

# TRAFFIC COMMISSION MEETING

October 6<sup>th</sup>, 2021

**SAN MARCOS**  
DISCOVER LIFE'S POSSIBILITIES

# AGENDA ITEM #7B

## Rancho Dorado – Residential Speeding Concerns



# OVERVIEW

- TRAFFIC SAFETY CONCERNS - BACKGROUND
- VICINITY MAP
- LOCATION MAP
- PHOTOS
- ENGINEERING STUDY
- PROPOSED IMPROVEMENTS - EXHIBITS
- RECOMMENDATIONS



# TRAFFIC SAFETY CONCERNS

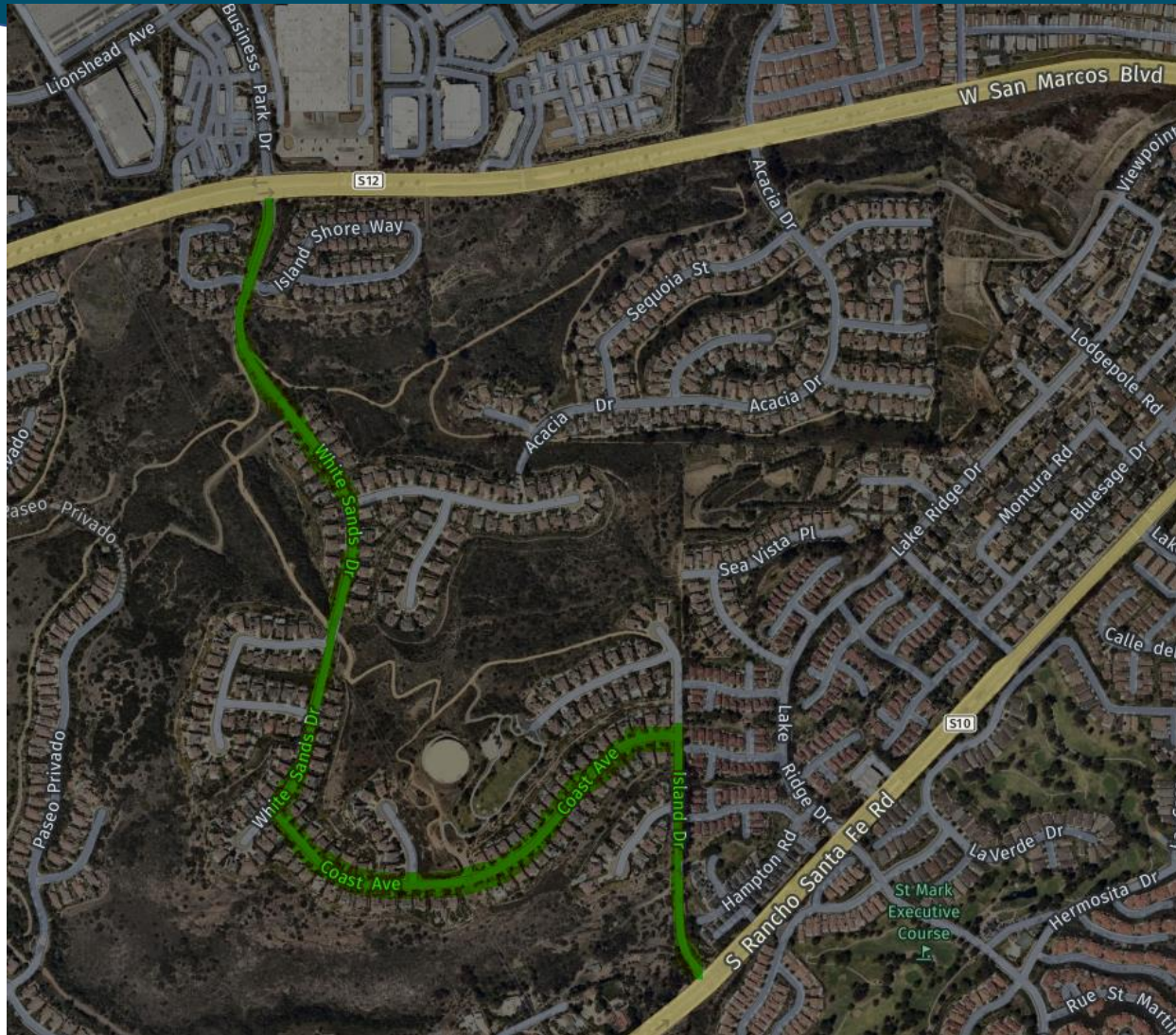
- City staff received traffic safety concerns or reports of excessive speeding from residents within Rancho Dorado Neighborhood from 2020 to 2021.
- The reported perceived speeding is along White Sands Drive, Coast Avenue and Island Drive.
- City staff collected speed and volume data, collision data, field measurements and observations within 2020 and 2021.
- City staff have worked with the Sheriff's department to gather speed data using "black cat" radar specifically on Coast Avenue mounted on an existing light pole.
- It was determined that City Staff would investigate these concerns and provide a Traffic Calming Report to assist in the findings.
- These findings are presented to you today for the Traffic Commission's consideration.





# VICINITY MAP – STUDY AREA

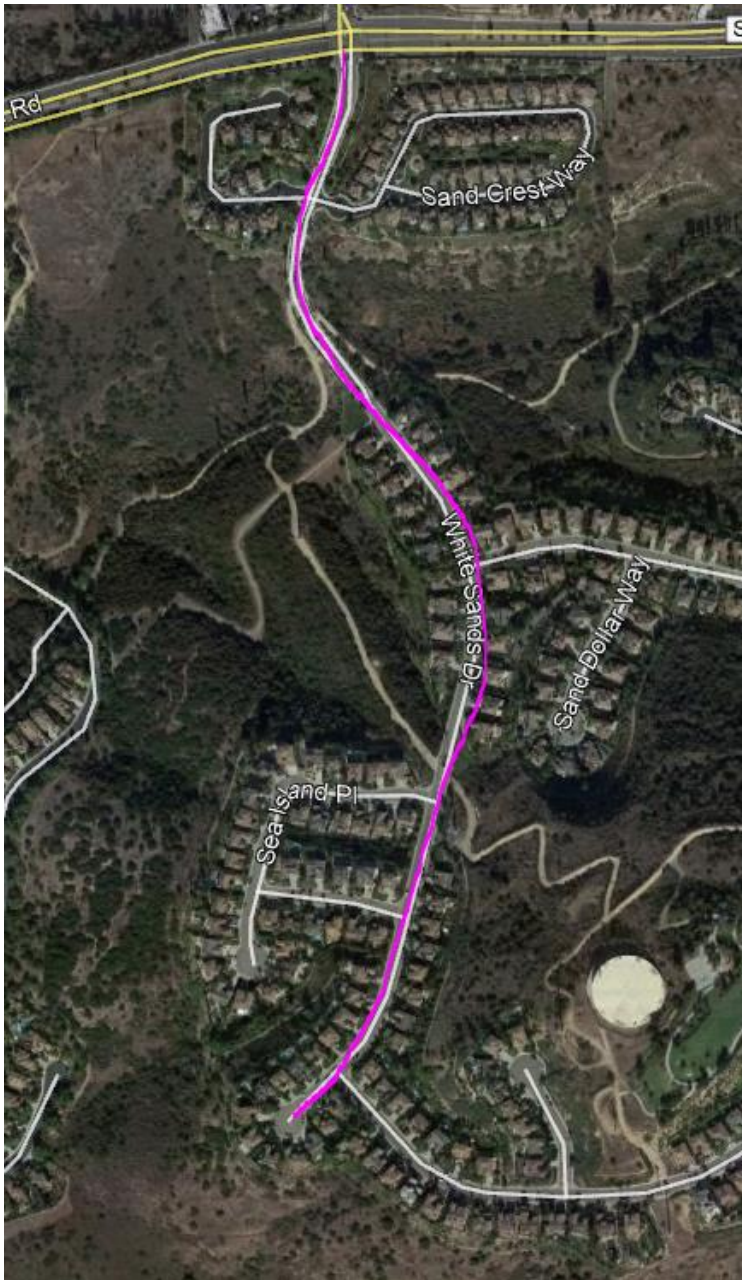
White Sands Drive / Coast Avenue / Island Drive



- Posted Speed Limit is 25 mph, prima facie speed limit for residential density per CVC
- White Sand Drive runs North-South
- Coast Avenue runs West-East
- Island Drive runs North-South
- Rancho Dorado Community
- Provides access single family homes in the area

# LOCATION MAP

## WHITE SANDS DRIVE



- One Lane each direction residential collector street
- Runs north to south
- 25 MPH speed limit (prima facie)
- Intersects with Island Shore Way / Emerald Sea Way / Sun Valley Road / Sea Island Place / Coast Avenue
- 40 feet wide
- Vertical grade ranges from 0.5 to over 10 percent
- White Sands Drive between San Marcos Boulevard to Coast Avenue  
Posted Speed: 25 MPH  
85th Percentile: 34 MPH





WHITE SAND DRIVE NEAR MIDDLE OF RAISED MEDIAN LOOKING NORTH





WHITE SAND DRIVE NEAR BOTTOM OF RAISED MEDIAN (LEFT PHOTO) / AT TRAIL CROSSING (RIGHT PHOTO) – HEADING SOUTH





City past use of raised Traffic Delineators (Currently Removed)

OLD 2014 WHITE SAND DRIVE AT BOTTOM OF RAISED MEDIAN



WHITE SANDS DRIVE HEADING SOUTH NEAR SUN VALLEY ROAD INTERSECTION





WHITE SANDS DRIVE HEADING SOUTH – BEFORE SEA ISLAND PLACE (TOP PHOTO) / BEFORE GOYA PLACE (BOTTOM PHOTO)

# LOCATION MAP

## COAST AVENUE (West)

*White Sands Diver to Summit Point Way*

- One Lane each direction residential collector street
- Runs west to east
- 25 MPH speed limit (prima facie)
- Intersects with Summit Point Way
- 40 feet wide
- Vertical grade ranges from 0.5 to over 10 percent
- Posted Speed: 25 MPH
- 85th Percentile: 30 MPH







COAST AVENUE ON HORIZONTAL CURVE HEADING WEST (LEFT PHOTO)  
/ HEADING EAST (RIGHT PHOTO)





COAST AVENUE AT LOS REYES MONUMENT / MEDIAN



# LOCATION MAP

## COAST AVENUE (East)

*Summit Point Way to Island Drive*



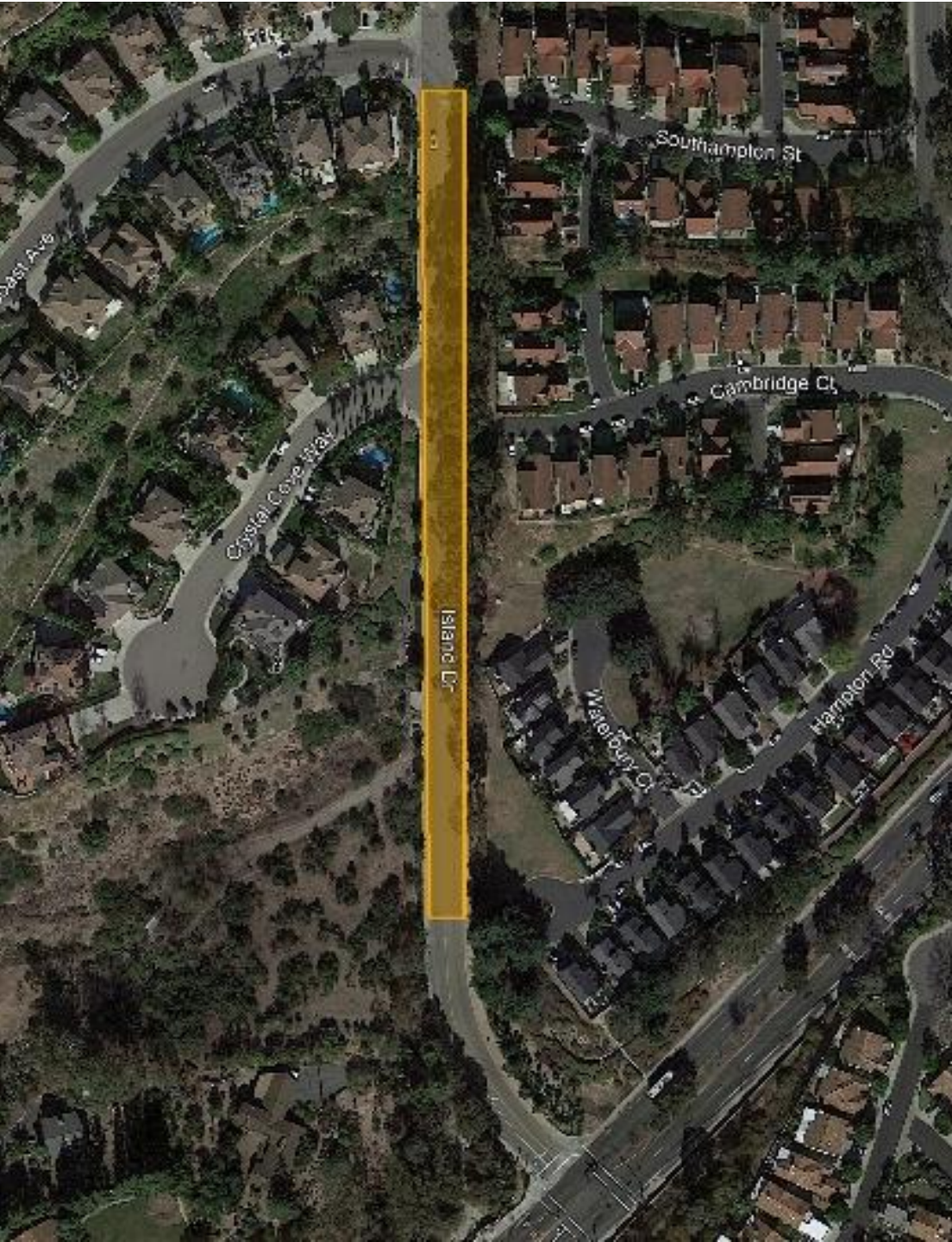
- One Lane each direction residential collector street
- Runs west to east
- 25 MPH speed limit (prima facie)
- Intersects with Summit Point Way
- 40 feet wide
- Vertical grade ranges from 0.5 to over 10 percent
- Posted Speed: 25 MPH
- 85th Percentile: 30 MPH





COAST AVENUE HEADING WEST (LEFT PHOTO) / HEADING EAST 400'  
BEFORE CURVE TO ISLAND DRIVE (RIGHT PHOTO)





# LOCATION MAP

## ISLAND DRIVE

*Coast Avenue to approximately 275' north of Rancho Santa Fe Road*

- One Lane each direction residential collector street
- Runs west to east
- 25 MPH speed limit (prima facie)
- Intersects with Summit Point Way
- 40 feet wide
- Vertical grade ranges from 0.5 to over 10 percent
- Posted Speed: 25 MPH
- 85th Percentile: 37 MPH





ISLAND DRIVE AT COAST AVENUE INTERSECTION HEADING NORTH  
(LEFT PHOTO) / HEADING SOUTH (RIGHT PHOTO)





ISLAND DRIVE AT COAST AVENUE INTERSECTION HEADING SOUTH TO S RANCHO SANTA FE ROAD (LEFT PHOTO) / HEADING NORTH (RIGHT PHOTO)

# ENGINEERING STUDY/ANALYSIS

## Traffic Volumes:

White Sands Drive – 640 VPD (vehicles per day)

Coast Avenue – 332 VPD (vehicles per day)

Island Drive – 420 VPD (vehicles per day)

## Speed Limit:

Prima Facie (25 MPH), posted.

## Accident History (last 5 years):

White Sands Drive & Sun Valley Road – Rear End with Parked Motor Vehicle  
(December 2017)

San Marcos Boulevard & White Sands Drive – Broadside Collision (August 2018)

White Sands Drive & Emerald Sea Way – Non-Collision Motorcycle Crash (July  
2020)



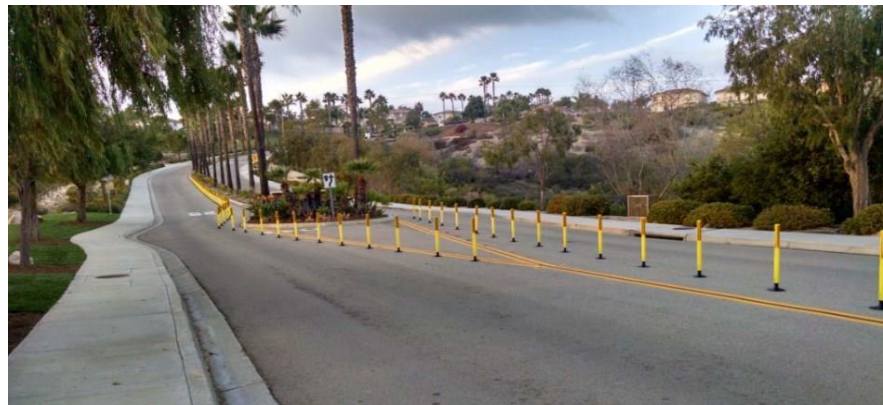


# ENGINEERING STUDY/ANALYSIS

## Past Considerations:

City staff have installed previous traffic calming measures in a small roadway segment on White Sands Drive in 2014 (traffic delineators to reduce roadway width).

- This was effective (reduced 85<sup>th</sup> percentile speeds by 6 mph) but ultimately removed per the request of the residents in favor of painted roadway striping.
- Based on the residents' concerns and previous history and considerations for this neighborhood, Staff initiated a traffic safety evaluation of the corridor, to determine if traffic calming alternatives may be warranted based on a Tiered countermeasure consideration.



# ENGINEERING STUDY/ANALYSIS

## Support for warranted traffic calming measures:

### City's Unsafe Speed Violation Threshold Policy

#### California Basic Speed Rule for Speed Law Violation:

"No person shall drive a vehicle at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and surface and width of the highway. In no event shall a person drive at a speed such as to endanger the safety of persons or property." *California Vehicle Code §22350*

The City of San Marcos utilizes an unsafe speed violation threshold policy in determining where traffic calming is warranted.

For locations with a posted speed limit of 25 MPH, the 85<sup>th</sup> percentile speed, speeding violations must be at least 32 MPH.

Coast Avenue is the only street segment that does not meet this threshold at 30 MPH. For consistency, Coast Avenue has been included in Tier 1, as a reduction from the 85<sup>th</sup> percentile of 30 MPH would benefit the overall connectivity of the neighborhood.



# ENGINEERING STUDY/ANALYSIS

The results of the safety evaluation provided a traffic calming countermeasure table summary with exhibits broken down into Tier 1, Tier 2, and Tier 3 list.

- Tier 1 represents countermeasures to be discussed in an open format.
- Tier 2 represents secondary countermeasures pending the outcome and implementation from Tier 1 countermeasures.
- Tier 3 represents countermeasures which were reviewed but not recommended at this time.

Note: Speed bumps/cushions did not meet standards on road profile/grades over 7% due to safety concerns, as all three study roadway segments exceed this requirement, hence it was not considered as a Top Tier countermeasure.

# ENGINEERING STUDY/ANALYSIS

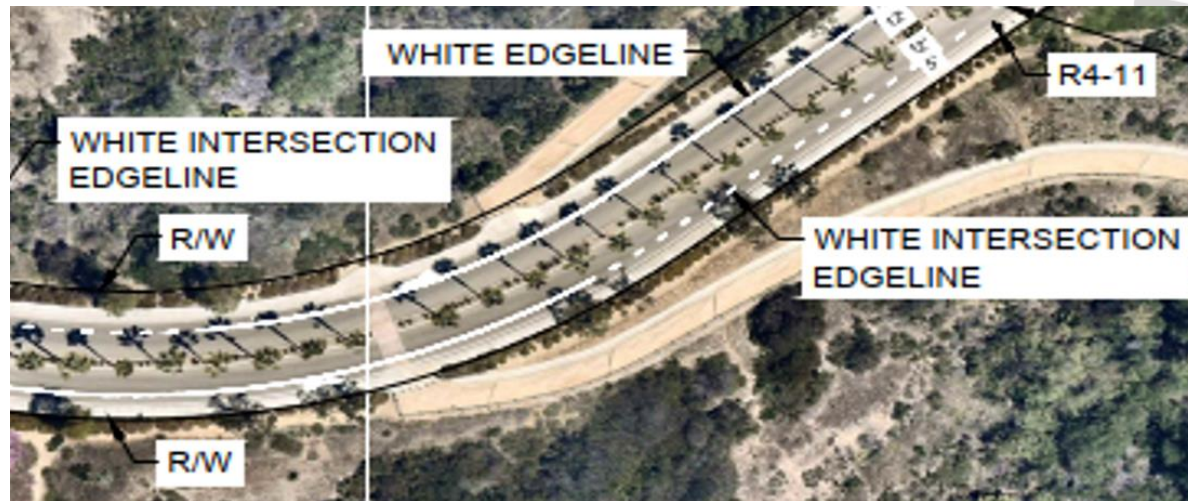
## Tier 1 Traffic Calming Countermeasures:

### Countermeasure: Class II Bike Lane

Location:

- White Sands Drive Between San Marcos Boulevard and 650' North of Sun Valley Road, 85<sup>th</sup> Percentile 34 mph

Anticipated Speed Reduction: 2 to 3 mph





# ENGINEERING STUDY/ANALYSIS

## Tier 1 Traffic Calming Countermeasures:

### **Countermeasure: Class II Bike Lane**

#### Advantages:

- Discourages speeding by narrowing vehicle travel lanes to 12', perceived friction
- Provides new facilities exclusive to bicycle travel

#### Disadvantages:

- Cost



# ENGINEERING STUDY/ANALYSIS

## Tier 1 Traffic Calming Countermeasures:

### **Countermeasure: Parking Lane with Partial Centerline**

Locations:

- Remaining portions of White Sands Drive, 85<sup>th</sup> Percentile 34 mph
- Coast Avenue full corridor, 85<sup>th</sup> Percentile 30 mph
- Island Drive, 85<sup>th</sup> Percentile 37 mph

Anticipated Speed Reduction: 2 to 3 mph





# ENGINEERING STUDY/ANALYSIS

## Tier 1 Traffic Calming Countermeasures:

### **Countermeasure: Parking Lane with Partial Centerline**

#### Advantages:

- Discourages speeding by narrowing vehicle travel lanes to 12', perceived friction
- Maintains 8' on-street parking lane

#### Disadvantages:

- Cost
- Partial Centerline provides less friction than a full centerline



# ENGINEERING STUDY/ANALYSIS

## Tier 2 Traffic Calming Countermeasures – Not Recommended at this time:

### **Countermeasure: Parking Lane with Full Centerline**

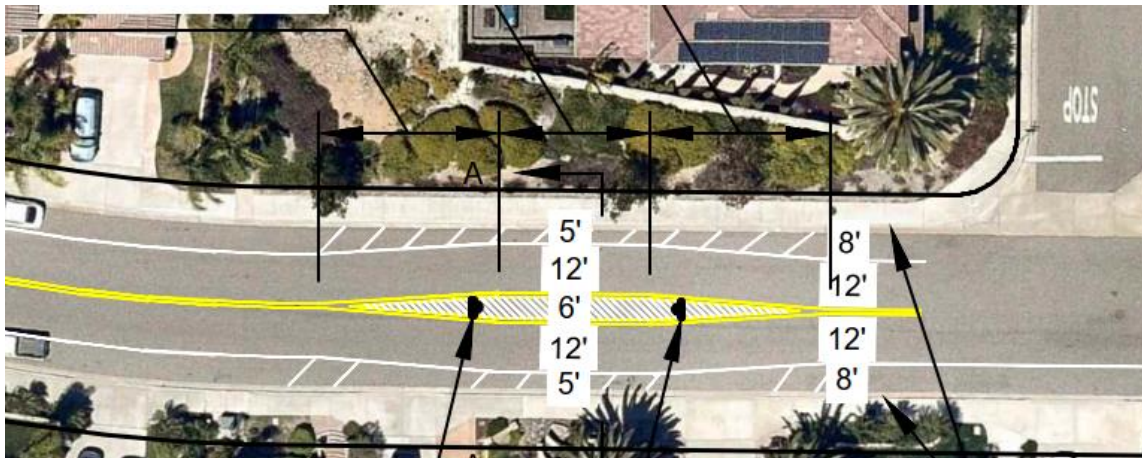
Anticipated Speed Reduction: 1 to 5 mph

### **Countermeasure: Horizontal Deflection with Striped Center Traffic Island with Lateral Shift**

Anticipated Speed Reduction: 1 to 6 mph

### **Countermeasure: Horizontal Deflection with Raised Center Traffic Island with Lateral Shift**

Anticipated Speed Reduction: 1 to 6 mph





# ENGINEERING STUDY/ANALYSIS

## Tier 2 Traffic Calming Countermeasures – Not Recommended at this time:

**Island Drive only - Countermeasure: Class II Buffered Bicycle Lane with Partial Centerline**

Anticipated Speed Reduction: 1 to 5 mph



# ENGINEERING STUDY/ANALYSIS

## Tier 3 Traffic Calming Countermeasures – Not Recommended:

### Countermeasures:

- Chicanes or Chokers
- Raised Medians
- Traffic Circles or intersection treatments
- Vertical Deflection
  - Speed Humps/Tables/Cushions
- Dynamic Speed Activated Warning Signs
- Road Diets
- Corner Extensions at Intersections





# PROPOSED IMPROVEMENTS



RANCHO DORADO TRAFFIC CALMING  
WHITE SANDS DRIVE - TIER 1 - CLASS II BICYCLE LANE

7/8/2021  
Sheet 1 of 6

*Adding something awesome to make this better*



# PROPOSED IMPROVEMENTS



RANCHO DORADO TRAFFIC CALMING  
WHITE SANDS DRIVE - TIER 1 - PARKING LANE WITH PARTIAL CENTERLINE

7/8/2021  
Sheet 2 of 6

*Adding something awesome to make this better*



# PROPOSED IMPROVEMENTS



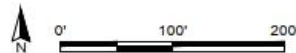
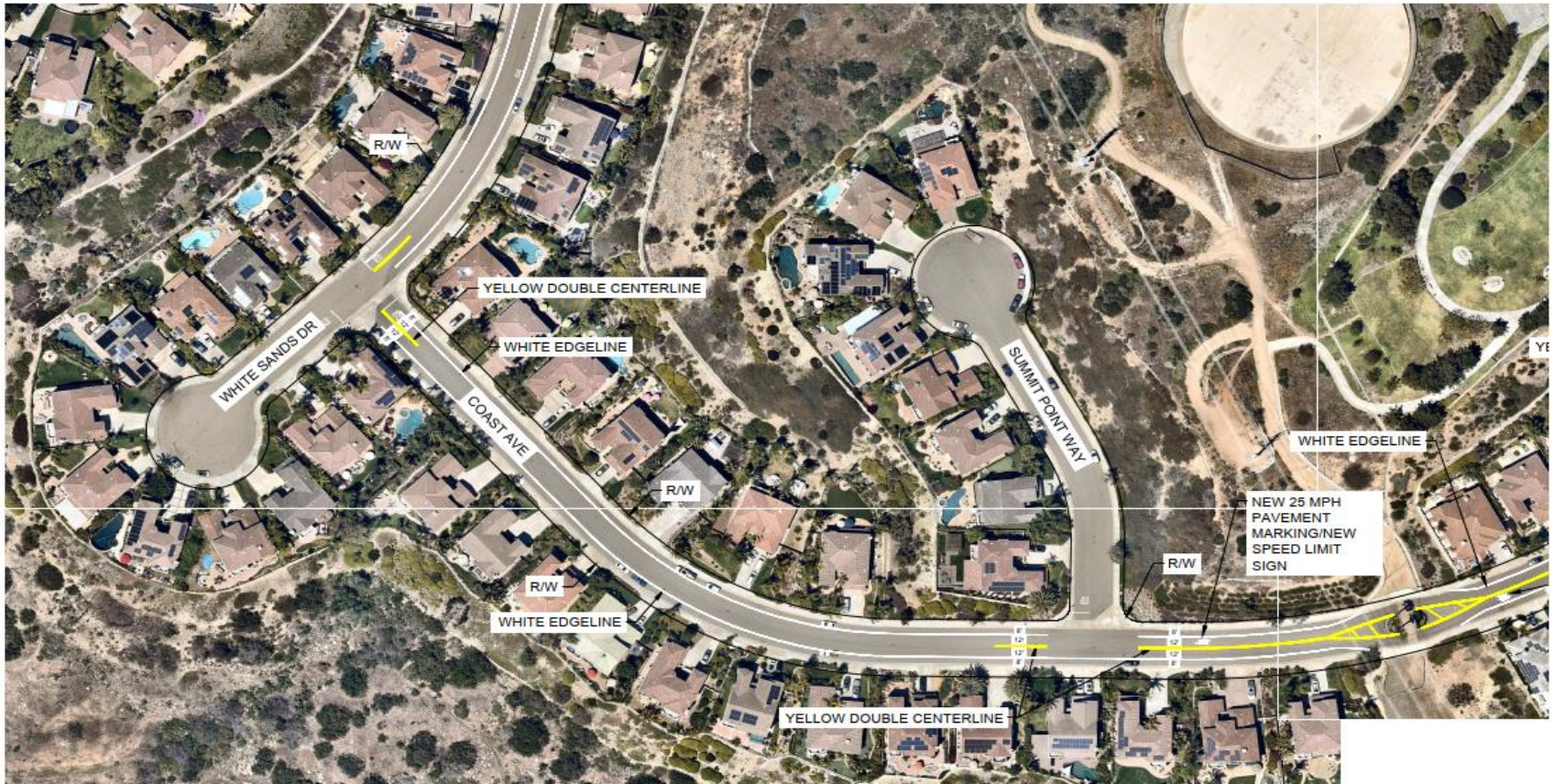
RANCHO DORADO TRAFFIC CALMING  
WHITE SANDS DRIVE - TIER 1 - PARKING LANE WITH PARTIAL CENTERLINE

7/8/2021  
Sheet 3 of 6

*Adding something awesome to make this better*



# PROPOSED IMPROVEMENTS



RANCHO DORADO TRAFFIC CALMING  
COAST AVENUE - TIER 1 - PARKING LANE WITH PARTIAL CENTERLINE

7/8/2021  
Sheet 4 of 6

*Adding something awesome to make this better*



# PROPOSED IMPROVEMENTS



RANCHO DORADO TRAFFIC CALMING  
COAST AVENUE - TIER 1 - PARKING LANE WITH PARTIAL CENTERLINE

7/8/2021  
Sheet 5 of 6

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# PROPOSED IMPROVEMENTS



RANCHO DORADO TRAFFIC CALMING  
ISLAND DRIVE - TIER 1 - PARKING LANE WITH PARTIAL CENTERLINE

7/8/2021  
Sheet 6 of 6

*Adding something awesome to make this better*



# STAFF RECOMMENDATIONS

Engineering staff recommends the following improvements:

- 1) Installation of edge line striping in the form of Class II Bicycle Lanes on White Sands Drive between San Marcos Boulevard and 650' North of Sun Valley Road to discourage speeding by narrowing vehicle travel lanes.
- 2) Installation of partial double yellow centerlines at the intersections along the project study to help motorists stay in lane as they navigate.
- 3) Installation of edgeline striping to define parking lanes on White Sands Drive, Coast Avenue, and Island Drive to discourage speeding by narrowing vehicle travel lanes.
- 4) Installation of new speed limit signs (25 MPH) on Coast Avenue between Summit Point Way and Island Drive to inform motorists of the residential 25 MPH zone.
- 5) Installation of new speed pavement markings (25 MPH) on Coast Avenue between Summit Point Way and Island Drive to inform motorists of the residential 25 MPH zone.
- 6) Recommend studying the effectiveness after one year of implementation and reporting the results.

## Q&A SLIDES





Countermeasure / Anticipated Speed Reduction	Location	Advantages	Disadvantages	Cost
Class II Bicycle Lane / 2-3 MPH	White Sands Drive between San Marcos Boulevard and 650' north of Sun Valley Road  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 34 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing vehicle travel lanes to 12', perceived friction</li> <li>Provides new facilities exclusive to bicycle travel</li> </ul>	<ul style="list-style-type: none"> <li>Cost</li> </ul>	\$5,100
Parking Lane with Partial Centerline / 2-3 MPH	White Sands Drive between Sun Valley Road and Sea Island Place  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 34 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing vehicle travel lanes to 12', perceived friction</li> <li>Maintains 8' on-street parking lane</li> </ul>	<ul style="list-style-type: none"> <li>Cost</li> <li>Partial centerline provides less friction than a full centerline</li> </ul>	\$2,300
Parking Lane with Partial Centerline / 2-3 MPH	White Sands Drive between Sea Island Place and Coast Avenue  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 34 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing vehicle travel lanes to 12', perceived friction</li> <li>Maintains 8' on-street parking lane</li> </ul>	<ul style="list-style-type: none"> <li>Cost</li> <li>Partial centerline provides less friction than a full centerline</li> </ul>	\$3,500
Parking Lane with Partial Centerline / 2-3 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> </ul>	<ul style="list-style-type: none"> <li>Fails to provide bicycle facilities</li> <li>Partial centerline provides less friction than a full centerline</li> </ul>	\$4,000
Parking Lane with Partial Centerline / 2-3 MPH	Coast Avenue between Summit Point Way and Island Drive  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> </ul>	<ul style="list-style-type: none"> <li>Fails to provide bicycle facilities</li> <li>Partial centerline provides less friction than a full centerline</li> </ul>	\$3,600
Parking Lane with Partial Centerline / 2-3 MPH	Island Drive between Coast Avenue and Rancho Santa Fe Road  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 37 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> </ul>	<ul style="list-style-type: none"> <li>Safety improvement location is not directly adjacent to any residential properties</li> <li>Partial centerline provides less friction than a full centerline</li> </ul>	\$3,800

Countermeasure / Anticipated Speed Reduction	Location	Advantages	Disadvantages	Cost
Parking Lane with Full Centerline / 1-5 MPH	White Sands Drive between Sun Valley Road and Sea Island Place  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 34 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing vehicle travel lanes to 12', perceived friction</li> <li>Maintains 8' on-street parking lane</li> <li>Sharrow pavement markers provide additional safety for bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>Cost</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$3,400
Parking Lane with Full Centerline / 1-5 MPH	White Sands Drive between Sea Island Place and Coast Avenue  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 34 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing vehicle travel lanes to 12', perceived friction</li> <li>Maintains 8' on-street parking lane</li> <li>Sharrow pavement markers provide additional safety for bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>Cost</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$5,200
Parking Lane with Full Centerline (Option A) / 1-5 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> <li>Sharrow pavement markers provide additional safety for bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>Fails to provide bicycle facilities</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$6,100
Horizontal Deflection: Striped Center Traffic Island with Lateral Shift (Option B) / 1-5 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12' and creating lane deflection in vehicle path to the outside and back to the inside.</li> <li>Striped median is more cost effective than a raised median</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates some on-street parking</li> <li>May restrict driveway access in one direction for some residents</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$8,300
Horizontal Deflection: Raised Center Traffic Island with Lateral Shift (Option C) / 1-5 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12' and creating lane deflection in vehicle path to the outside and back to the inside.</li> <li>Raised median provides additional visual cues for drivers to reduce speeding</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates some on-street parking</li> <li>May restrict driveway access in one direction for some residents</li> <li>Raised median is more expensive than a striped median</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$16,000

Countermeasure / Anticipated Speed Reduction	Location	Advantages	Disadvantages	Cost
Parking Lane with Full Centerline (Option A) / 1-5 MPH	Coast Avenue between Summit Point Way and Island Drive  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> <li>Sharrow pavement markers provide additional safety for bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>Fails to provide bicycle facilities</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$5,700
Horizontal Deflection: Striped Center Traffic Island with Lateral Shift (Option B) / 1-6 MPH	Coast Avenue between Summit Point Way and Island Drive  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12' and creating lane deflection in vehicle path to the outside and back to the inside.</li> <li>Striped median is more cost effective than a raised median</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates some on-street parking</li> <li>May restrict driveway access in one direction for some residents</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$8,300
Horizontal Deflection: Raised Center Traffic Island with Lateral Shift (Option C) / 1-6 MPH	Coast Avenue between Summit Point Way and Island Drive  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12' and creating lane deflection in vehicle path to the outside and back to the inside.</li> <li>Raised median provides additional visual cues for drivers to reduce speeding</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates some on-street parking</li> <li>May restrict driveway access in one direction for some residents</li> <li>Raised median is more expensive than a striped median</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	+\$16,000
Parking Lane with Full Centerline (Option A) / 1-5 MPH	Island Drive between Coast Avenue and Rancho Santa Fe Road  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 37 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12'</li> <li>Maintains 8' on-street parking lane</li> <li>Sharrow pavement markers provide additional safety for bicyclists</li> </ul>	<ul style="list-style-type: none"> <li>Safety improvement location is not directly adjacent to any residential properties</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$5,800
Class II Buffered Bicycle Lane with Partial Centerline (Option B) / 1-5 MPH	Island Drive between Coast Avenue and Rancho Santa Fe Road  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 37 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12'</li> <li>Provides new 5' wide facilities exclusive to bicycle travel protected by 3' buffer</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates on-street parking</li> <li>Safety improvement location is not directly adjacent to any residential properties</li> <li>Partial centerline provides less friction than a full centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$8,000
Class II Buffered Bicycle Lane with Full Centerline (Option C) / 1-5 MPH	Island Drive between Coast Avenue and Rancho Santa Fe Road  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 37 MPH	<ul style="list-style-type: none"> <li>May discourage speeding by narrowing travel lanes to 12'</li> <li>Provides new 5' wide facilities exclusive to bicycle travel protected by 3' buffer</li> </ul>	<ul style="list-style-type: none"> <li>Eliminates on-street parking</li> <li>Safety improvement location is not directly adjacent to any residential properties</li> <li>Full centerline is more expensive than a partial centerline</li> <li>Centerline studies have not been supported in an urban setting</li> </ul>	\$9,300



Countermeasure / Anticipated Speed Reduction	Location	Advantages	Disadvantages	Cost
Horizontal Deflection: Shoulder / Chicane Traffic Islands with Lateral Shift (Striping / Reflectors) / 3-9 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Discourages speeding by narrowing travel lanes to 12' and creating lane deflection in vehicle path to the outside and back to the inside.</li> </ul>	<ul style="list-style-type: none"> <li>Creates storm water impacts near Summit Point Way</li> <li>Cost</li> </ul>	+\$8,000
Raised Medians with Bike Lane Striping / 1-6 MPH	White Sands Drive, Coast Avenue, Island Drive	<ul style="list-style-type: none"> <li>Effective at discouraging speeding due to friction</li> </ul>	<ul style="list-style-type: none"> <li>Most locations available curb to curb not applicable</li> <li>Restricted on-street parking</li> <li>Restricted driveway access</li> <li>Cost</li> </ul>	+\$100,000
Traffic Circle / 1-8 MPH	Coast Avenue at Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Effective at discouraging speeding</li> <li>Beautification element</li> </ul>	<ul style="list-style-type: none"> <li>Severe grades</li> <li>Restricted on-street parking</li> <li>Typically used at four-way intersections</li> <li>Cost</li> </ul>	+\$35,000
Vertical Deflection: Speed Hump / Table / 5-8 MPH	White Sands Drive, Coast Avenue, Island Drive	<ul style="list-style-type: none"> <li>Effective at discouraging speeding</li> </ul>	<ul style="list-style-type: none"> <li>Delays emergency response times</li> <li>Noise concerns</li> <li>Long-term maintenance</li> <li>Drainage issues</li> <li>Not recommended for severe grades</li> </ul>	+\$2,000
Speed Cushions / 5-7 MPH	White Sands Drive, Coast Avenue, Island Drive	<ul style="list-style-type: none"> <li>Reduces 85<sup>th</sup> percentile speed by 4 – 6 MPH</li> <li>Does not affect emergency response times</li> </ul>	<ul style="list-style-type: none"> <li>Grade cannot exceed 7% in vicinity</li> <li>Requires 2/3 approval by nearby homeowners</li> <li>Cost depending on how many/spacing</li> </ul>	+\$8,000
Horizontal Deflection: Choker (series of traffic islands) / 1-4 MPH	Coast Avenue between White Sands Drive and Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Reduced roadway width adds friction to discourage speeding</li> </ul>	<ul style="list-style-type: none"> <li>Reduces two-way traffic to one-way with the use of curbs</li> <li>High cost</li> </ul>	+\$10,000
Dynamic Speed Activated Warning Sign (Solar) / 1-7 MPH	White Sands Drive, Coast Avenue, Island Drive	<ul style="list-style-type: none"> <li>Reduces 85<sup>th</sup> percentile speed by 2 – 7 MPH</li> </ul>	<ul style="list-style-type: none"> <li>Visual Impact</li> <li>Higher Cost</li> <li>Use near school zones</li> </ul>	+\$10,000
Road Diet and/or Road Routing Restrictions / NA	White Sands Drive, Coast Avenue, Island Drive	<ul style="list-style-type: none"> <li>Typically reduces roadway widths and/or lanes</li> </ul>	<ul style="list-style-type: none"> <li>Not applicable to project limits</li> </ul>	+\$25,000
Corner Extension at Intersection with Median Island / 1-3 MPH	Coast Avenue at Summit Point Way  Posted Speed: 25 MPH 85 <sup>th</sup> Percentile: 30 MPH	<ul style="list-style-type: none"> <li>Reduced roadway width adds friction to discourage speeding</li> <li>Serves high pedestrian use</li> </ul>	<ul style="list-style-type: none"> <li>High cost</li> <li>Not applicable to project limits</li> </ul>	+\$40,000

# SAN MARCOS

DISCOVER LIFE'S POSSIBILITIES

