CLIMATE CHANGE VULNERABILITY ASSESSMENT

Board of Supervisors Briefing

November 9, 2021

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Overview

- What is the CCVA and why is the County doing one?
- Purpose of Today's Hearing
- Project Approach and Public Engagement
- Project Methods
- Project Results & Key Findings
- Next Steps for Safety Element Update

What is the CCVA?

- The Climate Change Vulnerability Assessment (CCVA) analyzes how climate-related **hazards** may harm the unincorporated community.
- **Impacts**- The CCVA analyzes the severity of impacts to populations and assets, and
- **Adaptive Capacity**- The ability to prepare for, respond to, and recover from climate-related hazards.
- The CCVA is ***not*** a GHG Inventory nor a policy document.
- The CCVA ***is*** an informational document.

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Why Do a Climate Change Vulnerability Assessment?

- Required by State Regulations & important to understand potential harm of Climate Impacts on our Community
- Regulations require the Safety Element *to now incorporate climate vulnerabilities and adaptation strategies.*
- What are the projected changes and hazards in SB County?
- What assets and populations are most vulnerable?

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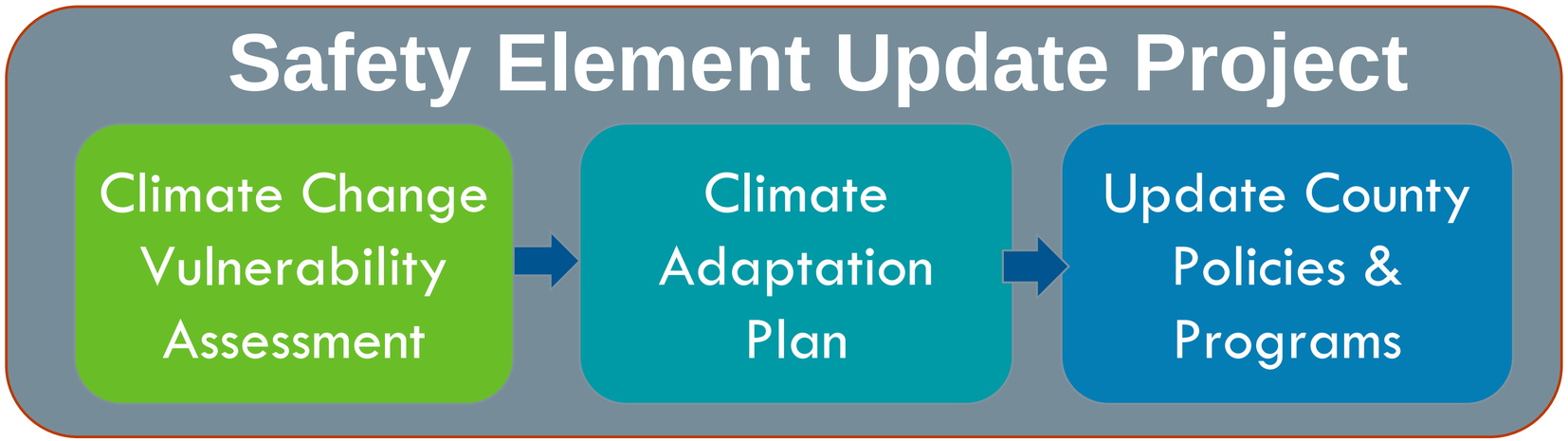
Purpose of Today's Hearing

- CCVA provides the data, results, and findings that will be used to develop adaptation strategies and updates to Safety Element policies.



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CCVA Methods

- Identify Climate Projections and Hazards relevant to Santa Barbara County
- Identify and Map Frontline Populations
- Identify and Map Assets of concern
- Assess Vulnerability Scoring for each Populations and Asset

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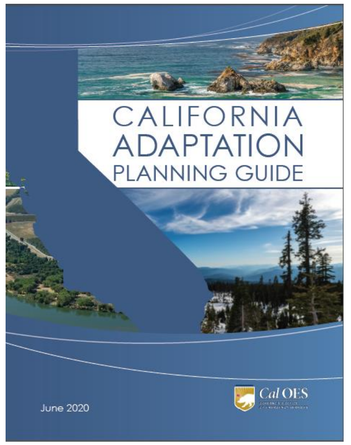
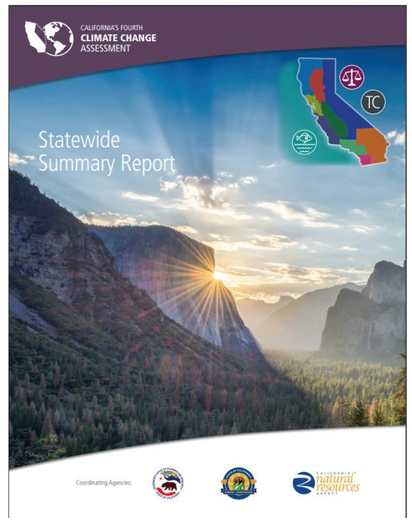
Guides, Tools, & Stakeholder Input

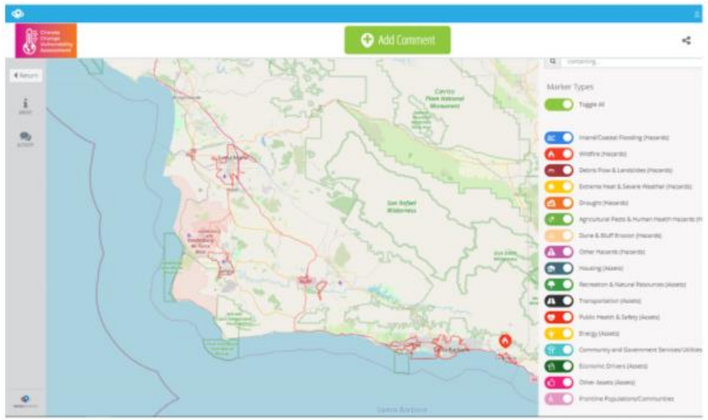
- **CA Adaptation Planning Guide:** Framework for conducting a Vulnerability Assessment and Adaptation Planning.
- **State Climate Studies and Guidance**: Best Available Science on climate change projections and impacts.
- **Local climate studies and vulnerability assessments**
- **Peer-reviewed Scientific Studies**
- **Stakeholder and Public Input:** Provided locally-relevant information used to develop the CCVA and its scoring.

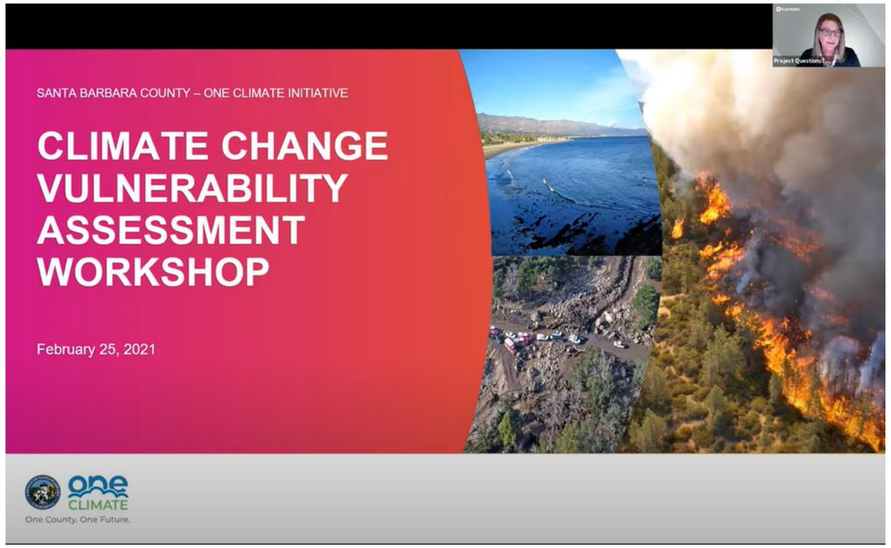




Outreach & Engagement

- Virtual Community Workshops (Winter 2019/2020)
- Core Team Meetings (County Department Staff)
- Adaptive Capacity Meetings
- Equity Advisory + Outreach Committee feedback
- Stakeholder Interviews & Meetings
- Website – Engagement Map





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Climate Change Hazards


Agricultural Pests & Diseases


Coastal Hazards (Coastal Storms)


Coastal Hazards (Dune & Bluff Erosion)


Landslides & Debris Flow


Wildfire


Ocean Acidification


Drought


Human Health Hazards


Decreased Fog


Inland Flooding


Severe Weather


Extreme Heat


Sea Level Rise

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Assets Identified in CCVA

POPULATIONS

INFRASTRUCTURE

BUILDINGS & FACILITIES

ECONMIC DRIVERS

ECOSYSTEMS & NATURAL RESOURCES

KEY COMMUNITY SERVICES

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Frontline Populations in the County

Frontline Population Group	Example Populations
People with High Outdoor Exposure	Children, Outdoor workers, & Unhoused
Income-Constrained Communities	People in Poverty, Unemployed, etc.
Limited Mobility/Chronic Health Issues	Seniors Living Alone, People with Disabilities, etc.
People Living in Remote Areas or Locations with Limited Roadway Access	Isolated & Rural Communities, People Living on Single Access Roads
People Living in Non-Resilient Living Conditions	Households in Mobile Homes, Overcrowded Households, & Renters
People with Limited Resources or Living in High Pollution Areas	Low-resourced People of Color, the Undocumented, etc.

Vulnerability Scoring

Impact + Adaptive Capacity = Vulnerability

		IMPACT SCORE		
		Low	**Medium**	**High**
ADAPTIVE CAPACITY SCORE	**Low**	V3	V4	V5
	Medium	V2	V3	V4
	High	V1	V2	V3

V1: Minimal Vulnerability → **V2:** Low Vulnerability → **V3:** Moderate Vulnerability → **V4:** High Vulnerability → **V5:** Severe Vulnerability

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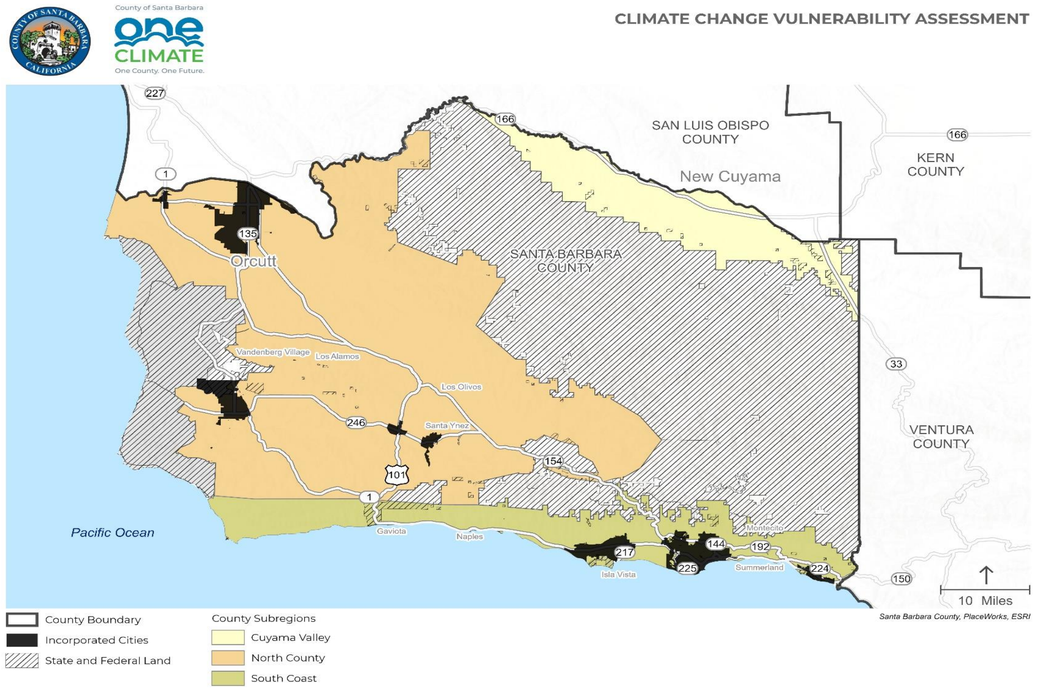
CCVA Scope

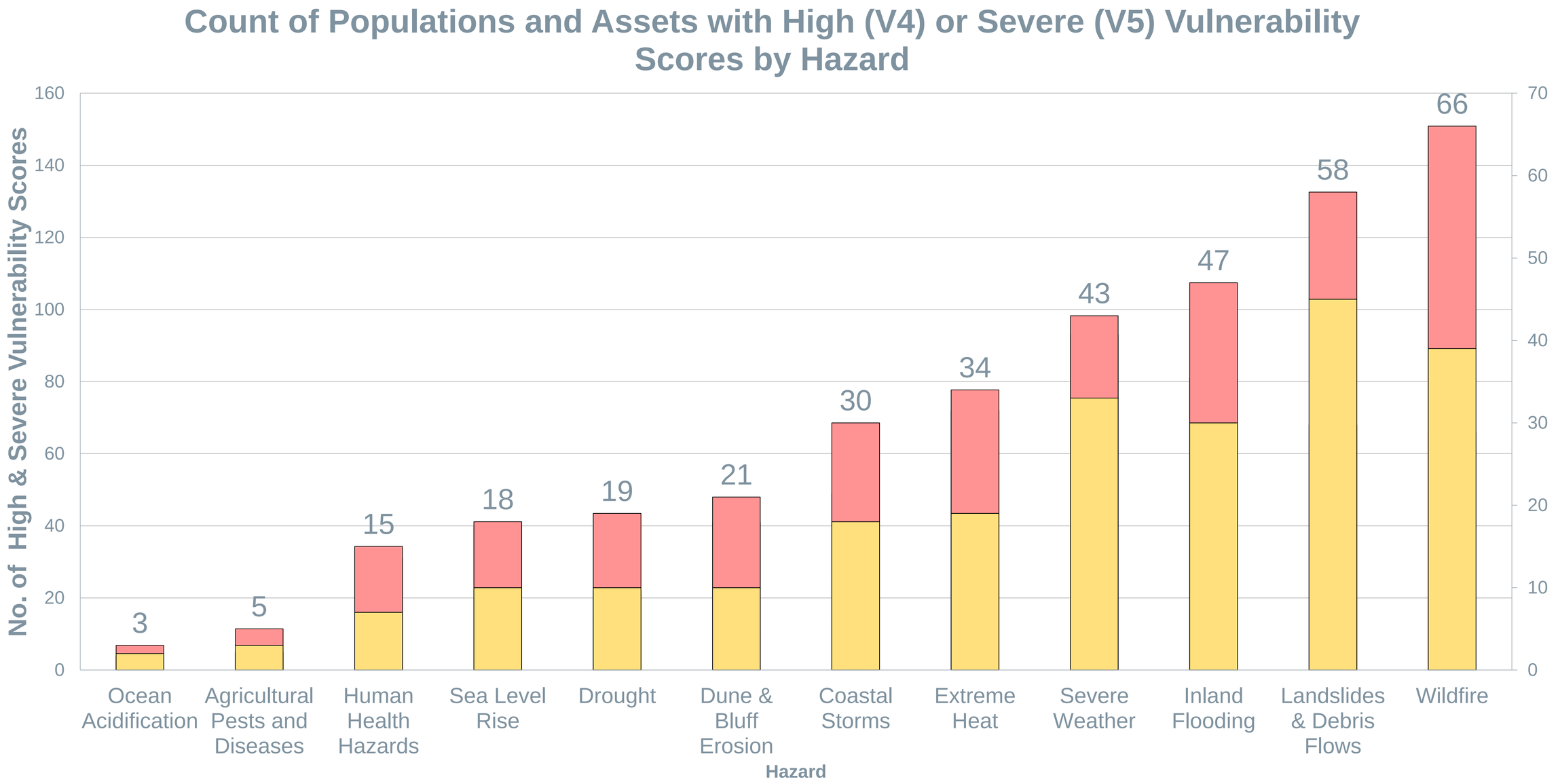


- County-wide and Sub-Regional Analysis
  - Sub-regions include North County, the South Coast, & Cuyama Valley
- Vulnerability scores accounted for:
  - Cascading and Compounding Effects
  - Non-Climate Stressors such as financial instability, language or communication barriers, and poor housing quality.

Results

Asset Type	Groups or Types Assessed	Most Vulnerable Assets
Populations	22	Those with limited mobility, limited resources, existing social or economic disparities, those directly endangered by hazards
Infrastructure	44	Transportation (Roads, bridges, railroads, bus routes, evacuation routes) & Water and Wastewater Infrastructure
Buildings & Facilities	26	Residential Structures, Historic Buildings
Economic Drivers	11	Agriculture, Agritourism, and Coastal & Marine Recreation and Tourism
Ecosystems & Natural Resources	12	Aquatic Ecosystems, Sloughs & Coastal Marshes
Key Community Services	23	Water and wastewater services because of water scarcity, public transit service, and electricity service.

Results


Count of Populations and Assets with High (V4) or Severe (V5) Vulnerability Scores by Hazard
No. of High & Severe Vulnerability Scores
160
140
120
100
80
60
40
20
0
70
60
50
40
30
20
10
0
3
5
15
18
19
21
30
34
43
47
58
66
Ocean Acidification
Agricultural Pests and Diseases
Human Health Hazards
Sea Level Rise
Drought
Dune & Bluff Erosion
Coastal Storms
Extreme Heat
Severe Weather
Inland Flooding
Landslides & Debris Flows
Wildfire
Hazard

Key Findings – Wildfire

- Santa Barbara County faces a 36% increase in wildfire burn area by 2100.
- The County and key partners can continue/expand programs that:
  - Secure funding and implement Defensible Space;
  - Implement & maintain vegetation management projects;
  - Encourage other fire-resistant features during construction; and
  - Provide adequate evacuation routes and transportation services.
- This is essential in wildfire-prone, single-access-road communities, such as Hollister Ranch, Mission Hills, and the Santa Rita Hills.

Key Findings – Extreme Heat & Frontline Populations

- Frontline Populations have existing conditions that make adapting to all hazards more difficult.
- Frontline Populations generally are most vulnerable to extreme heat, human health hazards, and wildfire.
- There are existing programs and resources to assist these populations- but barriers still exist, for instance a lack of a comprehensive Extreme Heat Plan.

Key Findings – Flooding, Debris Flow, & Transportation

- Floodwaters can wash out major and single access roads and bridges.
- Create cascading effects on emergency medical response and transit services, evacuations, and other vital community services.
- Infrastructure networks can be a challenge because much of it is owned by other entities (e.g. Fed, State, Local).
- County should work with these agencies to ensure infrastructure and the services provided are fortified or upgraded, as needed.

Next Step: Adaptation Planning

- CCVA Report will help the County set priorities for the Climate Change Adaptation Plan.
  - Adaptation Plan will include policies, projects, and measures that will inform the Safety Element Update
  - Multiple Departments involved to implement it
  - Pursue grant funds for adaptation measures.

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Questions

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www.countyofsb.org/oneclimate

www.countyofsb.org/CCVA

Extra Slides

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Climate Projections and Hazards in SB County

Climate Stressors	Metric	Projected Change
Air Temperature Change	Minimum and maximum temperature	2030: + 3.2 deg F[1] 2060: + 4.9 deg F[1] 2100: + 7.1 deg F[1]
Precipitation Change	Increased annual average precipitation, seasonality, & inter-annual variability	Increased annual average precipitation, increased rain during periods of precipitation, fewer total days with precipitation, increase in year-to-year variability.
Sea Level Rise	Inches of sea level rise	2030: + 8.4 inches[2] 2060: + 30 inches[2] 2100: + 79.2 inches[2]
Ocean Acidification	Average pH of the Pacific Ocean	Pacific Ocean becomes more acidic as it absorbs more carbon dioxide affecting marine biota.

Climate Projections and Hazards in SB County (Continued)

Climate Stressors	Metric	Projected Change
Agricultural Pests and Diseases	Occurrence of pests and diseases	Pests and diseases increase as higher temperatures allow insects to reproduce more rapidly and for longer periods in a year.
Coastal Storms	Inches of inundation during a 100-Year Storm	2030: 48.4 inches[3] 2060: 70 inches[3] 2100: 119.2 inches[3]
Drought	Timing and length of drought	Drought will likely occur more frequently and last longer due to more variability in precipitation extremes.
Dune and Bluff Erosion	Inches of dune and bluff erosion	An average of 623 feet of dune erosion and 177 feet of bluff erosion by 2100.[4]

Climate Projections and Hazards in SB County (Continued)

Climate Stressors	Metric	Projected Change
Extreme Heat	Countywide number of extreme heat events per year & heat wave duration	Historic annual average: 4 heat events/year. 2030: + 8 heat events per year[5] 2060: + 15 heat events per year[5] 2100: + 30 heat events per year[5]
Inland Flooding	Areas flooded per year	200-year storms and flooding could occur every 40-50 years by 2100.[6]
Decreased Fog	Number of fog days per year	Fog is likely to decrease, affecting crops and ecosystems, though the future of fog is uncertain.
Human Health Hazards	Occurrence of health hazards, such as bacteria & viruses, carried by animals and pests	Human health hazards increase as temps allows insects and other pests to reproduce more rapidly.

Climate Projections and Hazards in SB County (Continued)

Climate Stressors	Metric	Projected Change
Landslides and Debris Flow	Number of landslides and debris flows per year	Landslides and debris flows will likely increase as more precipitation falls during a storm event and hillsides more frequently have burn scars.
Severe Weather	Number of severe weather events per year	Severe weather events likely to increase on average each year.
Wildfire	Countywide number of acres burned per year	Historic annual average: 14,608 acres/year 2030: + 4,457 acres/year (+ 25%)[7] 2060: + 7,517 acres/year (+ 41%)[7] 2100: + 6,044 acres/year (+ 33%) [7]

Business & Agricultural Stakeholder Engagement

Agriculture:

- Two requests made of AAC in May 2020 from LRP to Participate in CCVA;
- Project Team followed up on AAC requests in December 2020 for Agriculture-Focused Meeting for CCVA (1 rep designated by AAC member attended);
- Monthly updates from P&D Director and LRP Deputy on Safety Element to AAC ; and
- Presentations to AAC and requests for feedback on CCVA in May, June (Stakeholder input) and October 2021 (Draft CCVA).

Business:

- April/May 2021- Reached out to Santa Barbara County Chamber of Commerce, Lompoc and Santa Maria reps declined to meet.

Frontline Populations in the County

- Children
- Senior Citizens (65+)
- Seniors Living Alone
- Renters
- Households without access to Telecommunications or Transportation
- Households in Mobile Homes
- Adults without a High School Degree
- The Unemployed
- Outdoor Workers
- Persons with Limited English Proficiency
- Homeless
- Overcrowded Households
- Cost-Burdened Households (Spending 33%+ income on housing)
- Households in Poverty
- Low-Income Households
- Persons with Disabilities and Access & Functional Needs
- Undocumented Persons*
- People with Chronic Health Problems*
- Isolated & Rural Communities*
- Persons Living on Single Access Roads*
- Communities with High Pollution Burden*
- Low-Resourced Ethnic Minorities*

* *Lacks data, is incomplete, or is from multiple sources*