drive



- 19% on a daily basis
- 22% several times per week
- 19% mostly on weekends
- 39% almost never bike



- 9% on a daily basis
- 25% several times per week
- 27% mostly on weekends
- 39% almost never walk



- 1% on a daily basis
- 4% several times per week
- 1% mostly on weekends
- 94% almost never use transit

Fun Facts

- 55% of drivers also ride bicycles on El Camino Real, and 61% also walk.
- Participants who drive the corridor multiple times a day also tend to live in Menlo Park within a 1/2-mile of the corridor.
- Most drivers travel El Camino Real to shop and visit local businesses, and 50% of drivers use it to travel to and from work.
- The potential change rated highest among drivers was to enhance pedestrian safety and crossings. The second-highest was timing traffic signals to favor continuous north-south flow.
- 76% of cyclists also drive, and 74% also walk.
- 61% of cyclists live within a 1/2-mile of the corridor, and 47% work within a 1/2-mile.
- Most cyclists travel El Camino Real to shop and visit local businesses, and 60% are traveling to or from work.
- The potential change rated highest among cyclists was the inclusion of bicycle lanes, followed by enhanced pedestrian safety and crossings and bike parking.
- 84% of participants who walk along the corridor also drive there, and 74% also bike.
- 72% of pedestrians live within a 1/2-mile of the corridor, and 50% work within a 1/2-mile.
- Most pedestrians travel El Camino Real to shop and visit local businesses, and 59% use it to travel to and from work.
- The most highly rated potential change among pedestrians was improved pedestrian safety and crossings, followed by bicycle lanes and bike parking.
- Of the 18 respondents who regularly use bus transit, 15 live within a 1/2-mile of the corridor, while 11 work within that same distance.
- When not using transit, transit-riding participants were more likely to use a bicycle than a car to travel El Camino Real.
- The potential change rated highest among transit users was the inclusion of bike lanes, followed by enhanced pedestrian safety and crossings, and more bike parking.

EL CAMINO REAL CORRIDOR STUDY



Online Survey Results

El Camino Real Corridor Study

Potential Changes to El Camino Real

The survey presented 17 ideas for potential changes to El Camino Real, based directly on input received at the first community workshop. Participants were asked to rate each idea from least desirable to most desirable.

Ratings: Positive Neutral Negative

The most-desired change:

- 81% 16% 3% Enhanced pedestrian safety and crossings on El Camino Real

Other desired changes with over 50% positive ratings:

- 72% 10% 17% Inclusion of bicycle lanes on El Camino Real
- 70% 23% 8% More landscaping, providing buffers between pedestrians or bicyclists and vehicles
- 66% 24% 10% More bike parking close to downtown
- 64% 24% 12% Timing traffic signals to favor continuous north-south flow
- 56% 38% 6% Reduction in delay at signalized intersections
- 55% 30% 15% Wider sidewalks

The least-desired changes were:

- 17% 32% 51% Higher travel speeds on El Camino Real
- 8% 30% 62% More convenient on-street parking on El Camino Real

Some Opinions about El Camino Real

65% of participants agreed that there is **enough capacity** on El Camino Real for automobiles, and that future improvements should **focus on other modes** of travel such as bicycles, pedestrians, and transit.

79% of respondents **disagreed** or were **neutral** with the idea of placing dedicated **Bus Rapid Transit** lanes on El Camino Real through Menlo Park.

56% of participants felt that street parking on El Camino Real is **not essential** for the convenience of customers of small businesses. A majority agreed that **parking should be eliminated** to make room for bike lanes, though 63% also agreed that any on-street parking that is removed should be **replaced** off-street, nearby.

84% of respondents agreed that routes parallel to El Camino Real are not convenient for bicycle travel, though many also agreed that El Camino Real is **not safe for bicycles**. If bicycling conditions improved, 74% **would consider cycling** rather than driving for short trips and errands.

69% of respondents agreed that a **parallel pedestrian path or trail** should be provided separate from the main roadway. If conditions for pedestrians improved, 60% said they **would rather walk** than drive for short trips and errands.

Open-Ended Questions

The survey asked 3 open-ended questions:

In your opinion, how well does El Camino Real currently serve your transportation needs?

"It's fine for driving needs, though slow during rush hour. It's awful for bicycling and an impairment to my riding more frequently. I never ride along El Camino and I very much dislike crossing it due to not always being noticed by drivers who are turning or simply passing me as I cross. Not nearly enough time to cross as a pedestrian..."

"El Camino Real is fine... If people want to go faster, take another route. I enjoy El Camino's pace for looking at businesses, and understand that it is not an expressway."

"...The worst part of El Camino for me is trying to cross it because the lights at the intersections are too long, and I often have to wait for two or three light cycles in order to cross in the mornings and afternoons."

"I live near El Camino Real, and use it as a motorist, a cyclist, and a pedestrian. As a motorist, El Camino in Menlo Park is the most congested and slowest portion of my commute. As a cyclist (and Bicycle Commuter), El Camino is a hazard which must be carefully navigated at the beginning and end of my daily commute. As a pedestrian, El Camino is ridiculously dangerous."

"I try to avoid using ECR where possible and go across to other parallel streets at commute times due to congestion. ECR is a more direct route, so I would prefer to use it for my transportation needs if the flow were better."

What is the most important traffic/transportation/circulation issue to you on the El Camino Real corridor in the City of Menlo Park?

"This road always feels unsafe. It does not connect well with side streets and the local community. It is unsafe for biking and walking (two options that, if safer, might reduce car traffic for short trips). The traffic lights are incredibly annoying in their timing/lack of sensible programming."

"The most important issue is how much of a physical barrier ECR is between the east and west sides of Menlo Park."

"Pedestrian safety while walking along and attempting to cross El Camino. Access to public transit and business is hampered by difficult and dangerous crossings with poor signaling, especially for visually impaired pedestrians."

"Lack of safe alternatives to driving alone. That's the #1 way to reduce congestion."

"CONGESTION at most times during the day. Need to move through-traffic through!"

"Safe routes to Schools and Parks should be a top priority. Many kids that are old enough to bike to soccer games, baseball practice, the library, Arillaga, etc. don't do it because it's not safe to cross El Camino on a bike. All bike travel and pedestrian safety issues should be top priorities."

"Lack of coordination of traffic timing between neighboring jurisdictions..."

What intersection or portion of El Camino Real do you have concerns with?

KEY	Intersection Name	# of comments
Examples of comments		
	Encinal Avenue	6
	School traffic	
	Valparaiso Avenue \ Glenwood Avenue	24
	Crossing signals	
	Marks one end of a problematic stretch south to Rocke or Middle	
	Oak Grove Avenue	20
	Unsafe for visually impaired pedestrians	
	Red light runovers	
	Santa Cruz Avenue	23
	Unsafe for visually impaired pedestrians	
	For most people the time allotted to cross is quite sufficient, but, for older or disabled pedestrians it's not always enough.	
	Menlo Avenue \ Ravenswood Avenue	24
	Light could be longer for pedestrians	
	Unsafe for visually impaired pedestrians	
	Lights create a north-south pile-up during commute hours	
	No clear safe place for bikes to wait for green light	
	Live Oak Avenue	1
	Hobie Avenue	5
	Cars blocking intersection	
	Middle Avenue	44
	Major route for children from Willows Bridge to Hillview	
	Cars turn quickly through only pedestrian crossing	
	Safeway and gas station oneways impact traffic	
	Partridge Avenue	1
	Cambridge Avenue	11
	A lot of u-turn traffic	
	This signal seems to take a long time to trigger the turn light even when there is no oncoming traffic	
	Creek Drive	1
	The bridge at Creek and El Camino is too narrow for pedestrians	
	Sand Hill Road	31
	Cars coming from Sand Hill often turn after pedestrian green light	
	Lack of signal timing probably leads to congestion	

PROPOSED ALTERNATIVES



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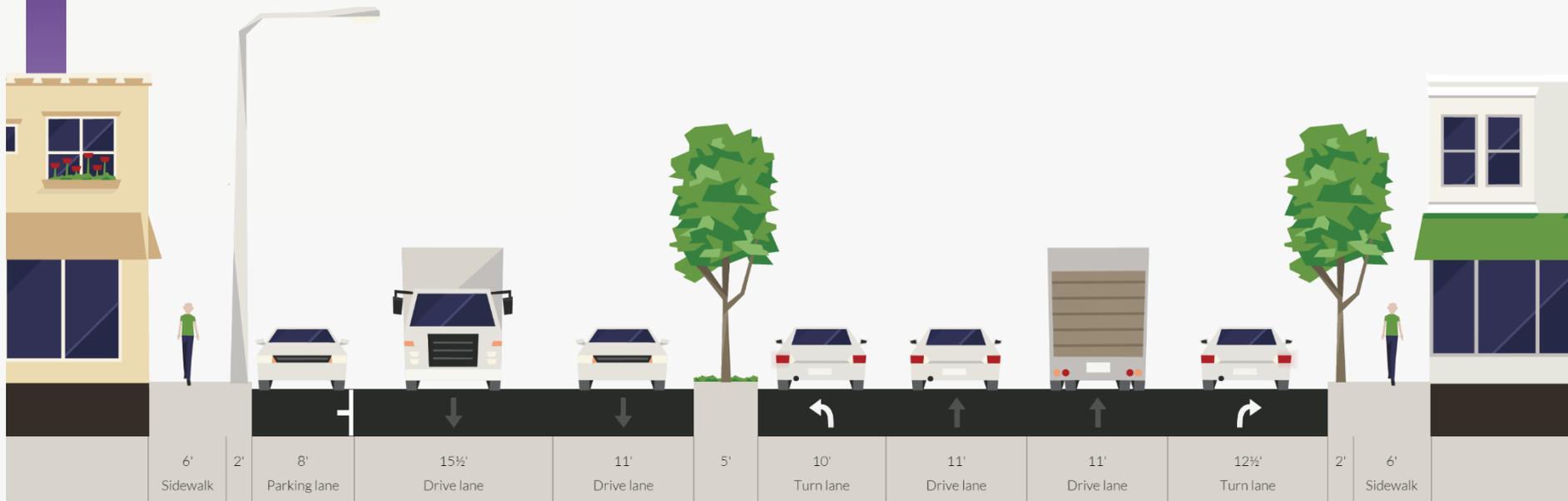
Existing Cross Sections

Between Valparaiso & Oak Grove - Existing



Existing Cross Sections

South of Ravenswood - Existing



Existing Cross Sections

South of Middle Ave - Existing



Proposed Alternatives

- Continuous Three Lanes
- Buffered Bike Lanes
- One-Way Cycle Tracks

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Alternative 1: Continuous 3 lanes

1A. Between Valparaiso & Oak Grove - 6-lane ECR



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Existing Cross Sections

Between Valparaiso & Oak Grove - Existing



Alternative #2 – Buffered Bike Lanes



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Alternative 2: Buffered Bike Lanes

2A. Btwn Valpo & Oak Grove – Buffered Bike Lane



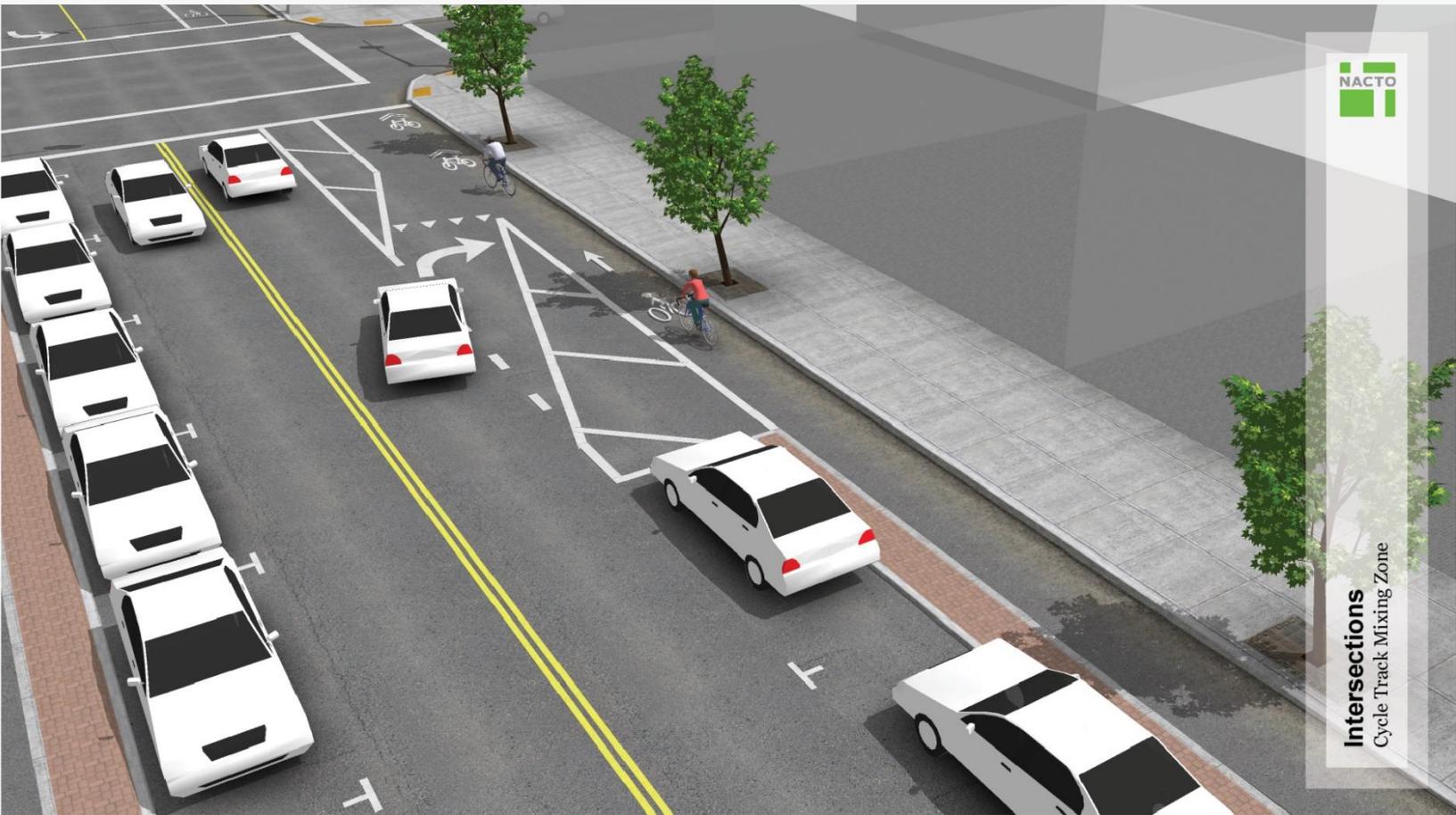
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Existing Cross Sections

Between Valparaiso & Oak Grove - Existing

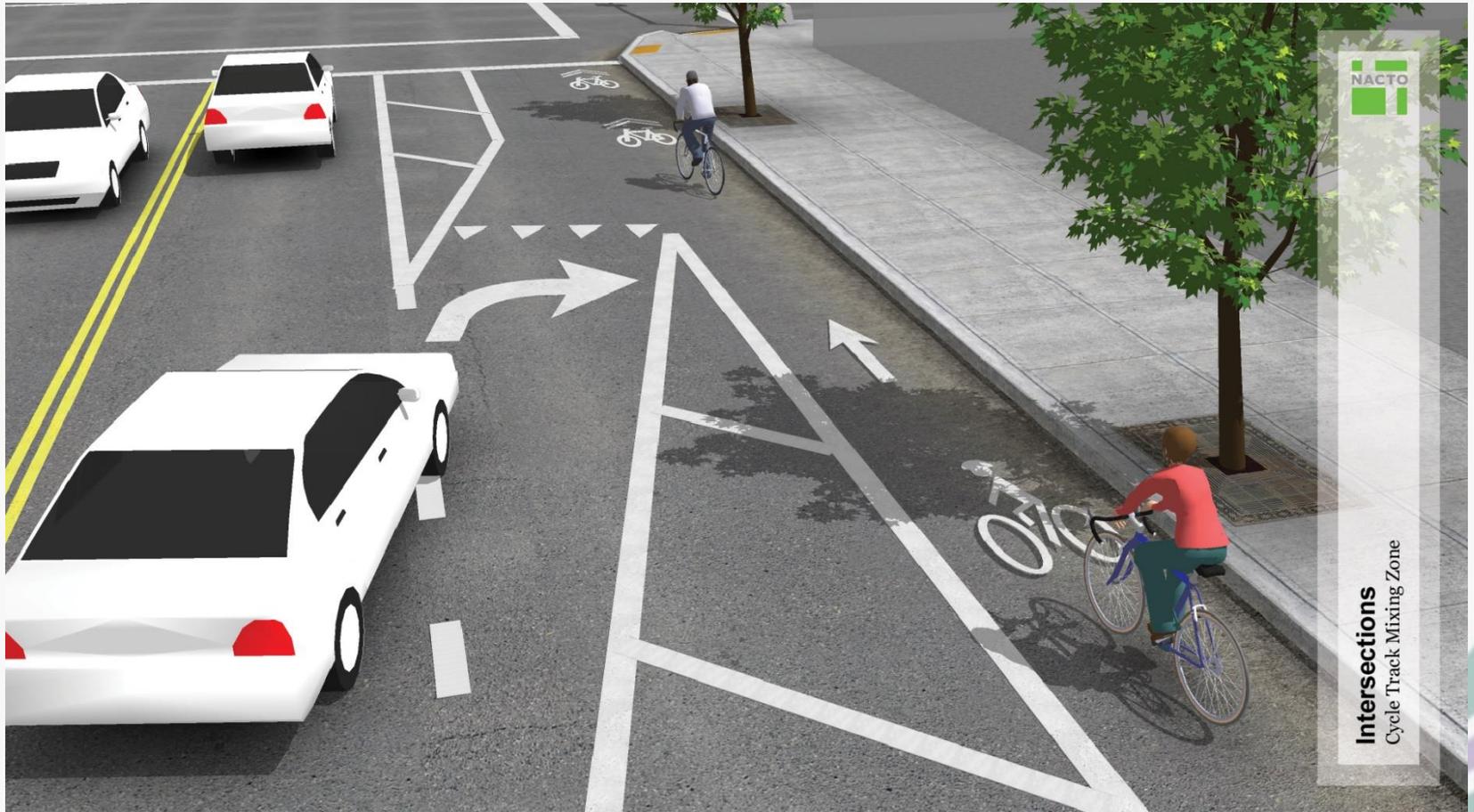


Mixing Zone



Intersections
Cycle Track Mixing Zone

Mixing Zone



Mixing Zone/Bike Box



Intersections
Cycle Track Transition to Bike Lane and Bike Box

Alternative #3 – One-Way Cycle Tracks



Alternative #3 – One-Way Cycle Tracks



Alternative #3 – One-Way Cycle Tracks



NACTO

Cycle Tracks
One-Way Protected Cycle Track with Planters and Parking Buffer

Alternative #3 – One-Way Cycle Tracks



Protected Intersections



Protected Intersections



Alternative #3 – One-Way Cycle Tracks

3A. Btwn Valpo & Oak Grove – One-Way Cycletrack



EL CAMINO REAL CORRIDOR STUDY

Existing Cross Sections

Between Valparaiso & Oak Grove - Existing



Next Steps

- Finalize Alternatives
- Develop travel demand forecasts
- Analyze Alternatives
- Community Workshop #3
- Prepare conceptual design plans and estimated costs for alternatives
- Based on feedback, a preferred plan will be identified
- Full design plans will be prepared for ECR/Ravenswood intersection
- Environmental analysis will be completed for the preferred plan

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Alternative #1 – Continuous Three Lanes

- Addition of a 3rd through lane in both directions on El Camino Real between Encinal Avenue on the north and Roble Avenue on the south.#1
- NB Right Turn lane approaching Ravenswood Avenue would become the 3rd travel lane and the road would be widened to create a new NB right turn lane.
- Existing right-turn pockets at Santa Cruz, Oak Grove, etc. would become shared through/right-turn lanes
- No bulbouts could be added under this alternative due to geometric constraints.
- There still may be opportunities to provide some bulbouts south of Roble Avenue.

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Alternative 1: Continuous 3 lanes

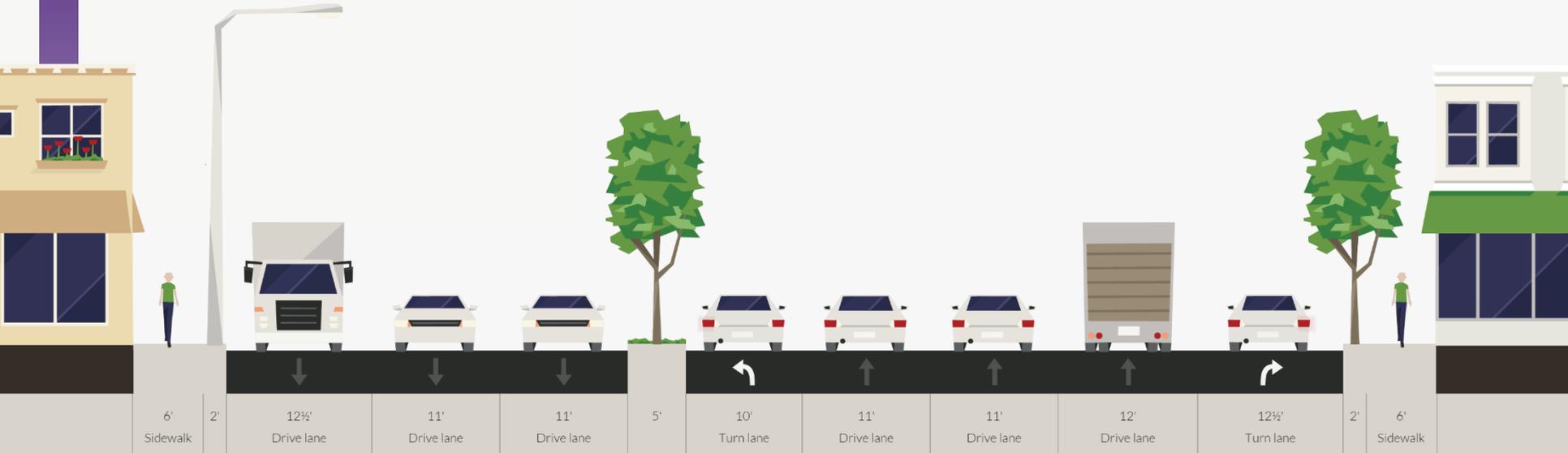
1A. Between Valparaiso & Oak Grove - 6-lane ECR



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Alternative I: Continuous 3 lanes

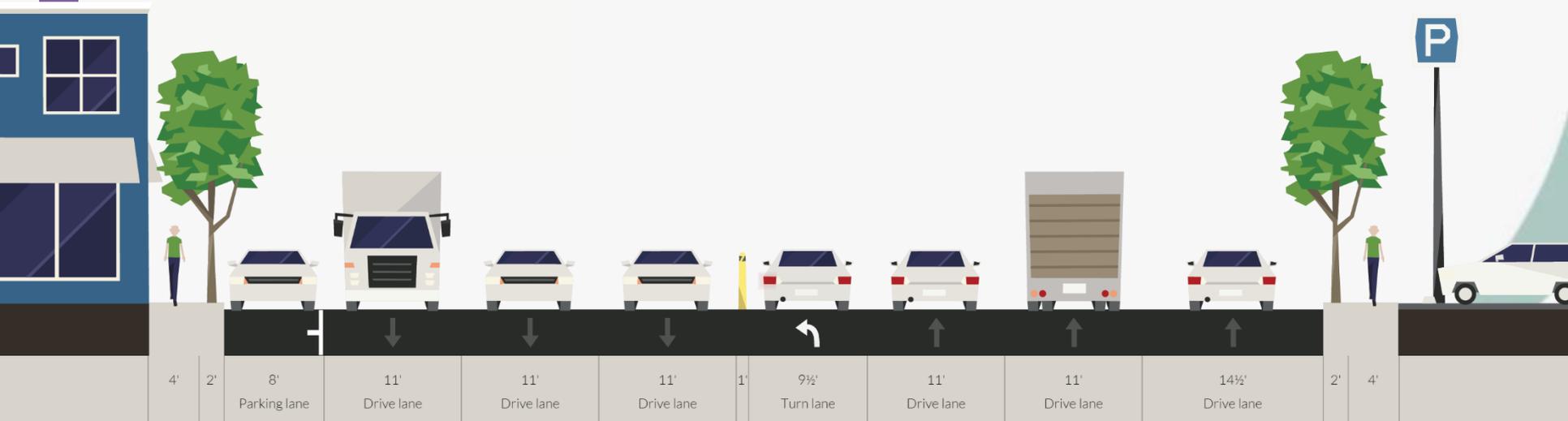
1B. South of Ravenswood - 6-lane ECR



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Alternative 1: Continuous 3 lanes

1C. South of Middle Ave - Existing



Alternative #2 – Buffered Bike Lanes



Alternative #2 – Buffered Bike Lanes

- Buffered Bike lanes would be added in both directions through lane narrowing and elimination of parking on the majority of the segment.
- Existing right-turn lanes north of Roble Avenue would be eliminated in their current form.
- Along the entire corridor where necessary, right-turn lane/bike mixing zones would be provided at intersections.
- In the northbound direction approaching Ravenswood, the roadway would be widened to accommodate the 3rd travel lane, NB right turn lane and the buffered bike lane. (3rd Travel lane would take the place of the existing right-turn lane.)

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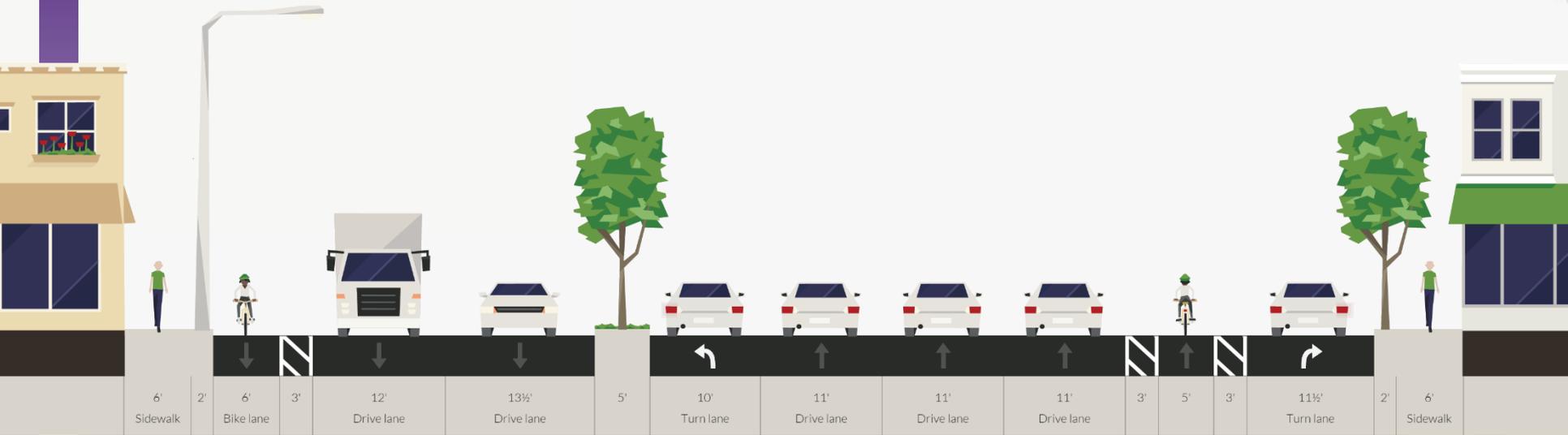
Alternative 2: Buffered Bike Lanes

2A. Btwn Valpo & Oak Grove – Buffered Bike Lane



Alternative 2: Buffered Bike Lanes

2B. South of Ravenswood - Buffered Bike Lane

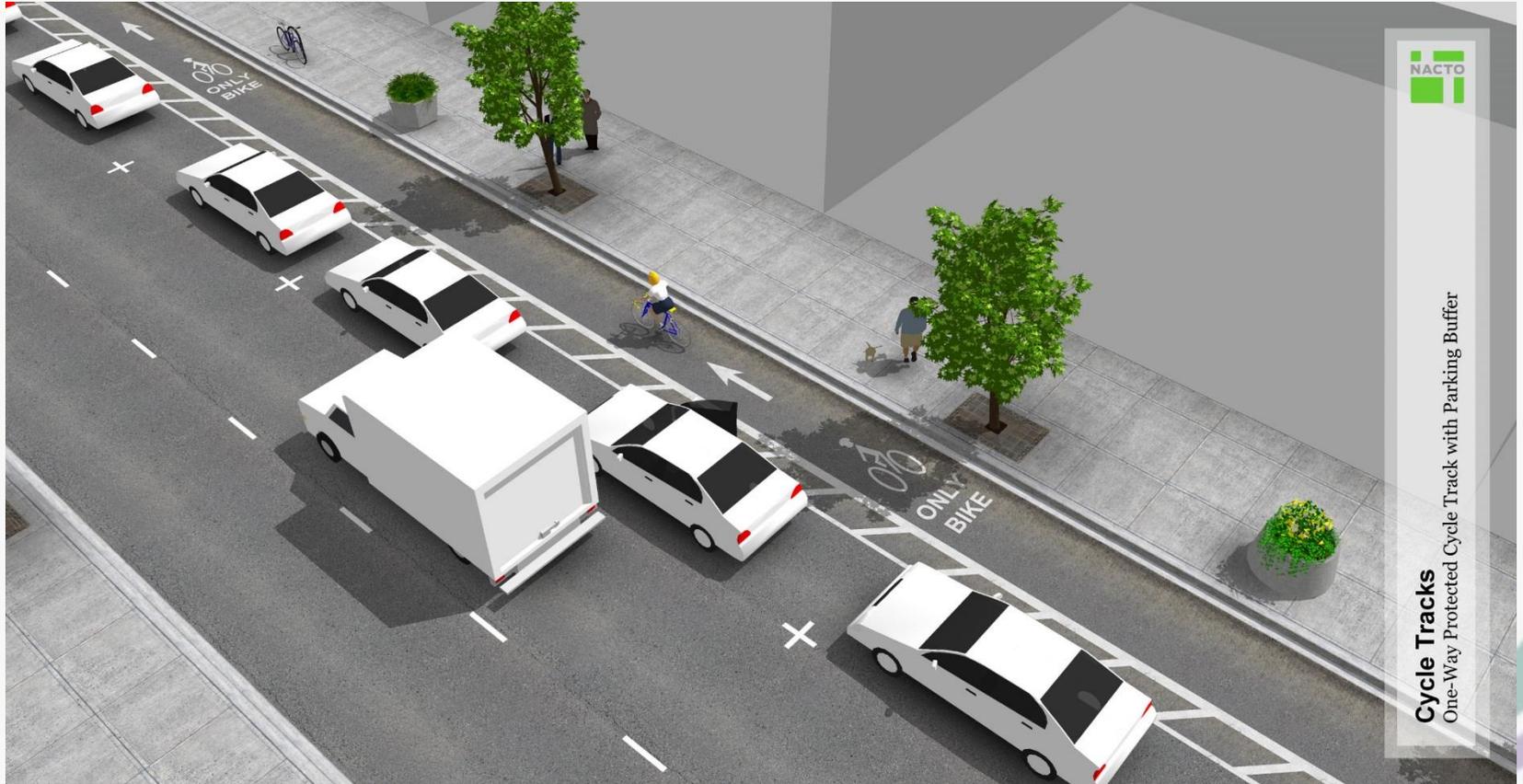


Alternative 2: Buffered Bike Lanes

2C. South of Middle Ave - Buffered Bike Lane



Alternative #3 – One-Way Cycle Tracks



Alternative #3 – One-Way Cycle Tracks

- One-way cycle tracks would be added in both directions and buffered from through traffic and supplemented with a “protected intersection” design at intersections.
- Three levels of buffering could be employed (pavement markings, flexible bollards and/or curb-landscaping would all be shown as options for the separation between the travel lane and the cycle track.
- The facility would be created through the elimination of right-turn lanes and parking on the majority of the corridor.
- NB right turn lane approaching Ravenswood Avenue would be maintained, but some widening on this section will be required to achieve the one-way cycle track.
- No widening for a 3rd travel lane

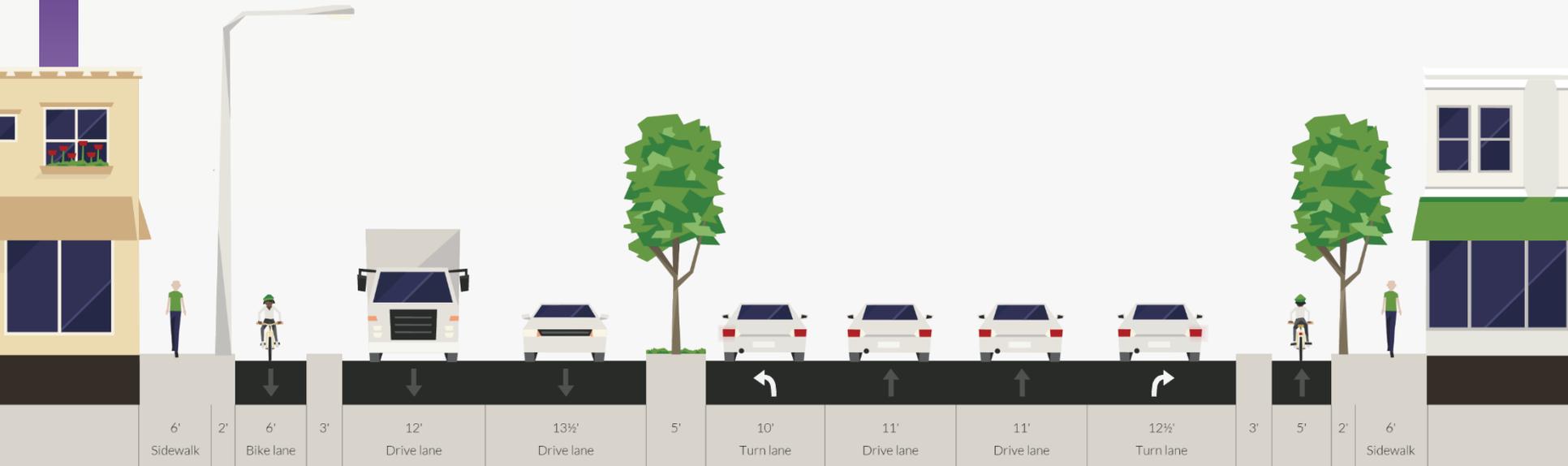
Alternative #3 – One-Way Cycle Tracks

3A. Btwn Valpo & Oak Grove – One-Way Cycletrack



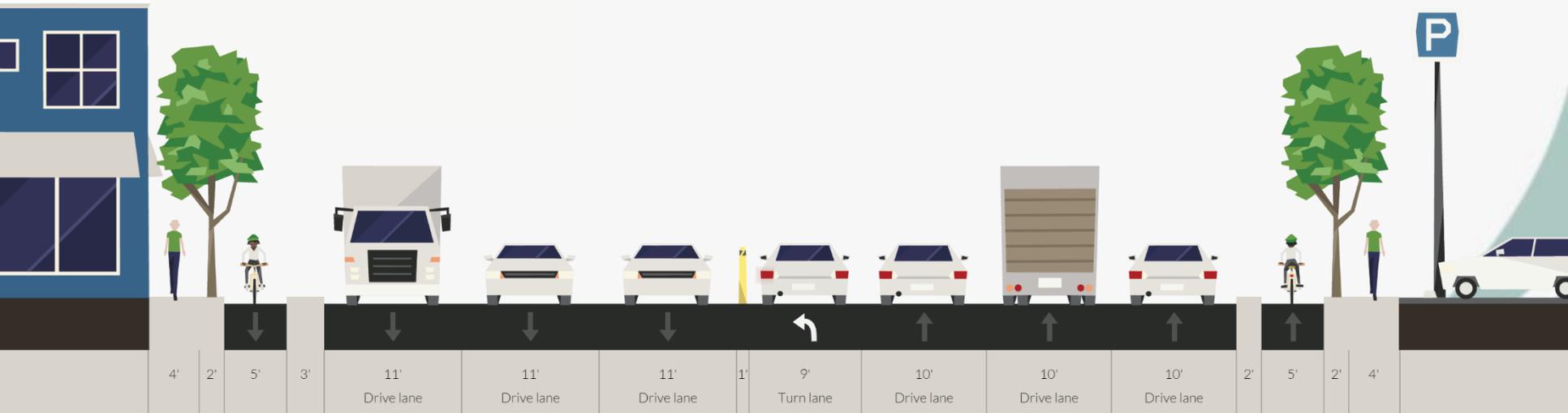
Alternative #3 – One-Way Cycle Tracks

3B. South of Ravenswood - One-Way Cycletrack

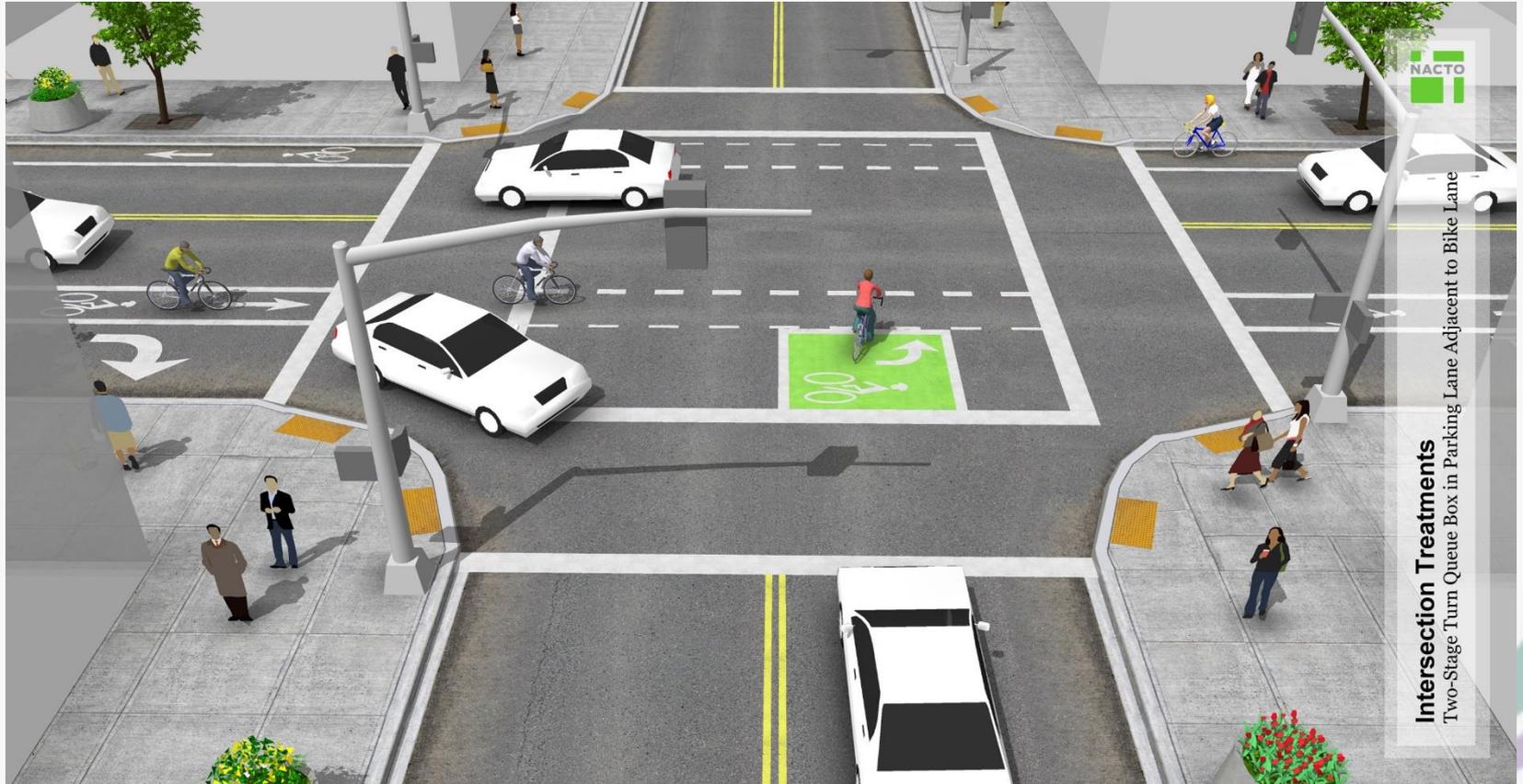


Alternative #3 – One-Way Cycle Tracks

3C. South of Middle Ave – One-Way Cycletrack



Two-Stage Bike Queue Box

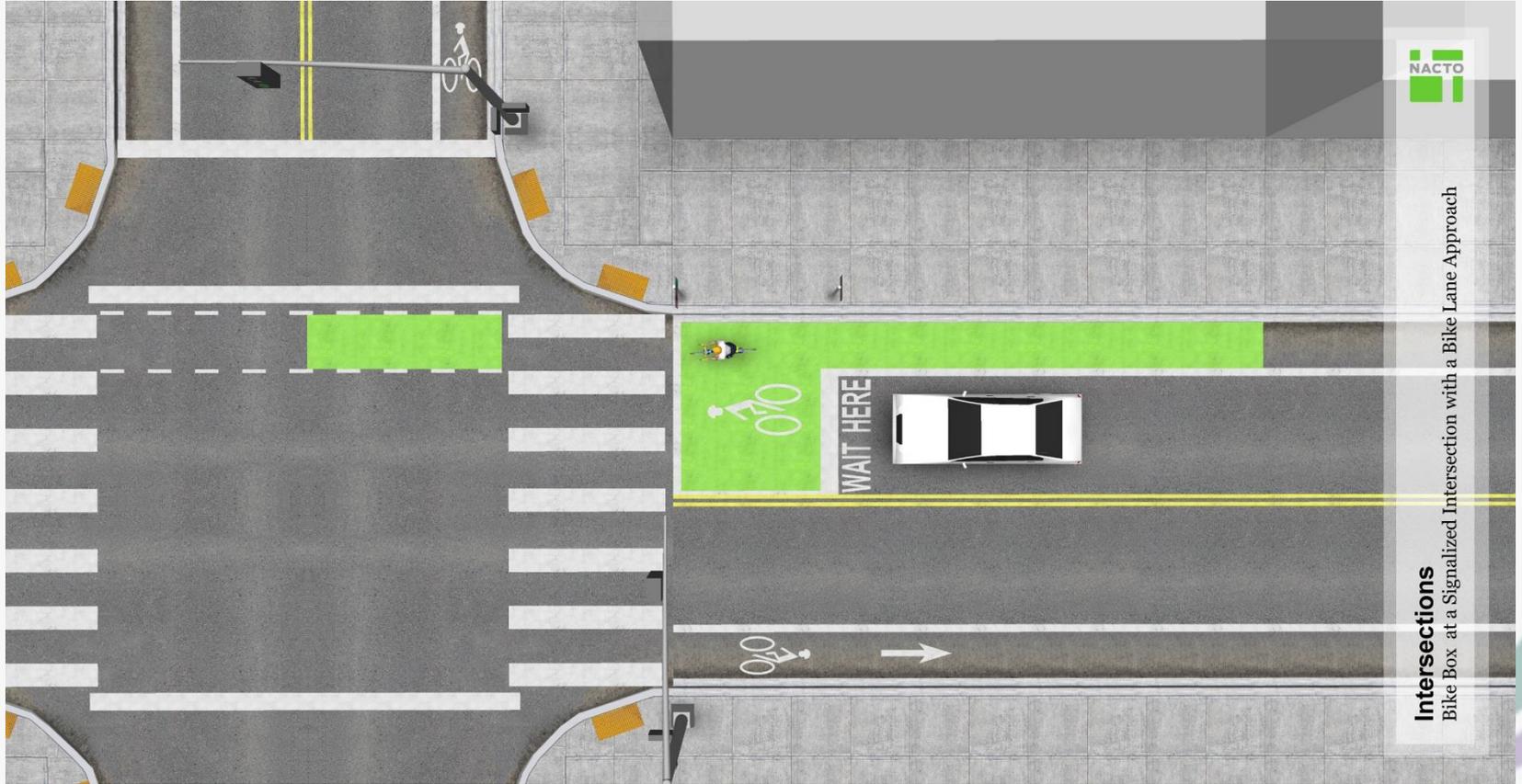


Intersection Treatments
Two-Stage Turn Queue Box in Parking Lane Adjacent to Bike Lane

Two-Stage Bike Queue Box



Bike Box



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Bike Box



Intersections
Bike Box at a Signalized Intersection with a Bike Lane Approach

Bike Box



Intersections
Bike Box at a Signalized Intersection with a Bike Lane Approach

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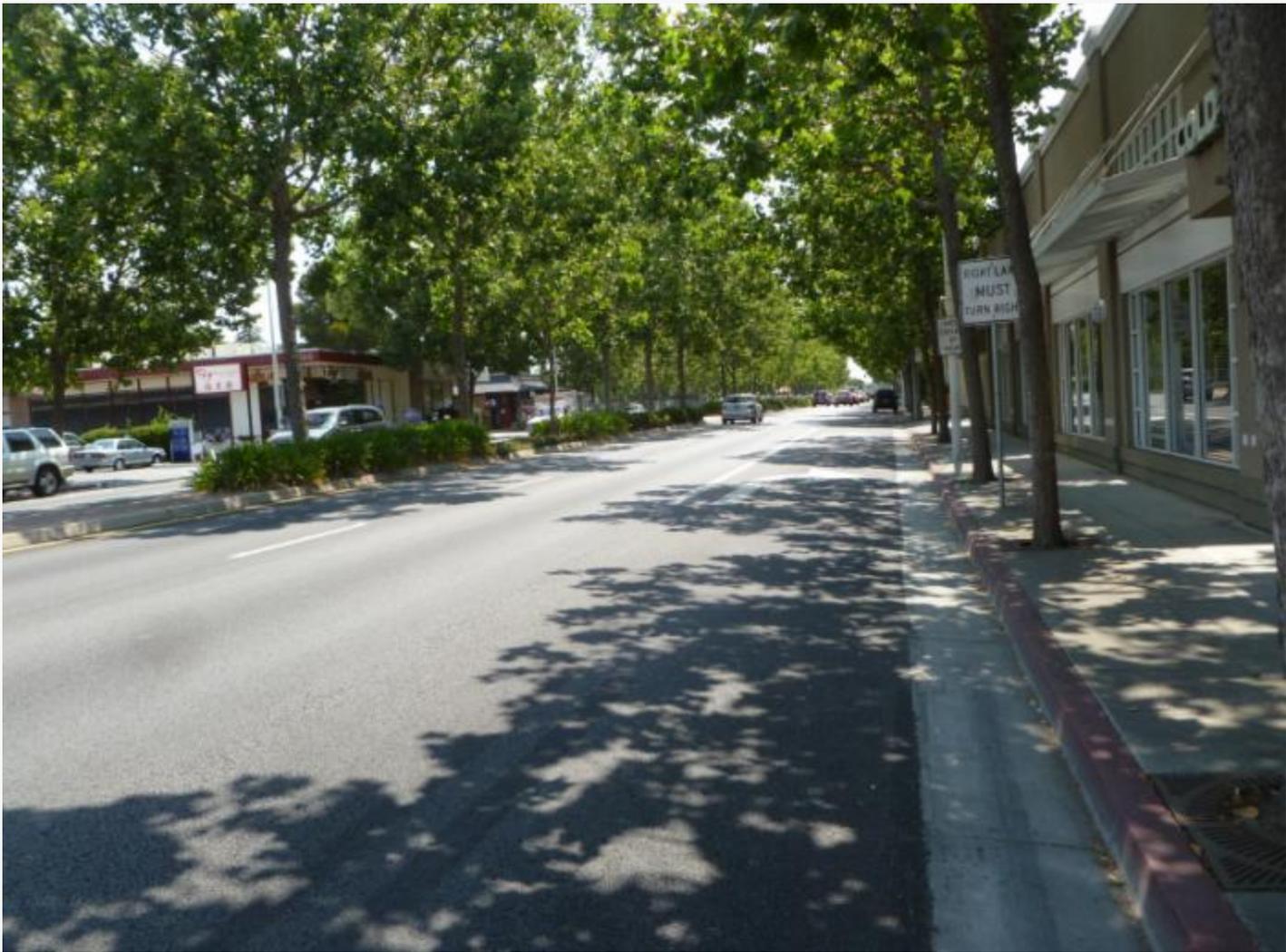
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