



Parametri^x

MORAGA ROAD AND CAMPOLINDO DRIVE TRAFFIC SAFETY AND CIRCULATION



MAY 2024



MEETING AGENDA

- INTRODUCTION (TOWN)
- PRESENTATION (CONSULTANT)
- QUESTION & ANSWER (TOWN & CONSULTANT)
- ONLINE SURVEY (TOWN)



Southwest corner of Campolindo Dr / Calle la Mesa
Image: Town of Moraga 2024



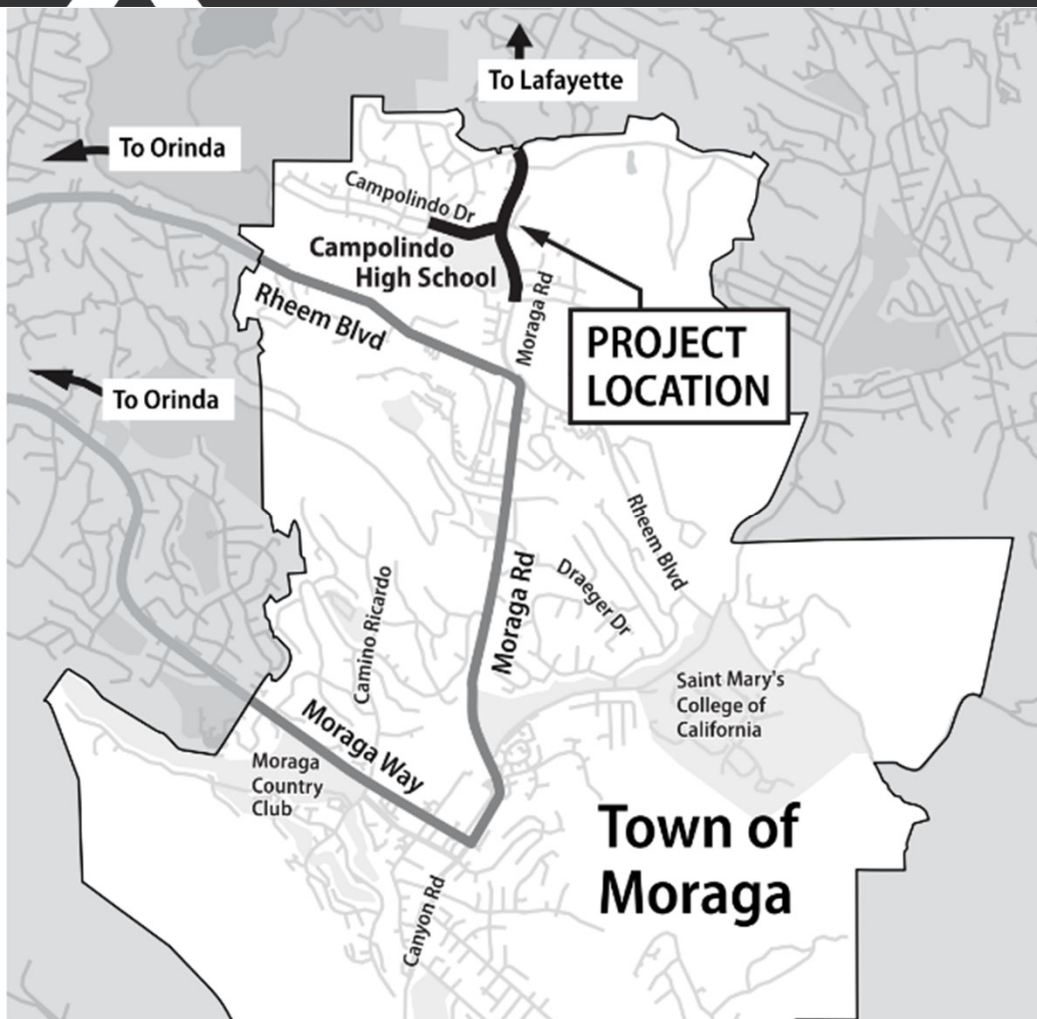
PRESENTATION OUTLINE

- Study extents, goals, and objectives
- Existing multimodal traffic issues & traffic counts
- Palos Colorados traffic analysis
- Short, medium, and long-term recommendations
- Cost summary



Southwest corner of Moraga Rd / Campolindo Dr
Image: Parametrix 2024

STUDY EXTENTS, GOALS, AND OBJECTIVES*



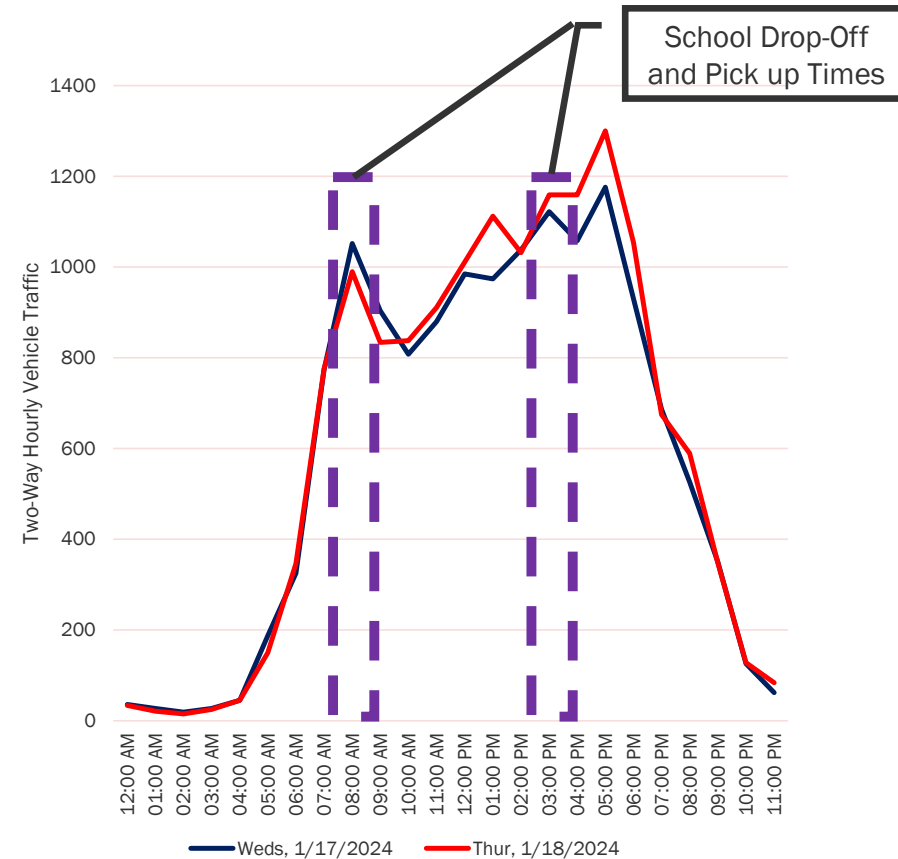
1. Multimodal circulation and access at Campolindo High School drop-off and pick-up areas, driveways, and intersections.
2. Driver sight distance for drivers exiting Corte Santa Clara onto Moraga Road.
3. Future Palos Colorados project access onto Moraga Road.

**Consistency w\ Town goals for Vision Zero, Complete Streets, and VMT reduction*



MORAGA ROAD DAILY TRAFFIC COUNTS

- Collected across two days in January 2024
- Daily total: between 14,000 and 15,000
- Northbound and southbound traffic were balanced (<200 vehicle variation in direction)





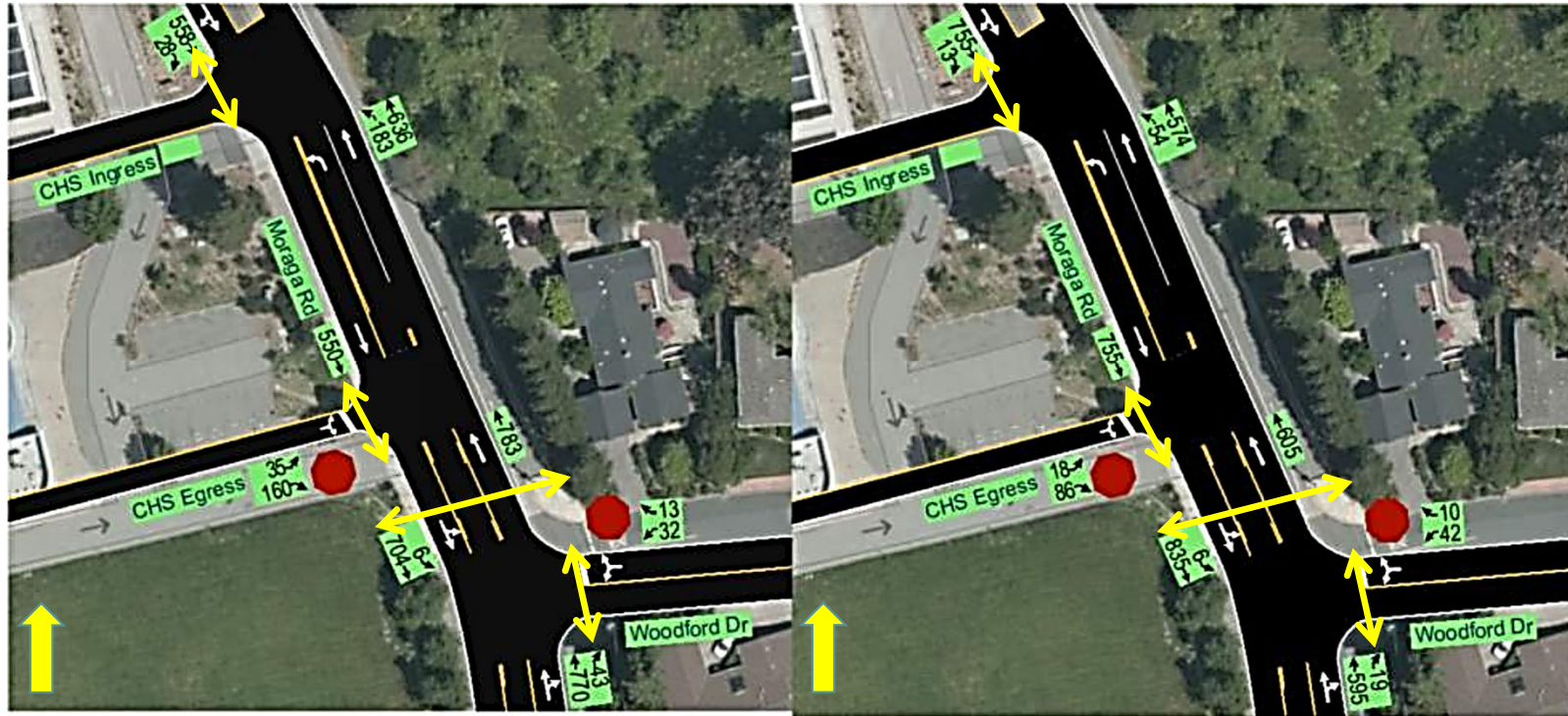
EXISTING MULTIMODAL TRAFFIC ISSUES, MORAGA ROAD

- Vehicle congestion and queuing during peak drop-off and pick-up times.
- High intersection delays before school morning bell and after school afternoon bell, especially at the RRFB-controlled crosswalk at Woodford Dr.



Southbound Moraga Rd at Woodford Dr, AM peak hour.
Image: Parametrix 2024

TRAFFIC COUNTS: MORAGA ROAD AT CAMPOLINDO HIGH SCHOOL CROSSWALK



AM Peak Hour (7:45AM-8:45AM)

Afterschool Peak Hour (3-4PM)

Walk volumes

CHS Ingress 13 | CHS Egress 174

Center crosswalk: 92 | East Crosswalk: 3
9 people on bikes

Walk volumes

CHS Ingress 46 | CHS Egress 55

Center Crosswalk: 91 | East Crosswalk: 0
12 people on bikes



EXISTING MULTIMODAL TRAFFIC ISSUES MORAGA ROAD / CAMPOLINDO DRIVE

- Long queues occasionally block access from side street approaches, e.g., Corte Santa Clara & Woodford Drive
- Signalized intersection operates at LOS C/D or better outside of school commute peaks.
- Intersection has long pedestrian crossing distances and indications of drivers failing to yield.
- Bike lanes discontinue at the intersection.
- Northbound bus stop not PROWAG / ADA standard (landing <8' wide)

PROWAG – Public Rights of Way Access Guidelines
ADA – Americans with Disabilities Act



Southbound Moraga Rd
Image: Parametrix 2024

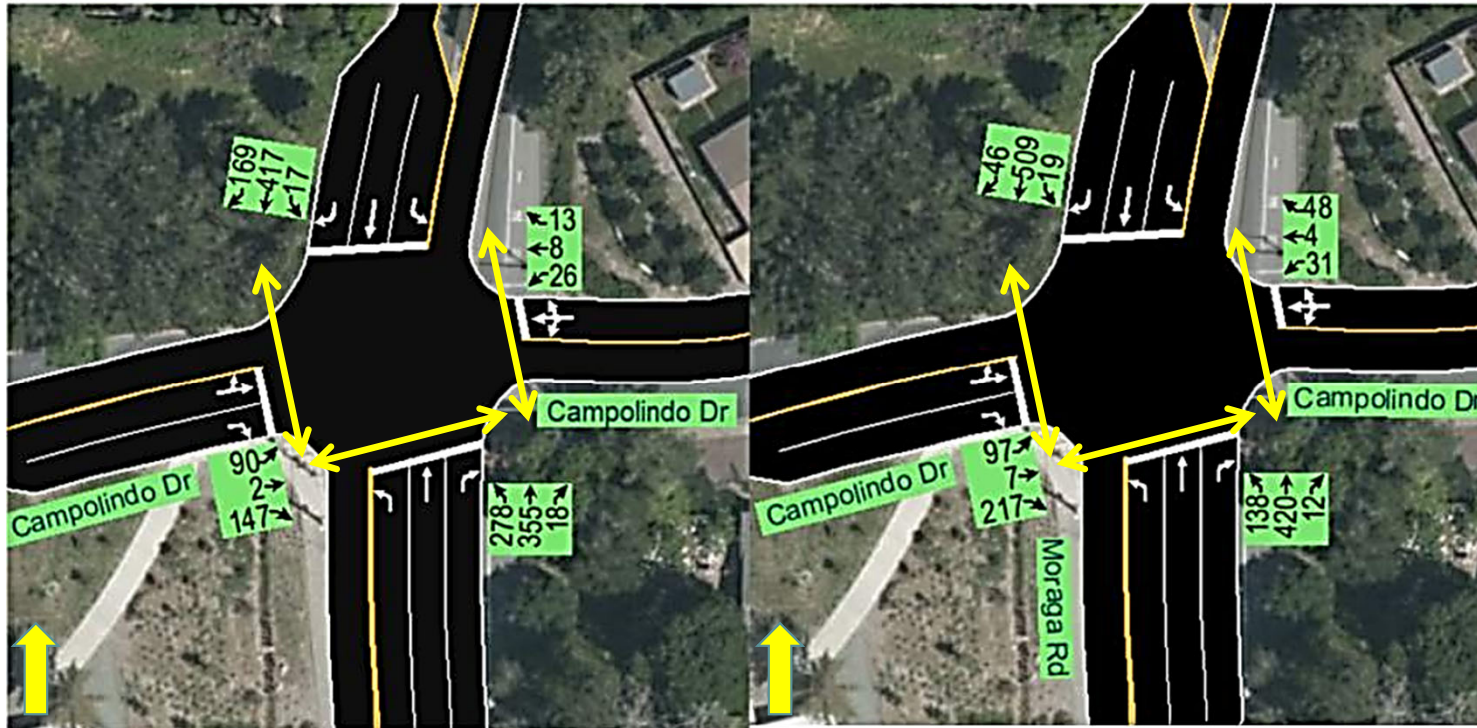


Northbound Moraga Rd
Image: Google

Parametrix



TRAFFIC COUNTS: MORAGA ROAD AT CAMPOLINDO DRIVE



AM Peak Hour (7:45AM-8:45AM)

Afterschool Peak Hour (3-4PM)

Walk volumes

South Crosswalk: 35

West Crosswalk: 11 | East Crosswalk: 0

0 people on bikes

Walk volumes

South Crosswalk: 68

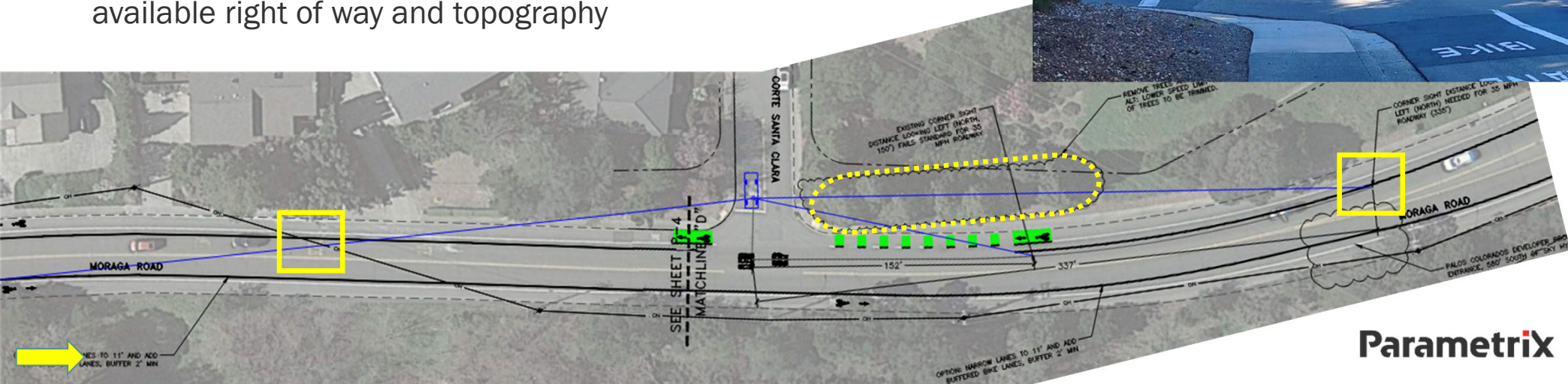
West Crosswalk: 3 | East Crosswalk: 3

7 people on bikes

X EXISTING MULTIMODAL TRAFFIC ISSUES: CORTE SANTA CLARA

Corte Santa Clara has inadequate corner sight distance for 35 mph speed limit.

1. Left side sight distance impeded by horizontal curve and landscaping.
2. Right side sight distance impeded by southbound vehicle queues during peak times
3. Inadequate width for a center left turn lane due to available right of way and topography





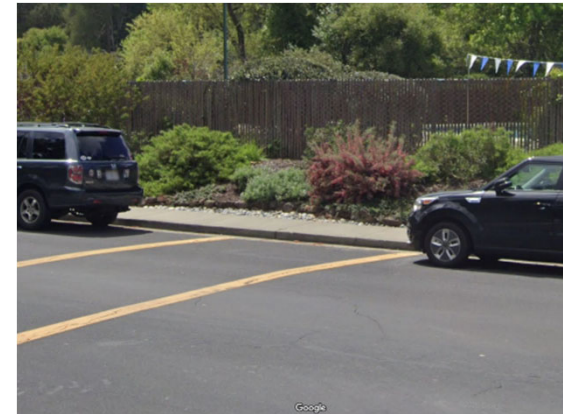
EXISTING MULTIMODAL TRAFFIC ISSUES: CAMPOLINDO DRIVE

- Impeded sight distance at Campolindo Drive crosswalks due to parked cars.
- Marked crosswalks need curb ramps added where missing or reconstructed where not PROWAG (ADA) standard.
- Parking and crosswalk conditions do not conform with AB 413 (2024) – required 20' clear in front of all crosswalks.



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Various locations on Campolindo Drive
Image: Parametrix 2024



X PALOS COLORADOS DEVELOPMENT



- 123 single family detached homes
- Access via Moraga Road



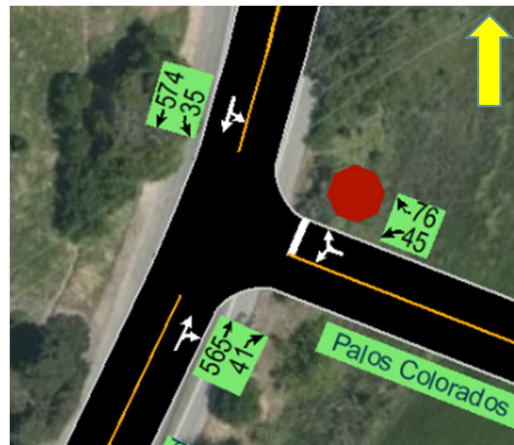
Robert Hidley Architects, 2008

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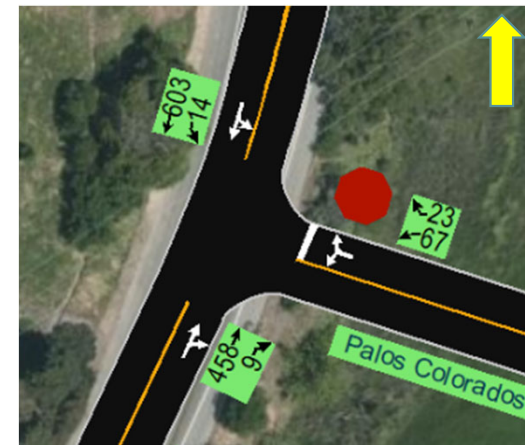
FORECAST TRAFFIC, PALOS COLORADOS

- Adds ~8% more traffic to Moraga Road
- Intersections operate at LOS “C” (<20s avg delay) with STOP control
- Does not satisfy CA MUTCD signal warrants for a traffic signal (Warrant 1 & 2) under current conditions but may be reevaluated in the future.

Land Use	Number	Unit	Daily	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Single family detached housing Land Use #210 ¹	1	DU	9.92	0.73	0.18	0.54	0.98	0.61	0.37
Palos Colorados Development	123	DU	1220	90	23	67	121	76	45



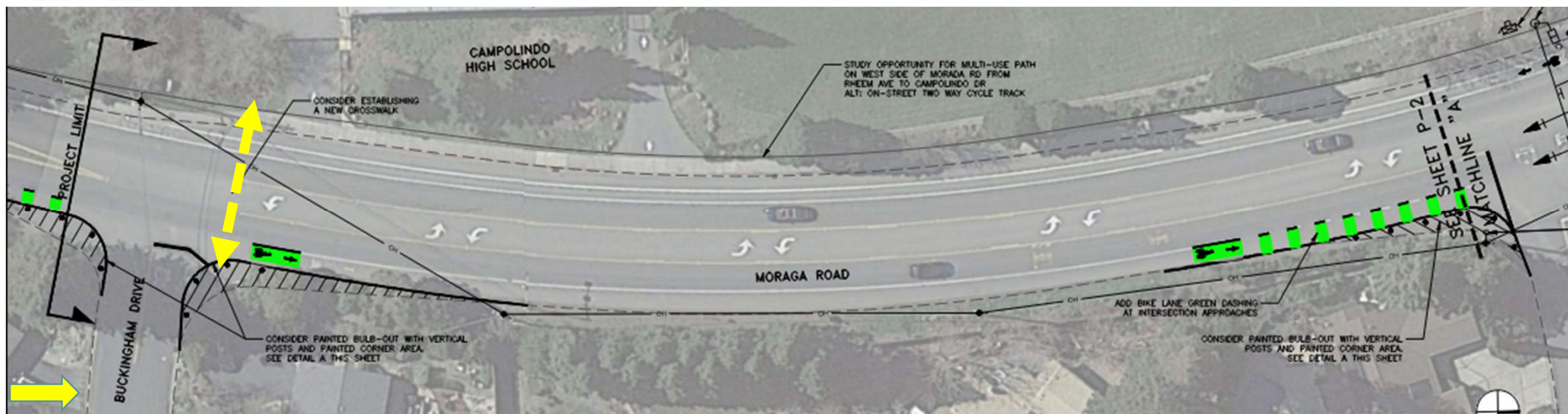
AM Peak Hour



PM Peak Hour

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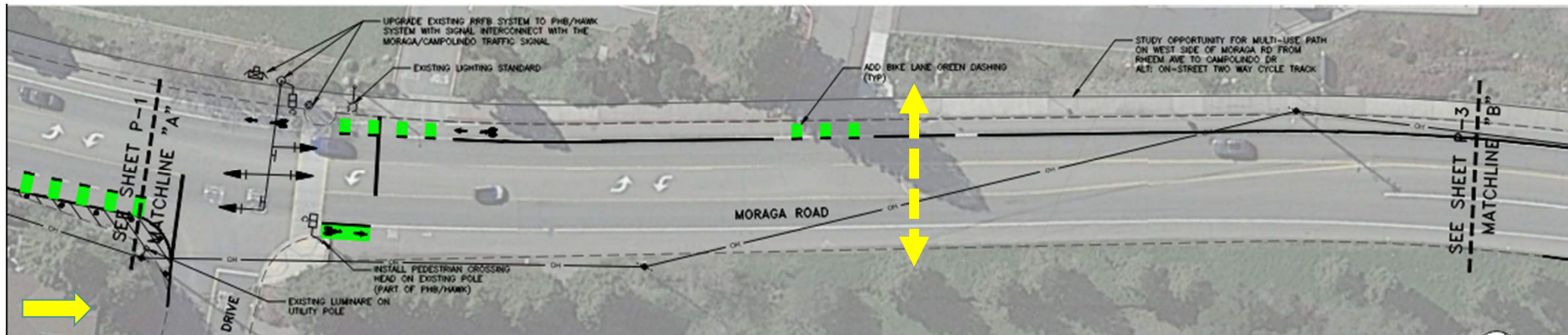
RECOMMENDATIONS, MORAGA RD – BUCKINGHAM TO WOODFORD



- Consider a new crosswalk at Buckingham
- Painted bulb-outs with vertical posts
- Bike lane green dashing



RECOMMENDATIONS, MORAGA RD – WOODFORD TO CAMPO HS



- Alt 1, replace RRFB with PHB/HAWK
- Alt 2, move RRFB to new crosswalk north
- Painted bulb-outs with vertical posts
- Bike lane green dashing

RRFB – Rectangular Rapid Flash Beacon
PHB – Pedestrian Hybrid Beacon
HAWK – High-visibility Activated crosswalk



Image: Google



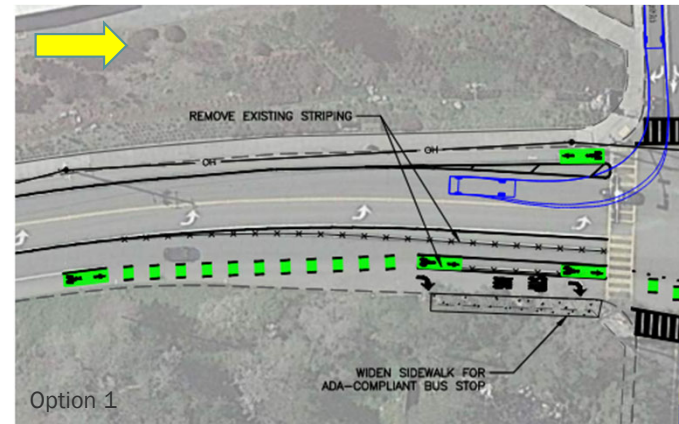
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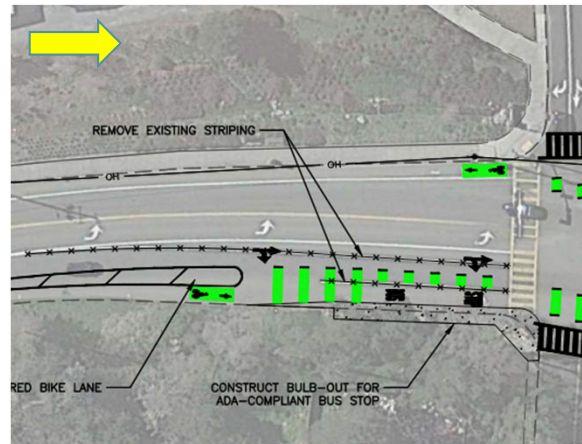
RECOMMENDATIONS, MORAGA RD / CAMPOLINDO DRIVE

Northbound Moraga Road

- Option 1: Nearside “floating” bike lane, retain right turn lane
- Option 2: Nearside remove right turn lane, convert into bus stop / bike lane
- Widen sidewalk or bulb out for bus stop



Option 1



Option 2



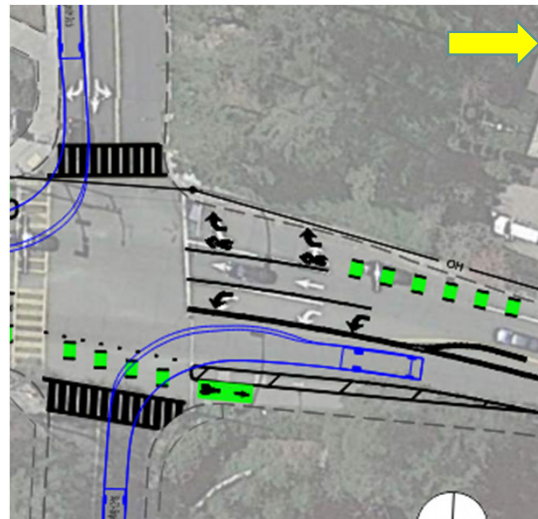
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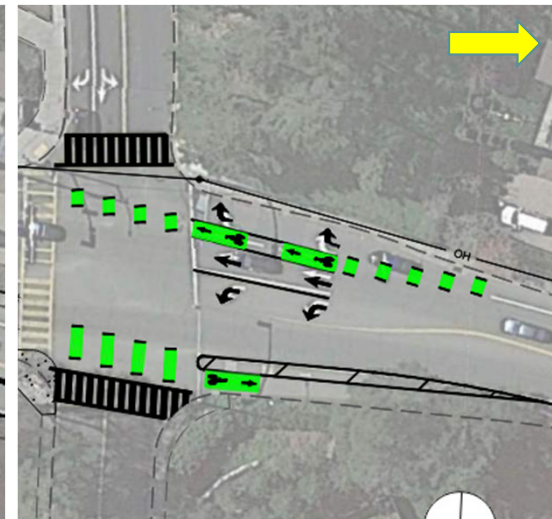
RECOMMENDATIONS, MORAGA RD / CAMPOLINDO DRIVE

Southbound Moraga Road

- Option 1: lengthen left turn pocket and establish shared right turn / bike lane
- Option 2: Add “floating” bike lane and separate right turn pocket
- Plan for Comprehensive system upgrade to traffic signal: signal heads, detection technology, and controller equipment.
- Coordinate with the Moraga Smart Signals project



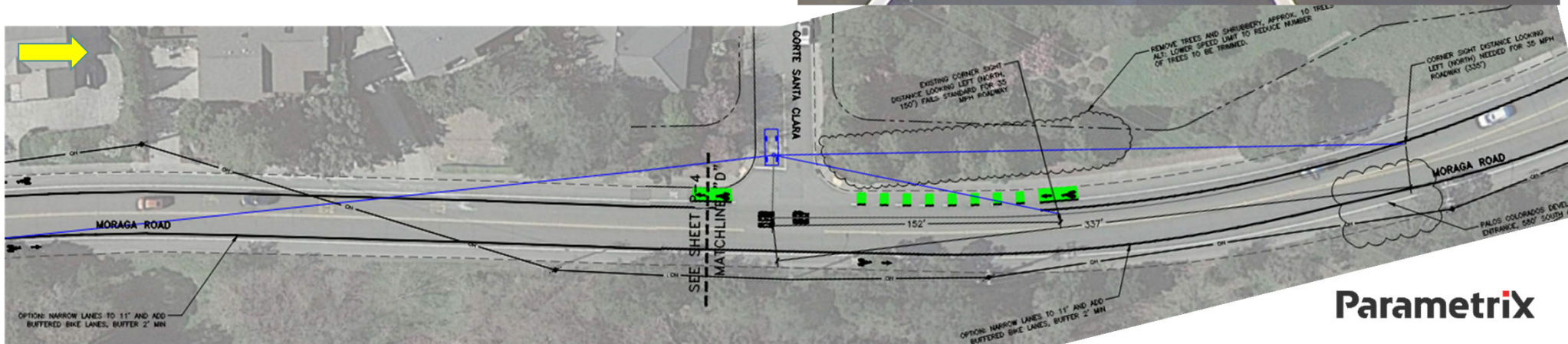
Option 1



Option 2

RECOMMENDATIONS, MORAGA RD / CORTE SANTA CLARA

- Narrow vehicle lanes to 11' by adding a bike lane buffer (white 6" stripe)
- Remove landscaping and consider a retaining wall to improve sight distance; add KEEP CLEAR markings
- Signal and intersection upgrades at Moraga / Campolindo to shorten southbound queues



RECOMMENDATIONS, MORAGA RD / PALOS COLORADOS

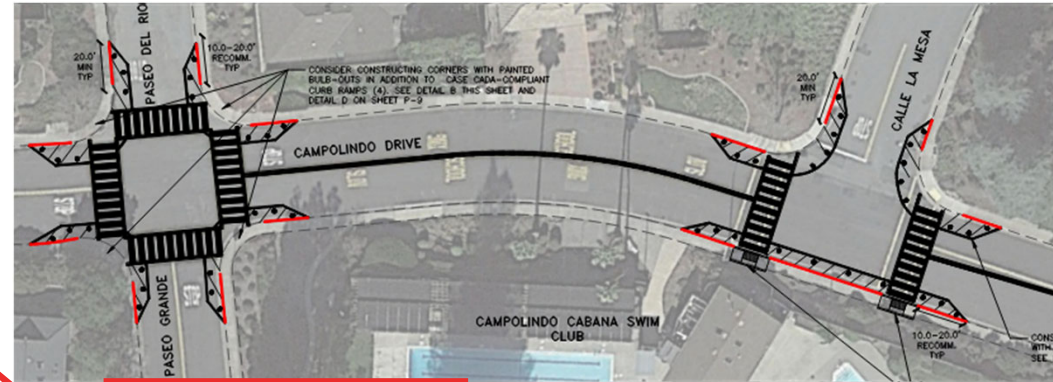
- Provide space for two westbound vehicles at the Moraga Road intersection.
- Mark green bike lane dashing at the intersection.
- Consider further intersection widening to provide turn pockets



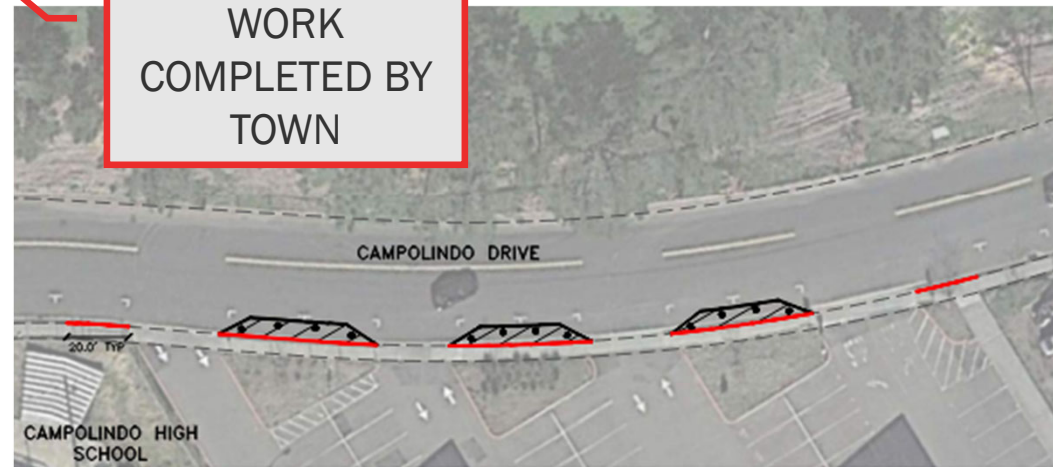
RECOMMENDATIONS, CAMPOLINDO DRIVE

- Construct missing curb ramps and upgrade non-PROWAG/ADA standard curb ramps
- Paint No Parking zones at crosswalks, 20' at approach side (required) and 10-10' at departure side (recommended)
- Consider installing paint & post bulb-outs at corners to reinforce No Parking
- Paint No Parking zones at Campolindo High parking lot driveways

PROWAG – Public Rights of Way Access Guidelines
ADA – Americans with Disabilities Act



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ALT 2 - PARKING REMOVAL AT DRIVEWAYS, PAINTED BULB-OUTS



MID & LONG-TERM RECOMMENDATIONS



- Develop a travel demand management plan with Campolindo High School to encourage carpooling, busing, remote drop-off and pickup, walking, and biking.
- Consider a neighborhood residential parking permit system.
- Study opportunities to reconstruct the existing sidewalk on the west side of Moraga Road from Campolindo Drive to Rheem Boulevard into a two-way multiuse path or separated bikeway.



Terra Linda High School separated bikeway, City of San Rafael
Planning and preliminary design by Parametrix.
Image: Parametrix 2024.

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X COST, NEAR-TERM

#	Improvement	Cost	Oppose	Neutral	Support
N1	Restripe the Moraga Road corridor to add bike lane markings and updated lane markings	\$100-200K with concurrent paving project			
N2	Install painted bulb-outs at Buckingham and Woodford	Construction \$5-7K each (3 total)			
N3	Study whether to install a new marked crosswalk at Buckingham	Study \$5K			
N4	Widen the sidewalk at the Moraga / Campolindo northbound bus stop	Construction \$4-8K for sidewalk widening \$10-12K for bulb-out			
N5	Trim and/or remove trees north of Corte Santa Clara	Construction \$10-20K			
N6	Update crosswalk striping and NO PARKING markings on Campolindo Drive	Construction \$8-12K			
N7	Install updated or new curb ramps at Paseo Del Rio and Calle La Mesa	Design \$4-6K each (6 total) Construction \$8-12K each (6 total)			
N8	Install painted bulb-outs at Paseo Del Rio and Calle La Mesa	Construction \$5-7K each (8 total)			

X COST, MID-TERM

#	Improvement	Cost	Oppose	Neutral	Support
M1A	Option 1: Replace the existing marked crosswalk with RRFB at Moraga / Woodford with a PHB. Install signal interconnect to the Moraga / Campolindo traffic signal.	Design \$40-60K Construction \$200-400K			
M1B	Option 2: Install a new marked crosswalk north of the Campolindo HS PAC entry driveway, new curb ramps, and pedestrian refuge island and relocate the RRFB system.	Design \$50-60K Construction \$50-60K			
M2	Upgrade the existing traffic signal system at Moraga / Campolindo	Design \$50-100K Construction \$300-500K			
M3	Study opportunities to lower the speed limit on Moraga Road from the north Town Limit to Rheem Boulevard to 25 mph.	Study \$8-12K			
M4	Work with Campolindo High School to develop a travel demand management plan that incentives carpooling, biking, walking, and busing as alternatives to single-student drive trips.	Study: \$8-12K			
M5	Consider a neighborhood residential parking permit system in neighborhoods where student parking is undesired. Study opportunities for the paid parking permit to fund capital improvements in the neighborhood.	Study: \$10-15K			



COST, LONG TERM

#	Improvement	Cost	Oppose	Neutral	Support
L1	Study opportunities for reconstructing the existing sidewalk on the west side of Moraga Road into a multiuse path from Campolindo Drive to Rheem Boulevard.	Planning Study - \$200-300K Design and Construction - \$5-10M			



Questions & Answers



Online Survey