

HIGHWAY 1 CONGESTION AND SAFETY IMPROVEMENT PROJECT



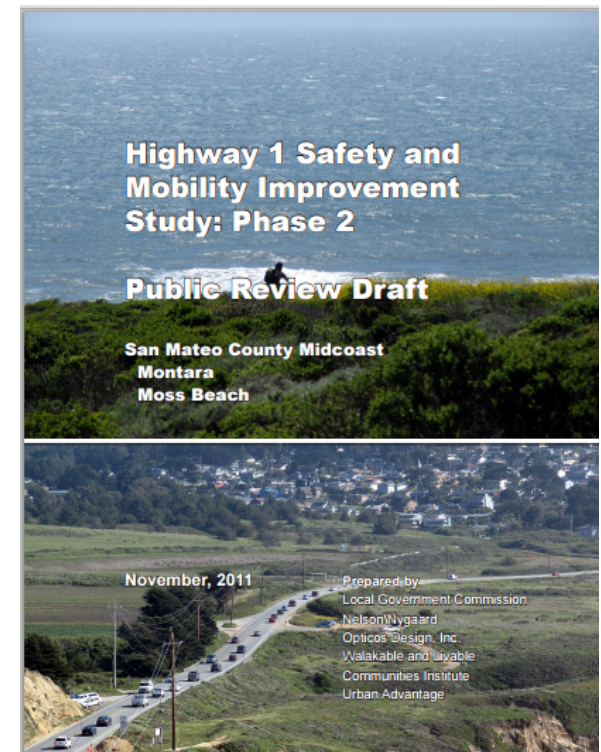


Agenda

- Welcome and Introductions
- Education
- Process
- Project Alternatives
- Next Steps

Highway 1 Safety and Mobility Improvement Study

- Community developed plan that conceptualized improvements for the Highway 1 corridor
- Improvements focused on:
 - Bicycle and pedestrian safety and mobility
 - Congestion and throughput
 - Traffic calming features



Project Objectives

- Provide safe access to the beaches, coastal areas and local communities along Highway 1 between Gray Whale Cove and Mirada Road.
- Alleviate traffic congestion along Highway 1.
- Improve vehicular safety along the Highway 1 corridor.
- Improve pedestrian and bicycle crossings along Highway 1 for residents and visitors.

Project Scope

- Feasibility of early implementation
Mobility and Safety Improvements:
 - At-Grade Pedestrian Crossings
 - Raised Medians
 - Left Turn Pockets and Acceleration Lanes

Process

- July 18, 2014 Public Workshop
 - Feedback from Community: More raised medians, no flashing lights, maintain semi-rural character
- July 31, 2014 Public Workshop
 - Feedback from Community: Shorter term projects preferred, maintain semi-rural character, minimal impact
- March 11, 2015 Public Workshop
 - Feedback from Community: Shorter raised medians, pedestrian refuges, no flashing lights unless no other option is feasible, maintain semi-rural character

Accident Data (2009-2012)

Collision Type	No.	%
Head-on	12	7%
Sideswipe	18	11%
Rear-end	73	43%
Broadside	28	17%
Hit object	19	11%
Auto-pedestrian	7	4%
Other	11	7%
Total	168	100%

Raised Medians

- Benefits

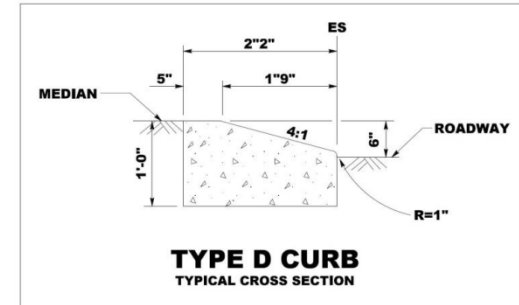
- Notify drivers of a change in context
- Encourages reduced speeds
 - 42% of accidents in the project area between 2009 and 2012 were caused by speeding
- Provides refuge areas for crossing pedestrians and bicyclists
- Physically restricts or channelizes turning movements
 - 16% of accidents in the project area between 2009 and 2012 were caused by improper turning maneuvers
- *Reduction in traffic accidents by as much as 39%



Raised Medians

- Standards

- Inside shoulders must be 2 feet wide
- Outside shoulders must be 8 feet wide
- Medians must be well lit and marked
- Street lights every 250 feet to enhance visibility of the raised median at night
- Minimum of 6 foot width required if used as pedestrian refuge
- Due to speed limit in the project area, Type D curbs required



Street Lights

- Benefits
 - Increases sight distance
 - Improves visibility of obstacles in the roadway
 - *Nighttime fatality rates are **three times** higher than daytime fatality rates
 - **Mean effect of roadway lighting:
 - 60% reduction in fatal crashes
 - 45% reduction in injury crashes involving pedestrians
 - 35% reduction in injury crashes at rural intersection

*FHWA Lighting Handbook, 2012

** Ole Wanvik, 2009

Pedestrian Crossings

- Pedestrian refuge areas at pedestrian crossings have demonstrated a 46% reduction in pedestrian crashes
 - 7 auto-pedestrian accidents in the project area occurred between 2009 and 2012
- Currently no designated pedestrian crossings in the project area between Capistrano Street and Devil's Slide





Overview of Draft Preliminary Planning Study

- Addresses congestion and pedestrian and bicyclist safety along a seven mile stretch of Highway 1 from Gray Whale Cove south to Mirada Road in Miramar.



Overview of Draft Preliminary Planning Study

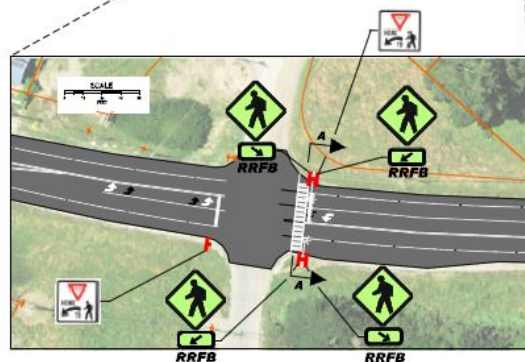
- Focused on five project areas:
 - Gray Whale Cove
 - 1st through 9th Streets in Montara
 - 16th Street in Montara
 - S. Etheldore Street to Vallemar Street in Moss Beach
 - Mirada Road in Miramar

Overview of Draft Preliminary Planning Study

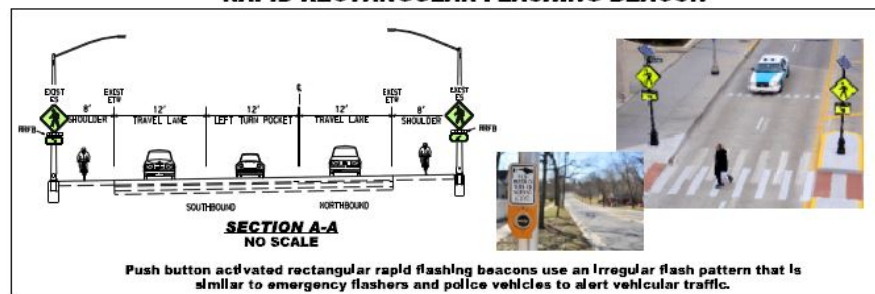
- Improvements at each of the locations could be implemented independently of one another as separate or combined projects depending on feasibility, public acceptance, and available funds.
- Two alternatives were evaluated for each location, which represent the minimum and maximum cost and impacts. Alternative 3 was developed for Montara and Moss Beach after the 3rd public meeting to address the public's concerns and helped to narrow down the range of alternatives to address a middle ground of proposed improvements.
- The study screened each of the alternatives for environmental impacts, impacts to utility facilities, capital costs, and anticipated implementation timeframe.

Mirada Road – Alternative 1

DESIGNATED PEDESTRIAN CROSSING MIRADA ROAD - ALTERNATIVE 1



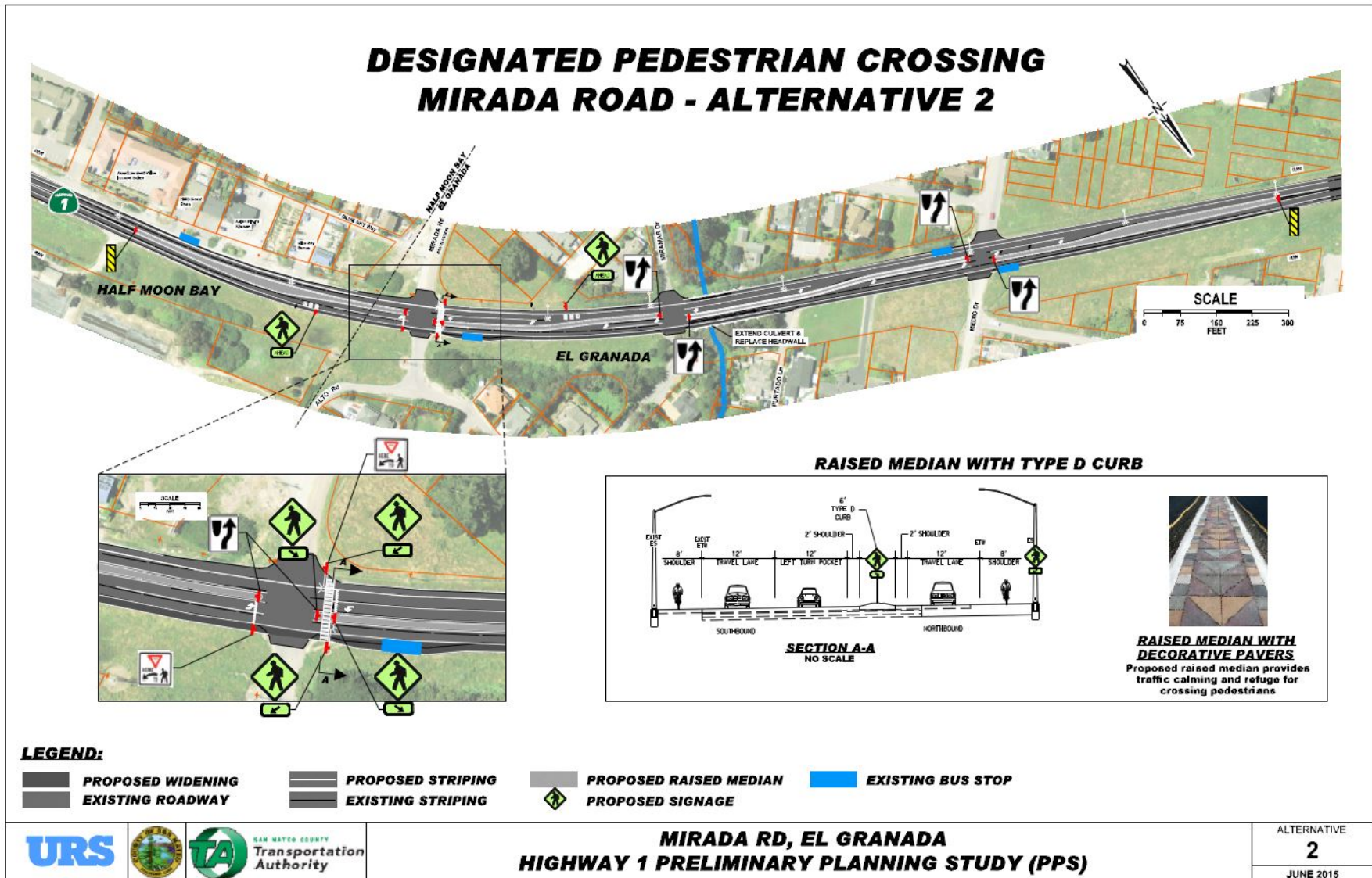
RAPID RECTANGULAR FLASHING BEACON



LEGEND:

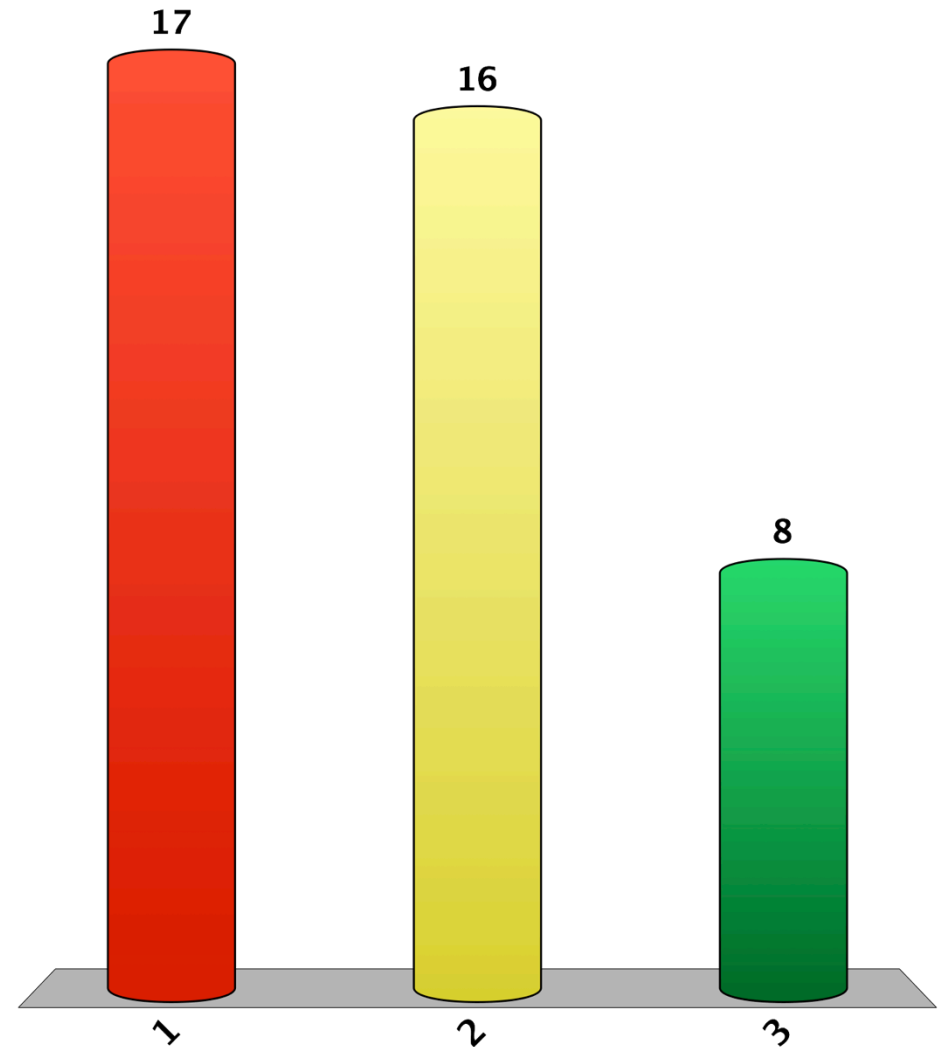
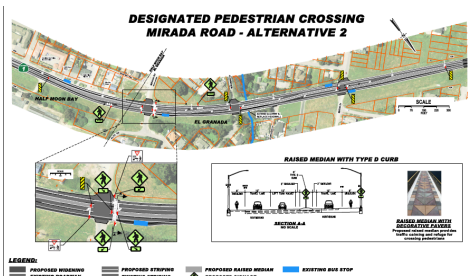
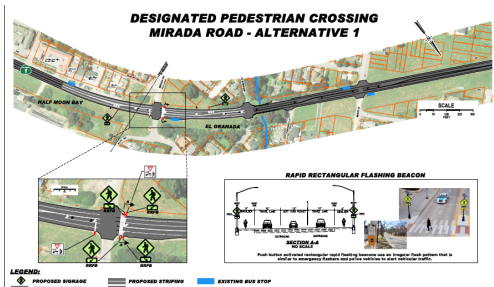
- PROPOSED SIGNAGE**
- PROPOSED STRIPING**
- EXISTING ROADWAY**
- EXISTING STRIPING**
- EXISTING BUS STOP**

Mirada Road – Alternative 2



Mirada Road

1. Alternative 1
2. Alternative 2
3. None



Cypress & Etheldore – Alternative 1

DESIGNATED PEDESTRIAN CROSSING / RAISED MEDIAN CYPRESS AVE - ALTERNATIVE 1

HIGH VISIBILITY PAINTED MEDIAN

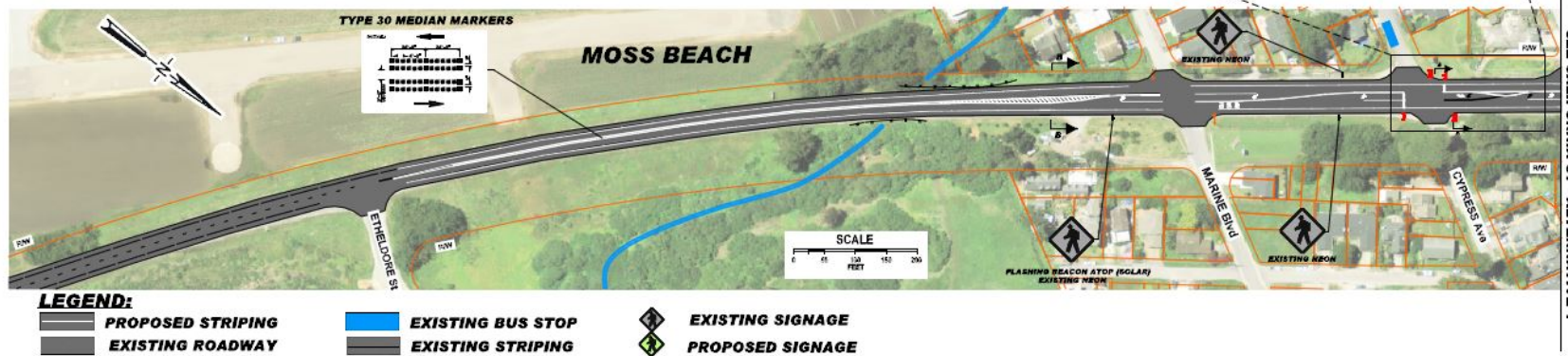
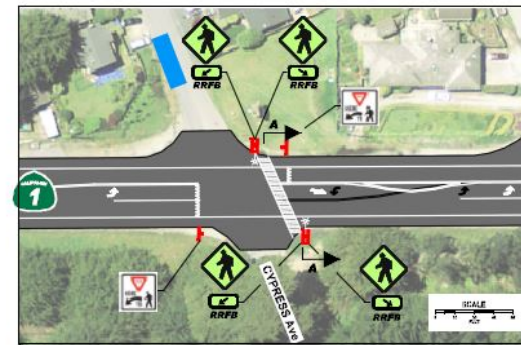
SECTION B-B
NO SCALE

Painting existing median helps to provide traffic calming

RECTANGULAR RAPID FLASHING BEACON

SECTION A-A
NO SCALE

Push button activated rectangular rapid flashing beacons use an irregular flash pattern that is similar to emergency flashers and police vehicles to alert vehicular traffic.



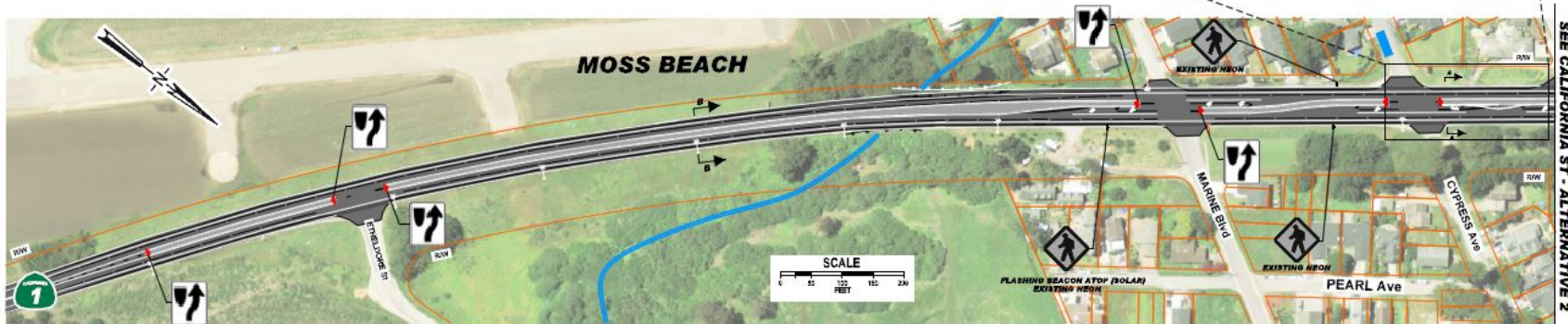
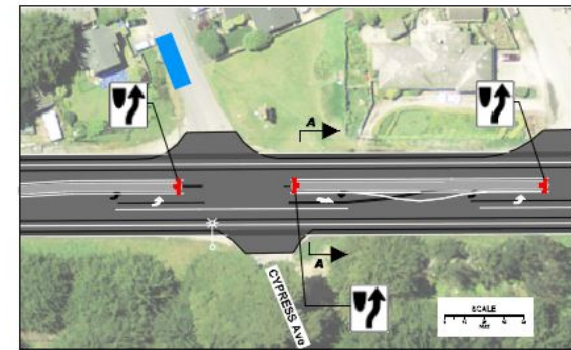
**ETHELDORE ST - CYPRESS AVE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE
1
JUNE 2016

Cypress & Ethelodore – Alternative 2

DESIGNATED PEDESTRIAN CROSSING | RAISED MEDIAN CYPRESS AVE - ALTERNATIVE 2

RAISED MEDIAN WITH TYPE D CURB



LEGEND:

- PROPOSED WIDENING
- EXISTING ROADWAY
- PROPOSED STRIPING
- EXISTING STRIPING
- PROPOSED RAISED MEDIAN
- PROPOSED SIGNAGE
- EXISTING BUS STOP
- EXISTING SIGNAGE



**ETHELDORE ST - CYPRESS AVE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE

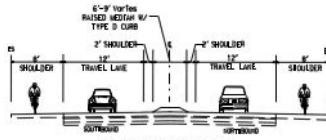
2

JUNE 2015

Cypress & Ethelodore – Alternative 3

RAISED MEDIAN/ACCELERATION LANE CYPRESS AVE - ALTERNATIVE 3

RAISED MEDIAN



TYPICAL SECTION
NO SCALE



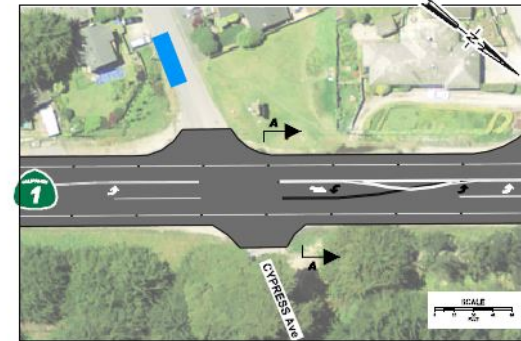
RAISED MEDIAN WITH
DECORATIVE PAVERS

Proposed raised median provides traffic calming.

ACCELERATION LANE



SECTION A-A
NO SCALE



LEGEND:

- PROPOSED WIDENING
- EXISTING ROADWAY
- PROPOSED STRIPING
- EXISTING STRIPING
- PROPOSED RAISED MEDIAN
- PROPOSED SIGNAGE
- EXISTING BUS STOP
- EXISTING SIGNAGE



**ETHELDORE ST - CYPRESS AVE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE

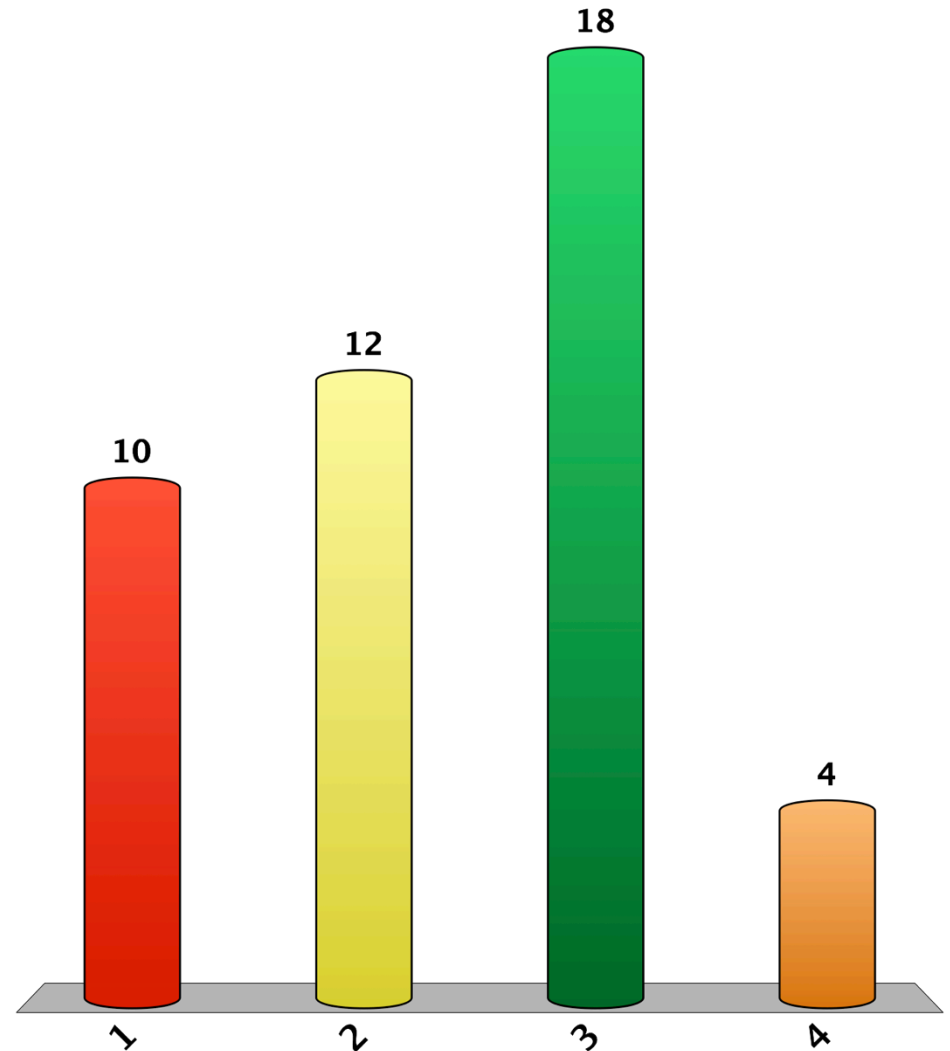
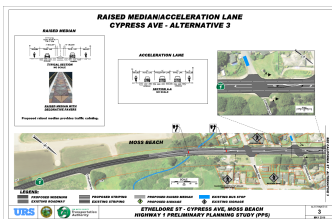
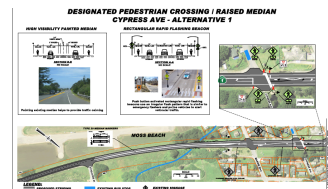
3

JUNE 2015

SEE CALIFORNIA ST - ALTERNATIVE 3

Cypress & Etheldore

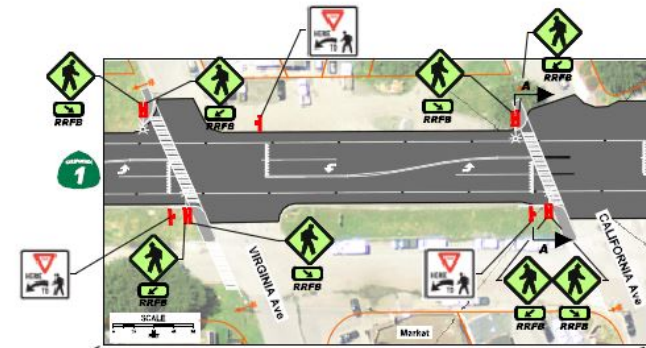
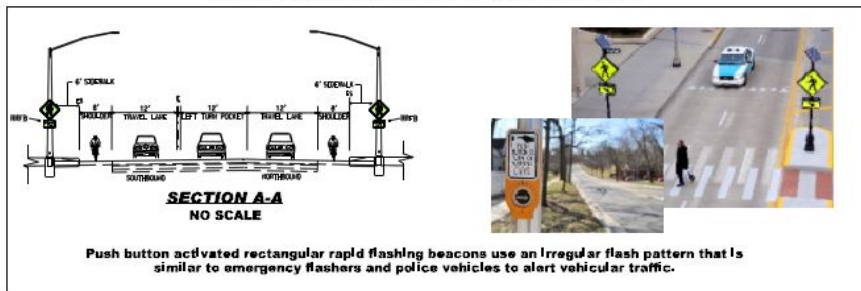
1. Alternative 1
2. Alternative 2
3. Alternative 3
4. None



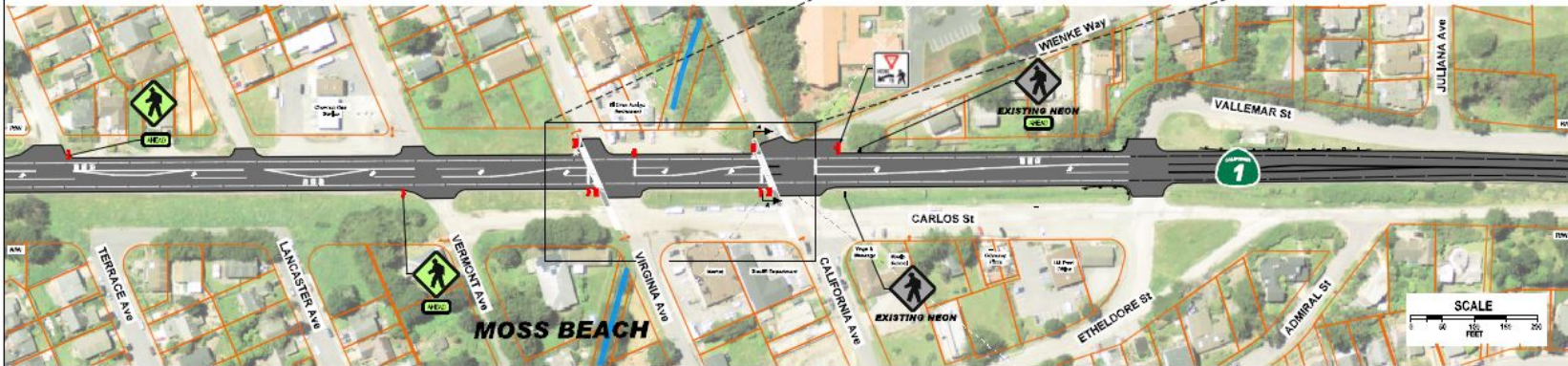
California Ave – Alternative 1A

DESIGNATED PEDESTRIAN CROSSINGS VIRGINIA & CALIFORNIA AVE - ALTERNATIVE 1A

RECTANGULAR RAPID FLASH BEACON



SEE CYPRESS AVE - ALTERNATIVE 1



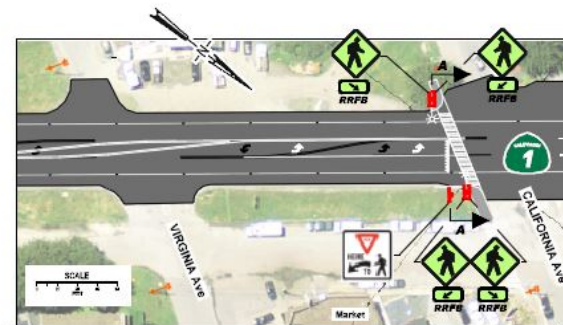
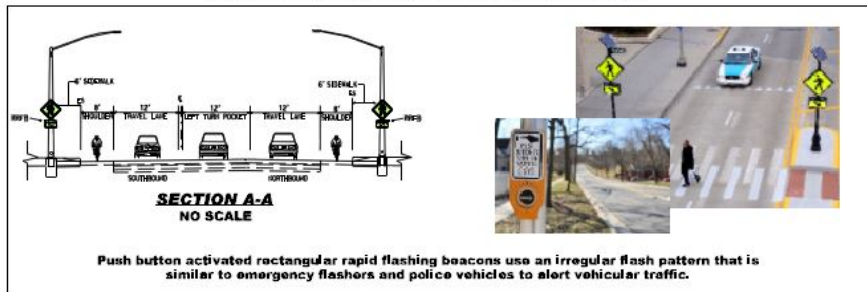
LEGEND:

- EXISTING STRIPING
- PROPOSED STRIPING
- EXISTING ROADWAY
- PROPOSED SIGNAGE
- EXISTING SIGNAGE

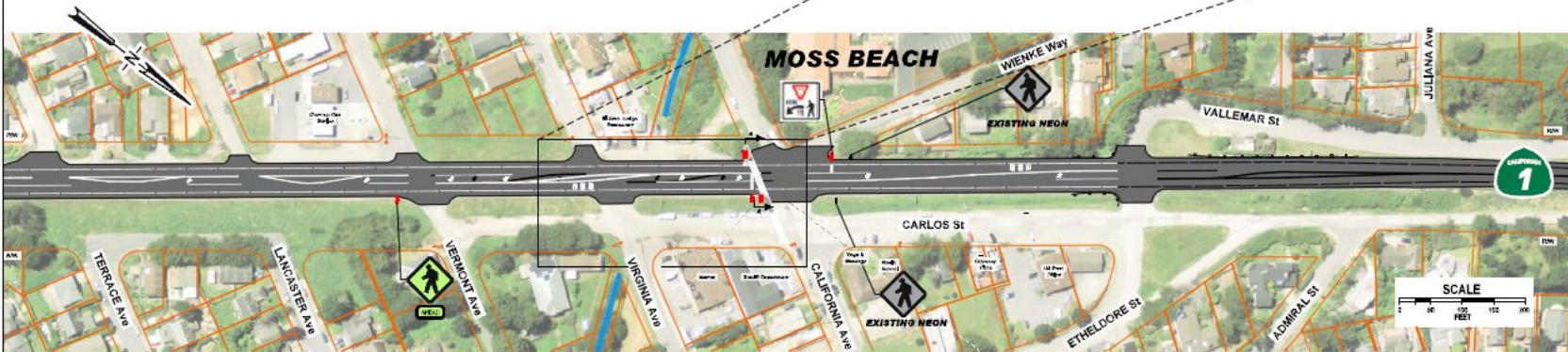
California Ave – Alternative 1B

DESIGNATED PEDESTRIAN CROSSINGS VIRGINIA & CALIFORNIA AVE - ALTERNATIVE 1B

RECTANGULAR RAPID FLASH BEACON



SEE CYPRESS AVE - ALTERNATIVE 1



LEGEND:

- EXISTING STRIPING
- PROPOSED STRIPING
- EXISTING ROADWAY
- PROPOSED SIGNAGE
- EXISTING SIGNAGE



**CALIFORNIA AVENUE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE

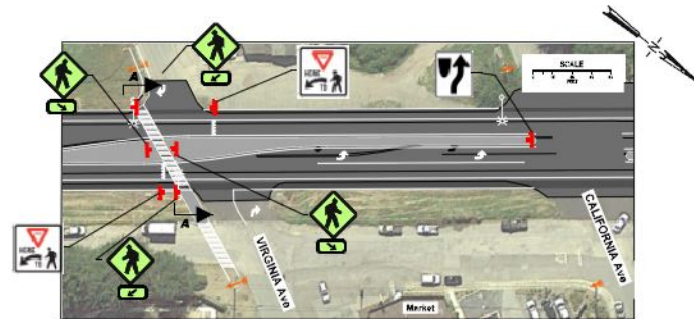
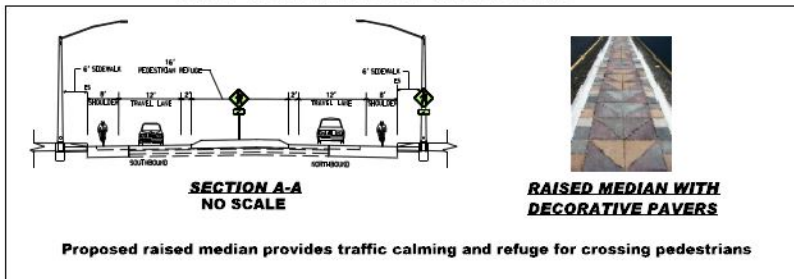
1B

JUNE 2015

California Ave – Alternative 2

DESIGNATED PEDESTRIAN CROSSINGS VIRGINIA & CALIFORNIA AVE - ALTERNATIVE 2

RAISED MEDIAN WITH TYPE D CURB



SEE CYPRESS AVE - ALTERNATIVE 2



LEGEND:

PROPOSED WIDENING
EXISTING ROADWAY

PROPOSED STRIPING
EXISTING STRIPING

PROPOSED RAISED MEDIAN
PROPOSED SIGNAGE

EXISTING SIGNAGE



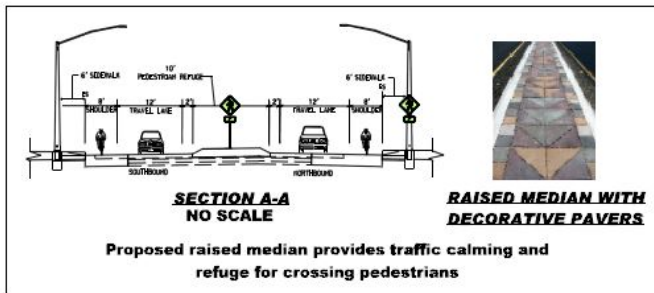
**CALIFORNIA AVENUE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE
2
JUNE 2015

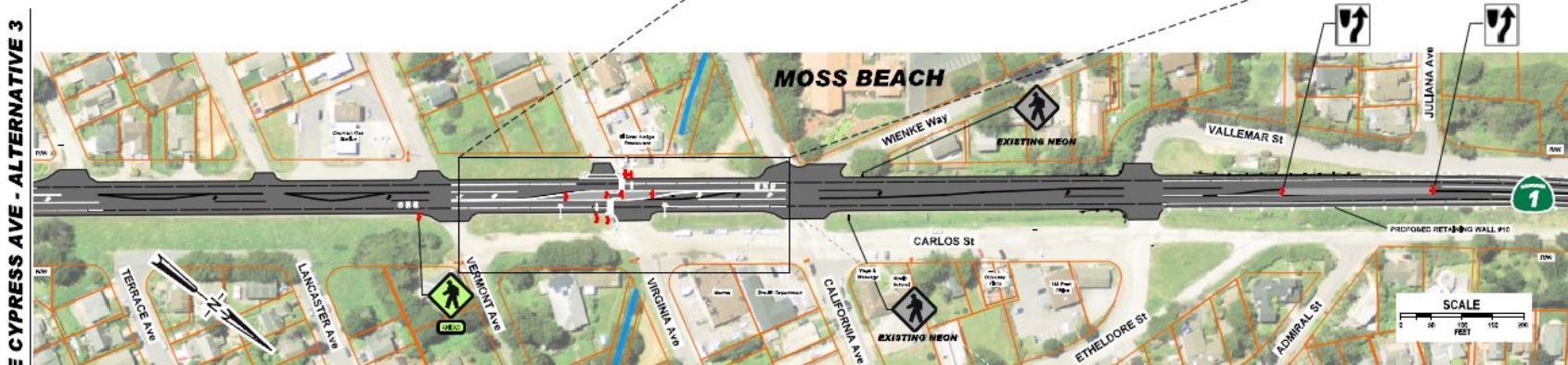
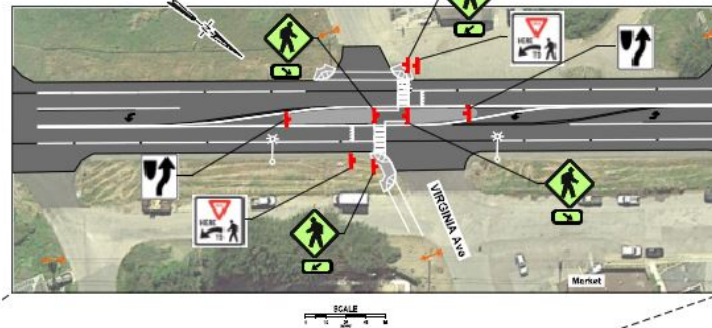
California Ave – Alternative 3

DESIGNATED PEDESTRIAN CROSSING / RAISED MEDIAN VIRGINIA & CALIFORNIA AVE - ALTERNATIVE 3

RAISED MEDIAN WITH TYPE D CURB



2 STAGE ALTERNATIVE



LEGEND:

- PROPOSED WIDENING
- EXISTING ROADWAY
- PROPOSED STRIPING
- EXISTING STRIPING
- PROPOSED RAISED MEDIAN
- PROPOSED SIGNAGE
- EXISTING SIGNAGE

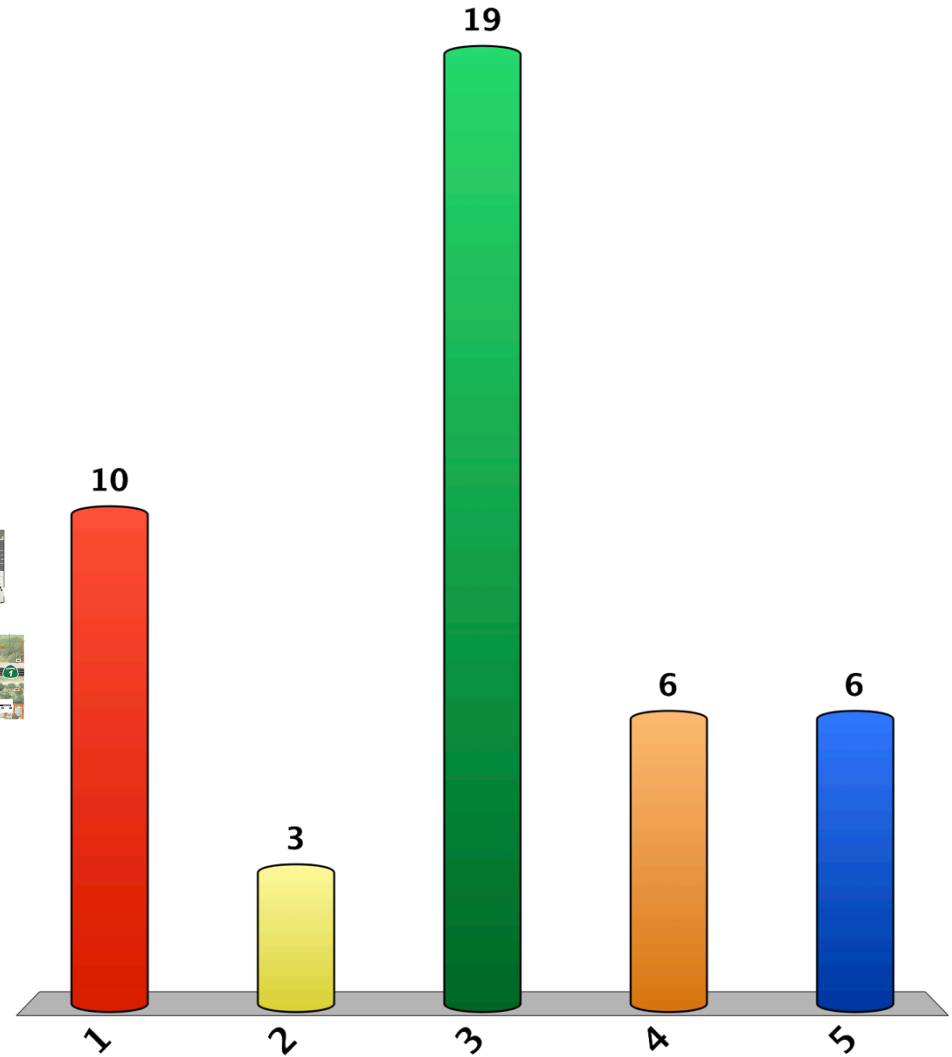
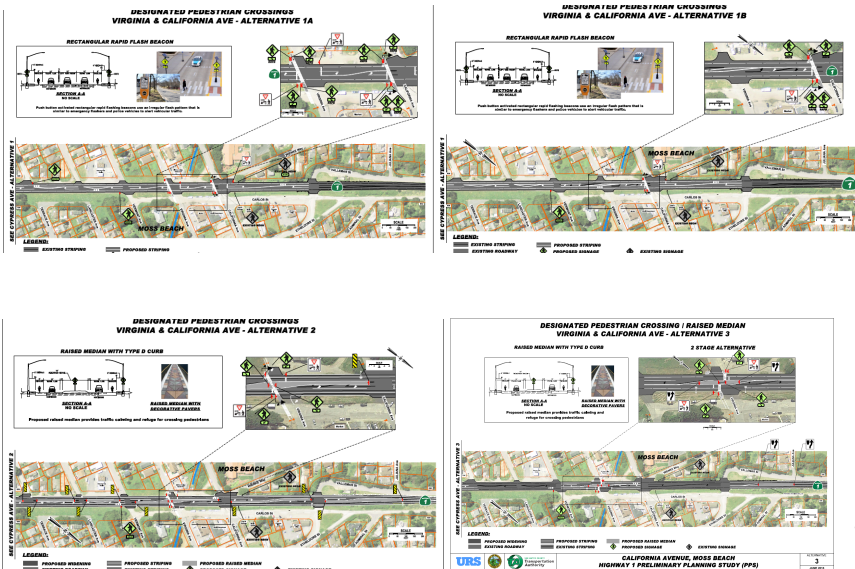


**CALIFORNIA AVENUE, MOSS BEACH
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE
3
JUNE 2015

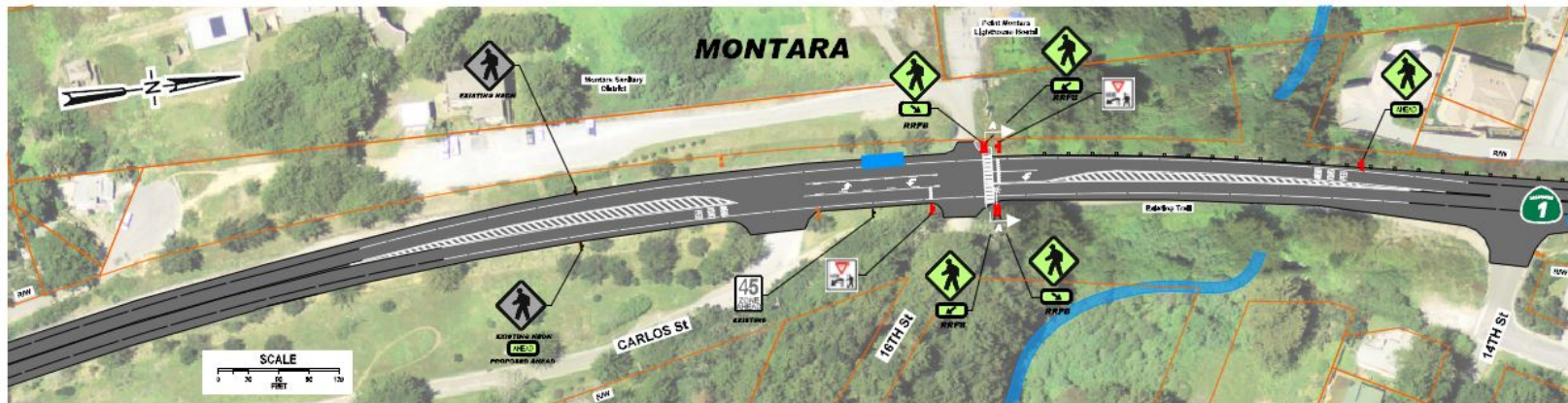
California Ave

1. Alternative 1A
2. Alternative 1B
3. Alternative 2
4. Alternative 3
5. None



16th Street – Alternative 1

DESIGNATED PEDESTRIAN CROSSING 16TH STREET - ALTERNATIVE 1



RECTANGULAR RAPID FLASHING BEACON WITH PAINTED MEDIAN

SECTION A-A
NO SCALE

HIGH VISIBILITY PAINTED MEDIAN
Painted median helps to provide traffic calming.

RECTANGULAR RAPID FLASHING BEACON
Push button activated rectangular rapid flashing beacons use an irregular flash pattern that is similar to emergency flashers and police vehicles to alert vehicular traffic.

LEGEND:

- | | | |
|-------------------|-------------------|------------------|
| EXISTING STRIPING | PROPOSED STRIPING | EXISTING SIGNAGE |
| EXISTING ROADWAY | EXISTING BUS STOP | PROPOSED SIGNAGE |



**16TH STREET, MONTARA
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

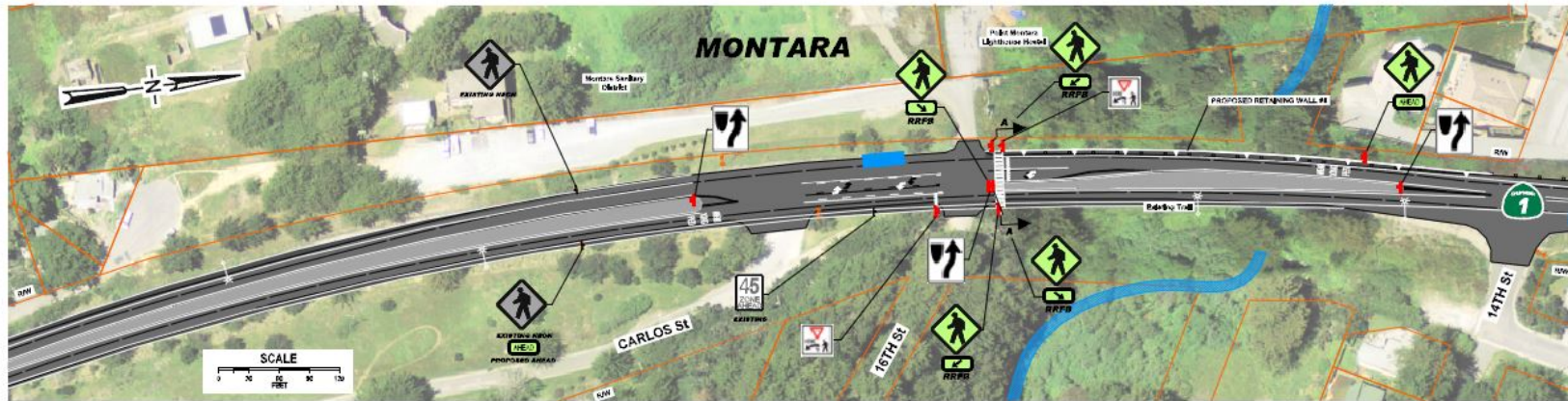
ALTERNATIVE

1

JUNE 2015

16th Street – Alternative 2

DESIGNATED PEDESTRIAN CROSSING 16TH STREET - ALTERNATIVE 2



RAISED MEDIAN WITH TYPE D CURB AND RAPID RECTANGULAR FLASHING BEACONS

SECTION A-A
NO SCALE

RAISED MEDIAN WITH DECORATIVE PAVERS

Proposed raised median provides traffic calming and refuge for crossing pedestrians

RAPID RECTANGULAR FLASHING BEACONS

Push button activated rectangular rapid flashing beacons use an irregular flash pattern that is similar to emergency flashers and police vehicles to alert vehicular traffic.

LEGEND:

- PROPOSED WIDENING
- EXISTING ROADWAY
- PROPOSED STRIPING
- EXISTING STRIPING
- PROPOSED RAISED MEDIAN
- PROPOSED SIGNAGE
- EXISTING BUS STOP
- EXISTING SIGNAGE

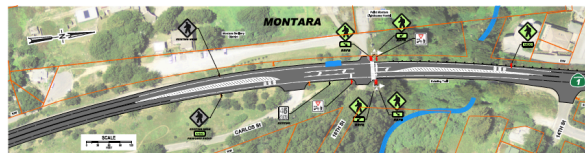


**16TH STREET, MONTARA
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

ALTERNATIVE
2
JUNE 2015

16th Street

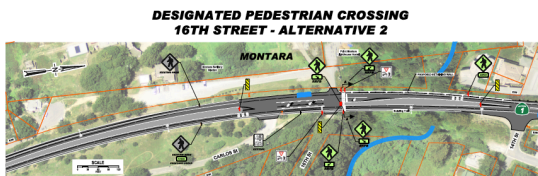
1. Alternative 1
2. Alternative 2
3. None



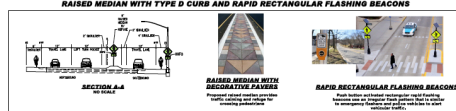
RECTANGULAR RAPID FLASHING BEACON WITH PAINTED MEDIAN



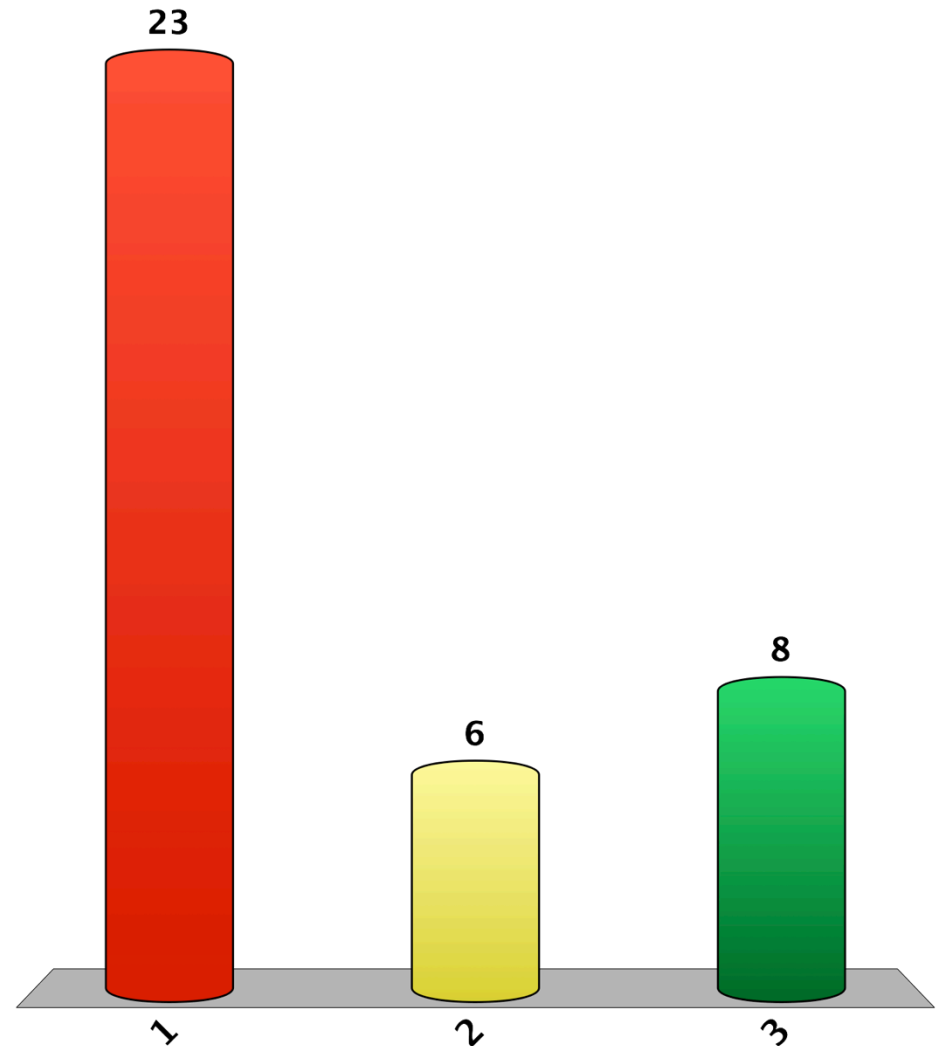
LEGEND:
 EXISTING STRIPING PROPOSED STRIPING EXISTING SIGNAGE
 EXISTING ROADWAY EXISTING BUS STOP PROPOSED SIGNAGE



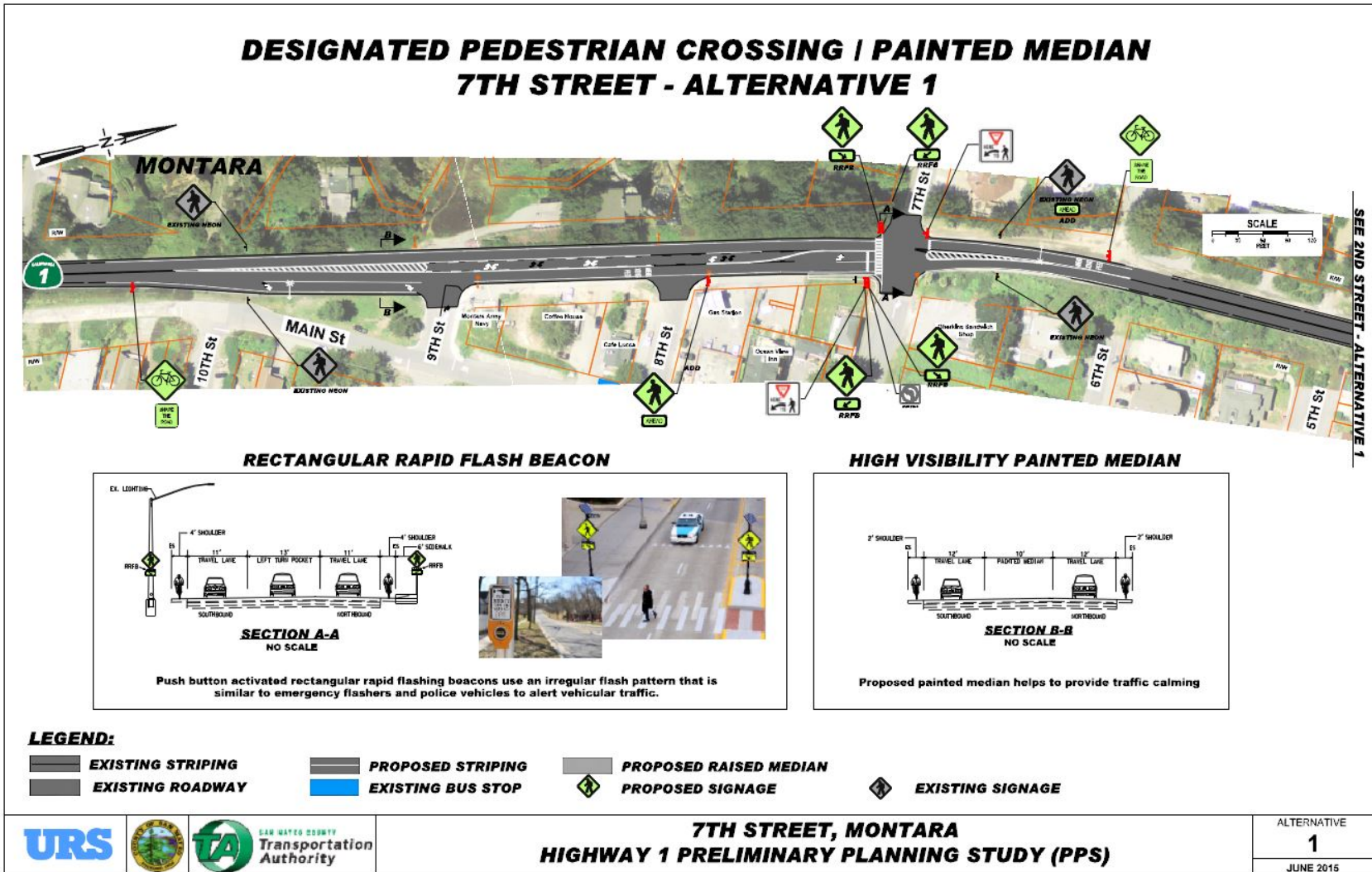
DESIGNATED PEDESTRIAN CROSSING
16TH STREET - ALTERNATIVE 2



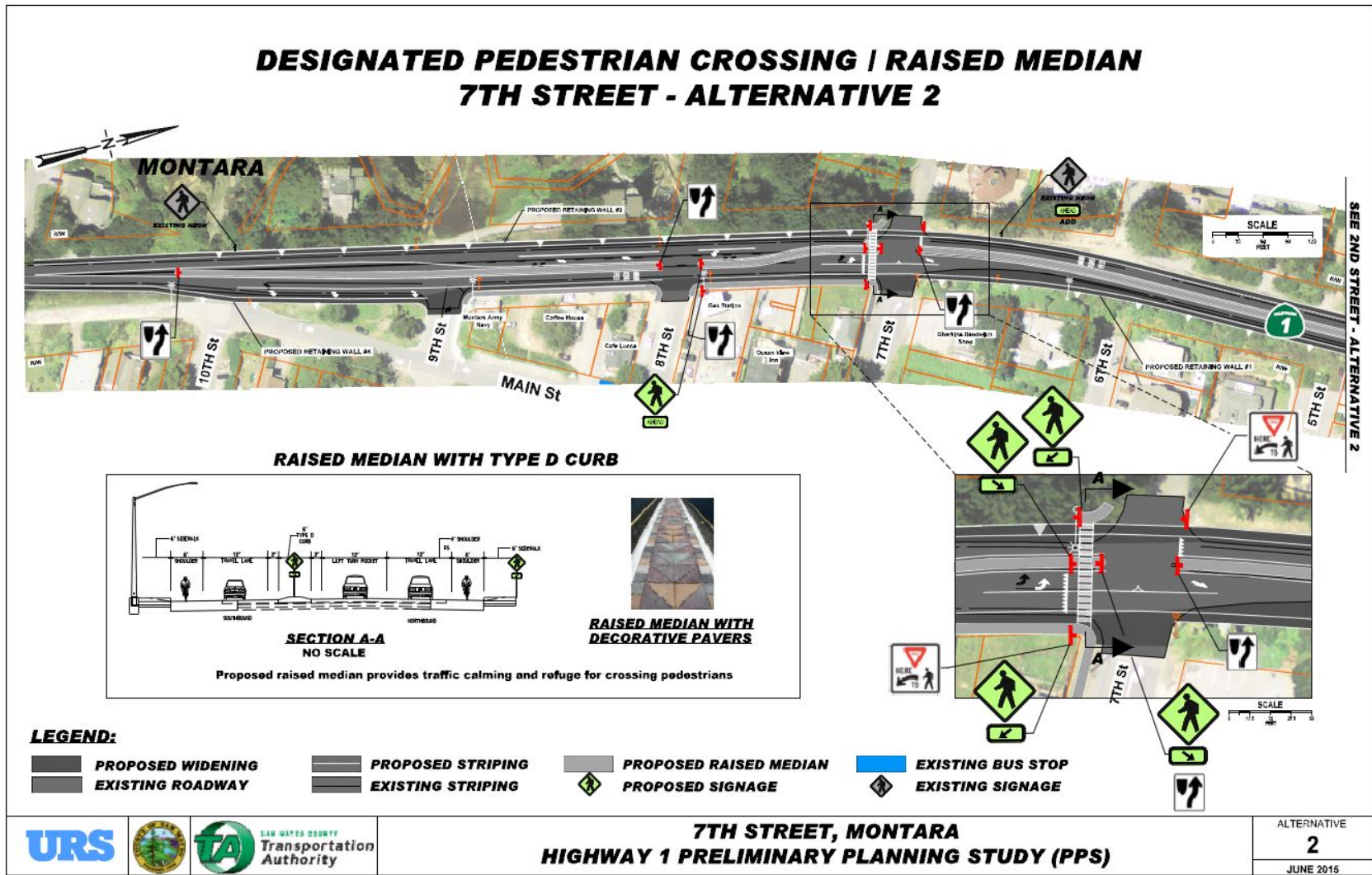
LEGEND:
 PROPOSED ROADWAY PROPOSED STRIPING PROPOSED RAISED MEDIAN EXISTING BUS STOP
 EXISTING ROADWAY EXISTING STRIPING PROPOSED SIGNAGE EXISTING SIGNAGE



7th Street – Alternative 1

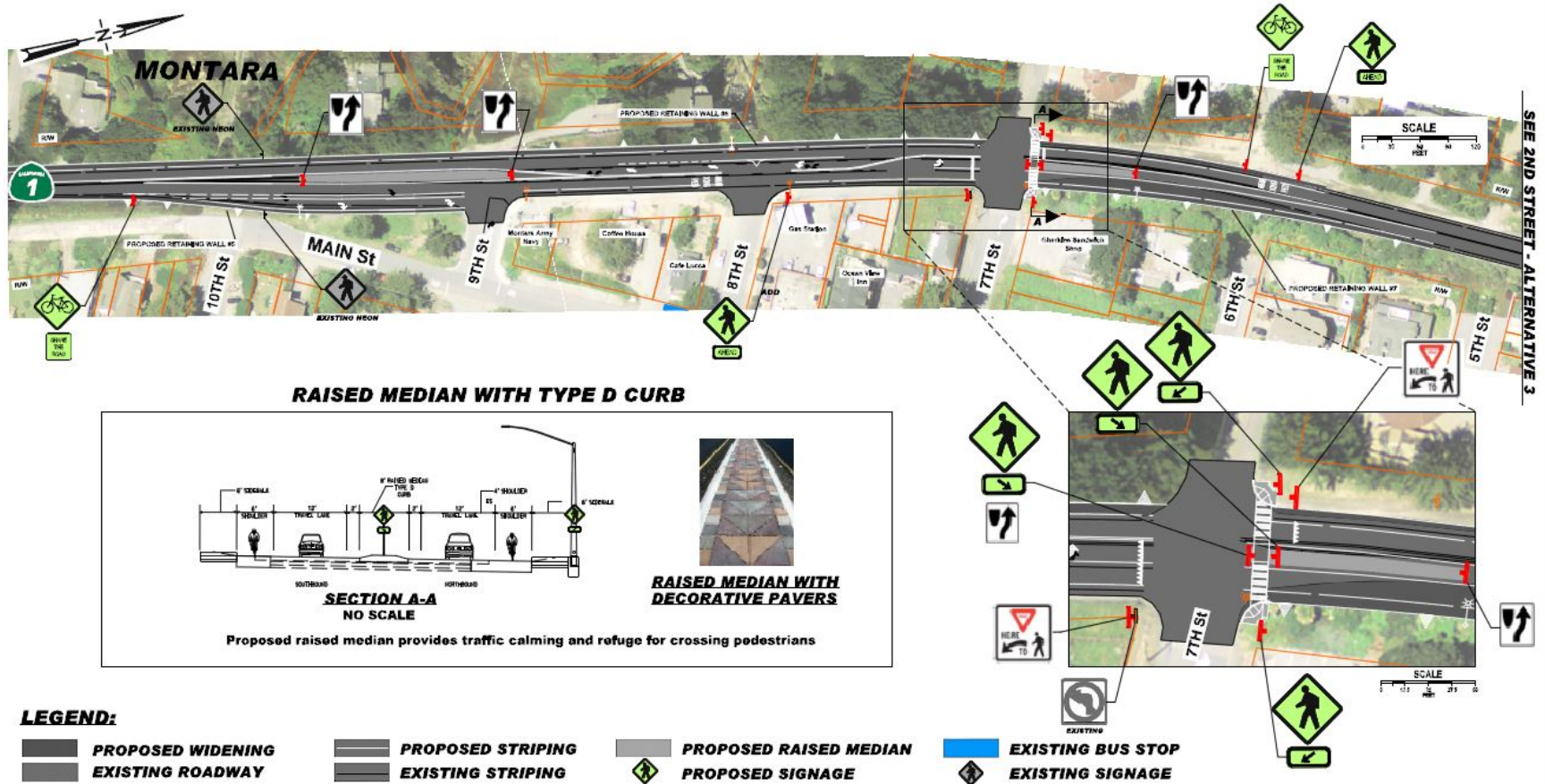


7th Street – Alternative 2



7th Street – Alternative 3

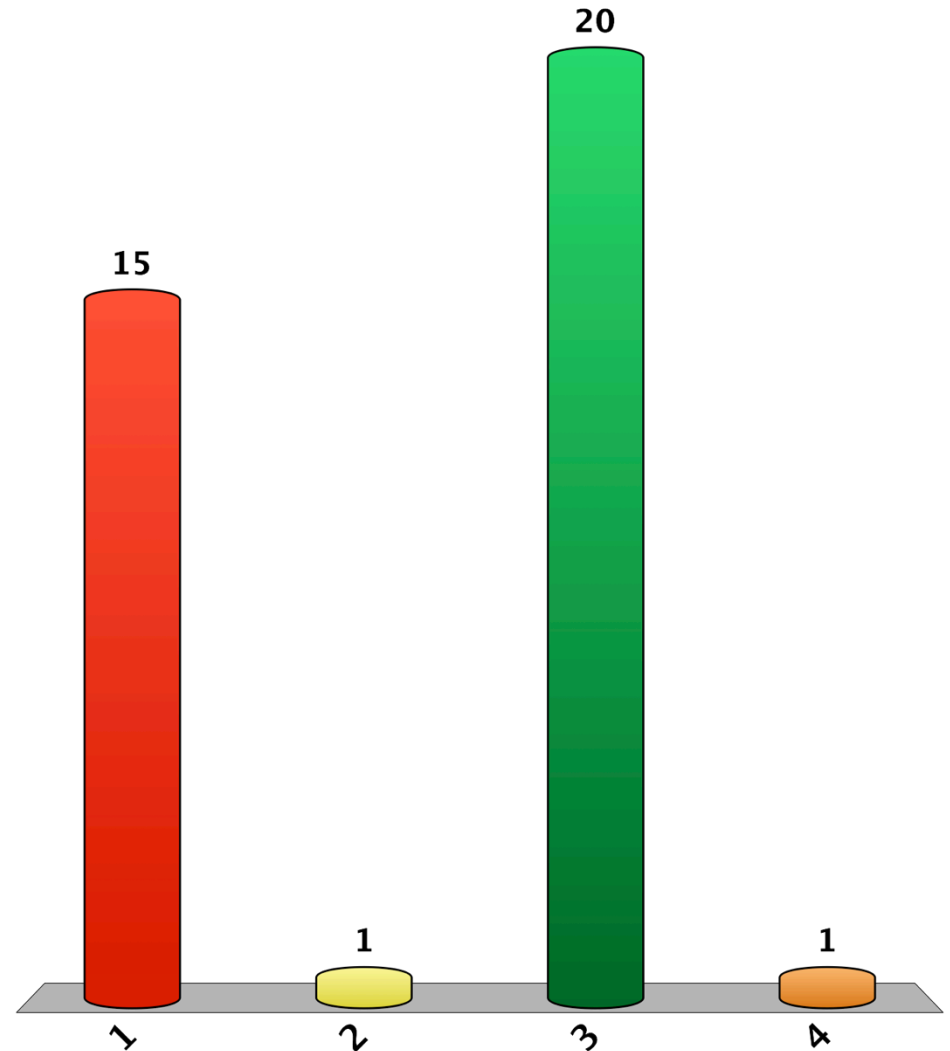
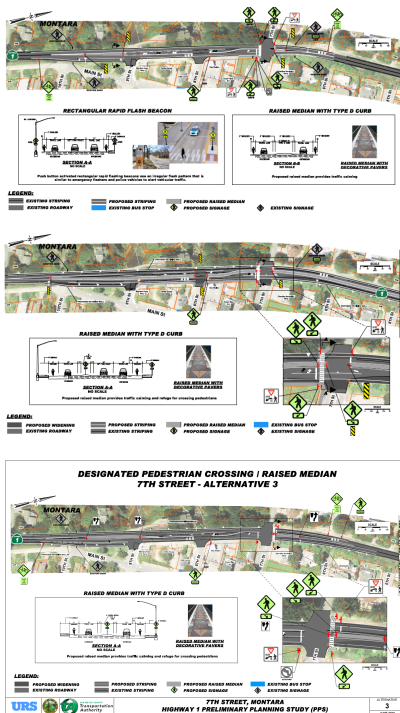
DESIGNATED PEDESTRIAN CROSSING | RAISED MEDIAN 7TH STREET - ALTERNATIVE 3



SEE 2ND STREET - ALTERNATIVE 3

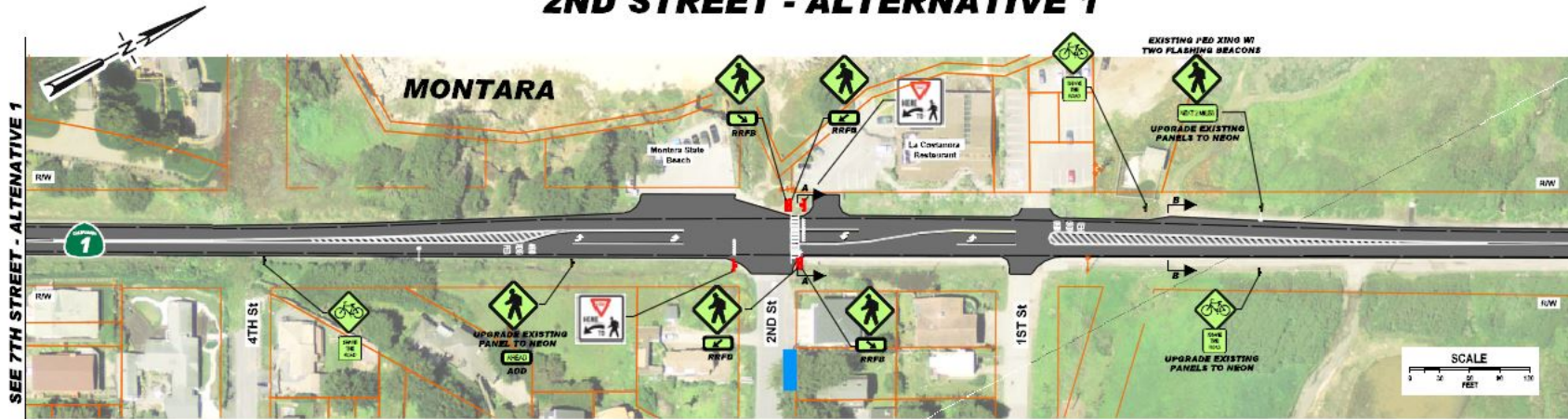
7th Street

1. Alternative 1
2. Alternative 2
3. Alternative 3
4. None

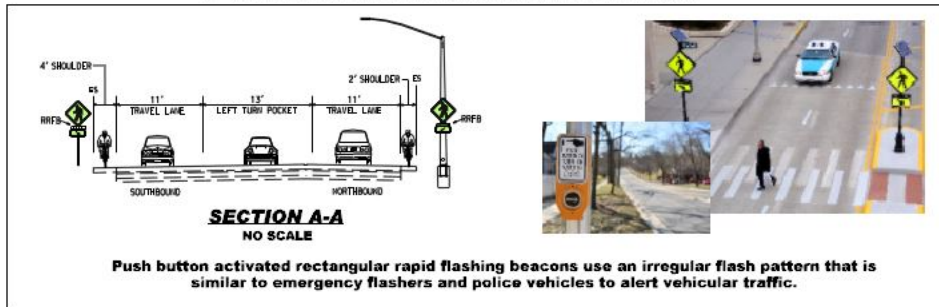


2nd Street- Alternative 1

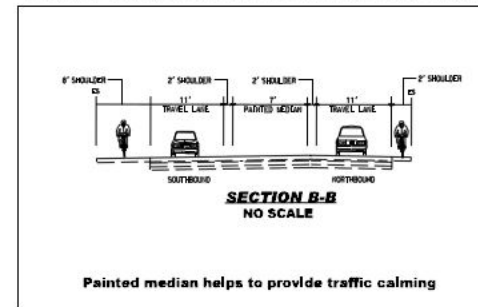
DESIGNATED PEDESTRIAN CROSSING | PAINTED MEDIAN 2ND STREET - ALTERNATIVE 1



RECTANGULAR RAPID FLASH BEACON



HIGH VISIBILITY PAINTED MEDIAN

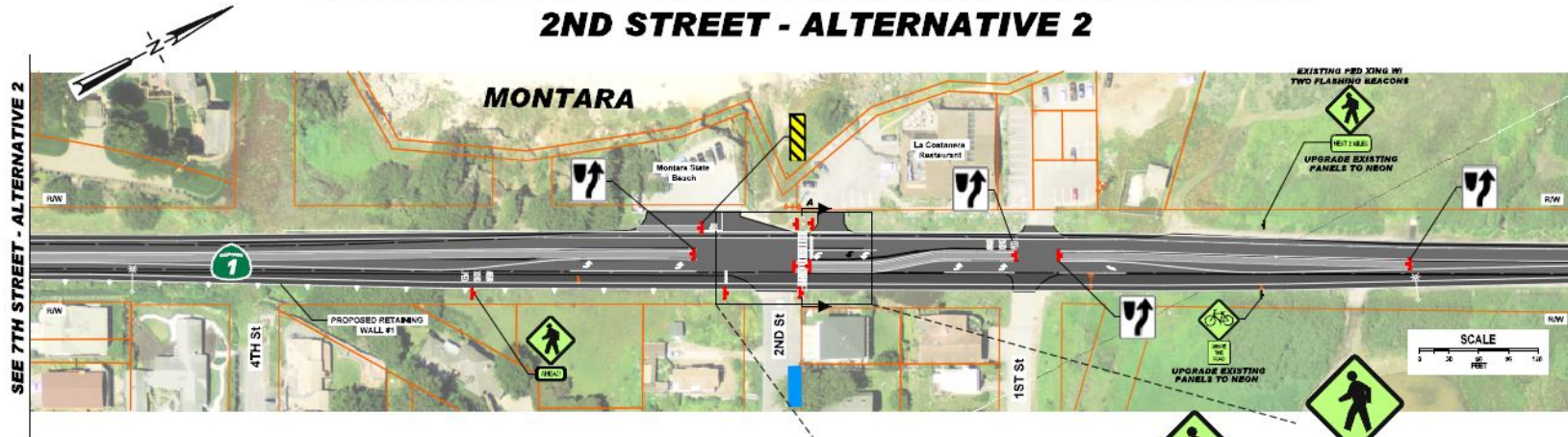


LEGEND:

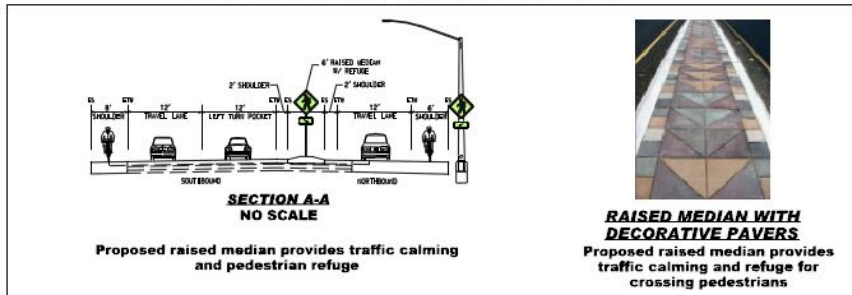
- PROPOSED STRIPING**
- PROPOSED RAISED MEDIAN**
- EXISTING ROADWAY**
- EXISTING STRIPING**
- EXISTING BUS STOP**
- PROPOSED SIGNAGE**

2nd Street – Alternative 2

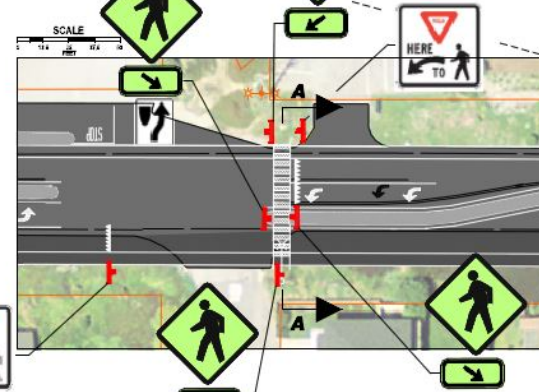
DESIGNATED PEDESTRIAN CROSSING | RAISED MEDIAN 2ND STREET - ALTERNATIVE 2



RAISED MEDIAN WITH TYPE D CURB



RAISED MEDIAN WITH DECORATIVE PAVERS
Proposed raised median provides traffic calming and refuge for crossing pedestrians



LEGEND:

- PROPOSED WIDENING**
- EXISTING ROADWAY**
- PROPOSED STRIPING**
- EXISTING STRIPING**
- PROPOSED RAISED MEDIAN**
- PROPOSED SIGNAGE**
- EXISTING BUS STOP**
- EXISTING SIGNAGE**



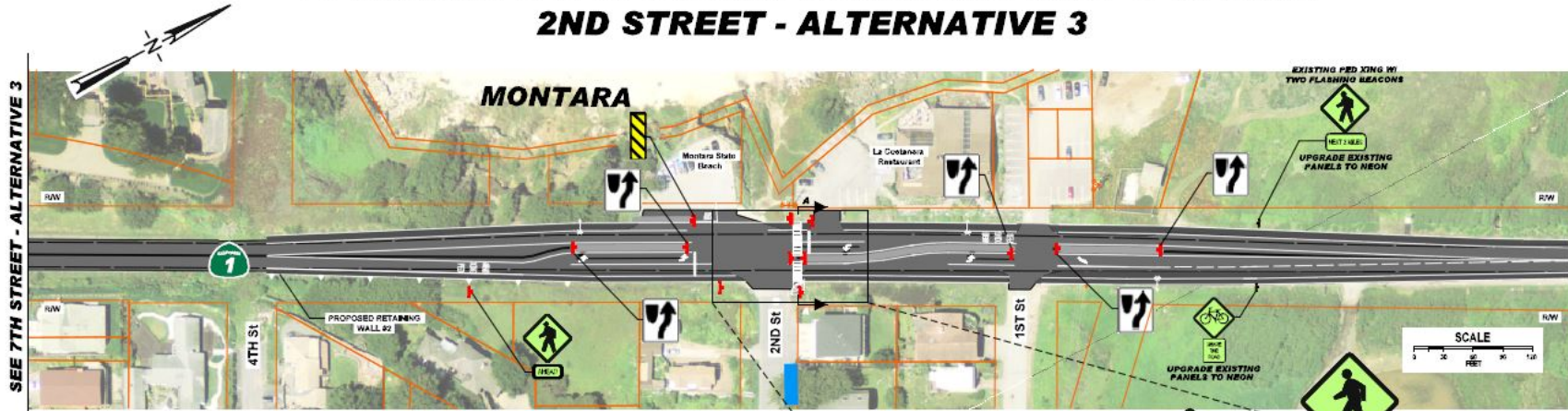
SAN MATEO COUNTY
Transportation
Authority

**2ND STREET, MONTARA
HIGHWAY 1 PRELIMINARY PLANNING STUDY (PPS)**

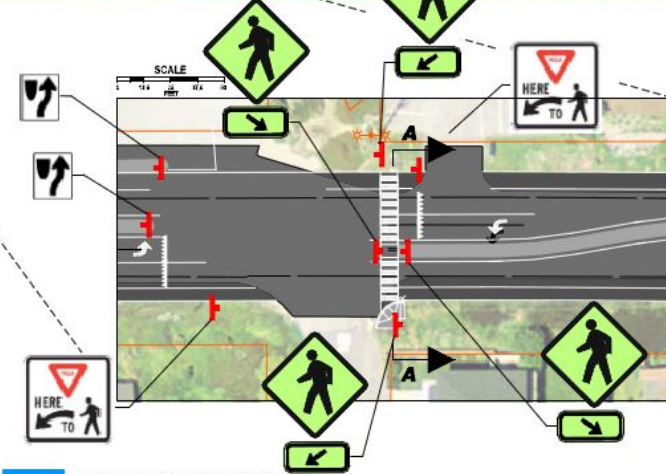
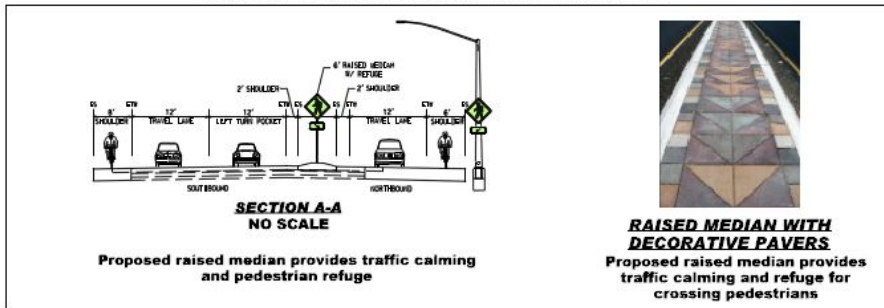
ALTERNATIVE
2
JUNE 2015

2nd Street – Alternative 3

DESIGNATED PEDESTRIAN CROSSING | RAISED MEDIAN 2ND STREET - ALTERNATIVE 3



RAISED MEDIAN WITH TYPE D CURB

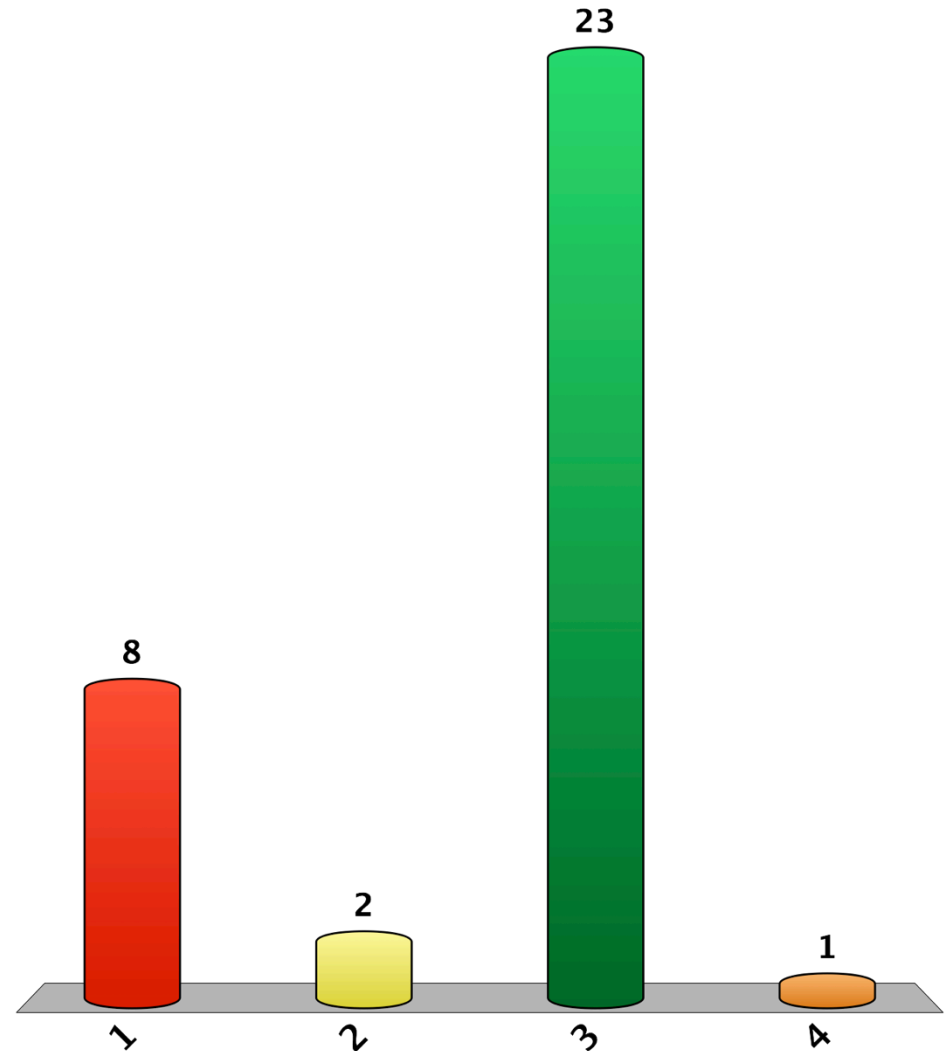
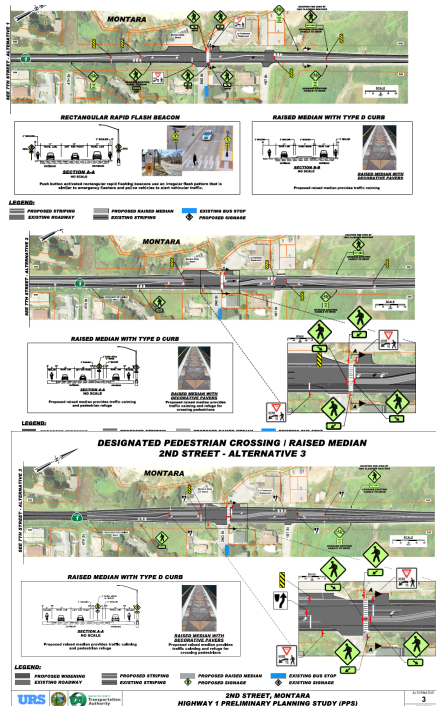


LEGEND:

- PROPOSED WIDENING
- EXISTING ROADWAY
- PROPOSED STRIPING
- EXISTING STRIPING
- PROPOSED RAISED MEDIAN
- PROPOSED SIGNAGE
- EXISTING BUS STOP
- EXISTING SIGNAGE

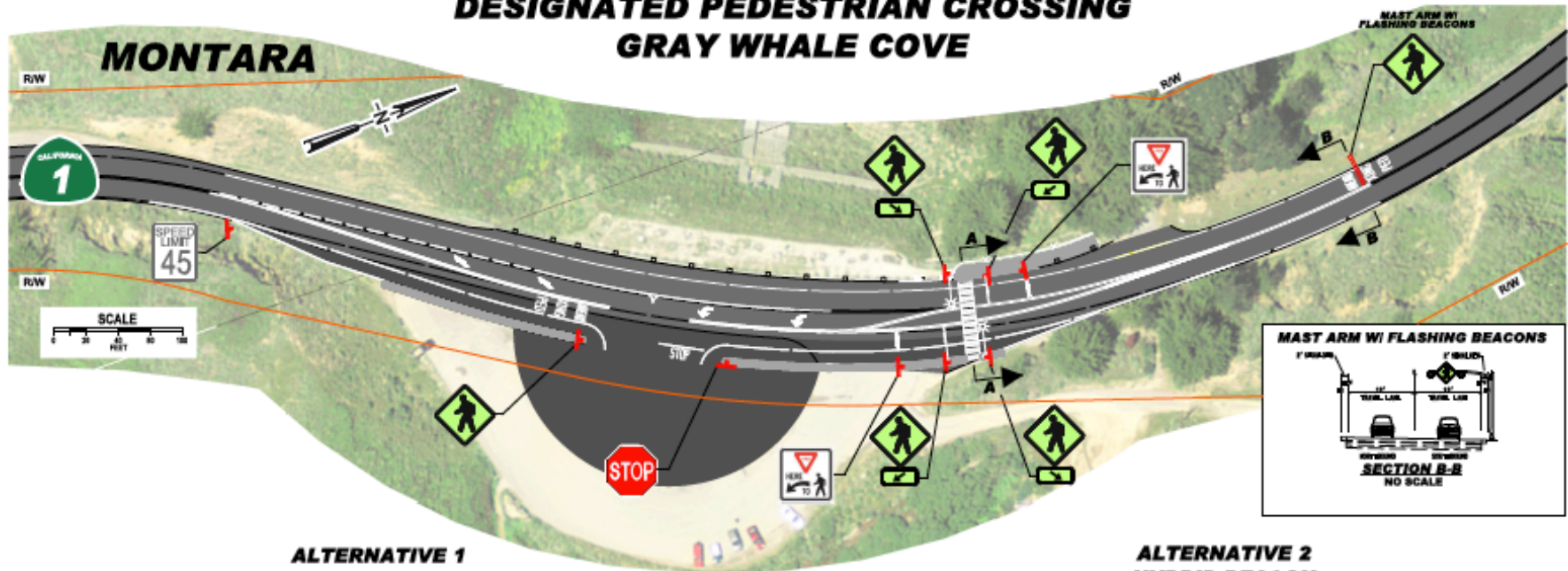
2nd Street

1. Alternative 1
2. Alternative 2
3. Alternative 3
4. None

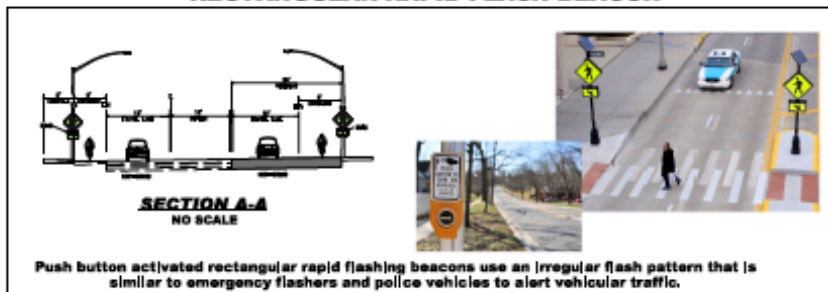


Gray Whale Cove

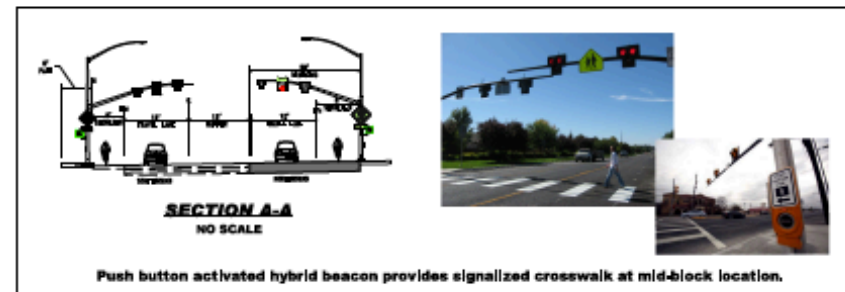
DESIGNATED PEDESTRIAN CROSSING GRAY WHALE COVE



**ALTERNATIVE 1
RECTANGULAR RAPID FLASH BEACON**

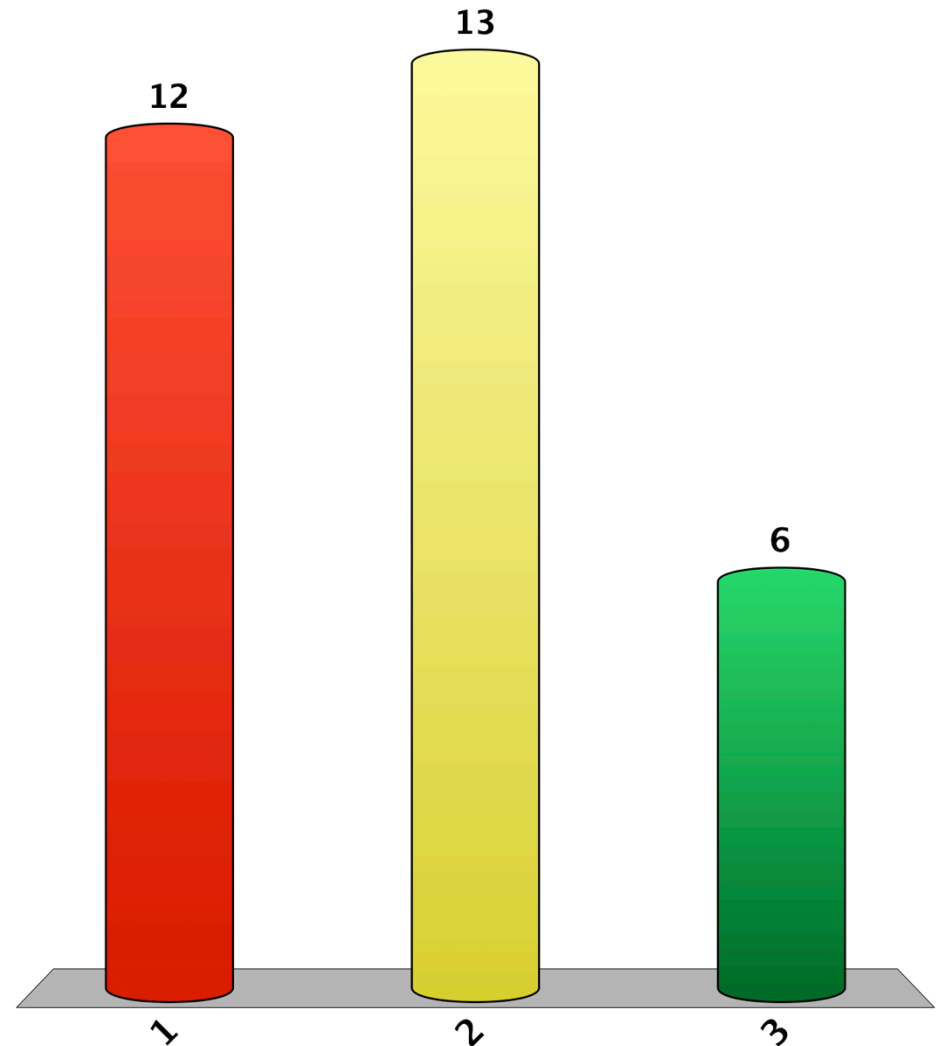


**ALTERNATIVE 2
HYBRID BEACON**



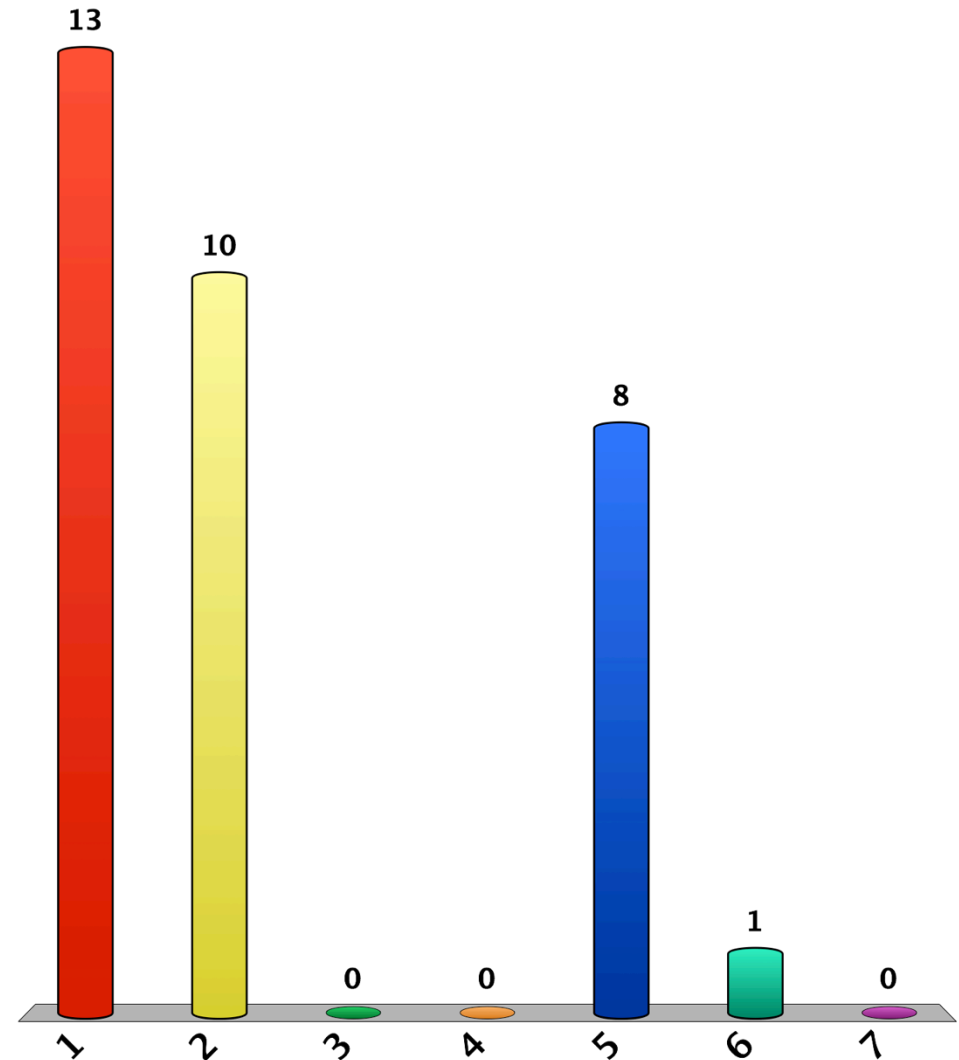
Gray Whale Cove

1. Alternative 1
2. Alternative 2
3. None



Where do you live?

1. Montara
2. Moss Beach
3. Princeton
4. Miramar
5. El Granada
6. Half Moon Bay
7. Other





Next Steps

- Consultant team and County to develop Final Planning Study with recommendations for improvements.
- Present preferred alternative to Planning Commission and Board of Supervisors summer 2015.
- Seek funding for preferred projects.
- Environmental review and design TBD

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