



VC RESILIENT COASTAL ADAPTATION PROJECT

Ventura County Planning Division
PL17-0147

Dave Ward, Planning Director
Tricia Maier, Manager, Long-Range Planning
Aaron Engstrom, Case Planner
Abigail Convery, Planning Biologist
Dave Revell PHD, Consultant



Board of Supervisors Work Session, September 10, 2019

WHY PLAN FOR SEA LEVEL RISE NOW?



- Preparation now may be less costly than waiting
- Existing coastal hazards already pose a threat
- Consistency in permitting process
- Support long-term coastal resiliency



ADAPTATION STRATEGIES



"Failure to plan is planning to fail."
- Ben Franklin

Wait and See



Accommodate



Hybrid



Protect

Inland Relocation



VC RESILIENT WORK COMPLETED



- Vulnerability Assessment
- Adaptation Strategies Report
- Preliminary Draft Policies
- Public Workshops in April 2018 , Planning Commission Work Session in March, 2019



Board of Supervisors Work Session— September 10, 2019

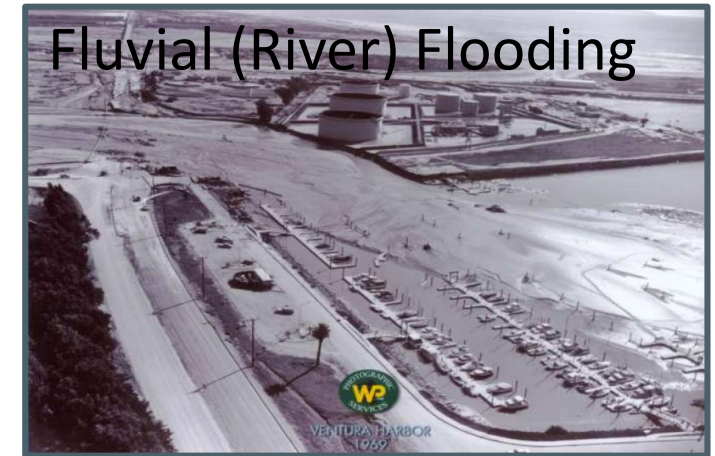
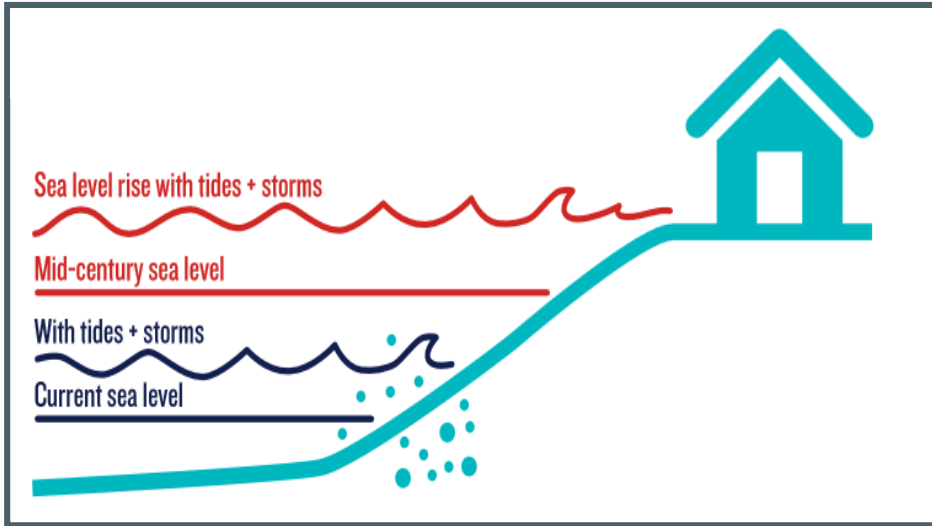
VC RESILIENT HASN'T COVERED...



- Informational only, no formal proposals except for a Round II grant application
- Does not include FEMA flood map revisions
- Does not represent a coordinated approach among all agencies and stakeholders
- Does not provide solutions to the myriad sea level rise issues



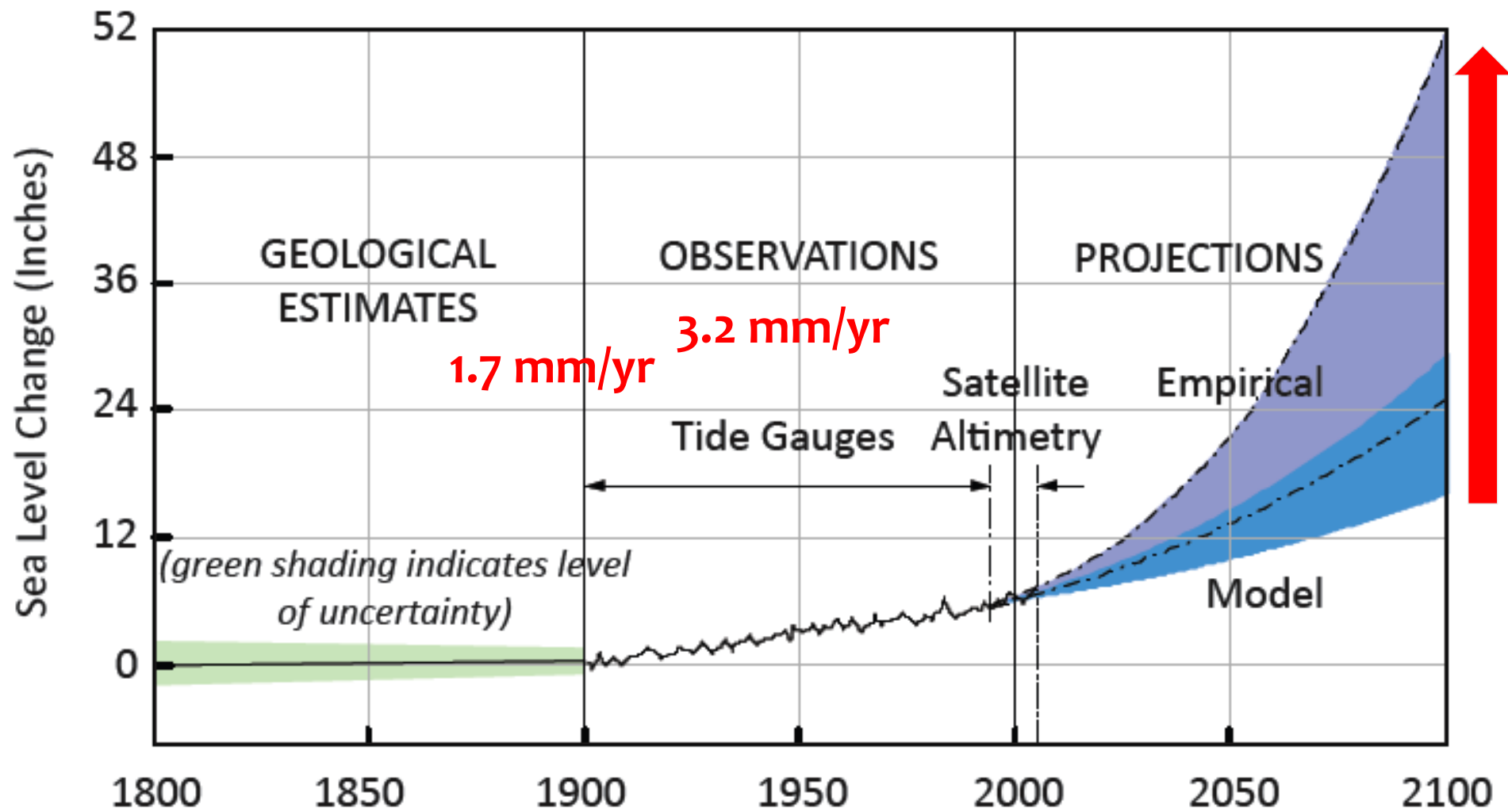
WHAT IS SEA LEVEL RISE?



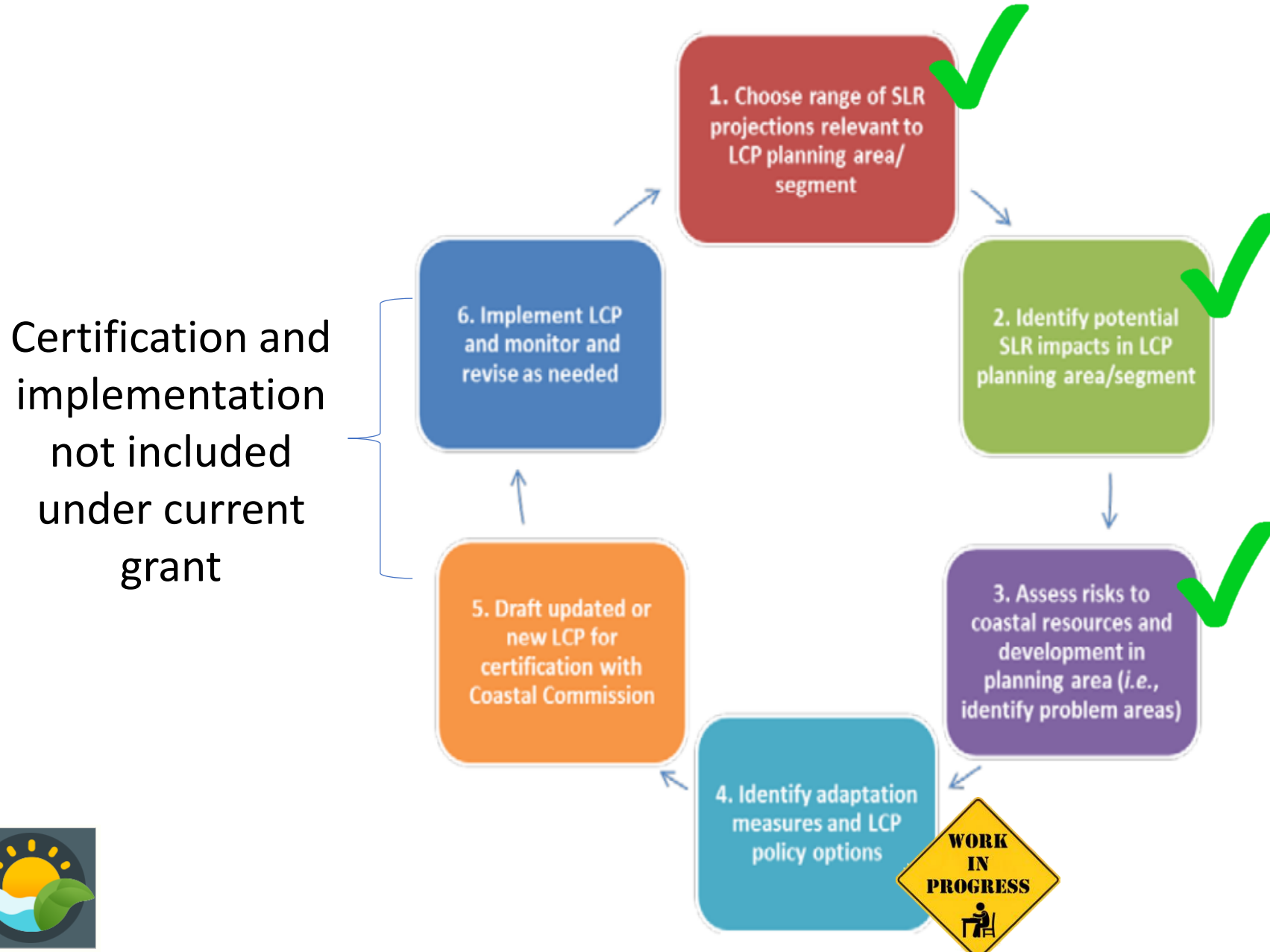
SEA LEVEL RISE PROJECTIONS



The rate of global sea-level rise was measured from tide gauges historically and satellites since 1993



SEA LEVEL RISE PLANNING



SELECTED SEA LEVEL RISE PROJECTIONS



EXISTING
=1.51
mm/year

Measured at Santa
Monica tide gauge

8"
(2030-ish)

16"
(2060-ish)

58"
(2100-ish)

There is more certainty about how much sea level rise will occur, than
by when....

Ranges of Projections in Coastal Resilience Model	Low	Medium	High
	2.3"	5.2"	8.0"
	7.4"	16.1"	25.3"
	17.1"	36.5"	58.1" ₉

VULNERABILITY ASSESSMENT



Land Use



Agriculture



Wastewater



Storm Water



Water Supply



Public Access



Roads and
Parking



Public Transit



Oil and Gas



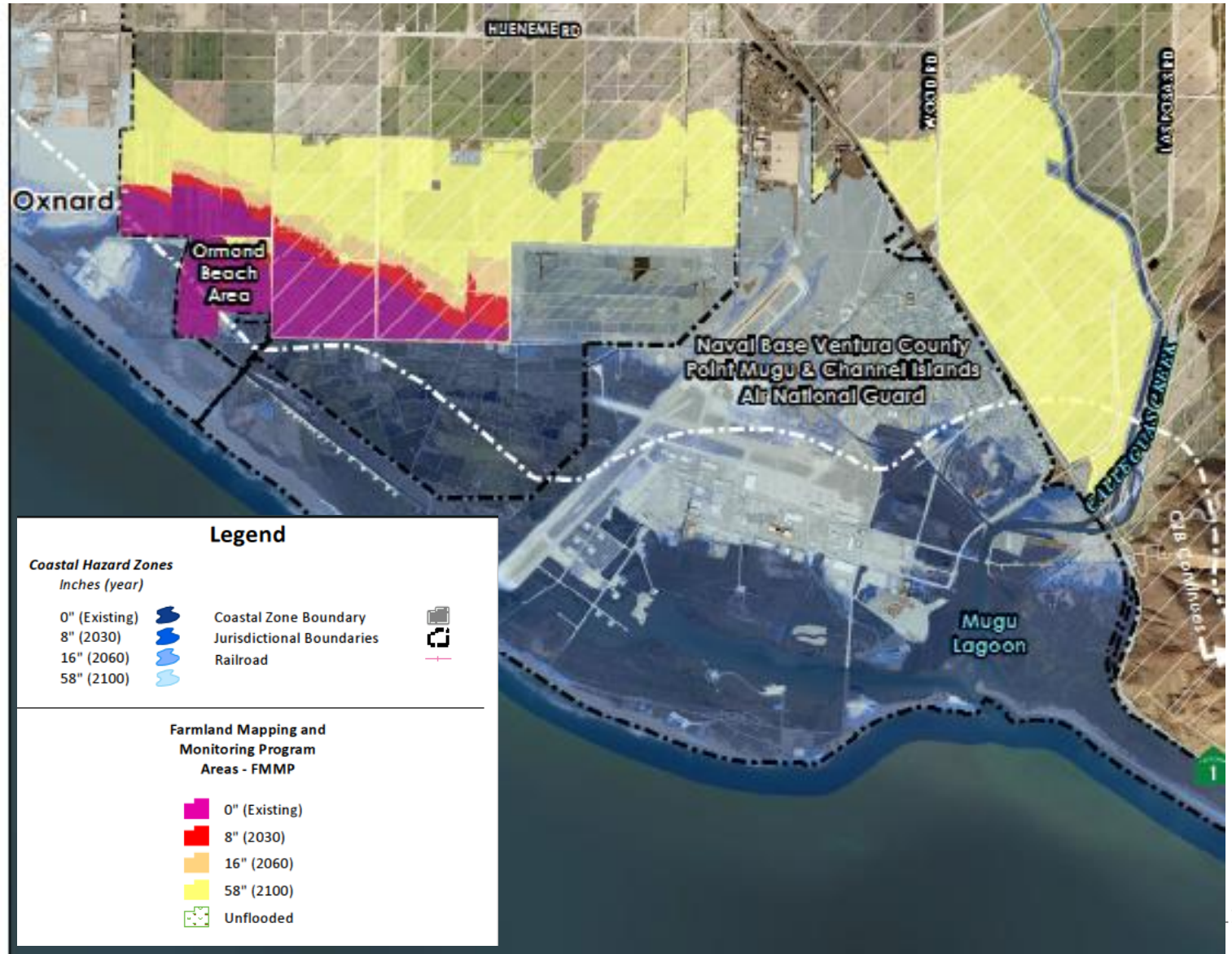
Hazardous
Materials



Critical Services



Natural
Resources



ADAPTATION STRATEGIES



"Failure to plan is planning to fail."
- Ben Franklin

Wait and See



Accommodate



Hybrid



Protect

Inland Relocation



TYPES OF ADAPTATION



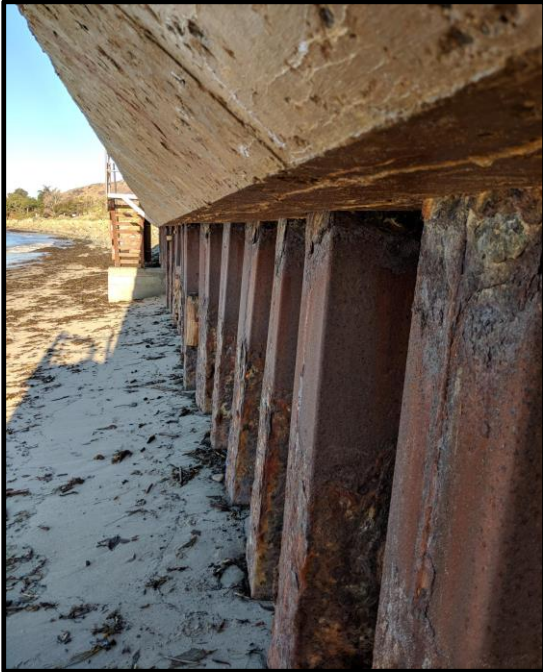
Natural: Existing features that form and change over time with the environment

Nature-Based: Engineered systems that mimic natural approaches

Structural: Engineered systems designed to reduce flooding and erosion

Regulatory: Includes policies and development standards

ADAPTATION APPROACH: PROTECT



Armor Seawalls



Armor Rock Revetments



Sand Dunes and Berms

ADAPTATION APPROACH: ACCOMMODATE



**Design to Accommodate
Flooding**



Agricultural Conservation Easements



Enhanced Clean-Up Efforts

ADAPTATION APPROACH: MANAGED RETREAT*



***Focus on public facilities
and undeveloped lands**

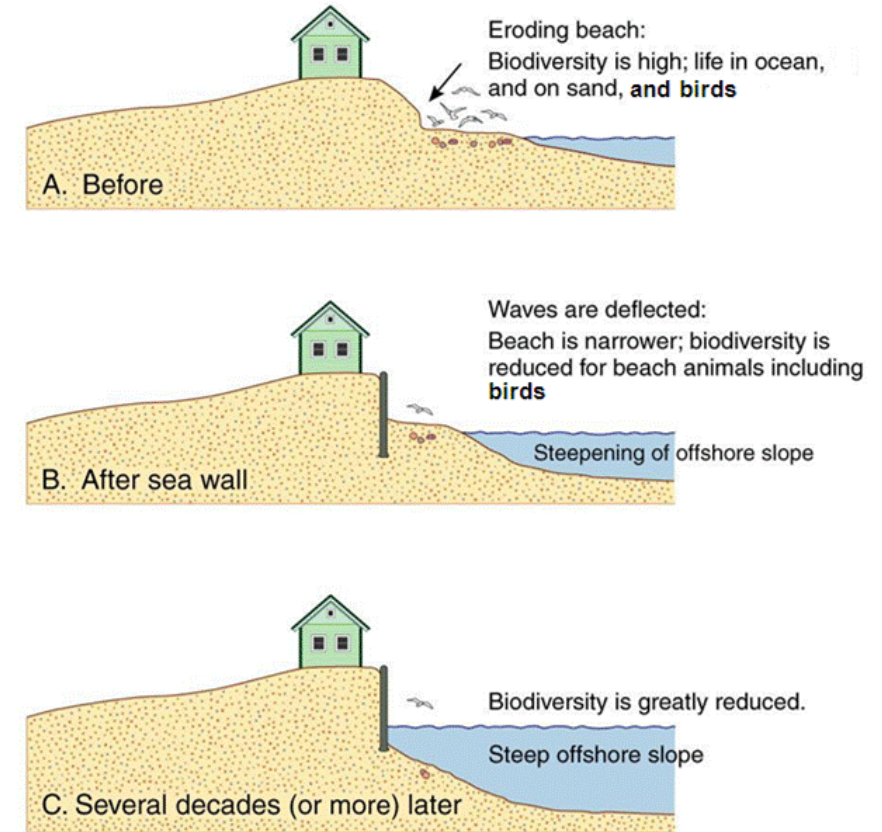
ADAPTATION - TRADEOFFS



- Construction Costs
- Escalating Maintenance Costs
- Ecology
- Recreation
- Views
- Aesthetics



Armor impacts beaches and views



VULNERABILITY AND ADAPTATION RESULTS



POSITIVE FINDINGS



With up to 5 feet of sea level rise:

- No airport, water/sewer plants, power plants are vulnerable within County's jurisdiction
- No critical facilities such as fire, police stations, or hospitals at risk of tidal inundation
- No coastal erosion of active oil and gas facilities
- Inland ecosystems such as back dunes and rivers/streams likely to persist
- Most of the coastal armor is predicted to withstand up to 5 feet of sea level rise



NORTH COAST VULNERABILITIES



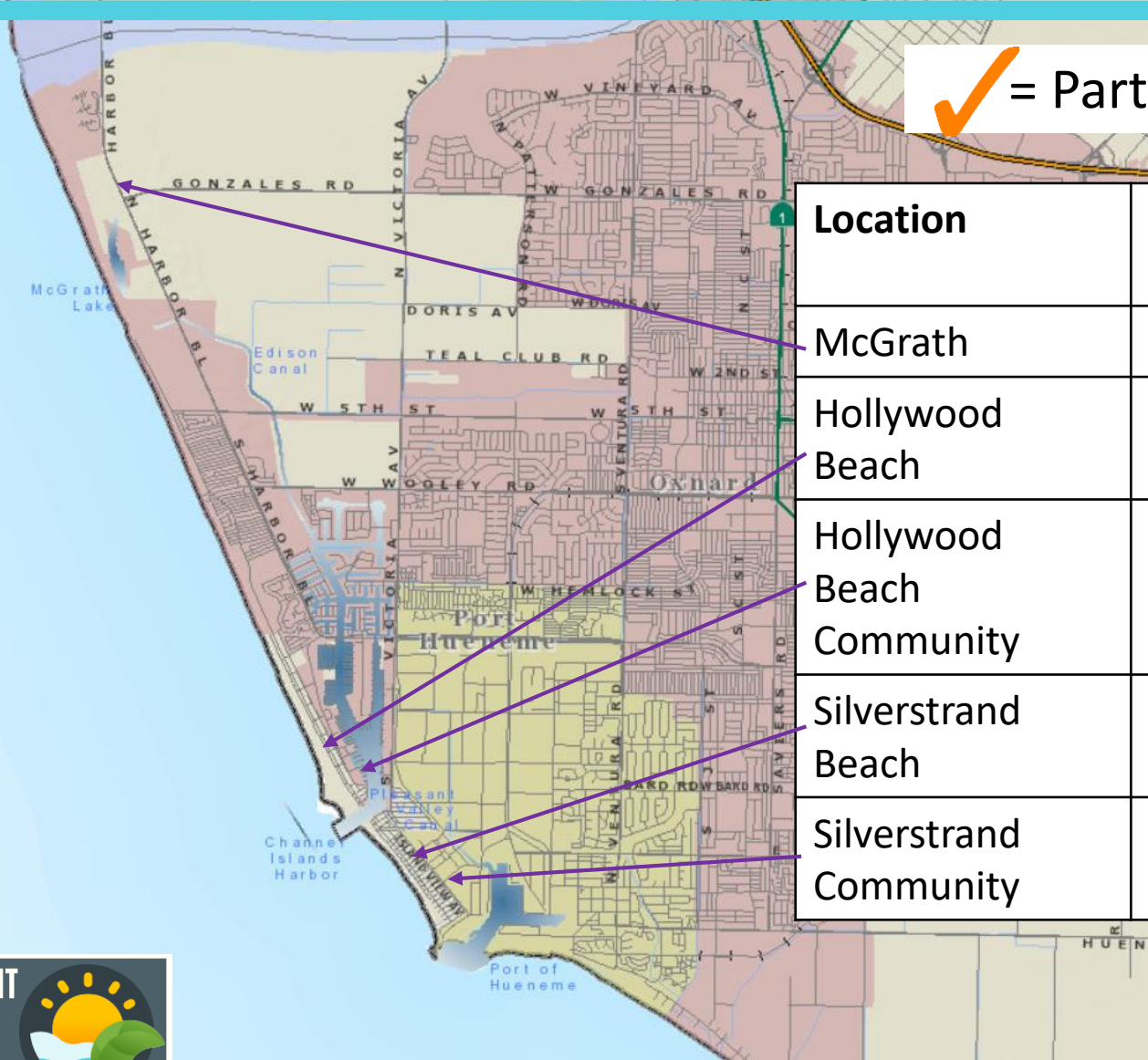
✓ = Partially Exposed ✗ = Severely Exposed

Location	8" (2030)	16" (2060)	16" to 5' (2060-2100)	5' (2100)	1% Storm
Rincon Point			✓	✗	✗
La Conchita					✓
Mussel Shoals				✓	✓
Seacliff			✓	✗	✗
Hobson Park			✗	✗	✗
Rincon Pkwy.				✓	✗
Faria				✓	✗
Solimar				✓	✗
Emma Wood		✓	✓	✓	✗
Narrow Beaches	✗	✗	✗	✗	✗

CENTRAL COAST VULNERABILITIES

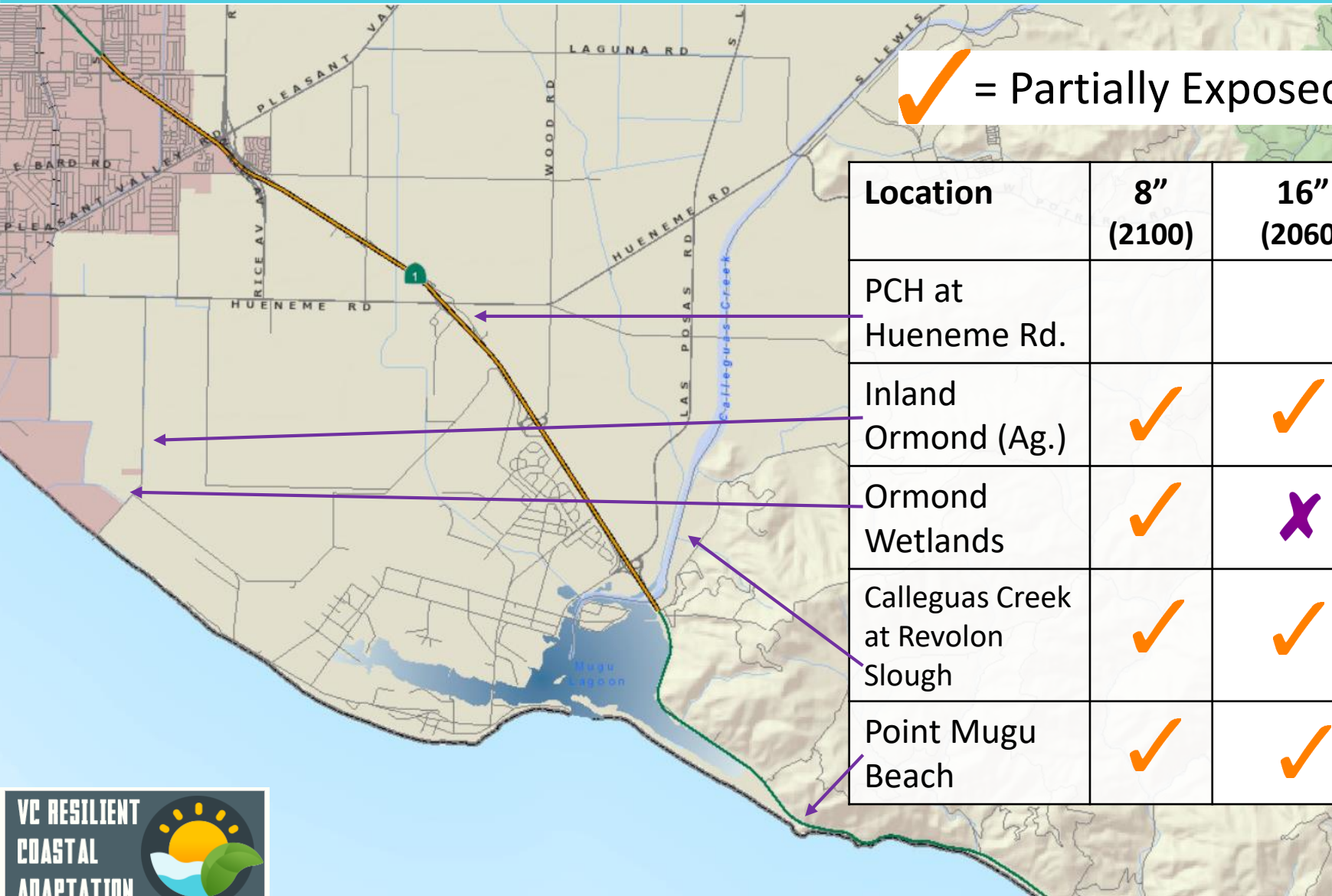


✓ = Partially Exposed ✗ = Severely Exposed



Location	8" (2030)	16" (2060)	16" to 5' (2060-2100)	5' (2100)	1% Storm
McGrath					✗
Hollywood Beach	✓	✓	✗	✗	✗
Hollywood Beach Community			✓	✗	✗
Silverstrand Beach	✓	✓	✗	✗	✗
Silverstrand Community		✓	✗	✗	✗

SOUTH COAST VULNERABILITIES (1 of 2)



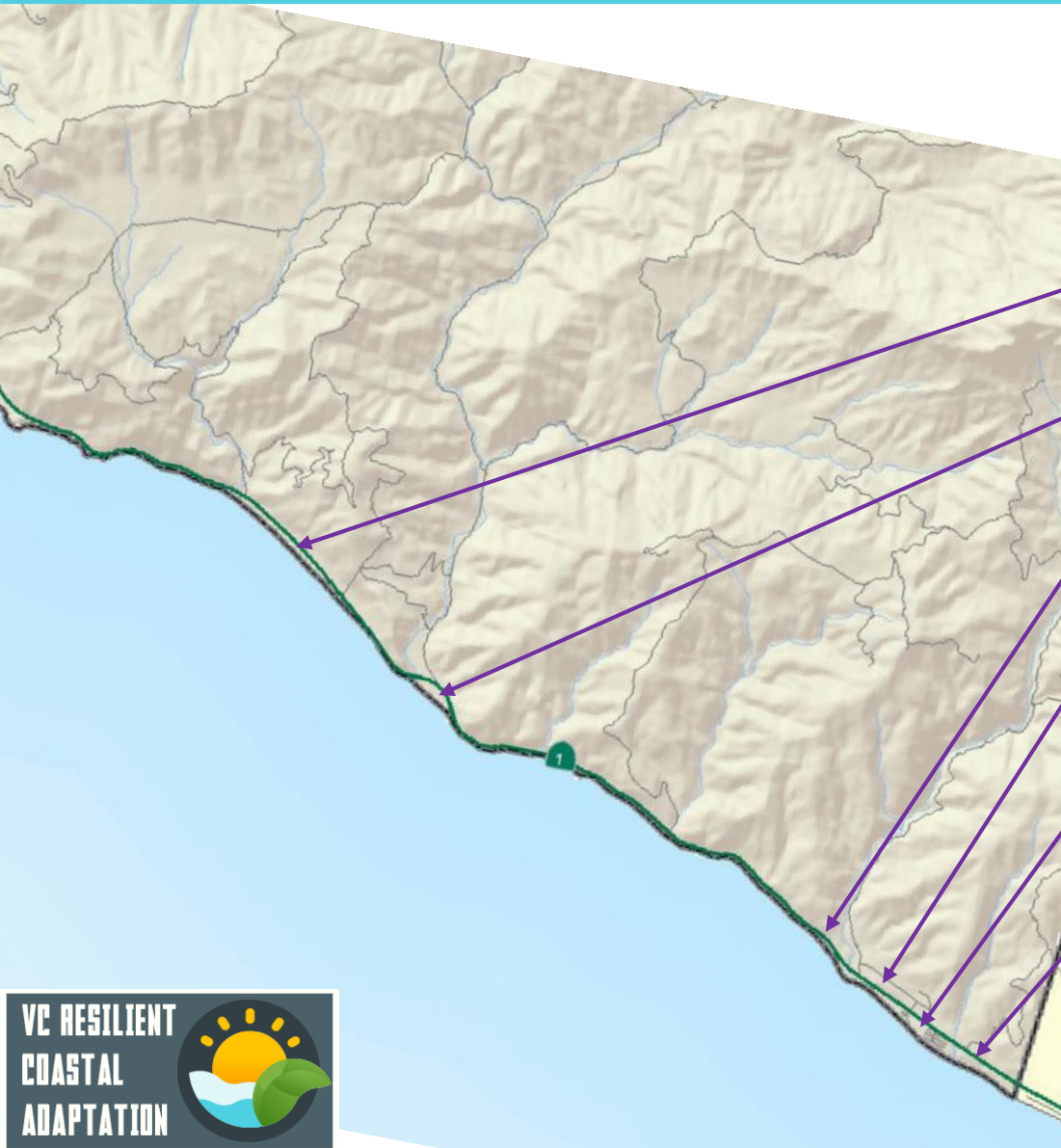
✓ = Partially Exposed ✗ = Severely Exposed

Location	8" (2100)	16" (2060)	16" to 5' (2060-2100)	5' (2100)	1% Storm
PCH at Hueneme Rd.					✓
Inland Ormond (Ag.)	✓	✓	✗	✗	✗
Ormond Wetlands	✓	✗	✗	✗	✗
Calleguas Creek at Revolon Slough	✓	✓	✓	✓	✗
Point Mugu Beach	✓	✓	✓	✓	✗

SOUTH COAST VULNERABILITIES (2 of 2)



✓ = Partially Exposed ✗ = Severely Exposed



Location	8" (2030)	16" (2060)	16" to 5' (2060-2100)	5' (2100)	1% Storm
Thornhill-Broome Beach	✓	✓	✗	✗	✗
Sycamore Cove Beach	✓	✓	✗	✗	✗
Residences on Pilings*	✓	✓	✓	✓	✗
Yerba Buena Beach	✓	✗	✗	✗	✗
Residences with Armor					✗
County-Line Bluffs *	✗	✗	✗	✗	✗
Narrow Beaches	✗	✗	✗	✗	✗

*Further analysis needed to determine extent of exposure.

ADAPTATION STRATEGIES: COUNTYWIDE



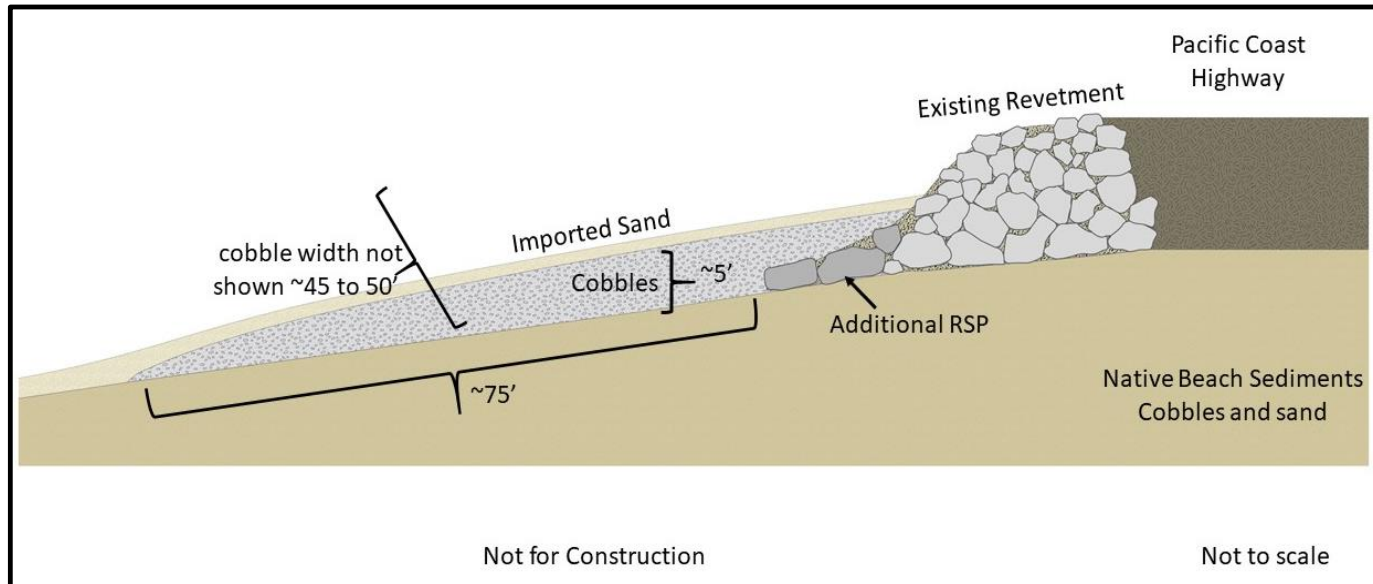
- Coastal Hazard Overlay Zone
- Real Estate Disclosures
- Standards to Elevate New Development
- Interjurisdictional Conservation Planning for Vulnerable Focal Species
- Adaptive Management Planning for Sensitive Habitats
- Sediment Management



ADAPTATION STRATEGIES: NORTH AND SOUTH COAST



- Continued Use of Armor
- Standards for Bluff Setbacks
- Continued Use of Pilings
- Sand Retention with Non-Permanent Perpendicular Cross-Shore Features



ADAPTATION STRATEGIES: CENTRAL COAST



- Includes Countywide Strategies Listed Above
- Re-Establish Native Coastal Dune Habitat
- Dredge Sediment for Beach
- Storm Drain Improvements for Streets at Hollywood Beach and Silverstrand Communities

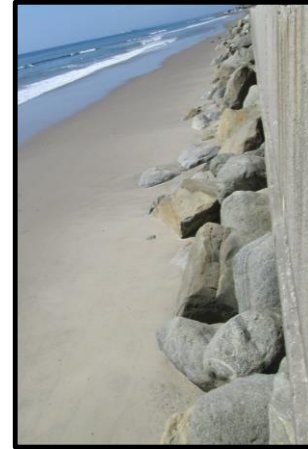
Map of Potential "Groundwater Daylighting" at Silverstrand



HIGH PRIORITY PUBLIC-RELATED USES



Source: Gene Peck



Calleguas Creek, Jan 2005
NWS - Oxnard



Source: Caltrans

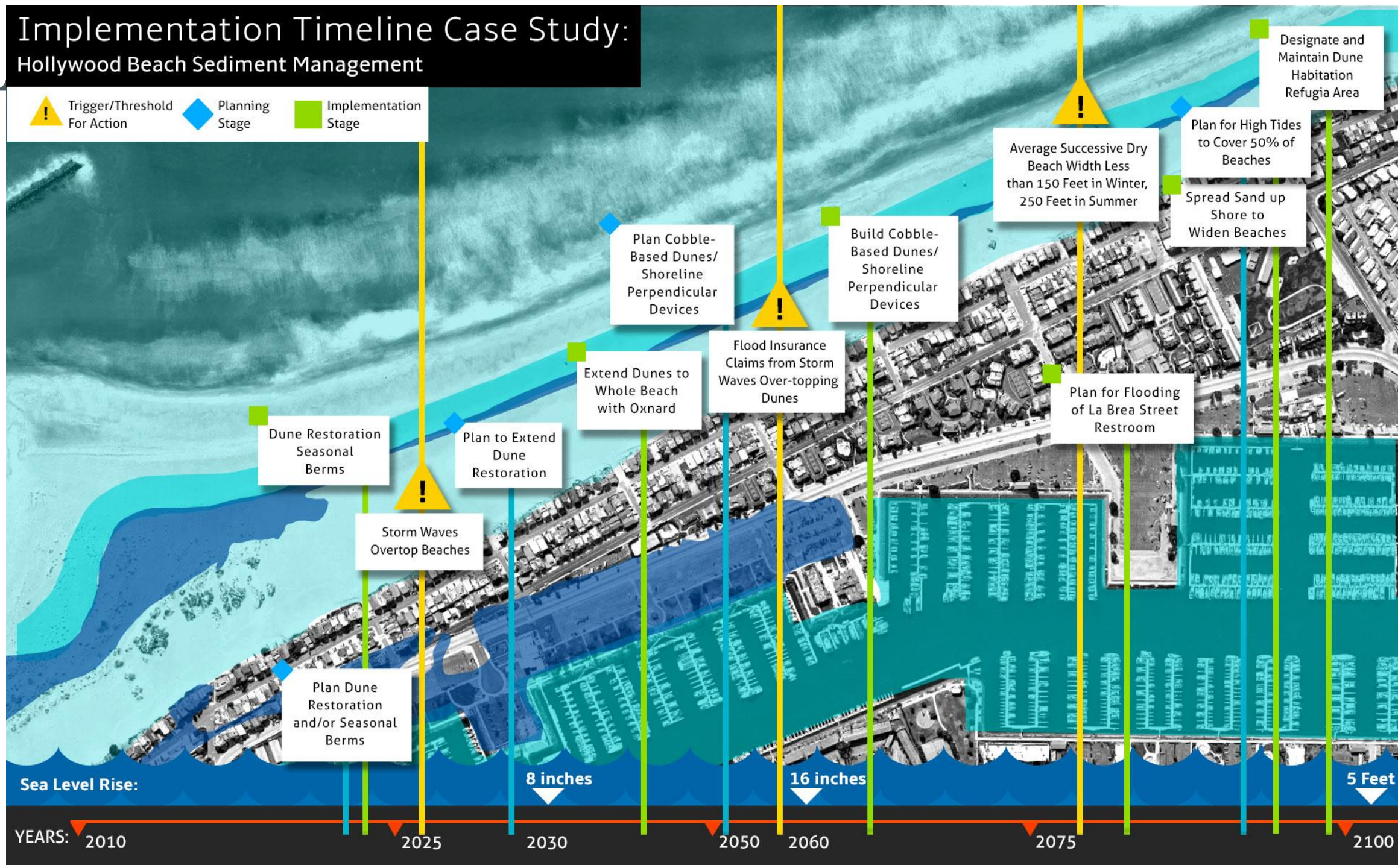


HIGH PRIORITY PUBLIC-RELATED USES



- Sand retention on narrow beaches
- Dune restoration and drainage at Hollywood Beach sand trap
- Flood-proofing at Silverstrand near Hobie Beach (w/Harbor Dept. and City of Oxnard)
- Accommodation or protection at inland Ormond Beach, Calleguas Creek and Revolon Slough
- Accommodation and potential relocation of campsite at Thornhill-Broome Beach
- New bridge designs: PCH at Sycamore Cove, and Harbor Boulevard at Santa Clara River

Implementation Timeline Case Study: Hollywood Beach Sediment Management



WHAT HAVE OTHERS DONE?



Managed Retreat: City of Ventura, City of Pacifica, Goleta, City of Monterey

Dune Restoration: City of Ventura, City of Santa Monica, Humboldt County, Encinitas, US Navy at Point Mugu

Beach Nourishment: Port Hueneme, Los Angeles, Imperial Beach, many areas with harbor dredging practices

Horizontal Levees: San Francisco Bay (hasn't been used on CA coast)

LCP Amendments: many underway, but few have been certified—Marin County, City of Del Mar

Regulatory Approach: County of Ventura and Caltrans include sea level rise projections in discretionary permit technical studies and infrastructure design.

PRELIMINARY DRAFT POLICIES



Coastal Hazards Screening Area: Hazards reports, real estate disclosures, plan for life of development

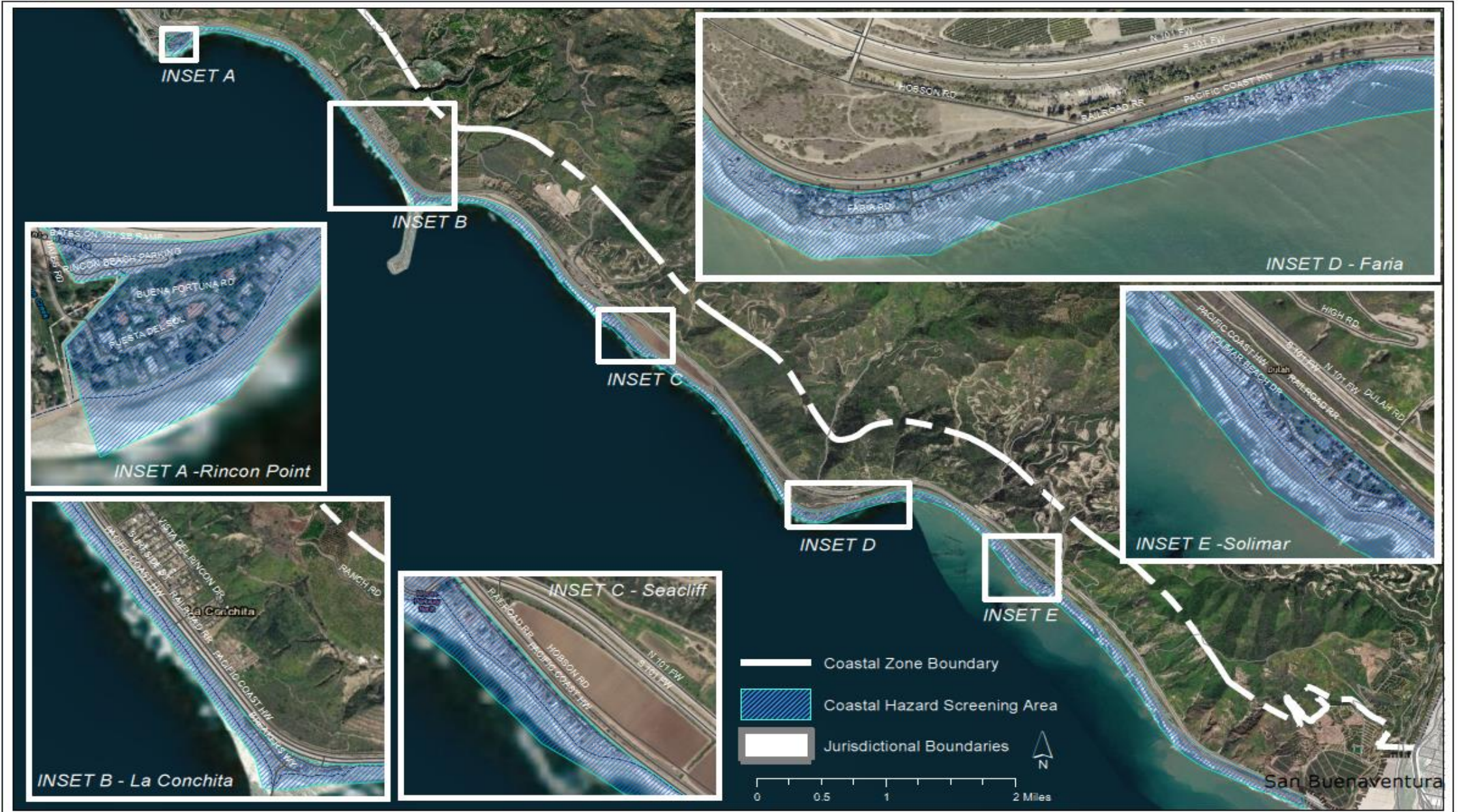
Elevate New Development: More conservative approach to flooding with sea level rise and FEMA

Sediment Management: Encourage beach nourishment, retain in littoral cell, prioritize soft solutions over armor, conserve dunes at Hollywood Beach

Social Justice: Engage disadvantaged communities, consult with native tribes about erosion of cultural resources



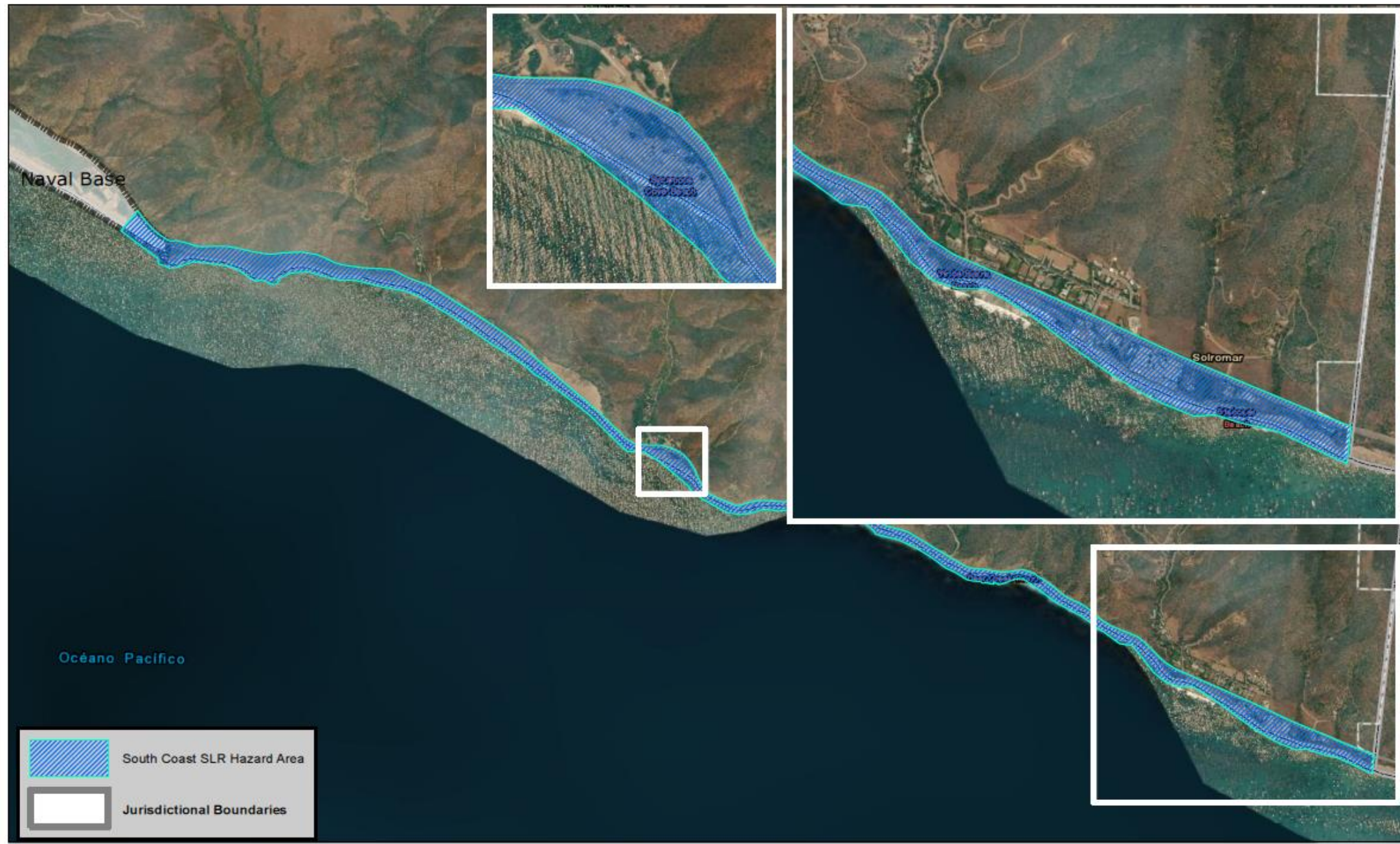
Coastal Hazards Screening Area: North Coast Subarea



Coastal Hazards Screening Area: North Coast Subarea



Coastal Hazards Screening Area: South Coast Subarea



PRELIMINARY DRAFT POLICIES



Clarify Approach to Armor (e.g. seawalls and revetments):

- When armor can be created, modified, repaired, maintained, and removed
- Defines new development and substantial redevelopment
- Allow alternatives (i.e. caissons/pilings)
- Clarify policy toward armor on Public Trust Lands

PRELIMINARY DRAFT PROGRAMS



- Monitor new science and tide gauges
- Develop area specific adaptation action plans
- Study in-lieu mitigation fees for beach sand, habitat, public access
- Coordination with County, State, and Federal agencies
- Establish interagency County working group
- Integrate adaptation in Local Hazard Mitigation Plan update
- Continue educational outreach

VC Resilient Phase II Grant Application



- Adopt sea level rise policies
- Update hazards policies, and combine all hazards into one section
- Move applicable General Plan climate action policies to LCP
- Establish interagency County working group
- \$160,070 grant and approx. \$78,217 “match” for \$238,287 total
- Begin in early 2020 and end in early 2022



DISCUSSION TOPIC #1: APPROACH TO ARMOR

Options	Pros	Cons
1. Phase out and remove armor (e.g. seawalls and revetments) as property is redeveloped and no longer needs the armor.	<ul style="list-style-type: none">• Maximizes public access and conserves beaches.	<ul style="list-style-type: none">• Gaps in armor may increase exposure on adjacent sites.• Armor removal is likely to be opposed by Coastal residents.
2. Allow existing armor to remain, be modified, and maintained until contiguous tracts of property are redeveloped without reliance on armor.	<ul style="list-style-type: none">• Provides more notice to landowners.• Allows time to explore alternatives and hybrids.	<ul style="list-style-type: none">• May result in loss of public access over the mid-term, while more development is designed without reliance on armor.

DISCUSSION TOPIC #2: DATE OF “EXISTING”

Coastal Act Section 30235: “Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect **existing** structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.”

Options	Pros	Cons
1. Coastal Commission interpreting “existing” as inception date of Coastal Act, January 1, 1977. Equals approx. 2/3 of existing armor in unincorporated Ventura County.	<ul style="list-style-type: none">• Restricts amount of existing armor that can be modified (enlarged).• More assurance that beaches and public access are preserved.	<ul style="list-style-type: none">• Standard of review is confusing for residents and planners.• Gaps in armor may increase exposure on adjacent sites.
2. Use date of certification of LCP amendments for “existing”. Between 1977 and today, approx. 1/3 of existing armor was built.	<ul style="list-style-type: none">• Could still phase out armor in long-run, but allows more armor to be modified in the near-term.• Traditional regulatory planning approach to phase-out hazardous uses while allowing entitled uses.	<ul style="list-style-type: none">• May result in diminishing public access and beaches in near- to mid-term.

FEEDBACK AND QUESTIONS?



ADAPTATION - TRIGGERS



- By sea level rise elevation
- By rate of sea level rise
- By time
- By exposure
- By damages
- By beach width

