



BOARD OF SUPERVISORS  
AGENDA LETTER

Agenda Number:

Clerk of the Board of Supervisors  
105 E. Anapamu Street, Suite 407  
Santa Barbara, CA 93101  
(805) 568-2240

**Department Name:** Planning and Development  
**Department No.:** 053  
**For Agenda Of:** November 9, 2021  
**Placement:** Departmental  
**Estimated Time:** 1.5 hours  
**Continued Item:** No  
**If Yes, date from:**  
**Vote Required:** Majority

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**TO:** Board of Supervisors

**FROM:** Department Lisa Plowman, Director, Planning and Development (P&D)  
Director (805) 568-2085  
Contact Info: Dan Klemann, Deputy Director, Long Range Planning Division  
(LRP) (805) 568-2072

**SUBJECT:** Safety Element Update - Climate Change Vulnerability Assessment (CCVA)

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**County Counsel Concurrence**

As to form: Yes

**Auditor-Controller Concurrence**

As to form: N/A

**Other Concurrence:** N/A

**Recommended Actions:**

That the Board:

- a) Receive a report and provide any comments on the findings of the CCVA;
- b) Provide any comments and/or direction on developing the project description for the Safety Element Update, based on the findings of the CCVA; and
- c) Determine that the Board's actions are not a "project" subject to environmental review pursuant to the State California Environmental Quality Act (CEQA) Guidelines § 15378(b)(5).

**Summary Text:**

The County of Santa Barbara Planning and Development Department prepared a Climate Change Vulnerability Assessment (Attachment 1) as a first step to improving regional resiliency by analyzing how climate change may harm the community. The Board has the opportunity to review the CCVA before it is used to develop policies and strategies in the next phases of the Safety Element Update project. The Vulnerability Assessment looks at how severe the effects of climate change hazards are likely to be for the county's people and assets and identifies which groups of people and assets face the greatest potential for harm. The County will use these results to prepare an Adaptation Plan and update the Santa Barbara County Seismic Safety and Safety Element to increase resiliency throughout the unincorporated county. The Vulnerability Assessment helps Santa Barbara County comply with state laws, identifies the most

vulnerable populations and assets in the county, and helps improve County eligibility for grant funding to implement adaption projects and develop resilience programs.

The purpose of this Board letter and the corresponding hearing is to brief the Board on the Vulnerability Assessment and key findings. The Vulnerability Assessment is not a policy document, but rather an informational document that will be used to develop adaptation strategies in the County’s Climate Change Adaptation Plan.

**Background:**

**1.0 CCVA Development**

The Safety Element Update has been included in the LRP Work Program since Fiscal Year 2019-2020 in order to incorporate legislative requirements set forth in SB 379 (Jackson, 2015 State Legislative Session) and Government Code section 65302(g). These new provisions require the Safety Element to be updated to address climate adaptation and resilience strategies based on a vulnerability assessment that identifies the risks posed by climate change. The Safety Element Update will also ensure consistency between the Safety Element and the Multi-Jurisdictional Hazard Mitigation Plan, which is incorporated by reference.

**Project Process**

LRP staff’s first step was to review data sources, including State and Federal resources, climate change studies, and other vulnerability assessments. Staff then hired a consultant to prepare the CCVA starting in April, 2020. LRP staff and the consultants relied on the State’s Adaptation Planning Guide (Guide) (CalOES, 2020) to guide the development of the CCVA; the Guide also will inform the development of climate adaptation strategies.

LRP staff assembled a “Core Team” consisting of representatives from various County departments as well as external advisors to provide feedback and technical expertise at various points in the project. The Core Team assisted in making sure the information in the CCVA is accurate and can provide a foundation to develop climate adaptation strategies. Core Team staff and their affiliation are listed in Table 1 below.

**Table 1. CCVA Core Team Advisory Group Members and their Affiliation**

<b>County Department and Division or Affiliation</b>	<b>Representative(s)</b>
Community Services Department, Parks Divisions	Jeff Lindgren
Community Services Department, Sustainability Parks	Ashley Watkins, Garrett Wong, and Marissa Hanson-Lopez
Executive Office of Emergency Management	Kelly Hubbard, JD Saucedo
Fire Department	Rob Hazard
Planning and Development Department	Selena Evilsizor
Public Health Department, Environmental Health Services Division	Jason Johnston
Public Works Department, Resource Recovery and Waste Division	Carlyle Johnston
Public Works Department, Transportation Division	Will Robertson

County Department and Division or Affiliation	Representative(s)
Public Works Department, Water Resources Division- Flood Control	Jon Frye, Aurora Zemjanis
Public Works Department, Water Resources Division -Water Agency	Matt Young
External Advisors	
California Polytechnic University, San Luis Obispo, Professor Emeritus	William Siembieda
UC Agriculture and Natural Resources Cooperative Extension	Mark Battany

Preparation of the CCVA included substantial public engagement and outreach, despite the Covid-19 pandemic’s limitations. Engagement activities helped ensure the Vulnerability Assessment reflects accurate information specific and relevant to Santa Barbara County. Engagement activities included:

- Two virtual community workshops with over 150 total attendees.
- Six Core Team meetings
- Nine topically-focused meetings with various members of the Core Team and other experts to explore Adaptive Capacity
- Eight stakeholder interviews or meetings, including the Agriculture Advisory Committee
- Six Equity Advisory and Outreach Committee meetings
- A website<sup>1</sup> with a Public Engagement Map that provides public comment opportunities on the project

The CCVA and Safety Element Update are also a part of the One Climate Initiative, the County’s effort to raise awareness and participation among climate change-related planning and sustainability projects. The One Climate Initiative seeks to achieve this objective through collaboration on outreach and other shared goals, simplifying messaging, and offering online public engagement through a single platform. CCVA Project Staff collaborate with other One Climate Initiative participants in a variety of ways to leverage shared information and resources.

**Project Methods**

The preparation of the CCVA included intermediate work products, each memorialized as a consultant memo or work product, and were used to develop the final work product, which summarizes the County’s populations and assets that are most vulnerable. These work products include:

- Identification of climate change projections pertinent to Santa Barbara County and its three sub-regions (i.e., North County, Cuyama Valley, and the South Coast);

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<sup>1</sup> [www.Countyofsb.org/CCVA](http://www.Countyofsb.org/CCVA)

- Identification and mapping (where possible) of climate hazards that will result from these climate projections and their impacts<sup>2</sup>;
- Identification and mapping (where possible) of frontline populations that will be most vulnerable to the effects of climate change;
- Identification of assets that may be harmed by climate change including infrastructure, buildings and facilities, ecosystems and natural resources, economic drivers, and key services;
- Vulnerability scores for each population and asset with respect to each climate change hazard in order to identify those most vulnerable.

**2.0 CCVA Key Findings and Results**

**Frontline Populations**

Frontline Populations are those that experience the impacts of climate change earlier and/or to a more severe degree, often due to socioeconomic or environmental pressures. Frontline populations, listed below in Table 2, were identified using a variety of data sources, including the American Community Survey developed by the US Census Bureau, the California Healthy Places Index, and Santa Barbara Point-in-Time Count and Survey. Populations consist of households or groups of individuals that are mapped, when possible, at the census block level. Some frontline populations are not associated with a count, or cannot be mapped, because there is incomplete data or multiple data sources, as with people with chronic health problems, or are difficult to count, as with undocumented people. The identification of frontline populations is a component of the State’s Adaptation Planning Guide and is critical to prioritizing adaptation actions in the next phase of the project.

**Table 2. Frontline Populations in Santa Barbara County**

Children under 10	Overcrowded Households <sup>1</sup>
Senior Citizens (65+)	Cost-Burdened Households (Spending ≥ 33% income on Housing)
Senior Citizens Living Alone	Households in Poverty <sup>2</sup>
Renters	Low-Income Households <sup>3</sup>
Households without access to Telecommunications or Transportation	Persons with Disabilities and Access & Functional Needs <sup>4</sup>
Households in Mobile Homes	Undocumented Persons <sup>5</sup>
Adults without a High School Degree	People with Chronic Health Problems <sup>5</sup>
The Unemployed	Isolated & Rural Communities <sup>5</sup>
Outdoor Workers	Persons Living on Single Access Roads <sup>5</sup>
Persons with Limited English Proficiency	Communities with High Pollution Burden <sup>5</sup>
Persons Experiencing Homelessness	Low-Resourced Ethnic Minorities <sup>5</sup>

<sup>1</sup> Persons living in households with more than one person per room (including all rooms except bathrooms).

<sup>2</sup> Households with an income below the 2020 federal poverty level.

<sup>3</sup> Households of four people with an income below \$95,300, which is 160% of the very low income as defined by the California Department of Finance.

<sup>4</sup> Persons with a physical condition that limits their movements, senses, or activities, including those with access and functional needs, and persons with psychological conditions.

<sup>2</sup> An online interactive map that shows frontline populations, climate projections, and climate hazard mapping is available here: <https://tpc.maps.arcgis.com/apps/webappviewer/index.html?id=eaf5274633b049bf8caefd191006037a>.

<sup>5</sup> The population lacks counts and/or mapping because the population draws from incomplete data, multiple data sources, or the data has not been collected.

**Climate Change Hazards**

The Vulnerability Assessment defines four primary climate stressors that are direct effects of warmer temperatures. Eleven secondary stressors result from these primary stressors. Table 3 lists these primary and secondary stressors in addition to the metrics and projected changes we can anticipate. Each population and asset is assessed a vulnerability score with respect to two of the primary stressors (sea level rise and ocean acidification) and each secondary stressor, or climate change hazard. Climate projections and data sources are available in more detail in the Climate Stressors Memo, a resource developed as part of the CCVA (Attachment 2).

**Table 3. Primary Climate Stressors and Secondary Hazards evaluated in the CCVA**

Climate Stressors	Metric	Projected Change
<b>Primary Climate Stressors</b>		
Air Temperature Change	Minimum and maximum temperature	2030: + 3.2 deg F <sup>1</sup> 2060: + 4.9 deg F <sup>1</sup> 2100: + 7.1 deg F <sup>1</sup>
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 <sup>2</sup> 2060: + 30 inches <sup>2</sup> 2100: + 79.2 inches <sup>2</sup>
Ocean Acidification	Average pH of the Pacific Ocean	Pacific Ocean becomes more acidic as it absorbs more carbon dioxide affecting marine biota.
<b>Secondary Stressors - Climate Hazards</b>		
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 Hazards (Coastal Storms)	Inches of inundation during a 100-Year Storm	2030: 48.4 inches <sup>3</sup> 2060: 70 inches <sup>3</sup> 2100: 119.2 inches <sup>3</sup>
Coastal Hazards (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. <sup>4</sup>
Drought	Timing and length of drought	Drought will likely occur more frequently and last longer due to more variability in precipitation extremes.
Extreme Heat	Countywide number of extreme heat events per year & heat wave duration	Historic annual average: 4 heat events per year. 2030: + 8 heat events per year <sup>5</sup> 2060: + 15 heat events per year <sup>5</sup> 2100: + 30 heat events per year <sup>5</sup>

Climate Stressors	Metric	Projected Change
Inland Flooding	Areas flooded per year	200-year storms and flooding could occur every 40-50 years by 2100. <sup>6</sup>
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 and viruses, carried by animals and pests	Human health hazards increase as temperature allows for insects and other pests to reproduce more rapidly.
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%) <sup>7</sup> 2060: + 7,517 acres/year (+ 41%) <sup>7</sup> 2100: + 6,044 acres/year (+ 33%) <sup>7</sup>

1 California Energy Commission. 2018. “Annual Averages”. <https://cal-adapt.org/tools/annual-averages/>.  
 Note: Projections are an average of the four state-recommend climate models (HadGEM2-ES, CNRM-CM5, CanESM2, MIROC5), averaged for 2030-2050, 2050-2070, and 2070-2099. For more details, see the hazards summary dated July 7, 2020.

2 Ocean Protection Council. 2018. State of California Sea-Level Rise Guidance – 2018 Update. [https://opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exhibit-A OPC SLR Guidance-rd3.pdf](https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A OPC SLR Guidance-rd3.pdf)

3 California Coastal Commission. 2018. *California Coastal Commission Sea Level Rise Policy Guidance: Science Update – July 2018*. [https://documents.coastal.ca.gov/assets/slr/guidance/2018/3\\_Ch3\\_2018AdoptedSLRGuidanceUpdate.pdf](https://documents.coastal.ca.gov/assets/slr/guidance/2018/3_Ch3_2018AdoptedSLRGuidanceUpdate.pdf)

4 Matthew Heberger, Heather Cooley, Pablo Herrera, Peter H. Gleick, and Eli Moore of the Pacific Institute. 2009. The Impacts of Sea-Level Rise on the California Coast. <https://pacinst.org/wp-content/uploads/2014/04/sea-level-rise.pdf>.

5 California Energy Commission. 2018. “Extreme Heat Days and Warm Nights”. <https://cal-adapt.org/tools/extreme-heat/>

6 Langridge, Ruth. (University of California, Santa Cruz). 2018. Central Coast Summary Report. California’s Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-006.

7 California Energy Commission. 2018. “Wildfire”. <https://cal-adapt.org/tools/wildfire/>

### Vulnerability Scoring

The final product of the CCVA is a report that summarizes the vulnerability scores for each population and asset as a result of each relevant climate change related hazard. Vulnerability scores range from V1 (minimal vulnerability) to V5 (severe vulnerability). Vulnerability scores are a function of two inputs, an impact score that reflects how much a particular climate hazard may harm a population or asset, and an adaptive capacity score that reflects how well the population or asset can prepare for, respond to, and recover from impacts. Figure 1 below shows how impact and adaptive capacity scores combine to form a vulnerability score. Assets and populations with a high impact score and low adaptive capacity score will have higher vulnerability scores. Assets and populations with a score of V4 (High Vulnerability) or V5 (Severe Vulnerability) have been highlighted in the CCVA report and will likely be prioritized during adaptation strategy development. Attachment 3 contains the CCVA Results Matrix that contains vulnerability scores for each asset and population with respect to each of the 13 identified climate hazards.



**Figure 1. – Vulnerability Scores and their Input Impact and Adaptive Capacity Scores**

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

The vulnerability scores resulted in the following key findings:

- The CCVA evaluated 963 different pairings for vulnerability (e.g., populations/assets and climate hazard), and 361 were scored as highly or severely vulnerable (V4 or V5).
- Of 138 total assets and populations, 106 are highly or severely vulnerable to one or more climate hazard.
- Wildfire, debris flow and landslides, Inland Flooding and Severe Weather were the climate hazards that accumulated the most high and severe vulnerabilities.
- The most vulnerable populations include those with limited mobility, limited resources, existing social and economic disparities, and/or those directly endangered by climate change hazards.
- The most vulnerable assets include: transportation, water, and wastewater infrastructure and the services they provide; housing; agriculture, agritourism, and state and federal recreation and tourism resources; and aquatic ecosystems. For more information on the results, please see the full report in Attachment 1.
- All key findings for the project can be found on pages 147-155 of the Vulnerability Assessment in Attachment 1.

**3.0 Conclusions and Next Steps**

The Vulnerability Assessment provides the foundation for the next phases of the Safety Element Update, the Climate Change Adaptation Plan, and policy and implementation measure updates in the Safety Element. The CCVA is an informational document that provides baseline data and information that will inform the development and prioritization of adaptation strategies to address the County’s most critical climate vulnerabilities. Public comments received during the 30-day public review period can be found in Attachment 4. The CCVA is mostly funded by a Hazard Mitigation Grant from the Federal Emergency Management Agency (FEMA). In addition, there will be substantial funding available from the State for local and regional resilience work, as a result of the State’s recent budget addendum containing \$3.69 billion over the next 3 fiscal years<sup>3</sup>. The Climate Change adaptation planning process, supported by the CCVA, will be instrumental in developing strong funding proposals to pursue these budget funds.

<sup>3</sup> The State’s 2021-2022 Budget Addendum is here: <http://ebudget.ca.gov/BudgetAddendum.pdf>

The next phase of the Safety Element Update project is preparation of the Climate Change Adaptation Plan, which will begin in January/February 2022. Development of the Adaptation Plan will involve continued community engagement to develop and prioritize adaptation strategies. The Project Team will continue to work with County departments, community stakeholders, and external partners (community based organizations, businesses, government agencies, and others) to identify and develop adaptation strategies that best meet goals for resilience to climate change. The Project Team is currently exploring potential integration of the Adaptation Plan with other County projects that may address climate resiliency, specifically the 2030 Climate Action Plan.

As part of the next project phase, the Board will consider the Climate Change Adaptation Plan and its prioritization of various adaptation strategies. The Adaptation Plan can be a living County-policy document that is updated with new data and modeling projections, progress towards achieving Board established objectives and strategies, and reassessment and alignment of strategies to respond to future changes. The key steps of the next phase will include:

- Climate Change Adaptation Plan development, which will identify adaptation strategies and extensive public engagement (Estimated completion Winter 2022/2023);
- Environmental review of the Climate Change Adaptation Plan and Safety Element Update (Estimated completion by Fall 2023); and
- Decision maker hearings, including Planning Commissions and Board (Estimated completion by Winter 2024); and
- Coastal Commission certification could take an additional 15 months.

**Fiscal Analysis:**

Funding for this project is a combination of grant funding from the Hazard Mitigation Grant Program provided by FEMA (\$157,738) and General Fund appropriation in P&D's Long Range Planning Division Budget Program on page D-301 of the County of Santa Barbara Fiscal Year (FY) 2021-22 adopted budget.

**Special Instructions:**

N/A

**Attachments:**

1. Draft Climate Change Vulnerability Assessment Report
2. CCVA Climate Stressors Memo
3. CCVA Vulnerability Scoring Results Matrix
4. Public Comments Received on the Draft CCVA

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