ATTACHMENT 4:

Complete Grant Application combined in a single PDF file (.pdf)

Storm Flooding at Hollywood Beach.

GRANT APPLICATION FORM

Coastal Commission staff is available to assist during the application process. Applicants are encouraged to reach out to the LCP Grant team with any questions as they develop their applications.

Please note the entire grant application will be public record upon submittal. Click in the shaded text fields to enter text, numbers and dates. The fields will expand to accommodate the data.

APPLICANT INFORMATION

Applicant name (agency): Ventura County Resource Management Agency, Planning Division	
Address: 800 S. Victoria Avenue, Ventura, California 93009	
Contact name: Aaron Engstrom	Title: Senior Planner
Telephone: 805-654-2936	Fax: 805-654-2509
Email: Aaron.Engstrom@ventura.org	
Federal Tax ID#: 95-6000944	

Person authorized to sign grant agreement and amendments:	
Name: Dave Ward	Title: Planning Director
Application prepared by:	
Name: Tricia Maier and Aaron Engstrom	Title: Long-Range Planning Manager and Senior Planner, respectively

Signature: _____ Date: 9/6/2019

PROJECT INFORMATION

Project title:	VC Resilient Coastal Adaptation Project: Phase 2		
LCP/LCP Segment:	Ventura County Local Coastal Program—Hazards		
Project location			
City/Geographic area:	Unincorporated Coastal Zone		
County:	Ventura		
GPS: Lat 34.3705° N Lon 119.1391° W			
Project timeline			
Start date:	1/2/2020	End date:	3/31/2022

A. Project Description

After receiving a Round 3 LCP Planning Grant to conduct the "VC Resilient Coastal Adaptation Project, Phase I" (Phase I), tremendous work was completed by Ventura County staff, providing a foundation for sea level rise planning on 30 miles of unincorporated southern California coastline. For the Round 6 LCP Planning Grant, the County would like to initiate Phase II of the VC Resilient Coastal Adaptation Project (Phase II), which would adopt and certify the Local Coastal Program (LCP) amendments for sea level rise and coastal hazards, and transfer relevant climate action planning policies from the County's Climate Action Plan.

Phase I resulted in a Sea Level Rise Vulnerability Assessment Report, Sea Level Rise Adaptation Strategies Report, and preliminary draft sea level rise policies for the County's LCP land use plan (i.e. Coastal Area Plan). Phase II is needed to finalize the policies and draft implementation items such as parallel revisions to the implementation plan (i.e. Coastal Zoning Ordinance), refinement of the Coastal Hazards Screening Area, coastal hazards reporting requirements, real estate disclosure language, and calibration with FEMA standards. Guidance received during the County Board of Supervisors' work session, which is scheduled as the final task for Phase I on September 10, 2019, will provide policy direction for furthering sea level rise planning. Phase II will use guidance provided by the Board of Supervisors to refine the draft policies and provide additional coordination with Coastal Commission staff, residents, public stakeholders, and the various hearing bodies needed to adopt and submit the LCP amendments for certification.

This project would meet goals such as providing direct climate change adaptation benefits, also with "co-benefits", as well as inclusion of priority populations in the planning process. During Phase I, it was determined that additional education and outreach for the predicted effects of sea level rise would be useful to help other agencies, impacted residents, and the general public understand the vulnerabilities. This outreach is proposed in Phase II to be conducted through an County interagency working group and public outreach with a focus on disadvantaged and low-income communities. The outreach will also complete many of the recommendations from the Phase I Social Vulnerability Assessment (Appendix C of the Vulnerability Assessment), such as providing information in Spanish about ways to reduce sea level rise risks, the need for renters insurance, and how to be more involved in the LCP amendment process and sea level rise adaptation efforts.

The direct positive climate change adaptation benefits that would result from this grant include LCP policies for certification that will mitigate the effects of sea level rise and wildfires, as well as reduce greenhouse gas emissions. The direct-benefit objectives include sea level rise mitigation through the establishment of a Coastal Hazards Screening Area. Within this screening area, development would be required to be sited and designed for resilience to flooding, including coastal bluff areas predicted to be severely affected by erosion. A clear policy approach to shoreline protective devices, which are considered by the State of California to be a type of maladaptive development that is prevalent on Ventura County's shorelines, will also be adopted.

Climate change adaptation co-benefits would also be provided as a result of VC Resilient Phase II, including policies and programs that support beach nourishment and dune

restoration that would provide habitat for threatened and endangered species such as the Western snowy plover. It would address drought by supporting wetland and watershed restoration. It would support adaptation efforts that outside agency partners may undertake in the unincorporated coastal zone, including the California Department of Parks and Recreation and Caltrans, as they plan for the resilience of public access, recreational uses, and multimodal trails that support public health and reduce vehicle miles traveled.

Since sea level rise is inexorably linked to other hazards, and since the coastal hazards section of the County's LCP is nearly 40 years old, polices for geologic, flood and fire hazards would be updated during Phase II. This update was recommended by Coastal Commission Staff during Phase I and is particularly needed for Ventura County given the recent Woolsey and Thomas Fires that caused extensive damages to both North and South Coasts of the unincorporated coastal zone. The hazards update, particularly policies to mitigate wildfire hazards, is a deliverable for Phase II that will help mitigate the effects of climate change.

During Phase I of this project, sea level rise policies were included in the draft General Plan because sea level rise will affect some areas located inland of the coastal zone, such as low-income and disadvantaged communities near Ormond Beach. Phase II would incorporate policies adopted with the General Plan update to establish consistency with the Climate Action Plan. The County's first Climate Action Plan is scheduled for adoption with the General Plan Update in Summer 2020. It includes greenhouse gas reduction and climate adaptation policies and programs that could be included in the LCP in order to provide a comprehensive approach to mitigating the effects of climate change in Ventura County. Phase II would move the General Plan climate action plan policies that are specific to the coastal zone into the LCP, thereby fulfilling a General Plan implementation program for climate change resilience.

In conclusion, the proposed Phase II project would provide four types of climate change mitigation. It would locally adopt for certification policies and programs for (1) sea level rise and coastal hazards, (2) wildfire hazards; and, (3) it would move policies and programs from the Climate Action Plan into the LCP. The fourth type of mitigation would provide outreach, education, and encourage participation with disadvantaged and low-income communities.

This grant application should prevail over competing grant applications that do not include a submittal for certification of LCP amendments for sea level rise adaptation, as the amendments to address sea level rise will provide land use development conformance and reduce ambiguities by formalizing an interpretation of the State's sea level rise guidance. The State's guidance would be difficult to implement without the LCP amendments; therefore this LCP planning grant will provide certainty that the effects of climate change are being reduced on 30 miles of Southern California coastline.

B. Task Description

The following tasks describe the work that will be undertaken if the LCP Planning Grant is awarded.

1. Education and Outreach and Interagency Coordination: Over the course of VC Resilient Phase 1, it became apparent that additional public outreach and education about the potential harmful effects of sea level rise is needed. A three-pronged approach to coordination and public outreach is described in the subtasks below.

Task 1.1: Project Initiation: Set up grant agreement with Coastal Commission.

Task 1.2: Public Outreach Plan: This plan will be developed in coordination with Coastal Commission staff and it is based on the following objectives:

1. Conduct readily-achievable recommendations from the Social Vulnerability analysis in Appendix C of the Vulnerability Assessment (Attachment 4). These would include providing bilingual (English/Spanish) educational materials regarding Coastal Hazards and the importance of renter's insurance for vulnerable residents, coordinate with community groups regarding sea level rise and recovery from coastal disaster events, and establishing consistency with the County's Multi-Hazard Mitigation Plan to include emergency response measures for disadvantaged and senior residents.
2. Present a coastal hazards synopsis and provide informational materials at community events that may be frequented by residents from low-income and disadvantaged populations. The bilingual educational materials will be distributed during events that are planned by the County's Health Services Agency and the Ventura County Regional Energy Alliance. The VC Resilient team will coordinate with these agencies to conduct at least two presentations that are translated into Spanish and, if needed, into the Mixteco language. The purpose of the presentations will be to educate the community about sea level rise, preparation for coastal hazards, and encourage participation in the LCP amendment process.

Task 1.3: Formation of an Interagency Working Group: This group would consist of staff from seven different County agencies that would meet bimonthly for one year. The goal of this Working Group would be to review sea level rise vulnerabilities on the County's coast and to recommend potential adaptation projects/priorities for consideration by the Board of Supervisors. The group would also review and comment on targeted LCP policies and regulations that cross over to other departments, such as policies related to elevating new development, bluff development, and seawalls, and polices that would impact county-owned and operated facilities. At the end of one year, the group would provide a status report for review by County agencies and decision makers.

Task 1.4: Coastal Commission/Caltrans District 7/County Sea Level Rise Planning Coordination Model: During Phase 1 of VC Resilient, these agencies met to discuss sea level rise adaptation strategies and erosion mitigation projects for highways that line the north and south coasts of the county. This coordination is proposed to continue and result in policies for each agency to consider for amendments to respective Caltrans and County planning documents that would include consistent sea level rise and coastal erosion mitigation strategies.

Outcomes: Task 1 would achieve broader educational outreach, improved County-agency coordination that includes a presentation to the Board of Supervisors, and enhanced public input during the LCP amendment process. Ideally the coordination meetings in Task 1.4 would be successful and serve as a model for other jurisdictions that are considering adaptation measures for critical transportation facilities.

Deliverables:

- Public outreach plan described in a memorandum
- Informational flyer in both English and Spanish that is provided to vulnerable coastal residential neighborhoods and at community outreach events that are focused on public outreach to low-income and disadvantaged communities.
- At least four meetings with Community Based Organizations, including groups that serve low-income and disadvantaged communities, and administer services to the homeless (flyers will be provided).
- At least two presentations at community outreach events that are focused on public outreach to low-income and disadvantaged communities (flyers will be provided).
- Development of a project webpage with an interface that encourages general public and resident comments regarding sea level rise and LCP amendments to be submitted online.
- Approximately six County interagency sea level rise working group meetings.
- Status report regarding the working group findings.
- Draft LCP Amendments resulting from the Caltrans and Coastal Commission staff coordination effort.

2. Prepare LCP Amendments: The preliminary draft policies that were developed during Phase 1 of VC Resilient would be finalized for adoption hearings before the Planning Commission and Board of Supervisors. Existing LCP policies for other coastal hazards such as bluffs, wildfires and earthquakes would also be updated. Applicable policies from the General Plan Climate Action Plan would be transferred into proposed LCP amendments. Accompanying updates to the Coastal Zoning Ordinance would be drafted.

Task 2.1: Draft Hazards Policies and Zoning Amendments: Sea level rise is inexorably linked to other coastal hazards such as beach and bluff erosion, river flooding, and tsunamis. The existing policies addressing these issues in the LCP, as well as those addressing wildfires, are approaching 40 years in age and would be comprehensively revised in conjunction with the sea level rise updates. The Coastal Area Plan also repeats most hazards policies in respective North, Central and South Coast Subarea subsections. Proposed Coastal Area Plan amendments would update the hazards polices and reduce repetition through the consolidation of hazards policies within a single new section specifically tailored to hazards and sea level rise. Subsequent amendments to the Coastal Zoning Ordinance would also be included.

Task 2.2: Update Preliminary Draft Sea Level Rise Policies: This task would conduct more detailed technical analysis of the preliminary draft policies. This detailed review would include legal analysis, an evaluation of predicted coastal flooding depth for elevating new development, integration of sea level rise policies with FEMA standards, bluff setback calculations, review of historical beach extents, and methods to design structures for removal if necessary. A coastal engineering consultant would be included to oversee the

technical analyses required for this task. Further refinement of the Coastal Hazards Screening Area, Coastal Hazards Report requirements and proposed real estate disclosures will be included. The zoning ordinance may need to be updated to define substantial redevelopment, revise development standards for shoreline protective devices, and include findings required for policies intended to avoid a takings.

Task 2.3: Transfer Climate Action Plan Policies: The County is conducting a General Plan Update that includes a Climate Action Plan. The General Plan Update is scheduled to be completed in Summer 2020. This provides an opportunity to transfer relevant policies from the Climate Action Plan into the County's LCP. Such an effort would fulfill a General Plan program objective and help mitigate greenhouse gas emissions cohesively through Coastal Area Plan policies. While hundreds of climate action policies are included in the draft General Plan, the County would work with Coastal Commission staff to select policies that are best suited to the coastal zone for public review and consideration for adoption by the Board of Supervisors.

Task 2.4: Draft LCP Update Submittal to Coastal Commission Staff: The LCP amendments would be prepared and submitted to Coastal Commission Staff for review and comment. The submittal will include the Coastal Area Plan and Coastal Zoning Ordinance with revisions shown in legislative format. At least 45 days would be provided for Coastal Commission staff review and at least two in-person meetings would be conducted to review and discuss the materials.

Task 2.5: Public Outreach for Proposed LCP Amendments: After the Coastal Commission Staff recommended changes are considered with the draft amendments, the County will conduct three outreach meetings to present the proposed amendments to the community. It is likely that there will be one presentation to each planning subarea in the north, central, and south coast areas of the unincorporated county. Public comments will be gathered, and the proposed amendments will be revised as needed.

Outcomes: The primary objective is a draft revised LCP that is updated for sea level rise, hazards, and climate action planning.

Deliverables: Draft Revised LCP in legislative format, real estate disclosure language, materials from three community outreach meetings, and at least two meetings with Coastal Commission staff.

3. County Adoption Hearings: Public hearings before the Planning Commission and Board of Supervisors are required to amend the LCP. Staff will conduct at least one hearing with each body to recommend and adopt the proposed LCP amendments and then submit the revised LCP to the Coastal Commission for certification.

Task 3.1: Planning Commission Hearing. Will include staff report, revised draft LCP, coastal act consistency analysis, cumulative impacts analysis, and findings.

Task 3.2: Board of Supervisors Hearing. Will provide a resolution authorizing submittal to the Coastal Commission for certification.

Task 3.3: Submittal to Coastal Commission for certification. This task is complete when Coastal Commission staff verify all the materials required for a complete LCP amendment application were provided.

Outcomes: This task will provide an LCP that was updated for sea level rise, coastal hazards, and climate change that was reviewed by the Planning Commission and adopted by the Board of Supervisors.

Deliverables: Planning Commission draft LCP amendments, staff reports, General Plan and Coastal Act consistency analysis and other supporting documentation. Board of Supervisors adopted LCP amendments, Board Letter, resolution, and accompanying documentation. Formal submittal to Coastal Commission staff requesting certification.

4. Post Grant Public Hearings: This task will include the necessary participation in the certification process, which includes coordination with Coastal Commission staff, Ventura County staff attendance at the Coastal Commission LCP amendment certification hearing, and the Board of Supervisors hearing to consider any Coastal Commission's suggested modifications to the LCP amendment.

This task assumes that the County's LCP amendments would be conditionally certified and that the certification hearing will not be continued beyond the term of this grant schedule. If the LCP amendments are not conditionally certified, or only portions are conditionally certified, or if the Coastal Commission hearing is continued beyond the term of this grant, a contract amendment may be needed to revise the final subtasks or extend the term of the grant. Additionally, the funding source allocated for staff time is solely from the "match" and therefore funding from the grant is not needed to complete Task 4.

4.1: Coastal Commission Hearing: After discussing the amendments with Coastal Commission staff, the Planning Division staff will attend the Coastal Commission hearing where the Coastal Commission will formally review and conditionally certify the proposed amendments.

4.2: Board of Supervisors Hearing (assuming conditional certification is granted in Subtask 4.1): Planning Division staff will return to the Board of Supervisors to adopt the LCP modifications that were proposed by the Coastal Commission. If successful, the resolution accepting the changes would be sent to the Coastal Commission staff for final certification.

4.3: LCP Implementation (assuming suggested modifications are adopted in Subtask 4.2): After final certification, Planning Division staff will update the coastal development permit application materials, the project webpage, and other informational materials provided to the public to reflect the revised LCP. Training of the Planning Division permitting staff would also be developed and provided.

Outcomes: Ideally this task will provide a conditionally certified LCP that was updated for sea level rise, coastal hazards, and climate change. The Board of Supervisors would also review and consider adoption of the suggested modifications. If the modifications are adopted, the LCP would be formally certified and implemented. Alternatively if more time is required, or if the certification and adoption process fails, a contract amendment may be required to extend the schedule or reduce the allocated "match" funds.

Deliverables: Since it is uncertain whether the Coastal Commission will conditionally certify the proposed LCP amendments and whether the Board of Supervisors would adopt the suggested modifications, the guaranteed deliverable for this task is Planning Division coordination with Coastal Commission Staff and attendance at the Coastal Commission hearing. If the Coastal Commission's suggested modifications are adopted by the Board of Supervisors, a signed resolution would be submitted to Coastal Commission staff for final certification of the LCP amendments and implementation efforts described in Subask 4.3 would be conducted.

C. Schedule

The completed schedule is provided below for each task and subtask.

Proposed starting date: 2/3/2020
Estimated completion: 3/31/2022

Task Number and Title	Projected Start Date	Projected End Date
Task 1. Education, Outreach and Interagency Coordination	Projected start date: 2/3/2020	End date: 4/13/2021
1.1 Project Initiation.	Projected start date: 2/3/2020	End date: 2/18/2020
1.2 Conduct public outreach.	Projected start date: 2/18/2020	End date: 6/3/2020
1.3 Formation of interagency working group for one year, ending with a status report.	Projected start date: 2/18/2020	End date: 3/15/2021
1.4 Caltrans/Coastal Commission staff coordination.	Projected start date: 2/18/2020	End date: 2/1/2021
Outcomes: Educate about coastal hazards and encourage input on LCP amendments from public who visit and recreate on beaches, disadvantaged and low-income communities, Caltrans, and other County agencies.	Projected start date: 2/18/2020	End date: 4/13/2021
Deliverables: Informational materials (bilingual), presentation materials (bilingual), interagency working group status report, LCP amendment input webpage (bilingual), and draft LCP policies and/or programs from discussions with Coastal Commission staff and Caltrans staff.	Final start date: 2/3/2020	Final end date: 4/13/2021
Task 2. Prepare LCP Amendments for Hazards, Sea	Projected start date: 4/3/2020	End date: 12/15/2020

Task Number and Title	Projected Start Date	Projected End Date
Level Rise, and Climate Action Plan		
2.1 Draft hazards policies and zoning amendments for hazards.	Projected start date: 4/3/2020	End date: 6/3/2020
2.2 Update draft sea level rise policies, draft zoning amendments for sea level rise.	Projected start date: 5/3/2020	End date: 8/3/2020
2.3 Transfer applicable General Plan Climate Action Plan Policies into Coastal Area Plan.	Projected start date: 7/3/2020	End date: 8/14/2020
2.4 Finalize draft LCP text amendments for review by Coastal Commission staff. Includes Coastal Area Plan reorganization.	Projected start date: 8/17/2020	End date: 10/3/2020
2.5 Conduct public outreach/review of proposed LCP Amendments, revise as needed.	Projected start date: 10/3/2020	End date: 11/2/2020
Outcomes: LCP amendments for sea level rise, other hazards, and consistency with County's Climate Action Plan.	Projected start date: 4/3/2020	End date: 12/15/2020
Deliverables: Coastal Commission Staff review draft LCP (*interim deliverable*) . Revised LCP with proposed changes in legislative format that considers Coastal Commission staff comments.	Interim CCC Staff Review of LCP amendments start date: 8/17/2019	Interim CCC Staff Review of LCP amendments end date: 10/3/2020
	Projected start date: 4/3/2020	End date: 12/15/2020
Task 3. County Adoption Hearings	Projected start date: 1/3/2021	End date: 6/1/2021
3.1 Conduct Planning Commission hearing, including staff report with Coastal Act conformance analysis and obtain recommended actions for Board of Supervisors Hearing.	Projected start date: 1/3/2021	End date: 2/18/2021
3.2 Conduct Board of Supervisors hearing, present LCP amendments, and obtain a resolution adopting the amendments.	Projected start date: 2/20/2021	End date: 5/18/2021
3.3 Formally submit proposed amendments to Coastal Commission for certification. Attend hearing.	Projected start date: 5/18/2021	End date: 6/1/2021

Task Number and Title	Projected Start Date	Projected End Date
Outcomes: LCP amendments for sea level rise, coastal hazards, and climate change.	Projected start date: 1/3/2021	End date: 6/1/2021
Deliverables: Adopted LCP amendment submittal package to Coastal Commission with Board of Supervisors resolution and other required documents.	Interim start date: 1/3/2021	Interim end date: 6/1/2021
Task 4. Post-Grant Public Hearings	Projected start date: 6/1/2021	End date: 3/31/2022
4.1 Attend Coastal Commission hearing for conditional certification.	Projected start date: 6/2/2021	End date: 10/15/2021
4.2 Conduct Board of Supervisors hearing to review and consider suggested modifications. Obtain a resolution adopting the amendments.	Projected start date: 10/15/2021	End date: 2/3/2022
4.3 After final certification, implement the updated LCP by finalizing the document, update application materials, and train staff.	Projected start date: 1/3/2022	End date: 3/31/2022
Outcomes: Ideally, Coastal Commission certified LCP that is also reviewed and considered for adoption by the County Board of Supervisors.	Projected start date: 6/1/2021	End date: 3/31/2022
Deliverables: Coastal Commission hearing attendance. Optimistically, an updated LCP for sea level rise, coastal hazards, and climate action planning, that is succeeded by implementation actions, but this is not a guaranteed deliverable.	Interim start date: 6/2/2021	Interim end date: 3/31/2022

Below is a list of all significant and pertinent project benchmarks related to the project for which funds are being requested, and the expected dates for reaching or completing those steps. These dates will be used in monitoring grant progress and in grant reporting under approved grant agreements.

BENCHMARK SCHEDULE

ACTIVITY	COMPLETION DATE
Project Initiation/Contracts Executed	2/18/2021
Draft LCP with Amendments in Legislative Format Sent to Coastal Staff	8/17/2020
Planning Commission Hearing	2/18/2021
Working Group Status Report	3/15/2021
Board of Supervisors Hearing	5/18/2021
LCP Amendment Submittal for Certification	6/1/2021

D. Budget.

Below, please find a task-by-task budget for both County/City staff labor and for potential consultants. The county is not seeking reimbursement for overhead/indirect Costs nor travel costs.

APPLICATION BUDGET INFORMATION

Funding Request: $160,070 **Total Project Cost: $238,287**

	CCC Grant Total	*Match/ Other Funds (Source #1)*	*Match/ Other Funds (Source #2)*	*Total (LCP Grant Funds + Match/ Other Funds)*
LABOR COSTS[1]				
County/City Staff Labor				
Task 1 – *Outreach and Agency Coordination*	**$37,762**	**$9,882**	**-**	**$47,644**
Task 2 – *LCP Amendments Preparation*	**$76,583**	**$28,858**	**-**	**$105,441**
Task 3 – *County Adoption Hearings*	**$25,725**	**$9,851**	**-**	**$35,576**
Task 4 – *Post Adoption Hearings*	**$0**	**$24,626**	**-**	**$24,626**
Total Labor Costs	**$140,070**	**$73,217**	**-**	**$213,287**
DIRECT COSTS				
County/City Staff Project Supplies				
Public Education Materials	**$0**	**$3,000**	**-**	**$3,000**
Public Outreach Posters and Notifications	**$0**	**$2,000**	**-**	**$2,000**
Total	**-**	**$5,000**		**$5,000**
County/City Staff Travel In State[2]				
Mileage	**-**	**-**	**-**	**-**
Hotel, etc.	**-**	**-**	**-**	**-**
Total	**-**	**-**	**-**	**-**
Consultants[3]				
Consultant A – Technical Consultant for Adaptation Pathways				
Task 1.3 – Interagency Working Group	**$5,000**	**-**	**-**	**$5,000**

[1] *Amount requested should include total for salary and benefits.*
[2] *Travel reimbursement rates are the same as similarly situated state employees.*
[3] *All consultants must be selected pursuant to a bidding and procurement process that complies with all applicable laws.*

	CCC Grant Total	***Match/ Other Funds (Source #1)***	***Match/ Other Funds (Source #2)***	***Total (LCP Grant Funds + Match/ Other Funds)***
Consultant B- Technical Consultant for Depth of Flooding Analysis				
Task 2.2 – Update Sea Level Rise Policies	**$15,000**	**-**	**-**	**$15,000**
Total	**$20,000**	**-**	**-**	**$20,000**
Total Direct Costs	**$160,070**	**$78,217**	**-**	**$238,287**
OVERHEAD/INDIRECT COSTS[4]				
Total County/City Staff Overhead/Indirect Costs	**-**	**-**	**-**	**-**
TOTAL PROJECT COST	**$160,070**	**$78,217**		**$238,287**

[4] *Indirect costs include, for example, a pro rata share of rent, utilities, and salaries for certain positions indirectly supporting the proposed project but not directly staffing it. Amount requested for indirect costs should be capped at 10% of amount requested for "Total Labor."*

Figure ES-1 - Executive Summary: North Coast

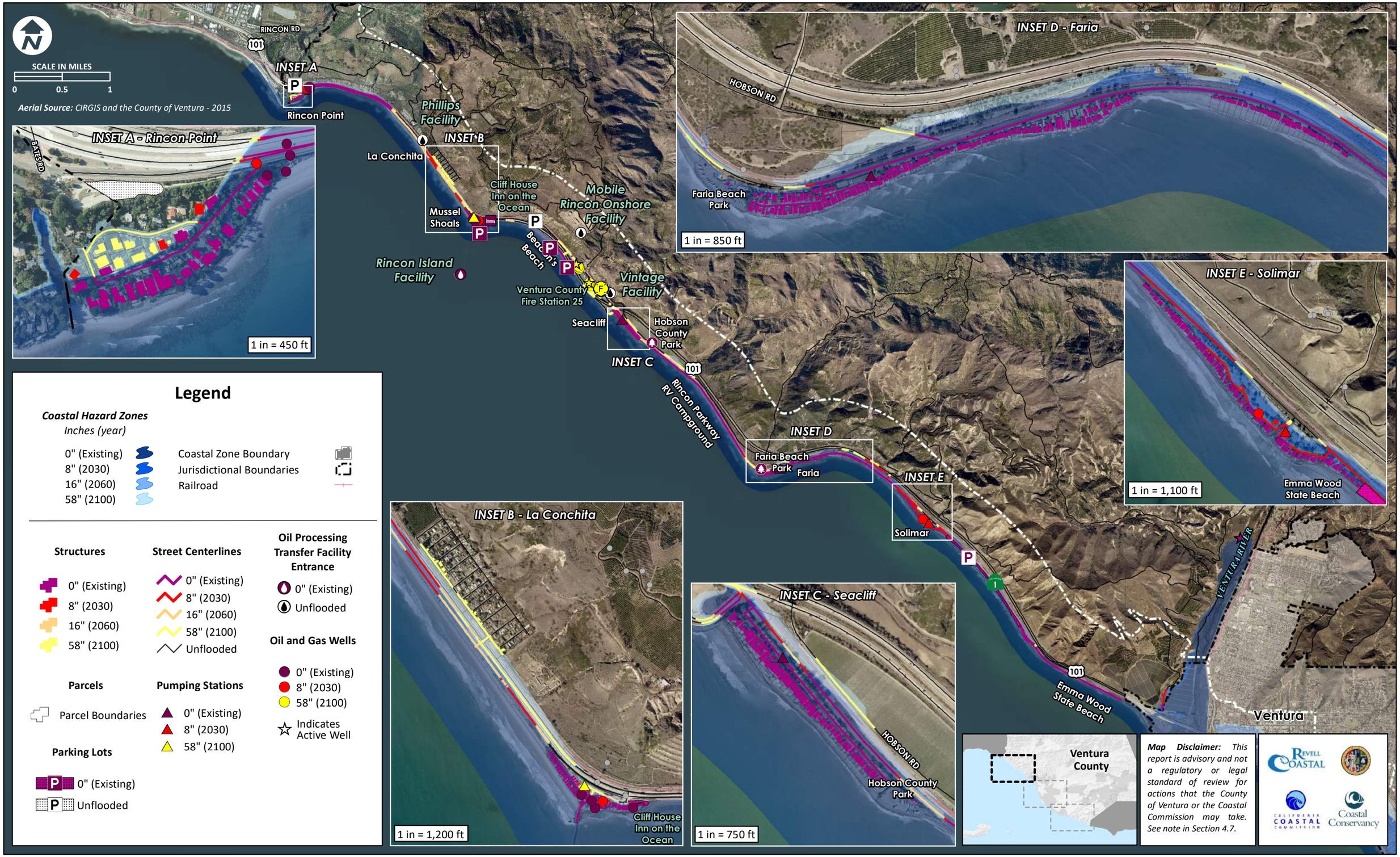


Figure ES-2 - Executive Summary: Central Coast

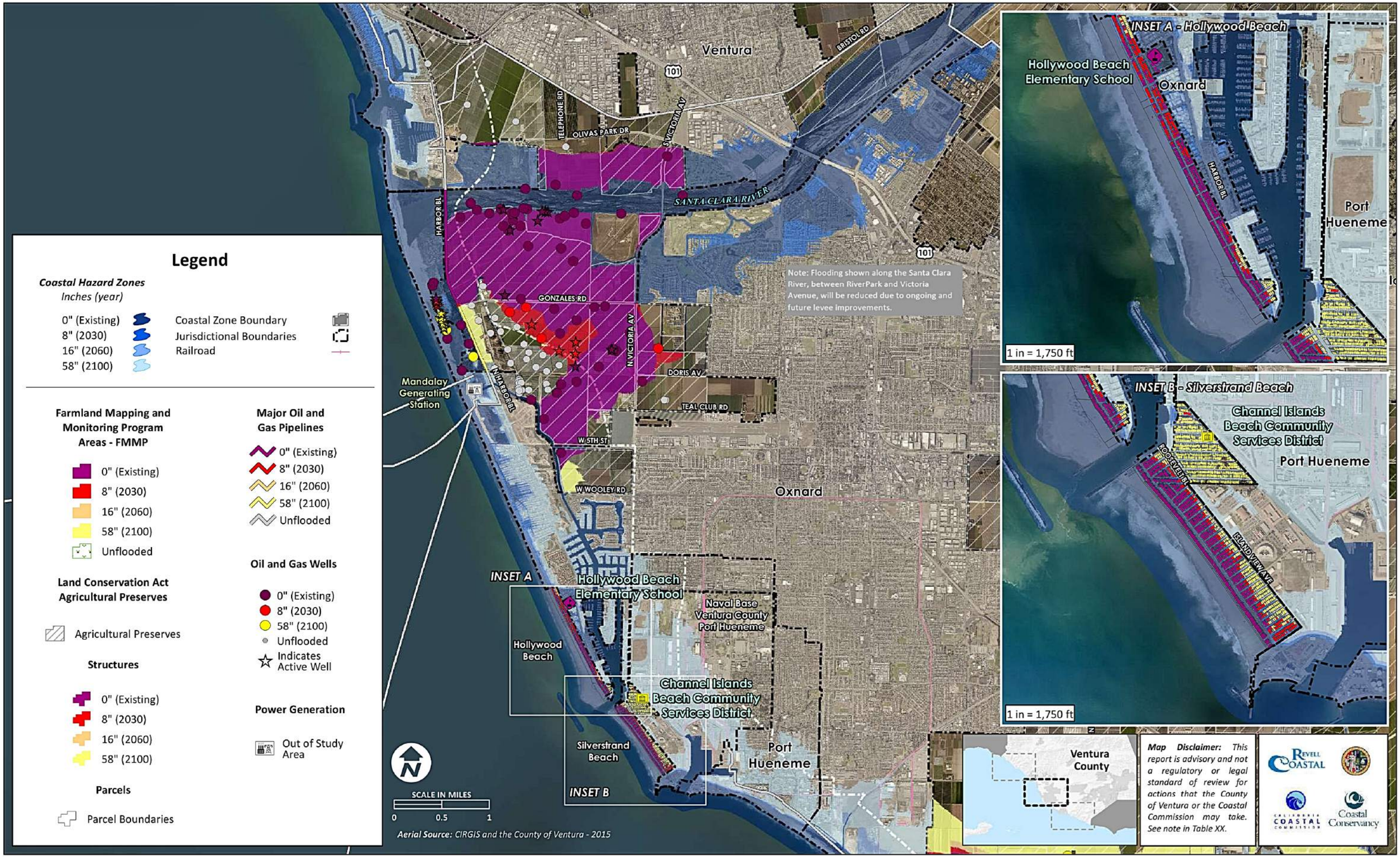
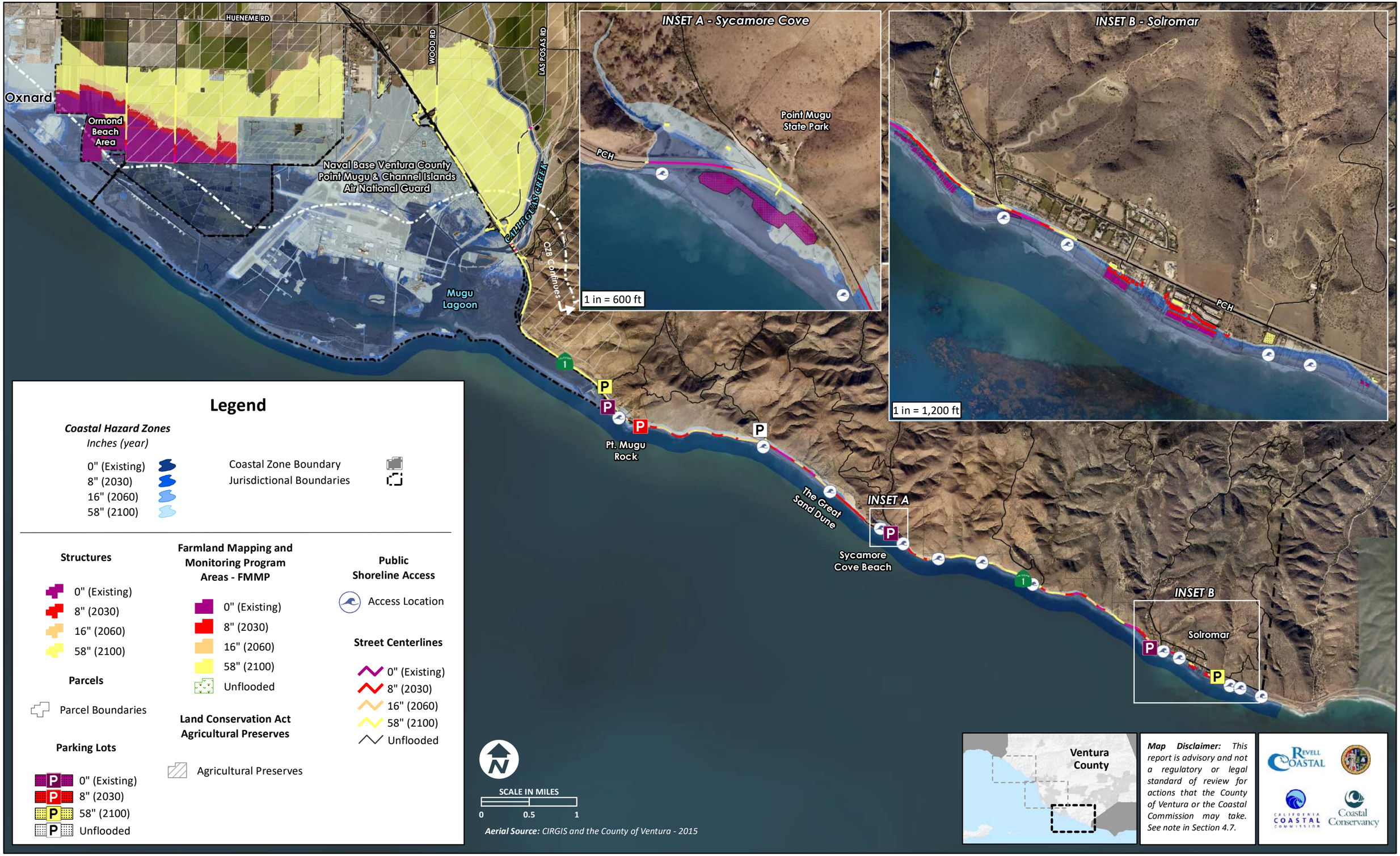


Figure ES-3 - Executive Summary: South Coast



APPENDIX C. SOCIAL VULNERABILITY

This social vulnerability analysis supplements the Vulnerability Assessment Report. Sea level rise impacts will not be evenly distributed among population groups and it is important to identify the most vulnerable populations so that adaptation strategies can be developed in an equitable manner. This work is also consistent with new State Ocean Protection Council guidance on addressing environmental justice while planning for sea level rise.

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1. Executive Summary

Since 2015, the California Coastal Commission and the Ocean Protection Council have provided formal guidance to local jurisdictions that are planning for sea level rise adaptation regarding how to address social equity and environmental justice for vulnerable populations[1]. As a first step toward incorporating environmental justice in sea level rise planning for Ventura County, this report identifies the demographics of the population in the unincorporated coastal zone, evaluates some vulnerable populations, and provides social adaptation strategy recommendations[2]. By State definition[3], the only disadvantaged communities in the unincorporated coastal zone of Ventura County are located in the Ormond Beach area and along the Santa Clara River. These are very small populations in low-density agricultural areas and therefore a more detailed social vulnerability analysis of the residential areas in the unincorporated coastal zone was conducted.

To further assess the social vulnerabilities to sea level rise in the unincorporated coastal zone, the following three vulnerable populations were selected: seniors, renters, and Hispanic residents. These populations were chosen based on data availability and previous studies that indicate that these populations have higher vulnerability to sea level rise hazards[4]. The analysis identified that there is a higher than average percentage of seniors and renters that could be exposed to sea level rise hazards and that there is lower than average percentage of Hispanic residents throughout the unincorporated coastal zone. Overall, there are about 4,700 residents in the unincorporated coastal zone, of which about 2,000 live in areas that could be exposed to coastal storms today[5] and with the projected amount of sea level rise by 2030 (see Section 3.2). Other vulnerable groups (e.g. disabled, coastal visitors, homeless) were not quantitatively analyzed but should be considered in future studies. Four key recommendations are listed below:

- Develop a sea level rise retreat strategy with habitat restoration and public access in Ormond Beach that could reduce current environmental pollution and increase coastal recreational opportunities for the most vulnerable populations in the unincorporated County coastal zone.
- Initiate an "adopt a neighbor" campaign to help senior residents that are most vulnerable during a coastal emergency evacuation, particularly in the communities of the North and South Coasts.
- Provide education materials (including information on renter's insurance) to residents of the coastal zone. These should also be made available in Spanish (especially in the Central Coast).
- Incorporate a coordinated population vulnerability analysis for all coastal jurisdictions in the county, possibly in the Ventura County Multi-Hazard Mitigation Plan.

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[1] See the 2015 "California Coastal Commission Sea Level Rise Policy Guidance" and the "State of California Sea-Level Rise Guidance: 2018 Update."

[2] Historical exposure to pollutants in marginalized is also an important component of environmental justice. Exposure to pollutants is addressed in Section. 2.1.

[3] By "State definition," this analysis refers to Senate Bill 535, which defines disadvantaged communities as the top 25% scoring areas from CalEnviroScreen along with other areas with high amounts of pollution and low populations. See www.oehha.ca.gov/calenviroscreen/sb535 for more information on SB535.

[4] While there are other populations that may be vulnerable to sea level rise hazards (e.g., income, race, disability), lack of data availability at a high spatial scale was a limiting factor for the analysis. Information for these other population groups is provided at a regional scale in section 2.2.

[5] 1% annual chance coastal storms at current sea levels.

1.1 Background

Social vulnerability is the susceptibility of a population to harm from exposure to a hazard and includes the ability to prepare for, respond to, and recover from that hazard[i]. Social vulnerability to sea level rise involves the study of populations exposed to sea level rise hazards by using demographic data to identify groups that may be at higher risk. Building resilient communities "requires increasing the capacity of communities and people to be able to withstand and recover from climate-related disruptions, and to be able to learn and adapt in the face of this change"[ii]. To do so, proactive planning and investments can be made to prepare the most vulnerable communities before sea level rise impacts occur, and response actions should be available when and where populations are most vulnerable. The first step in a social vulnerability analysis is to understand the demographics of the population exposed to sea level rise hazards. Given that this project is funded by the California Coastal Commission ("Coastal Commission") and the State Coastal Conservancy for a Local Coastal Program update for the County of Ventura, the focus is on the residents of the unincorporated coastal zone in Ventura County. This assessment was designed to answer the question "*What are some of the groups that are most vulnerable to sea level rise hazards in the coastal zone?*" [6]

2. Identifying Vulnerable Populations: From the State to the Local Scale

There has been increasing State guidance directing local governments to consider social vulnerability and environmental justice issues in sea level rise planning. The 2015 Coastal Commission "Sea Level Rise Policy Guidance", the 2017 Coastal Commission draft environmental justice policy, and the Ocean Protection Council's "State of California Sea-Level Rise Guidance: 2018 Update" all have components that address environmental justice in coastal planning[7]. These guidance documents are primarily concerned with loss of affordable coastal access and recreation, unequitable impacts of adaptation strategies, and public engagement of marginalized communities. While local governments are to consider impacts on vulnerable populations regarding those issues, the State allows flexibility in how this guidance is to be implemented locally. There have been multiple methodologies developed to aid local governments in identifying vulnerable populations. Two State and one federal study are summarized below.

2.1 Social Vulnerability Summarized by State and Federal Agencies According to U.S. Census Tracts and Block Groups

Recent State sea level rise policy guidance recommends the prioritization of vulnerable populations when developing adaptation strategies to sea level rise. While there are State and federal definitions of vulnerable populations, it is important to evaluate these within a local context. In 2012, the California Energy Commission (CEC) conducted a statewide assessment of social vulnerability to various climate change-related hazards[iii]. The study assessed the potential number of people affected by coastal flooding according to Census tract[8] demographic information. Compared to other coastal

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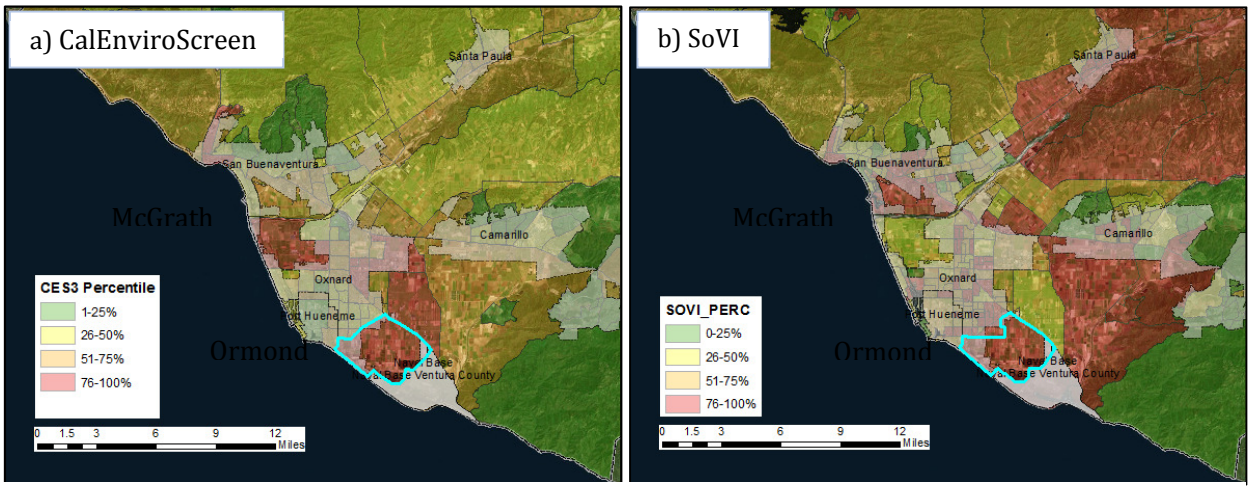
[6] There are other climate change-induced hazards that will also affect the vulnerability of these populations and other vulnerable populations in surrounding jurisdictions. Other environmental hazards are discussed in the main body of the report (ES-16) and in Appendix A.

[7] In addition to these sea level rise guidance documents, the 2018 Statewide climate change adaptation report *Safeguarding California* includes an entire chapter on environmental justice.

[8] Census tracts are small geographic areas that usually have a population between 2,500 to 8,000 persons.

counties in Southern California, the CEC study found that Ventura County (including the cities within the County) has higher than average social vulnerability to coastal flooding. More than half of those potentially impacted live in Census tracts with high social vulnerability. The State analysis offers an effective big-picture image that allows for the comparison between California counties and may allow for prioritization of State-funded projects. However, for the purposes of local planning, a higher spatial analysis is needed.

Figure C-1. State and Federally-Defined Vulnerable Populations*



* Although the CalEnviroScreen (a) and SoVI (b) use different indicators and methods to identify vulnerable populations, the same color scheme is used for both for consistency. Red in both maps shows the vulnerable populations as defined by each metric.

Two online screening tools are often used to identify vulnerable populations at the regional level in California: CalEnviroScreen and the Social Vulnerability Index (SoVI). In April 2017, the State of California defined disadvantaged communities in order to target these areas for investment from the State's cap-and-trade program (Senate Bill 535). According to SB535, disadvantaged communities are ranked within the top 25% of Census tracts from CalEnviroScreen, a screening tool that identifies communities disproportionately burdened by multiple sources of pollution and other variables that make them susceptible to harm and decrease their capacity to adapt.

In terms of sea level rise hazards, CalEnviroScreen can be a proxy to estimate social vulnerability. According to CalEnviroScreen, the disadvantaged communities in Ventura County are shown in red in Figure C-1a above, and there are two disadvantaged communities located in the unincorporated coastal zone (highlighted in bright blue). The low-density agricultural lands in Ormond Beach, and areas along the southern bank of the Santa Clara River both score high according to some of CalEnviroScreen's 20 pollution indicators. The two areas have especially high exposure to pesticides (100% percentile), hazardous materials cleanup sites (greater than 90% percentile), and pollution (greater than 90% percentile). In addition, the screening tool shows that persons living near the southern bank of the Santa Clara River experience high rates of asthma, cardiovascular disease, and low birth rates. Whereas, the area around Ormond Beach has very low quality drinking water, poor educational attainment, and high exposure to solid waste.

Another readily available social vulnerability assessment tool is the SoVI developed by the National Agency of Toxic Substances and Disease Registry (Figure C-1b). Although the SoVI was developed to identify communities most vulnerable to human health stresses, it has often been used as a general

assessment of population vulnerability[9]. The vulnerable populations identified by the SoVI are shown in red in Figure C-1b above. The Ormond Beach area is the only place in unincorporated Ventura County that is identified as vulnerable by both CalEnviroScreen and the SoVI (Figure C-1, blue highlight). This area has the highest scores for the Minority Status/Language Theme and the Housing/Transportation Theme of the SoVI[10]. Ormond Beach generally consists of existing agricultural land uses and is sparsely populated (about 120 residents). There are wetland restoration and coastal access projects underway that could provide flood control and recreational opportunities for vulnerable resident populations. As Ormond Beach is designated as a disadvantaged community by the State, there may be opportunities to incorporate sea level rise adaptation strategies that benefit the local population in conjunction with other projects. This, however, will require interjurisdictional coordination with the City of Oxnard and the City of Port Hueneme.

While CalEnviroScreen and SoVI provide a regional analysis, they may not identify all vulnerable populations to specific hazards, such as sea level rise. The existing communities in the unincorporated coastal zone are not identified as vulnerable by State standards[11], but may have specific social vulnerabilities. Thus, a more detailed analysis was conducted to identify locally vulnerable populations that might not be obvious in all the data layers used for CalEnviroScreen or by the analysis at the lower spatial resolution.

2.2 Defining Vulnerable Populations to Sea Level Rise in Unincorporated Coastal Ventura County by Census Blocks

To assess the groups within unincorporated Ventura County that are more vulnerable to sea level rise hazards, it is necessary to use population data at a higher spatial resolution. One solution to remedy the challenge of spatial coarseness identified in the CalEnviroScreen and SoVI assessments is to use Census block demographic data[12]. The Census data summarized at the block level is the most detailed demographic unit available, and therefore lends itself well to evaluating sparsely populated coastal communities for vulnerability to sea level rise hazards. The drawback of higher spatial resolution is that there is less information available at the block level. For example, there is no income or disability data at the block level, as these are deemed to be sensitive information at this scale and are not available from the Census Bureau. This assessment focuses on some populations (out of the demographic information available at the block unit from the 2010 Census) that may have higher vulnerability to sea level rise hazards.

According to the 2017 California Department of Public Health "Climate Change and Health Profile Report: Ventura County"[iv], the types of populations in flood-prone areas most affected by flood hazards are the elderly, children, and low-income populations. A 2015 study[v] identified the following additional demographic characteristics that increase a population's vulnerability to floods: age, race, ethnicity, immigration status, language ability, employment, land tenure, and health, among other

[9] This SoVI was used in the social vulnerability analysis done by the County of Santa Barbara and the cities of Hermosa Beach and Los Angeles.

[10] The SoVI ranks each Census track on 14 social factors and groups them into four related themes: socioeconomic status, household composition, minority status/language, and housing/transportation. The minority status/language theme uses the variables "minority" and "speaks English less than well." The housing/transportation theme uses the variables "multi-unit structures", "mobile homes", "crowding", "no vehicle", and "group quarters."

[11] According to SB535.

[12] While there are only eight Census block groups and tracts in the unincorporated coastal zone, there are over 300 Census blocks that better follow jurisdictional and neighborhood boundaries.

factors. Of the demographic information available at the block level[13], the following three were chosen as vulnerable populations for their demonstrated vulnerability to sea level rise hazards: seniors age 65 and over (Seniors), number of people who are living in rental housing units (Renters), and Hispanic residents (Table C-1). Each of these three populations is most vulnerable at a specific stage of a hazard[14]. Seniors may be most vulnerable during the response stage due to limited mobility, decreased access to information, and possible hearing limitations that may hinder them from receiving emergency warnings. Renters may be most vulnerable during the preparation and recovery stages due to limited control over their home infrastructures and potential lack of renters' flood insurance. Hispanics may be most vulnerable during the recovery stage due to potential language barriers that may limit easy access to recovery resources.

Table C-1. Populations Vulnerable to Sea Level Rise Hazards

Indicator	Description
Seniors	Total population (male and female) age 65 and over
Renters	Total population in rented accommodations
Hispanics	Total Hispanic population regardless of race

Seniors (65 and Over). Age is the leading demographic driver of social vulnerability to floods[vi]. The elderly have decreased mobility and are more exposed to hazards during emergency evacuations. Emergency warning systems (especially digital media like Twitter and text alerts) may also not be effective in reaching this population. Many seniors also live on fixed incomes and may lack resources to recover from hazards if they suffer loss of property or belongings.

Renters. Land tenure is a vulnerability factor most common in developed areas prone to fluvial and coastal floods. Renters are most vulnerable during the mitigation and recovery stages of hazards. Renters' lack of autonomy over their residence generally decreases their ability to prepare the house for flooding, decreasing their ability to mitigate the hazard before it occurs. Renters are also less likely to have flood insurance coverage for their belongings compared to homeowners and may lack adequate resources to recover from a flood event[vii].

Hispanics. Race, class, ethnicity, and immigration status may present cultural and language barriers that impede access to disaster recovery resources. While these factors are highly interactive, the Hispanic population was included because it is the largest ethnic minority population in Ventura County[viii] and they experience a disproportionate amount of poverty and have lower incomes compared to White/non-Hispanics. Countywide, Hispanic residents had an average per capita annual income of $23,159 compared to $41,974 for white non-Hispanic residents in 2016[15] (Table C-2).

Although the vulnerable populations chosen for this detailed spatial analysis do not cover all social vulnerabilities to sea level rise hazards, they highlight some of the specific vulnerabilities of residents in the unincorporated coastal zone. Many other persons who live and work inland also visit beaches and use the coastline. Future studies should consider how other potentially vulnerable populations that use the coastline, such as the disabled, homeless, and low-income, could be affected. For now, some general countywide analysis is provided for these populations below:

[13] Other demographic information available at the block level includes gender, race, family type, number of children, and urban/rural designation.
[14] There are three hazard stages: preparation, response, and recovery.
[15] Estimates based on 2016 American Community Survey 5-Year Estimate.

- According to the American Community Survey 5-Year Estimate of 2012-2016, about 6.7% of the population countywide have a disability[16]. If that proportion were uniformly distributed throughout the County, there would be over 250 residents with a disability in the unincorporated coastal zone.
- Every year, the Ventura County Continuum of Care Alliance conducts a homeless count. The 2018 Ventura County Homeless Count Report estimated that there are about 1,299 homeless persons in the entire county (cities and unincorporated areas) with about 77 in the unincorporated areas. Some of the homeless persons camp in streambeds near the coastal zone and may be exposed to sea level rise hazards.
- Table C-2 below summarizes the County's average per capita income (including incorporated cities) roughly separated by location in terms of the coastal zone and ethnicity[17]. While white residents make on average 4% more in the coastal zone compared to the non-coastal zone, Hispanic residents make 20% less in the coastal zone compared to the non-coastal zone. There are some low-income, predominantly Hispanic communities found within the coastal zones in the cities of Oxnard and Port Hueneme. Residents with a lower annual income could have more difficulty recovering from a disaster. Countywide, Hispanic residents ($23,159) make 45% less annually per capita than white, non-Hispanic residents ($41,974).

Table C-2. Countywide 2016 Income Estimates by Coastal Zone and Ethnicity (2010 Census)

	Hispanic	White alone, Not Hispanic[18]
Coastal zone	$19,868	$43,520
Non-coastal zone	$23,434	$41,845
Countywide	$23,159	$41,974

The remainder of this report focuses on the vulnerable populations for which there is data at the Census block level. While disability, homelessness, and income are important demographic factors, they cannot be carefully analyzed due to lack of data at the Census block level. Therefore, only the specific vulnerability of the populations identified above (seniors, renters, and Hispanic) will be analyzed in the following section.

3. Vulnerable Populations of the Unincorporated Coastal Zone and Potential Exposure with Eight Inches of Sea Level Rise

Sea level rise hazards can impact populations in direct and indirect ways over time. Some residents will be exposed to flooding, erosion, and debris damage to their homes while others will be indirectly impacted by damage to a school or the closure of roads. Storms and rising seas could also exacerbate environmental pollution burdens and hazards. The focus of this analysis is on location-based

[16] The American Community Survey defines disability as having serious difficulty with hearing, vision, cognition, or ambulation for persons under the age of 65.

[17] The data was taken at the block group level from the 2016 American Community Survey. Block groups do not follow jurisdictional boundaries. The separation between the coastal zone and non-coastal zone are therefore low-resolution estimates.

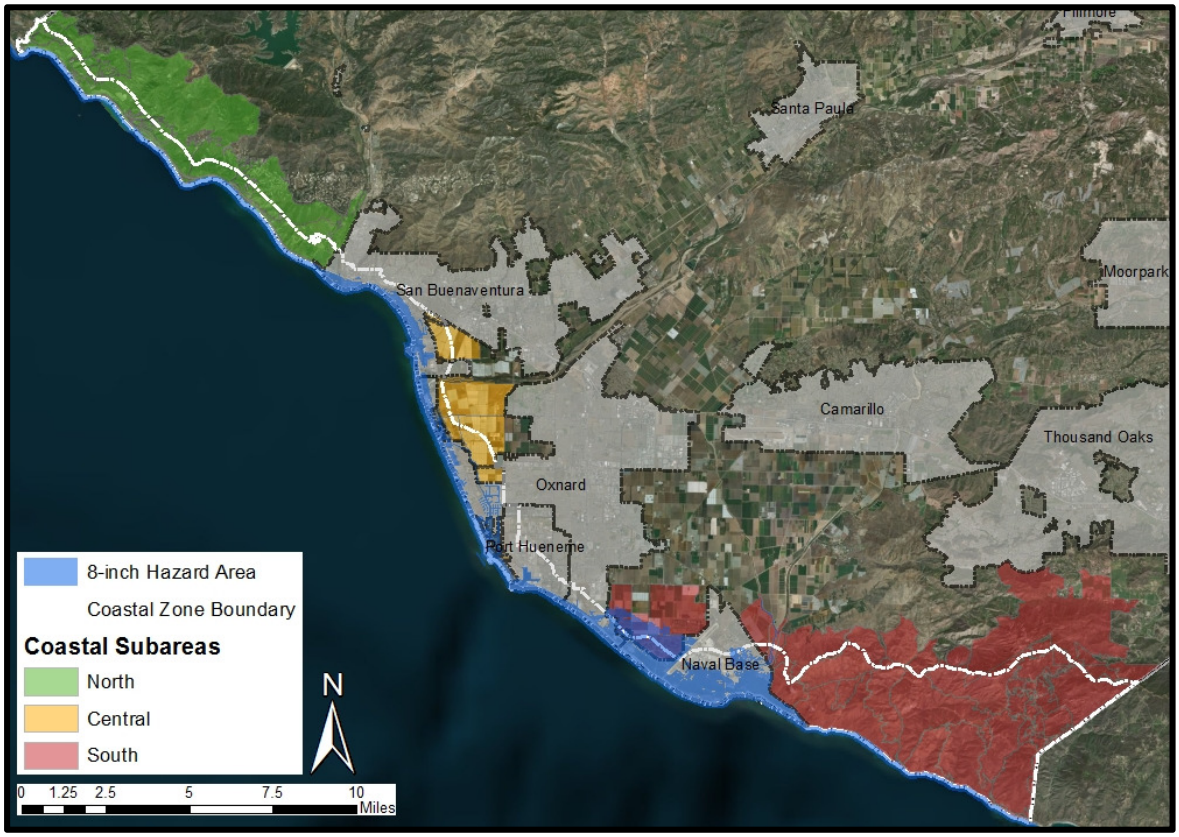
[18] In the Census, people who respond to the question on race by indicating only one race are referred to as *race alone* population. White alone are respondents who marked only the "White" category. Hispanic origin is a separate Census question. Therefore, "White alone, Not Hispanic" are all those who marked only the "White" category in the race question and the "Not Hispanic" category in the ethnicity question.

vulnerability of populations that will be exposed to sea level rise hazards[19]. To this end, this section starts with the definitions of the sea level rise hazard area (SLR Hazard Area) and the Exposure Area (Sections 3.1 and 3.2), followed by a quantitative analysis of the impacted population (Section 3.3). This section concludes with a qualitative narrative on the potential vulnerabilities of these populations and how local governments could intervene to alleviate identified risks (Section 3.4).

3.1 Defining the Sea Level Rise Hazard Area

The SLR Hazard Area consists of the 329 Census blocks in unincorporated Ventura County located within 500 feet of the coastal zone[20] (Figure C-2). The SLR Hazard Area is separated into three coastal subareas: North Coast (green), Central Coast (orange), and South Coast (red). The subarea divisions are derived from the planning regions in the County's Coastal Area Plan, but also extend beyond the coastal zone and include a 500-foot buffer to capture most of the coastal hazards associated with sea level rise. In some areas, the SLR hazard area extends farther inland due to the large size of the Census blocks.

Figure C-2. Sea Level Rise Hazard Area by Coastal Subarea

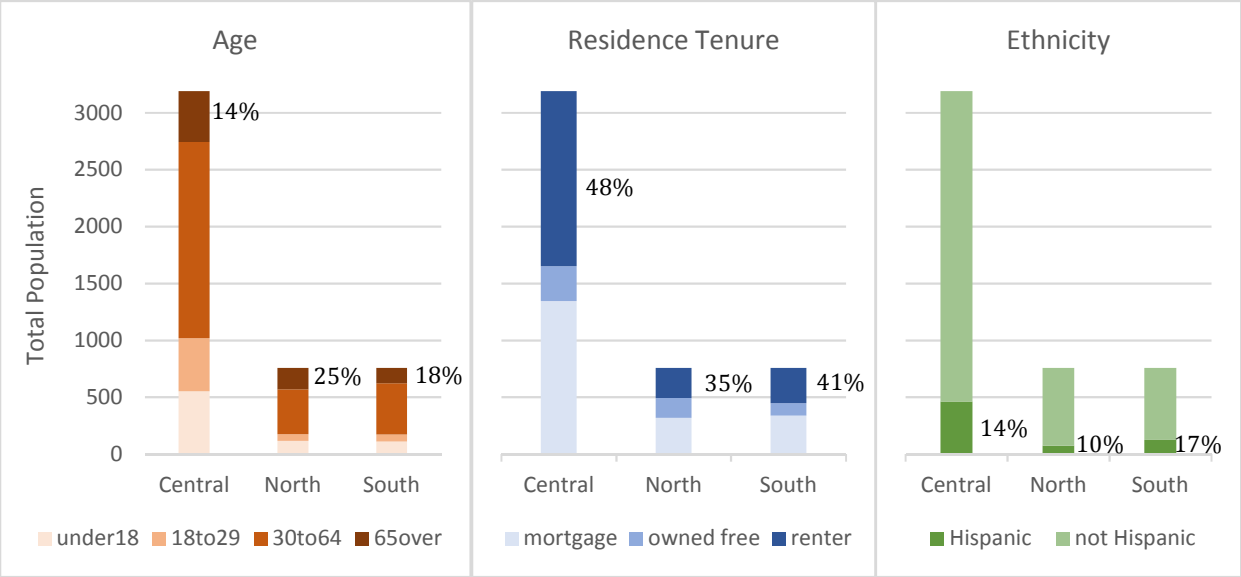


There are 4,703 residents and 2,895 housing units in the SLR Hazard Area. More than 65% of the population in the SLR Hazard Area lives in the Central Coast (3,190 of the 4,703 people). The North and South Coasts have about the same number of residents (~750 in each subarea). The demographic breakdown of the SLR Hazard Area is summarized according to the vulnerable populations in Figure

[19] Location-based analysis relies on the population that resides in the area of study and does not include people who visit or work in the area.
[20] As defined by the Coastal Commission and mapped in the Ventura County Coastal Area Plan.

C-3 below. The left axis shows the total population in each subarea. For example, the Central Coast has more than 3,000 residents while the North and South Coasts have about 750 residents each. The colors in each bar graph show the demographic breakdown according to each vulnerable population metric. Age is shown in red (with the darkest red showing the proportion of seniors), residence tenure is shown in blue (with the darkest blue showing the proportion of renters), and ethnicity is shown in green (with the darkest green showing the proportion of Hispanics). The percentages in each chart show the percentage of the population in the subarea that falls into one of the categories of vulnerable populations (i.e., seniors, renters, Hispanic). For example, 14% of residents in the Central Coast are seniors, 41% of residents in the South Coast are renters, and 14% of residents in the North Coast are Hispanic. For comparison across demographics, the entire composition of the vulnerable population categories are shown. Age is shown in the brackets "under 18", "18 to 29", 30 to 64", and "65 and over" (seniors). Residence tenure is shown as "mortgage", "owned free"[21], and "renter". And ethnicity is shown in the binary "Hispanic" or "not Hispanic".

Figure C-3. Demographic Breakdown of the Residents of the SLR Hazard Area



The Central Coast consists of the residents who live at Silverstrand, Hollywood Beach, and along the Santa Clara River. The Central Coast, being the most populated subarea, has the highest number of vulnerable residents with 446 seniors (14%), 1538 renters (48%), and 462 Hispanic residents (14%) living in the SLR Hazard Area. The North and South Coasts consist of interspersed communities and have similar demographics and total population when compared to one another. The age distribution in the two subareas are similar, with the North Coast having a slightly higher percentage of senior residents (25% compared to 18%). The South Coast, on the other hand, has a higher percentage of the other two vulnerable populations with 41% of South Coast residents being renters (compared to 35% in the North Coast) and 17% being Hispanic (compared to 10% in the North Coast). This demographic information could be useful in other coastal management plans in the County.

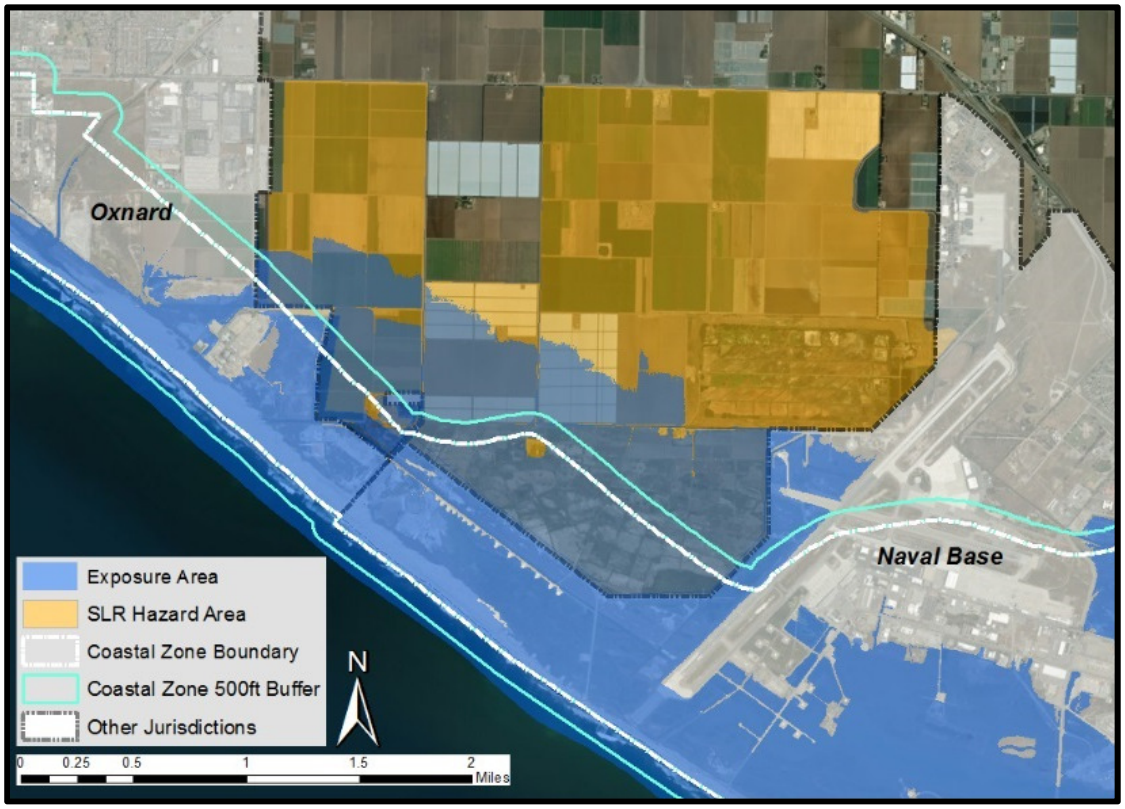
3.2 Exposure Area Calculation and Population Demographics

The Exposure Area is the part of the Census block that, according to the sea level rise models, could be exposed to eight inches of sea level rise and a large coastal storm (Figure C-4). To calculate the population in the Exposure Area, the population in each block was multiplied by the fraction of that

[21] In real estate, owned free and clear means that there is no lien or mortgage.

block that is inundated with up to eight inches of sea level rise. For example, if 50% of the area of a 100-person block is inundated, the population in the Exposure Area is estimated to be 50 people. Eight inches of sea level rise was used for the population analysis because it is projected to occur by 2030, which is within the year 2040 planning horizon of the County's General Plan Update.

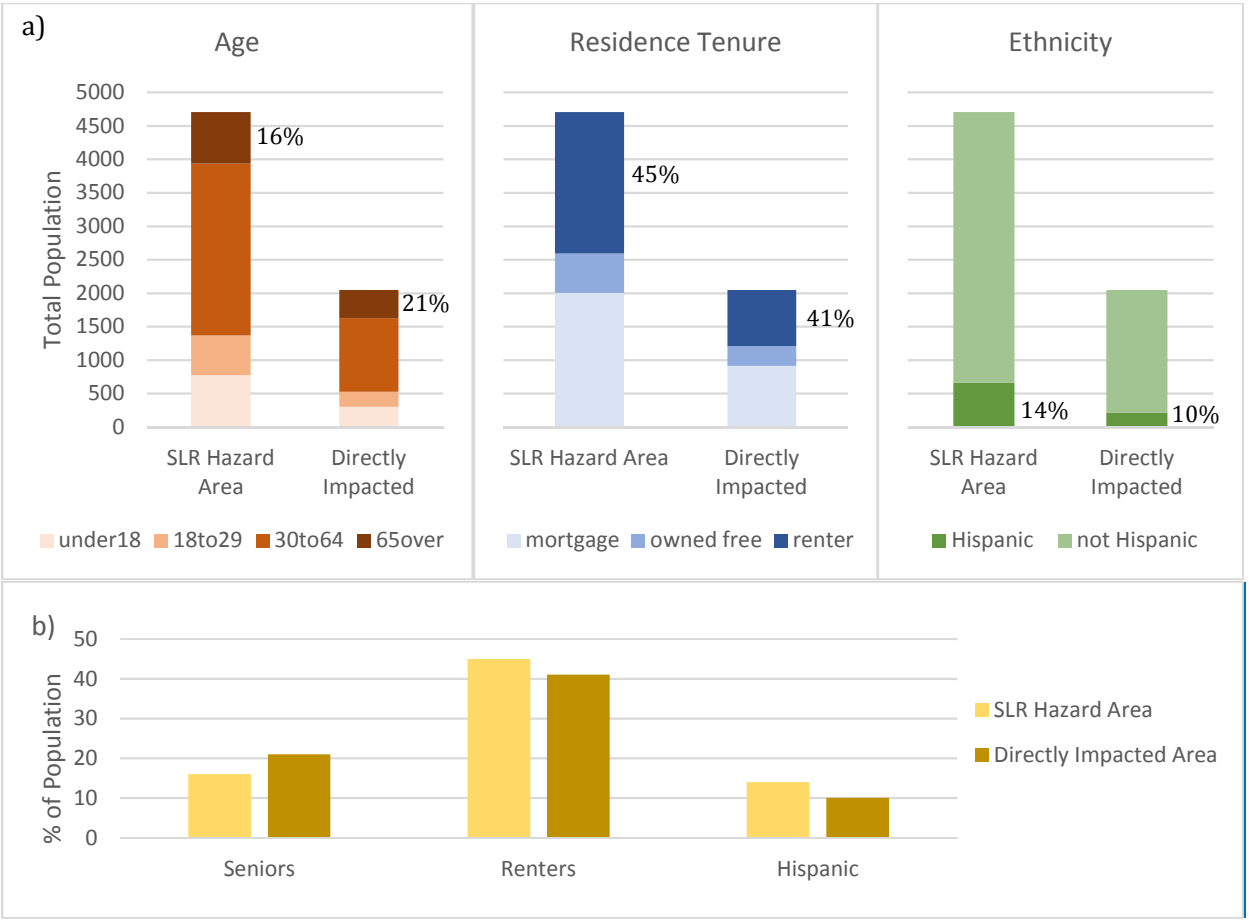
Figure C-4. Sea Level Rise Hazard Area and Exposure Area Illustration*



*The SLR Hazard Area (Census blocks) is shown in orange and the Exposure Area is shown in blue.

The demographics of the population in the Exposure Area (flooded with up to eight inches of sea level rise) are summarized in Figure C-5a. A total of 2,048 residents (or 44% of the population in the SLR Hazard Area) live in the Exposure Area. Comparing the population in the SLR Hazard Area to the population in the Exposure Area highlights that there is a higher proportion of seniors exposed to sea level rise hazards Figure C-5b compares the proportional representation of each vulnerable population in the SLR Hazard Area and the Exposure Area. The light yellow shows the proportion of the population in the SLR Hazard Area who are from a vulnerable population and the dark yellow shows the proportion of the population in the Exposure Area who are from a vulnerable population.

Figure C-5. Vulnerable Population in SLR Hazard Area versus Exposure Area



While only 16% of the population in the SLR Hazard Area are seniors, 21% of the population in the Exposure Area fit that demographic. This indicates that within the SLR Hazard Area, a higher proportion of seniors live closer to the coast or closer to low-lying areas. The Hispanic population, on the other hand, is not disproportionately affected by sea level rise hazards. While 14% of the population in the SLR Hazard Area is Hispanic, only 10% of the population in the Exposure Area is Hispanic[22]. The proportional distribution of renters in the SLR Hazard Area and the Exposure Area are similar (45% in the SLR Hazard Area compared to 41% in the Exposure Area). Overall, the population in the Exposure Area has a higher proportion of seniors, lower proportion of Hispanics, and similar proportion of renters as the population in the SLR Hazard Area.

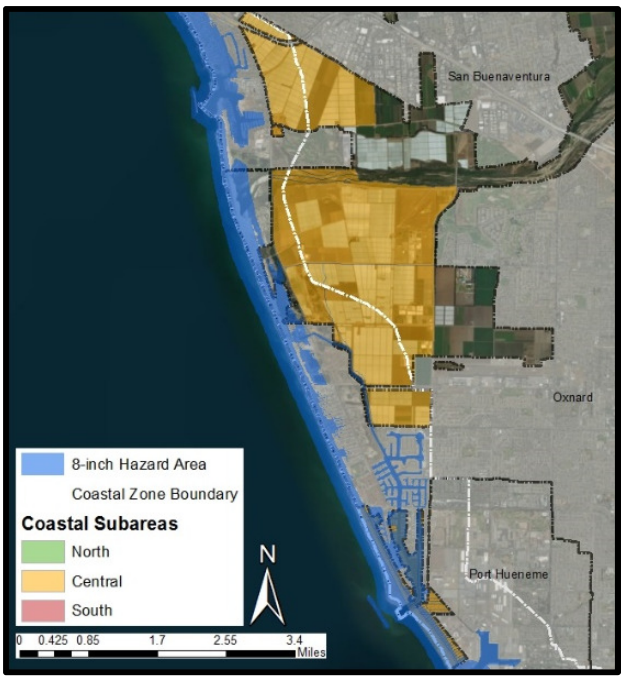
3.3 Population Demographics in the Hazard Area versus the Exposure Area

In the following subsections, the demographics of the SLR Hazard Area and the Exposure Area are discussed in more detail by subarea. The Central Coast is addressed first, as it has the highest population. The North and South Coasts are addressed together since they have similar demographic distributions and topography.

[22] While this indicates low disproportionate burden of direct impacts, it may shed light on other social vulnerability factors in that living closer to the coast in California generally requires more financial stability.

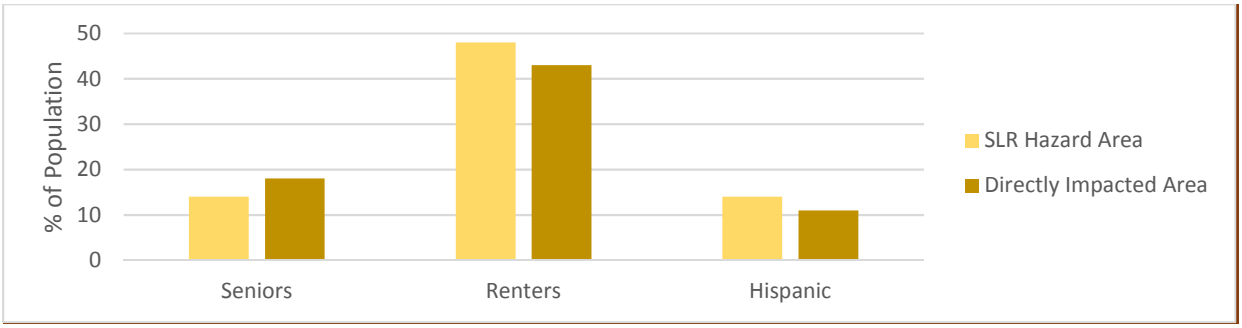
3.3.1 Central Coast

Figure C-6. Central Coast SLR Hazard Area



Overall, the Central Coast accounts for 68% of the population in the SLR Hazard Area and 75% of the population in the Exposure Area. The Central Coast consists of the Silverstrand and Hollywood Beach communities, and the few Census blocks at the mouth of the Santa Clara River (Figure C-6). The population in the hazard area at the mouth of the Santa Clara River is about 30 residents and none are in the Exposure Area. Although the population along the Santa Clara River is not within the Exposure Area, it should be considered in more detail since it was one of the areas identified by CalEnviroScreen and SoVI. A third of the population in that area is Hispanic, half are renters, and a majority are between the ages of 30 and 64. CalEnviroScreen shows that this area has high indices of pesticides, water pollution, asthma, and cardiovascular disease. The area is composed of agricultural land that, although not vulnerable to coastal flooding, may be vulnerable to fluvial (river) flooding. Flooding of polluted sites could be a hazard to the residents who live in this area. Flood protection projects could address the special vulnerabilities of the residents in this area.

Figure C-7. Central Coast Vulnerable Population Representation in SLR Hazard Area versus Exposure Area



The more populated communities at Silverstrand and Hollywood Beach have about 1,545 residents in the Exposure Area (of the 3,190 in the hazard area). Of those in the Exposure Area, 18% are seniors, 43% are renters, and 11% are Hispanic (Figure C-7). The proportional distributions of the vulnerable populations are similar between those in the Exposure Area and those within the hazard area. In other words, at the scale of this analysis there are no vulnerable populations that would be disproportionately affected by sea level rise hazard on the Central Coast. By sheer number, renters are the most vulnerable in the Central Coast. More than 650 renters are within the Exposure Area with up to eight inches of sea level rise. The senior population includes more than 280 residents living in the Exposure Area. Lastly, while the Hispanic population has the lowest number, the 170 Hispanic

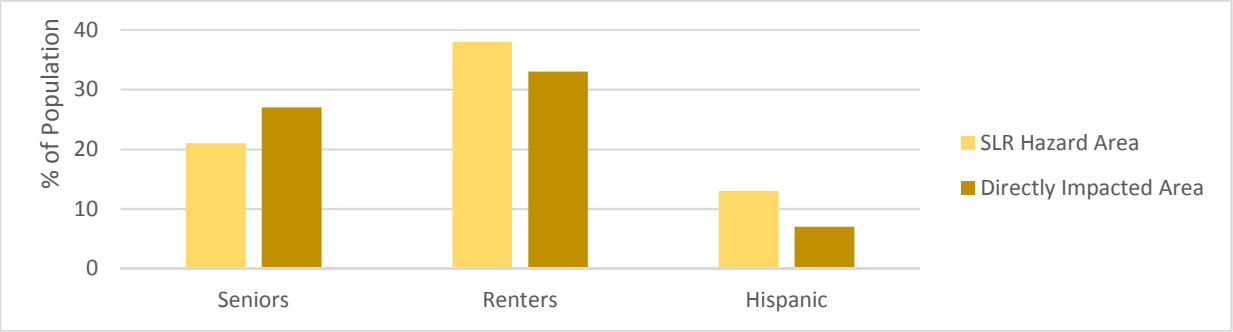
residents in the Exposure Area may be more vulnerable to indirect impacts than the other vulnerable groups.[23]

3.3.2 North and South Coast

The North and South Coasts each have their unique communities and specific vulnerabilities, but they have very similar topographies, total populations, and demographic distributions. The population in the Exposure Area is therefore summarized in one figure for the North and South Coasts. An area of special consideration in the South Coast is the population near Ormond Beach. This is the only populated area within the SLR Hazard Area that coincides with both CalEnviroScreen and SoVI's definitions of vulnerable communities. As with the few Census blocks at the mouth of the Santa Clara River, Ormond Beach is primarily composed of agricultural land. According to CalEnviroScreen, this area has very high indices of pollution burden but low indices of population vulnerability. The pesticides and solid waste indices both scored in the top 90% percentile. Flooding could expose the residents of this area to pesticides and solid waste. The area inland of the Ormond Lagoon will be severely flooded with sea level rise. The population in these three blocks is composed almost entirely of Hispanics and renters. Although the total population in this area is roughly 120 people, engagement with this community should be targeted to the Hispanic majority. Flood hazard awareness should be incorporated into community safety and awareness programs for this area.

Of the 1,513 residents in the North and South Coasts in the SLR Hazard Area, about 500 are in the Exposure Area (about 33%). Of the population in the Exposure Area, 27% are seniors, 33% are renters, and 7% are Hispanic residents (Figure C-8 below). The senior population is disproportionately represented in the Exposure Area. There are more than 130 senior residents in the Exposure Area, with a majority in the North Coast. The North and South Coasts also have more than 160 renters and 35 Hispanic residents in the Exposure Area. Given the steep topography of these coastal subareas and the interspersed communities, emergency warning alerts may not effectively reach all vulnerable residents. In an age where most up-to-date information is shared through digital means and social media, some seniors may lack access to important communication tools.

Figure C-8: North and South Coasts Vulnerable Population Representation in SLR Hazard Area versus Exposure Area



This quantitative analysis describes how the vulnerabilities of these populations are manifested and where equitable adaptation strategies may best be implemented. The vulnerable populations addressed here are most susceptible to limited mobility during evacuation, limited resources for recovery, and limited resources for flood hazard preparation. The following narrative discussions are centered around these themes.

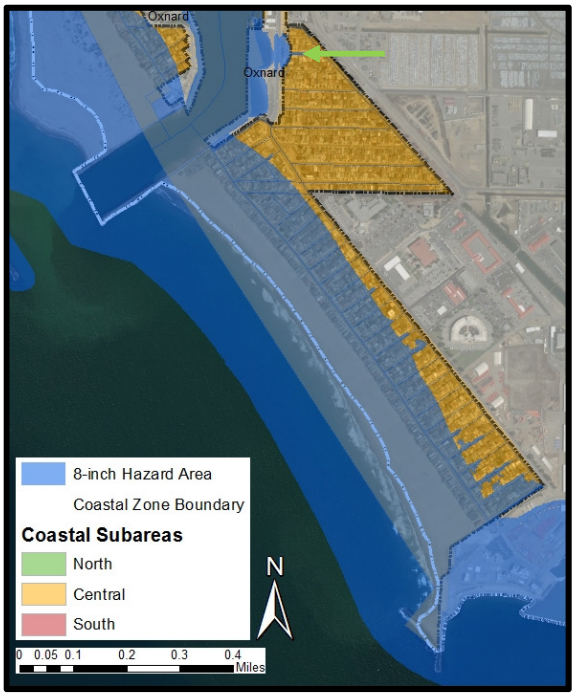
[23] Potential non-location-based (indirect) impacts are discussed in Section 4.

3.4 Vulnerability Narratives and Social Adaptation Strategy Options

While the charts above show the total number of residents that may be impacted with up to eight inches of sea level rise, it is important to discuss their vulnerability in terms of narratives to help develop potential social adaptation strategies. The three themes discussed below closely match the vulnerable populations chosen. The emergency evacuation narratives address the vulnerabilities of the senior population, while the flood recovery and flood hazard preparation narratives address the vulnerabilities of the renter and Hispanic populations.

Emergency Evacuation. Of critical concern in the Central Coast is the flooding of crucial evacuation routes and choke points that could constrain the evacuation process. Main evacuation routes out of both Hollywood Beach and Silverstrand are at risk of flooding with up to eight inches of sea level rise. Victoria Avenue (the only outlet from Silverstrand) already has nuisance flooding at high tides (Figure C-9, green arrow). It is highly likely that an adaptation strategy will have to be implemented at this location in the near term. There are more than 400 senior residents in the Hollywood Beach and Silverstrand communities that should be considered in evacuation planning. In case of an emergency, this population will likely need more time and resources to be evacuated. Evacuation of the Central Coast communities will also be affected by the evacuation of neighboring cities. Continued coordination between jurisdictions is crucial to address emergency operations[24].

Figure C-9. Silverstrand Evacuation Hazard



The North Coast consists of various small communities interspersed between Highway 101 and the ocean. Highway 101 may be flooded at various points in the North Coast with eight inches of sea level rise. Flooding at these points may isolate the communities and trap the residents during an evacuation. For example, the community at Rincon Point may be isolated from the rest of the County if Highway 101 is flooded. With the existing seawalls along Highway 101 in the North Coast, it is unlikely that the freeway will be flooded to an extent that prevents evacuation in an emergency. In the South Coast, most of the population is located in the Solromar community. As with the North Coast, it is unlikely that the Pacific Coast Highway will be flooded to an extent that prevents evacuation. More worrisome than the impacts on evacuation routes in the North and South Coasts is the direct impact to the residential units in the region. More than 280 people may have their homes flooded with up to eight inches of sea level rise in the North and South Coasts. Populations with decreased mobility (e.g. seniors) may have difficulty evacuating their homes even if the evacuation routes are unimpeded. Emergency plans should take these populations into account.

The Ventura County Multi-Hazard Mitigation Plan (MHMP) is the main set of policies governing emergency planning in the County of Ventura. While the 2015 Draft MHMP includes a section on climate change and briefly mentions sea level rise, it does not consider vulnerable populations. Future updates to the MHMP would benefit from conducting a population vulnerability analysis for

[24] The 10 cities of the County participate in the County's Hazard Mitigation Plan (2010).

the entire county. As the MHMP is coordinated between the County and its cities, it would be a good place to insert a comprehensive population vulnerability analysis.

Flood Recovery. While the National Flood Insurance Program (NFIP) requires homeowners to purchase flood insurance in areas of high flood risk, federal law does not cover all the populations in the SLR Hazard Area. There are two main reasons why the NFIP does not address all those at risk of flooding with sea level rise: (1) The Federal Emergency Management Agency (the agency that manages the NFIP) does not take climate change and sea level rise into account when creating the digital flood insurance rate maps; and (2) renters are not required to purchase flood insurance. During the recovery stage, renters are highly vulnerable because they may not have their belongings insured. In the North and South Coasts, 33% of the population in the Exposure Area are renters; and in the Central Coast, 43% of the population are renters. Local assistance efforts after a flood will have to take into account that many of these people may not have flood insurance. Renters are the most vulnerable during the recovery stage. The County should provide information on renter's flood insurance to residents of the hazard area and emphasize its importance. In the Central Coast, information on flood recovery should also be provided in Spanish to accommodate the more than 450 Hispanic residents. The same may not be necessary in the North and South Coasts.

Flood Hazard Preparation. The first stage of disaster is the preparation before a hazard. The impacts of a disaster can be mitigated if the population is prepared even before the impacts occur. Flood hazard preparation can help mitigate the impacts of floods by encouraging homeowners to prepare their properties for floods and prepare at-home emergency protocols. Community involvement in government projects is one way to increase flood hazard awareness. Materials prepared for community members should be targeted towards the vulnerable populations. For example, in the North and South Coasts, education efforts should be targeted towards the elderly and renter population. This can be done through infographics about best practices during evacuation (targeted for the elderly) or information on renters' insurance. In the Central Coast, it is important that these materials be also available in Spanish to accommodate for the larger Hispanic population, perhaps in collaboration with a Spanish radio broadcasting station.

4. Coastal Zone Workers and Visitors

A location-based social vulnerability analysis does not consider the populations that work or visit the coastal zone. For example, there are a few commercial parcels and many agricultural parcels within the SLR Hazard Area that may function as work sites for residents from other parts of the County. Workers in the service industries may be directly vulnerable to flooding during work hours. Indirect impacts could increase the vulnerability of workers to financial impacts if access to a work site is disrupted for a period of time. Even more significant, if a business suffers losses or damage from sea level rise hazards, employees may be let go to cover costs or because the business cannot operate. The worker population also includes the farm workers in the SLR Hazard Area. Agriculture parcels are primarily located near Ormond Beach and McGrath Park in the Central Coast. Impacts to farm workers may be significant and more work can be done to address sea level rise hazards with farm workers and employers[25]. It would also be helpful for State guidance documents to address in more detail how workers in the coastal zone may be affected by sea level rise.

A second vulnerable population not addressed through a location-based analysis includes the visitors to the SLR Hazard Area. The SLR Hazard Area contains several recreation areas including public beaches, County parks (Faria and Hobson), a hotel (Cliff House Inn), and temporary housing

[25] Agricultural workers may also be socially vulnerable due to their immigration status. While there are no estimates for the coastal zone, Ventura County as a whole is home to about 182,987 immigrants (about 22% of population) and an estimated 14,000 undocumented farmworkers (CAUSE 2011).

accommodations (e.g. Airbnb). The Coastal Commission is especially invested in equitably protecting public access and recreation to California's coastal resources through sea level rise policies. State guidance is currently focused on how to address environmental justice in development of sea level rise adaptation projects and through community engagement but provides no clear guidance on how local governments should assess the vulnerabilities of populations that live outside of the coastal zone (and therefore outside the jurisdiction of Local Coastal Programs). While the vulnerability of populations outside the coastal zone was not evaluated, the County's Local Coastal Program has regulations in place that protect coastal public recreation and access[ix]. The vulnerability of public access and recreation to sea level rise were also evaluated in the main body of this report . Unincorporated County beaches draw over two million visitor days per year. In the North and South Coasts, existing beaches are largely protected by 18 miles of coastal armoring and will be narrowed by rising high tides (ES-13). Coastal access points and various sections of the California Coastal Trail are vulnerable to coastal erosion and flooding under existing conditions (Appendix A). Public access and recreation vulnerabilities can be addressed during the adaptation strategies and policies phase of sea level rise planning. Adaptation strategies adopted at the planning level should consider existing social vulnerabilities and inequities and protect public coastal access for all.

5. Recommendations to Address Identified Social Vulnerabilities

Addressing environmental justice issues in sea level rise planning is a challenging task. The work done in this social vulnerability assessment has allowed for a better understanding of the population demographics of the coastal zone and how specific populations could be impacted by sea level rise. It is important that environmental justice and social vulnerability be addressed at every stage of sea level rise planning (following State guidance). A few conclusions and recommendations can be drawn from the work done above:

- Ormond Beach and the Santa Clara River are the two vulnerable communities in the unincorporated coastal zone, according to state and federal definitions (Section 2.1). The recommendations for this area include:
    - Coordinate climate action and disadvantaged communities funding opportunities towards restoration of Ormond Beach to provide the most disadvantaged population with coastal recreational opportunities.
    - Further study the impacts of sea level rise hazards on hazardous sites and oil wells in this area to protect the potentially exposed population.
    - Funding may be available to pilot resilience projects in these disadvantaged communities.
- There is a high proportion of seniors living in the coastal zone who may have limited mobility during evacuation warnings (Section 3). The recommendations from this conclusion include:
    - Analyze evacuation routes and accessibility for seniors and residents with limited mobility.
    - Initiate an "adopt a neighbor" campaign in the scattered communities in the North and South coasts to connect senior residents with their neighbors.
    - Implement early warning systems that are cognizant of seniors' limited mobility and potential lack of connection to modern means of communication (e.g. social media).
- Almost half of all residents of the coastal zone live in rented accommodations (Section 3). They may have less control over preparing their homes for flooding and less resources to recover from loss of belongings. The recommendations from this conclusion include:
    - Provide renter's flood insurance flyers and educate renter residents in the coastal zone on sea level rise hazards.

    - Encourage landlords to consider how to prepare their properties for sea level rise hazards.
- The Hispanic population may face institutional and structural barriers to access resources to prepare for, respond to, and recover from sea level rise hazards. About 14% of residents in the hazard area in the unincorporated Central Coast are Hispanic (Section 3.2). The recommendations for this population include:
    - Outreach materials should be made available in Spanish (especially in the Central Coast).
    - The County should coordinate with community groups that have relationships with the Hispanic community during recovery from a hazard event to bridge the gap between local government and potentially marginalized communities.
- It is important for local governments to assess population vulnerabilities that are relevant to the region of study and the specific hazard being addressed. Vulnerabilities to one hazard and within a specific jurisdiction may overlap. The recommendations from this conclusion include:
    - Coordinate with other County agencies to conduct population vulnerability analysis for other specific hazards and existing environmental pollution burdens.
    - Utilize the MHMP as a platform to initiate a population vulnerability assessment of all coastal jurisdictions in the county.
- Though the vulnerability of visitors to the coastal zone was not addressed, coastal access and recreation are very important issues in equitable sea level rise planning. The recommendations from this conclusion include:
    - Revise coastal access and recreation regulations to consider the potential impacts of sea level rise hazard on visitors from vulnerable communities.
    - Develop adaptation strategies that consider the disproportionate impacts on coastal access and recreation resources.
- Future studies should consider other vulnerable populations like the disabled, homeless, institutionalized, and low-income. Local governments in coordination with neighboring jurisdictions. would benefit from a statewide study that establishes methodology and guidance on assessing the vulnerabilities of these populations relevant to small coastal communities.
- Ventura County (incorporated and unincorporated areas) has high social vulnerability to coastal flooding compared to other coastal counties in California (Section 2.1). State funding to address social vulnerability to sea level rise should be targeted towards the most vulnerable counties.
- Sea level rise hazards will impact communities across jurisdiction boundaries. It is important that strategies for vulnerable communities are coordinated across neighboring jurisdictions.

6. References

[i] Cutter, S.L. and C.T. Emrich, J.J. Webb, D. Morath (2009). Social Vulnerability to Climate Variability Hazards: A Review of Literature.
[ii] *Safeguarding California Plan: 2018 Update*. California Natural Resources Agency.
[iii] Cooley, H. and E. Moore M. Heberger, L. Allen (Pacific Institute) (2012). Social Vulnerability to Climate Change in California. California Energy Commission.
[iv] Maizlish, N. and D. English, J. Chan, K. Dervin, P. English (2017). "Climate Change and Health Profile Report: Ventura County." Sacramento, CA. Office of Health Equity, California Department of Public Health (CDPH).
[v] Rufat, S. and E. Tate, C. G. Burton, A. S. Maroof (2015). "Social Vulnerability to floods: Review of case studies and implications for measurement." International Journal of Disaster Risk Reduction 14: 470-486.
[vi] Rufat, S. and E. Tate, C. G. Burton, A. S. Maroof (2015). "Social Vulnerability to floods: Review of case studies and implications for measurement." International Journal of Disaster Risk Reduction 14: 470-486.
[vii] Casazza, C. (2017). "Why Renters Should Consider Getting Flood Insurance." Forbes. <https://www.forbes.com /sites/ccasazza/2017/06/15/why-renters-should-consider-getting-flood-insurance/#13b92cad7ec8>
[viii] Heberger, M. and H. Cooley, P. Herrera, P.H. Gleick, E. Moore (2009). "The Impacts of Sea-Level Rise on the California Coast." California Climate Change Center.
[ix] Ventura County Coastal Area Plan.

RESOLUTION NO. _____

A RESOLUTION OF THE VENTURA COUNTY BOARD OF SUPERVISORS RATIFYING AN APPLICATION FOR LOCAL COASTAL PROGRAM PLANNING GRANT FUNDS

WHEREAS, the California Budget Acts of 2018 and 2019, respectively, provide $1,500,000 for California Coastal Commission grants to local governments to support Local Coastal Program (LCP) planning that results in the reduction of greenhouse gas emissions and adaptation to the impacts of climate change;

WHEREAS, the California Coastal Commission, under the authority of the California Coastal Act, may provide financial assistance to support coastal planning and has approved a competitive grant program to provide such financial assistance for LCP planning;

WHEREAS, the goal of the grant program is to develop new or updated LCPs in conformance with the California Coastal Act and to reflect current circumstances and new scientific information, including especially new understandings and concern for the effects of climate change;

WHEREAS, grant proposals submitted under this grant program must complete LCP planning work with special emphasis on reducing greenhouse gases and addressing the effects of climate change and sea-level rise;

WHEREAS, the County of Ventura (County) has a certified LCP;

WHEREAS, the County desires to pursue a grant-funded project that would result in the completion and submittal for certification by the California Coastal Commission of an amendment to the LCP; and

WHEREAS, the County commits to a planning effort intended to amend a certified LCP pursuant to the provisions of the California Coastal Act, with full public participation and coordination with the Coastal Commission staff.

NOW, THEREFORE, BE IT RESOLVED that the County Board of Supervisors hereby ratifies the County's submission, on or about September 6, 2019, of the grant application attached hereto to the California Coastal Commission seeking financial and planning assistance, under the California Coastal Act, in the amount of $160,070 to fund the project described in the County's grant application.

Upon motion of Supervisor _____, seconded by Supervisor _____, duly carried, the Board hereby adopts the foregoing resolution on this 10th day of September, 2019.

_____
Supervisor Steve Bennett
Chair, Board of Supervisors
County of Ventura

ATTEST:

MICHAEL POWERS,
Clerk of the Board of Supervisors
County of Ventura, State of California

By: _____
Deputy Clerk of the Board