

Why Coastal Resiliency?

- State Guidance / Proposed Legislation
- Provide predictability for Coastal Development Permits
- Development can last 75+ years
- Grant money available
- Preparation cheaper than reaction

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Coastal Hazards


- ▶ Erosion Hazards
short- and long-term dune and cliff erosion
- ▶ Coastal & Fluvial Flooding
from storm events
- ▶ Wave Runup (Uprush)
wave uprush above still water level
- ▶ Rising Tides
inundation during monthly high tides and 100-year high tide



Source: Santa Barbara County



Source: Santa Barbara County




Source: Santa Barbara Channelkeeper

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Coastal Hazards + Sea Level Rise

- Rising tides
- More frequent severe storms


WHAT ARE THE IMPACTS?




Erosion



Permanent inundation





Temporary flooding



Saltwater intrusion

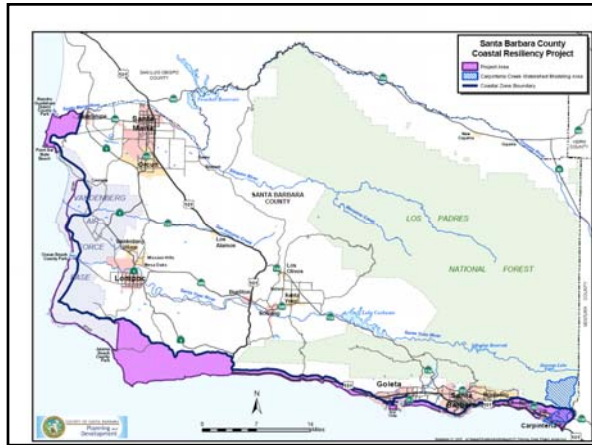
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Vulnerability Assessment – Background and Methodology





- Study Area
- Sea Level Rise Scenarios
- Coastal Armoring
- Asset Sector Analysis
 - Model results → GIS hazard zones
 - Overlaid coastal flood and erosion hazard zones with sectors
 - Identified vulnerable assets

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Sea Level Rise Scenarios



Sea Level Projections for Santa Barbara County (inches).
Based on NRC 2012 projections in reference to year 2000 and modified for local conditions.



Time Period	Low SLR	Medium SLR	High SLR
By 2030	0.04	3.5	10.2
By 2060	2.8	11.8	27.2
By 2100	10.6	30.7	60.2

+ Existing Conditions (2010)

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Mapping Assumptions and Limitations



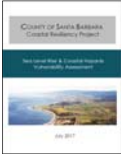
- Model = Planning Scale
- Assumptions:
 - Topography
 - Sediment supply
- Areas for Future Study



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Vulnerability Assessment Methodology

Coastal Hazards from Sea Level Rise
+
Coastal Assets
=
Vulnerabilities



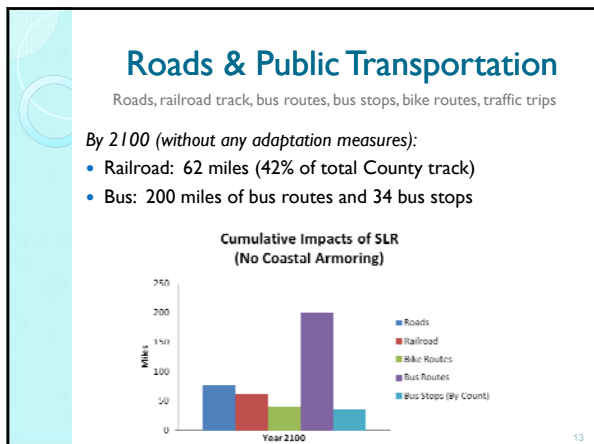
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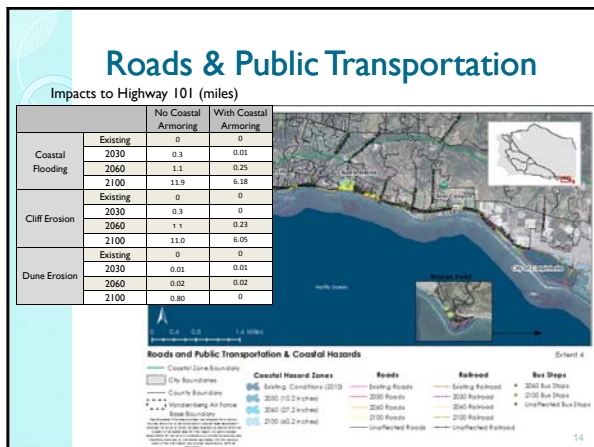
Sectors

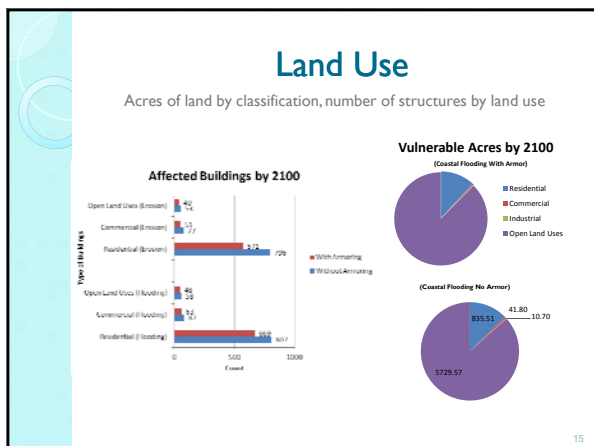
1. Hazardous Materials & Minerals
2. Roads & Public Transportation
3. Land Use
4. Public Facilities
5. Public Access & Recreation
6. Environmentally Sensitive Habitat
7. Wastewater
8. Water Supply

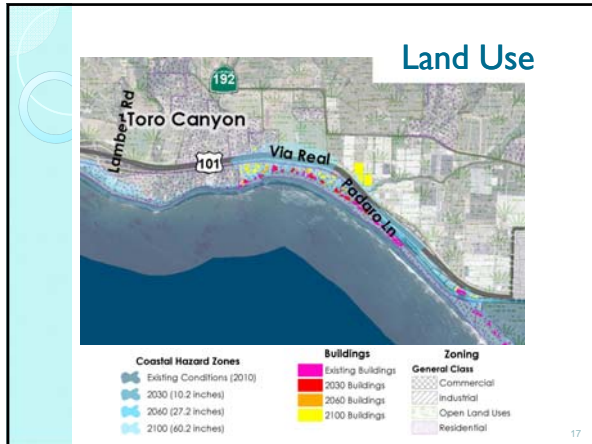


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- ### Positive Findings
- The only oil and gas terminal in Gaviota is not at risk
 - No police stations or hospitals at risk
 - Only one public facility vulnerable
 - Few hazardous material sites (none in North County)
 - No residential, commercial, or industrial structures or facilities in North County
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Types of Adaptation Strategies

- Do nothing (react when needed)



- Accommodate (design for the hazard)

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Types of Adaptation Strategies

- Move away from hazardous area



Figure 16. Photo depicting "managed retreat" and restoration. Surfer's Knot Managed Shoreline Retreat project in which the parking lot was moved back and beach area was restored. Licensed copyright by Alex Williams (February 28, 2013). Photo courtesy of Surfer's Knot.



Figure 18. Photo depicting a development setback in Pismo Beach. Source: California Coastal Records Project.

- Avoid developing in hazardous areas

Types of Adaptation Strategies

- Construct "green" or "soft" protection




Figure 7. Photo of infrastructure at risk near Rincon Beach, Ventura, CA, during the King Tide in December 2012. (Photo courtesy of David Powdrell, California King Tides Initiative).

- Build barriers ("hard" protection)

Policy Development

Goal: Create new and enhance existing coastal development and adaptation policies

- No changes to zoning or land use designations
- Use existing policies whenever possible
- Provide predictability to permit applicants

Draft policies available for review at:
<http://longrange.sbcountyplanning.org/>

Update Hazard Policies

- Hazards within the Coastal Zone
- Bluff and Beach Erosion
- Bluff and Coastline Protection
- Geologic Hazards
- Flood Hazards

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Example of Hazard Policy Change

Policy 3-2
 Revetments, breakwaters, groins, seawalls, cliff retaining walls, pipelines and outfalls, and other such construction that may alter natural shoreline processes shall be permitted when: (1) required to serve coastal dependent-uses or to protect existing structures or public beaches in danger from erosion; (2) no better alternative exists ~~designed~~ to eliminate or mitigate adverse impacts on local shoreline sand supply; and (3) they are designed so as not to block lateral beach access.

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Example of Hazard Policy Change

Policy 3-4
~~In areas of n~~ New development (including additions and shoreline renovation), ~~above ground structures~~, shall be set back a sufficient distance from the bluff edge to be safe from the threat of bluff erosion or slope instability, factoring in the effects of sea level rise, without the use of a shoreline protective device, over the anticipated economic life of the development (minimum of 75 years for single family residences and commercial structures) ~~for a minimum of 75 years~~, unless such standard will make a lot unbuildable, in which case a standard of 50 years shall be used.

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Update Energy (Oil/Gas) Policies

- Policy Goals
 - Consider sea level rise impacts in oil and gas facility planning
 - Prevent or inhibit erosion from pipelines



Gaviota Marine Terminal (Source: CA Coastal Records Project)

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Example of Energy Policy Change

- Applicants for oil and gas processing facilities shall prepare and keep updated emergency response plans to address ~~deal with~~ the potential consequences of hydrocarbon leaks or fires. ~~These emergency response plans shall be approved by the, as well as facility impacts from increased coastal flooding and erosion due to sea level rise.~~ The County's Office of Emergency Services Coordinator Management and Fire Department shall review and, if found to be adequate, approve these emergency response plans.

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Update Other Policy Areas

- Sediment Management
 - Collaborate with regional agencies on sediment management plans
- Public Access and Recreation
 - Pursue new public access ways if existing easements or corridors are lost or inaccessible due to sea level rise.
- Real Estate Disclosure
 - notify future property owners of potential hazards

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Next Steps



- Public Outreach
 - Workshops in Carpinteria, Goleta and Gaviota
- Montecito Planning Commission
- County Planning Commission
- Board of Supervisors
- Coastal Commission Certification

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Provide Input on Policies



<http://longrange.sbcountyplanning.org/programs/coastalresiliencyproject/coastalresiliency.php>

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Questions?



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