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): City of Carpinteria	
Address: 5775 Carpinteria Avenue, Carpinteria, CA 93013	
Contact name: Steve Goggia	Title: Community Development Director
Telephone: (805) 755-4414	Fax: N/A
Email: steveg@ci.carpinteria.ca.us	
Federal Tax ID#: 95-2414438	

Person authorized to sign grant agreement and amendments:	
Name: Dave Durflinger	Title: City Manager
Application prepared by:	
Name: Steve Goggia/Julia Pujo	Title: Director of Community Development/ Project Manager

Signature:_____ Date: 9/6/2019

PROJECT INFORMATION

Project title:	City of Carpinteria Local Coastal Program Update		
LCP/LCP Segment:	Whole/Comprehensive		
Project location			
City/Geographic area:	City of Carpinteria		
County:	Santa Barbara		
GPS: Lat 34.398925 Lon -119.518383			
Project timeline			
Start date:	1/2/2020	End date:	3/31/2022

Project Description - City of Carpinteria Local Coastal Program Update

The City of Carpinteria (City) will continue to actively coordinate with California Coastal Commission (CCC) staff during the next phase of the Local Coastal Program (LCP) update effort, to be partially funded with this Round 6 Grant. The City's existing General Plan/Local Coastal Plan and Zoning Ordinance comprise their LCP. The City's current Zoning Ordinance was certified by the Coastal Commission in 1982, and while the City adopted Zoning Ordinance amendments and obtained amendment certifications from the CCC, the entire Zoning Ordinance has not been comprehensively updated. As the Coastal Land Use Plan (CLUP)/General Plan is currently undergoing a comprehensive update, updates to the City's Zoning Ordinance and City programs are required to implement updated CLUP/General Plan goals and policies, new statewide legislature, and achieve consistency with the CCC's LCP Update Guidelines.

The CCC LCP Planning Grant Round 3 partially funded the preparation of the Sea Level Rise Vulnerability Assessment and Adaptation Plan (SLRVAAP) that was submitted to the CCC and finalized in March 2019. The SLRVAAP identifies over 223.6 acres of developed land could be subject to coastal hazards with 5 or more feet of sea level rise, including 1,090 housing units, of which 238 units are either low-income housing or affordable by design (see Figures 2 through 4). The SLRVAAP recommends potentially feasible adaptation strategies to minimize or reduce coastal hazard impacts.

The LCP Planning Round 3 grant also funded draft policy development for Elements of the CLUP/ General Plan update, including a new Coastal Resiliency Element, which includes draft policies that incorporate the above adaptation strategies identified in the SLRVAAP, and Healthy Community Element, which includes objectives policies that align with statewide goals for greenhouse gas (GHGs) reduction and addresses environmental justice populations. The draft policies of the CLUP/General Plan update encourage development patterns to reduce vehicle miles traveled; enhance public transit, pedestrian, and biking opportunities, particularly to and along the coast to reduce vehicle miles traveled; and prevent development of natural lands or zoned lands for open space in anticipation of sea level rise hazards. This comprehensive update is partially complete, exemplified via the draft updated policies for all CLUP/General Plan Elements that were provided to the CCC between June and August of 2019 and will be discussed with the CCC through a series of meetings during the remainder of 2019.

The planning area for this project includes the City of Carpinteria city limits, which is entirely located within the Coastal Zone. In addition, Carpinteria is located within the boundaries of a low-income community census tract, which is a priority population under the California Climate Investments Funding Guidelines (see Figure 1). With additional grant funding under Round 6, and by strategically leveraging City staff resources including general funds and in-kind contributions, the City will complete preparation of the: (1) CLUP/General Plan, (2) Zoning Ordinance update that will act as the implementation plan, (3) Triggers & Sea Level Rise Monitoring Program, (4) a corresponding Critical Infrastructure and Drainage Master Plan, and (5) LCP amendment submittal to the Coastal Commission to initiate the certification process. The project would address environmental justice populations, particularly related to climate resilience, and protect coastal resources for continued coastal access and recreation.

The City intends to complete and adopt the CLUP/General Plan update with integration of comments from the CCC, the public, other local stakeholders (e.g., special districts, county and state agencies, study site property owners, special interest groups), throughout the public hearing and decision-making process. The CLUP/General Plan update will enable new data and information, contemporary scientific knowledge, and new and/or updated programs and policies to be integrated into the City's planning process, based on community goals and values related to land use and resource management. The CLUP/General Plan update will emphasize considerations of sea level rise hazards upon community health and well-being. The CLUP/General Plan update integrate new Coastal Resiliency Element policies and implementation measures to address City resiliency to sea level rise and coastal hazards, facilitate multi-modal transportation and associated reduction in GHG, and promote social equity and inclusiveness in the decision-making process. This CLUP/General Plan update would undergo environmental review consistent with the California Environmental Quality Act, which is already contracted and funded separately through the City's general fund.

Concurrently with the CLUP/General Plan update, the City would complete a comprehensive update to the Zoning Ordinance. These updates to the City's Zoning Ordinance would realize the CLUP/General Plan goals and policies that support GHG reductions, coastal access and trail development, protection of environmentally sensitive habitat (ESHA), and implementation of the Sea Level Rise Adaptation Overlay. Public review and workshops throughout these tasks would encourage continued public support and outreach with all segments of the City's population, including targeted outreach to low-income populations. The project includes the establishment of a Triggers & Sea Level Rise Monitoring Program to set the framework for monitoring the effects of sea level rise in the future and to identify triggers for implementation of necessary actions to protect City resources and low-income communities that are threatened by sea level rise as identified under the Final SLRVAAP. The project would also include development of a Critical Infrastructure and Drainage Master Plan, as identified in the Final SLRVAAP and draft policies of the Coastal Resiliency that are currently under review by CCC district staff. The Critical Infrastructure and Drainage Master Plan would help to prevent the loss of property (both public and private) and disruption of critical public services, providing co-benefits to reduce climate change impacts on public health.

In addition, the City of Carpinteria was awarded $237,000 in Caltrans grant funds under the Caltrans Adaptation Planning Grant to conduct a feasibility study and conceptual design for a Living Shoreline adaptation strategy between October 2019-February 2021. The living shoreline is an adaptation strategy identified within the SLRVAAP and will continue to be discussed as part of the public process. Policies that support this project will be included within the Draft CLUP/General Plan and Zoning Ordinance Update. Following the completion of the project funded under Round 6, the City would have a locally adopted complete LCP package, culminating in submittal to the CCC to initiate the certification process.

TASK DESCRIPTIONS, SCHEDULE, AND BUDGET

City of Carpinteria LCP Update - Tasks

Task 1: Draft CLUP/General Plan

The City is currently in the process of updating the Coastal Land Use Plan (CLUP)/ General Plan, which was initiated in 2016 under the CCC LCP Planning Grant Round 3. This Task would continue the amendment process effort for the City's CLUP/General Plan following completion of the Administrative Draft CLUP/General Plan under the Round 3 grant. Round 6 grant funds would assist the City to complete the Draft CLUP/General Plan update. City staff would oversee preparation of this task, which would be largely performed by the Consultant under an ongoing Consultant Services Agreement.

Subtask 1.1: Update the City's ESHA Map - The City's existing General Plan /Local Coastal Plan includes an ESHA Overlay Map that was developed prior to 2003. Given the physical setting of Carpinteria has since changed, the map requires updating to more accurately identify parcels that could contain ESHA, especially along creek corridors and within the Bluffs parcels. Draft policies within the CLUP/General Plan will reference this map as an initial indicator to determine the need for site specific ESHA studies and/or mitigation. This Subtask will result in an updated ESHA Geographic Information Systems (GIS) layer and updated ESHA Overlay Map that will be included within the Open Space and Conservation Element. This subtask will include the following methodology: 1) background research including review of existing biological resources databases, aerial surveys, and previous site-specific ESHA studies completed within the City in support of permit applications; 2) fieldwork and targeted reconnaissance surveys where feasible; 3) peer review and coordination with the City Biologist and other stakeholders; and 4) integration within the Open Space and Conservation Element. Further, the ESHA Overlay will also be amended within the Zoning Ordinance update as part of Task 7.

Subtask 1.2: Public Draft CLUP/General Plan - The City and Consultant will prepare the Public Draft CLUP/General Plan that incorporates the input of the CCC staff, CLUP/GP Update Committee, and other stakeholders, describing specific and unique local conditions and community interests that are the foundation of the City's land use policy/positions.

Subtask 1.3: Public Review of the Draft CLUP/General Plan - Public review of the Draft CLUP/General Plan will be initiated with an emphasis on the need to analyze, plan for, and adapt to the effects of sea level rise. Following release of the Public Draft CLUP/General Plan, the City and Consultant will conduct community outreach including

at least four (4) workshops, and up to six (6) stakeholder meetings. Outreach will include focused efforts to involve vulnerable or underserved populations.

Subtask 1.4: Revised Draft CLUP/GP - The CLUP/General Plan will be revised following public review to integrate public and stakeholder comments.

Subtask 1.5: CCC Coordination - The City and Consultant will continue to hold regular coordination meetings (via teleconference or in person) with CCC District staff and discuss CCC feedback on Elements of the CLUP/General Plan.

Deliverables:

- Updated ESHA Map
- Public Draft CLUP/General Plan
- Public Outreach Summary & Workshop Materials
- Revised Draft CLUP/General Plan
- Meeting Minutes

Task 2: Environmental Review (not funded by grant)

Given the combined nature of the CLUP and General Plan components, the City's Consultant will conduct environmental review of the program and related implementation in accordance with the California Environmental Quality Act (CEQA). An Environmental Impact Report (EIR) will be prepared that will evaluate impacts to a range of environmental resources including biological resources, water quality, air quality, greenhouse gases, transportation and vehicle miles traveled, land use, cultural resources, wildfire hazards, and recreation. The EIR will identify mitigation measures to reduce environmental impacts, which will be integrated into the Final CLUP/General Plan. This task has already been funded by the City and is included in the City's existing Consultant Services Agreement.

Task 3. Public Hearings & Adoption of CLUP/GP

The City and Consultant will prepare the Final CLUP/General Plan for local adoption through the public hearing process, and submit to the CCC to initiate the certification process.

Subtask 3.1: Final CLUP/General Plan – The City and Consultant will prepare the Final CLUP/General Plan following environmental review, integrating necessary mitigation measures into the Plan to reduce environmental impacts of Plan implementation.

Subtask 3.2: Planning Commission Hearings - The Final CLUP/General Plan will be presented to the Planning Commission for consideration and recommendation to the City Council. The City and Consultant will prepare staff reports and meeting minutes. The City will inform the CCC of any recommended changes from the Planning Commission.

Subtask 3.3: City Council Hearings The Final CLUP/General Plan, EIR, and Planning Commission recommendation will be presented to the City Council for consideration and adoption.

Subtask 3.4: Submit Adopted CLUP/General Plan to CCC for Initiation of Certification - Following City Council approval, the City will submit the Final CLUP/GP to the CCC for review to initiate the certification process.

Deliverables:

- Final CLUP/General Plan
- Planning Commission Staff Report(s) and Adopting Exhibits
- City Council Staff Report(s) and Adopting Exhibits
- CLUP/General Plan Update LCP Amendment Submittal to the CCC

Task 4. Triggers & Sea Level Rise Monitoring Program (concurrently with Tasks 5 & 7)
Development of the Triggers & Sea Level Rise Monitoring Program was identified in the SLRVAAP as a recommended next step. This Program would establish triggers for the protection of City resources, including low-income communities that are threatened by sea level rise as identified under the Final SLRVAAP. The program would include triggers that would address concerns of environmental justice populations, considering potential damage to affordable and rental units, low-cost recreation resources, and potential effects to community facilities and services that serve a diverse population, as described within the SLRVAAP. Draft policies are currently being developed within the Administrative Draft Coastal Resiliency Element that would facilitate this program; such policies are currently under review by CCC South Central Coast District. The City and Consultant, with assistance from a qualified coastal engineer and economist, will prepare this task. The methodology would be consistent with CCC's *Sea Level Rise Policy Guidance* and would be informed by best available science.

Subtask 4.1: Develop Draft SLR Monitoring Program - The City and Consultant will develop a Draft Sea Level Rise Monitoring Program to implement adaptation measures, considering factors such as required coordination, planning, permitting, engineering, and financing. Lead times for each adaptation strategy from initial concept to implementation will be developed, which will likely vary depending on the scale and type of strategy, and the amount of sea level rise that the strategy can accommodate. Once the strategies are prioritized, conservative estimates of lead times before implementation will be developed as part of this program. These lead times will then inform policy triggers that are then monitored through measurable objectives to act as a catalyst for the planning process. The Draft Sea Level Rise Monitoring Program will then be released to the public during

public review of the Draft Zoning Ordinance Update, and input will be solicited from the CCC, public, CLUP/General Plan Committee, and other stakeholders.

Subtask 4.2: Final SLR Monitoring Program - The City and Consultant will revise the Draft Sea Level Rise Monitoring Program as necessary following public review and CCC coordination.

Subtask 4.3: Establish triggers and integrate into the Draft Coastal Zoning Ordinance - The City and Consultant will integrate requirements and components of the Final Sea Level Rise Monitoring Program into the Draft Coastal Zoning Ordinance Update.

Deliverables:

- Draft SLR Monitoring Program
- Final SLR Monitoring Program
- Matrix of Triggers associated with Adaptation Strategies

Task 5. Critical Infrastructure and Drainage Master Plan (concurrently with Tasks 4 & 7)
The Critical Infrastructure and Drainage Master Plan would implement strategies to address the effects of coastal hazards and sea level rise on City infrastructure and public facilities. The Critical Infrastructure and Drainage Master Plan would help to prevent the loss of property or disruption of critical infrastructure, providing co-benefits to public health. The Master Plan is included as a recommended next step within the SLRVAAP, particularly as transportation, water, wastewater, and storm water infrastructure are identified as vulnerable to coastal hazards and sea level rise, or may exacerbate flood and tidal inundation hazards. The City and Consultant, as well as qualified civil/utility engineers would perform this task, along with stakeholder input from special districts, utility purveyors, and transportation agencies.

Subtask 5.1: Develop Draft Critical Infrastructure and Drainage Master Plan - A qualified engineer will assemble the Master Plan with oversight of the City, which identifies infrastructure that may be vulnerable to coastal hazards, including transportation, water and sewer, and storm water, but does will not necessarily identify the cost or specific condition and maintenance needs of this infrastructure. Future coastal hazards, especially erosion, may require realignment or relocation of infrastructure, such as small lengths of eroded pipeline that may necessitate removal or relocation. The Critical Infrastructure Master Plan will identify these types of issues and address issues of land acquisition/right-of-way, potential upgrades, and timing for such capital improvements with consideration for sea level rise. The Draft Critical Infrastructure and Drainage Master Plan will be circulated for input from the CCC staff, special districts, local and state agencies, and other stakeholders.

Subtask 5.2 Final Critical Infrastructure and Drainage Master Plan - The City and qualified engineer will revise the Draft Critical Infrastructure and Drainage Master Plan as necessary following stakeholder input and CCC coordination.

Subtask 5.3: Integrate findings into the Draft Coastal Zoning Ordinance - The City and consultant will integrate requirements and components of the Final Critical Infrastructure and Drainage Master Plan as necessary to the Draft Coastal Zoning Ordinance.

Deliverables:

- Draft Critical Infrastructure and Drainage Master Plan
- Final Critical Infrastructure and Drainage Master Plan
- List of findings for incorporation within the Draft Zoning Ordinance

Task 6. Preliminary Draft Zoning Ordinance Update (*Not funded under grant*)

The City's Zoning Ordinance was last certified in 1982 and has not since undergone a comprehensive update. Further, the Zoning Ordinance was not updated following the adoption of the City's 2003 General Plan and Local Coastal Plan. The City is currently in the process of reformatting the Zoning Ordinance to a modern and user-friendly style, and compatible electronic format. Following the reformatting task, the City will update the Zoning Ordinance to reflect policies and implementation measures within the existing 2003 General Plan and Local Coastal Plan. This is a necessary step that will prepare the Zoning Ordinance to be updated to implement the CLUP/General Plan Update. This task will include a public outreach component to gather initial feedback from the public and decision-makers on the reformatted Zoning Ordinance and preliminary updates.

Task 7. Draft Zoning Ordinance Update

Following preliminary updates to the Zoning Ordinance, the City and Consultant would make comprehensive revisions to the Zoning Ordinance to effectively implement the updated CLUP/General Plan, including sea level rise adaptation strategies and greenhouse gas (GHG) reduction strategies.

Subtask 7.1: Develop Sea Level Rise Adaptation Overlay - Consistent with the CCC's *Sea Level Rise Policy Guidance*, the City and Consultant would develop a Sea Level Rise Adaptation Overlay Zone to accomplish multiple adaptation objectives included within the forthcoming Coastal Resiliency Element and identified within the SLRVAAP, provide for public health, safety, and general welfare in this community, and address potential risks to public and private property and infrastructure. The purpose of the Sea Level Rise Adaptation Overlay Zone would be to minimize risks to life and property and manage and protect important resources and services from the adverse effects of sea level rise. The overlay zone would consider the nature, intensity, scale, uses, and location of

suitable development within projected hazard areas, potentially provide more flexibility in design and/or use than is currently permitted by the base zone regulations, and could also provide a framework to transition at-risk development away from coastal hazards.

Subtask 7.2: Draft Zoning Ordinance Update - The City and Consultant would draft the Zoning Ordinance Update to implement the Final CLUP/General Plan, with consideration of CCC, public, CLUP/GP Committee, and other stakeholder comments. Updates will include the ESHA Overlay Map, Sea Level Rise Adaptation Overlay Map, and Draft Zoning Ordinance text amendments to implement the goals, policies, and implementation measures of the Draft CLUP/General Plan.

Subtask 7.3: Public Outreach and Workshops – The City and Consultant will conduct community outreach including at least four (4) workshops, stakeholder meetings, and decision-makers. Outreach will include focused efforts to involve vulnerable or underserved populations.

Subtask 7.4: Revised Draft of the Zoning Ordinance Update - The Zoning Ordinance will be revised following public review to integrate public and stakeholder comments.

Subtask 7.5: CCC Coordination - The City and Consultant will hold regular coordination meetings (via teleconference or in person) with CCC District staff to discuss CCC feedback on the Draft Zoning Ordinance Update.

Deliverables:

- ESHA and SLR Adaptation Overlays
- Draft Zoning Ordinance Update
- Public Outreach Summary
- Revised Draft Zoning Ordinance Update
- Meeting Minutes

Task 8. Adoption of the Zoning Ordinance & Submittal to CCC

The City and Consultant will prepare the Final Zoning Ordinance Update for local adoption through the public hearing process, and submit to the CCC to initiate the certification process.

Subtask 8.1: Final Zoning Ordinance Update – The City and Consultant will prepare the Final Zoning Ordinance Update, integrating necessary implementation measures into the Plan consistent with adopted CLUP/General Plan policies and mitigation measures identified through the CEQA process.

Subtask 8.2: Planning Commission Hearings - The Final Zoning Ordinance will be presented to the Planning Commission for consideration and recommendation to the City Council. The City and Consultant will prepare staff reports and meeting minutes. The City will inform the CCC of any recommended changes from the Planning Commission.

Subtask 8.3: City Council Hearings The Final Zoning Ordinance and Planning Commission recommendation will be presented to the City Council for consideration and adoption.

Subtask 8.4: Submit Adopted Zoning Ordinance to CCC for Initiation of Certification - Following City Council approval, the City will submit the Final Zoning Ordinance to the CCC for review to initiate the certification process.

Deliverables:

- Final Zoning Ordinance Update
- Planning Commission Staff Report(s) and Adopting Exhibits
- City Council Staff Report(s) and Adopting Exhibits
- Zoning Ordinance Update LCP Amendment Submittal to the CCC

City of Carpinteria LCP Update - Schedule

Proposed starting date: 1/2/2020

Estimated completion: 3/31/2022

Task 1. Draft CLUP/GP	**Projected start date: 1/2/2020**	**End date: 9/30/2020**
1.1 ESHA Map Update	Projected start date: 1/2/2020	End date: 3/31/2020
1.2 Public Draft CLUP/GP	Projected start date: 1/2/2020	End date: 3/31/2020
1.3 Public Outreach & Workshops	Projected start date: 4/1/2020	End date: 5/31/2020
1.4 Revised Draft CLUP/GP	Projected start date: 6/1/2020	End date: 9/30/2020
1.5 CCC Coordination	Projected start date: 1/2/2020	End date: 9/30/2020
Outcomes: Completion of the Draft CLUP/GP with integration of public, CCC, and stakeholder comments		

Deliverables: • 1.1 Updated ESHA Map • 1.2 Draft CLUP/GP • 1.3 Public Outreach Summary, 4 Workshops & 6 Stakeholder Meetings • 1.4 Revised Draft CLUP/GP • 1.5 Meeting Minutes		• 3/31/2020 • 3/31/2020 • 5/31/2020 • 9/30/2020 • 9/30/2020
Task 2. Environmental Review (*not funded under grant*)	**Projected start date: 4/1/2020**	**End date: 10/30/2021**
Task 3. Adoption of the GP/CLUP & Submittal to CCC	**Projected start date: 4/1/2021**	**End date: 10/30/2021**
3.1 Prepare Final CLUP/GP	Projected start date: 4/1/2021	End date: 6/30/2021
3.2 Planning Commission Hearings	Projected start date: 7/1/2021	End date: 8/31/2021
3.3 City Council Hearings	Projected start date: 9/1/2021	End date: 10/30/2021
3.4 Submit Final CLUP/GP to CCC for Initiation of Certification	Projected start date: 11/1/2021	End date: 11/23/2021
Outcomes: Final CLUP/GP adopted by City Council and submitted to CCC to initiate certification		
Deliverables: • 3.1 Final CLUP/GP • 3.2 Planning Commission Staff Report(s) and Adoption Exhibits • 3.3 City Council Staff Report(s) and Adoption Exhibits • 3.4 CLUP/GP Update package for submittal to CCC		• 6/30/2020 • 8/31/2020 • 10/30/2020 • 11/23/2021
Task 4. Triggers & Sea Level Rise Monitoring Program	**Projected start date: 4/1/2020**	**End date: 3/31/2021**
4.1 Develop Draft SLR Monitoring Program	Projected start date: 4/1/2020	End date: 9/30/2020
4.2 Final SLR Monitoring Program	Projected start date: 10/1/2020	End date: 12/31/2020
4.3 Establish Triggers and Integrate into	Projected start date:	End date:

the Draft Coastal Zoning Ordinance	1/4/2021	3/31/2021
Outcomes: Establishment of SLR Monitoring Program to provide framework for annual monitoring; identification of triggers for implementation of adaptation strategies		
Deliverables: • 4.1 Draft SLR Monitoring Program • 4.2 Final SLR Monitoring Program • 4.3 Matrix of Triggers associated with Adaptation Strategies		• 9/30/2020 • 12/31/2020 • 3/31/2021
Task 5. Critical Infrastructure and Drainage Master Plan	**Projected start date: 4/1/2020**	**End date: 3/31/2021**
5.1 Develop Draft Critical Infrastructure and Drainage Master Plan	Projected start date: 4/1/2020	End date: 9/30/2020
5.2 Final Critical Infrastructure and Drainage Master Plan	Projected start date: 10/1/2020	End date: 12/31/2020
5.3 Integrate findings into the Draft Coastal Zoning Ordinance	Projected start date: 1/4/2021	End date: 3/31/2021
Outcomes: Critical Infrastructure and Drainage Master Plan that identifies vulnerabilities and proposed capital improvements, with findings to be included in Zoning Ordinance Update		
Deliverables: • 5.1 Draft Critical Infrastructure and Drainage Master Plan • 5.2 Final Critical Infrastructure and Drainage Master Plan • 5.3 List of findings for incorporation within the Draft Zoning Ordinance		• 9/30/2020 • 12/31/2020 • 3/31/2021
Task 6. Preliminary Draft Zoning Ordinance Update – Phase 1 (*not funded under grant*)	**Projected start date: 1/2/2020**	**End date: 6/30/2020**
Task 7. Draft Zoning Ordinance Update	**Projected start date: 7/1/2020**	**End date: 9/30/2021**
7.1 Develop SLR Adaptation Overlay	Projected start date: 10/1/2020	End date: 3/31/2021
7.2 Prepare Draft Zoning Ordinance Update	Projected start date: 7/1/2020	End date: 3/31/2021
7.3 Public Outreach and Workshops	Projected start date:	End date:

	7/1/2020	6/30/2021
7.4 Revised Draft of the Zoning Ordinance Update	Projected start date: 7/1/2021	End date: 9/30/2021
7.5 CCC Coordination	Projected start date: 7/1/2020	End date: 9/30/2019
Outcomes: Completion of the Draft Zoning Ordinance with implementation of sea level rise adaptation and integration of CCC, public, and stakeholder comments.		
Deliverables: • 7.1 SLR Adaptation Overlay • 7.2 Draft Zoning Ordinance Update • 7.3 Public Outreach Summary • 7.4 Revised Draft Zoning Ordinance Update • 7.5 Meeting Minutes		• 3/31/2021 • 3/31/2021 • 6/30/2021 • 9/30/2021 • 9/30/2021
Task 8. Public Hearings & Adoption of the Zoning Ordinance	**Projected start date: 10/1/2021**	**End date: 3/31/2022**
8.1 Final Coastal Zoning Ordinance	Projected start date: 10/1/2021	End date: 11/23/2021
8.2 Planning Commission Hearings	Projected start date: 12/1/2021	End date: 1/14/2022
8.3 City Council Hearings	Projected start date: 1/17/2022	End date: 2/28/2022
8.4 Submit Final Zoning Ordinance to CCC for Initiation of Certification	Projected start date: 3/1/2022	End date: 3/31/2022
Outcomes: Final Zoning Ordinance adopted by City Council and submitted to CCC to initiate certification		
Deliverables: • 8.1 Final Zoning Ordinance Update • 8.2 Planning Commission Staff Report(s) and Adoption Exhibits • 8.3 City Council Staff Report(s) and Adoption Exhibits • 8.4 Zoning Ordinance Update package for submittal to CCC		• 11/23/2021 • 1/14/2022 • 2/28/2022 • 3/31/2022

BENCHMARK SCHEDULE

ACTIVITY	COMPLETION DATE
Draft CLUP/GP	9/30/2020
Final CLUP/GP Adoption & Submittal to CCC	11/23/2021
Triggers & Sea Level Rise Monitoring Program	3/31/2021
Critical Infrastructure and Drainage Master Plan	3/31/2021
Draft Zoning Ordinance Update	9/30/2021
Final Zoning Ordinance Adoption & Submittal to CCC for Certification	3/31/2022

City of Carpinteria LCP Update - Budget

APPLICATION BUDGET INFORMATION

Funding Request: $297,000 Total Project Cost: $825,067

	CCC Grant Total	***Match/ Other Funds (City General Fund)***	***Match/ Other Funds (City In-Kind)***	***Total (LCP Grant Funds + Match/ Other Funds)***
LABOR COSTS[1]				
City Staff Labor				
Task 1 – Draft CLUP/GP	--	--	$11,404	
Task 2 – Environmental Review (not part of grant)	--	--	$21,932	
Task 3 – Adoption of the GP/CLUP & Submittal to CCC	--	--	$8,773	
Task 4 – Triggers & SLR Monitoring Program	--	--	$8,773	

[1] *Amount requested should include total for salary and benefits.*

	CCC Grant Total	*Match/ Other Funds (City General Fund)*	*Match/ Other Funds (City In-Kind)*	*Total (LCP Grant Funds + Match/ Other Funds)*
Task 5 – Critical Infrastructure and Drainage Master Plan	--	--	$8,773	
Task 6 – Phase 1 Zoning Ordinance Update (not funded under grant)	--	--	$21,932	
Task 7 – Draft Zoning Ordinance Update	--	--	$32,898	
Task 8 – Adoption of the Zoning Ordinance & Submittal to CCC	--	--	$8,773	
Total Labor Costs			**$123,258.00**	
DIRECT COSTS				
Consultants[2]				
(Consultant A)				
Task 1 – Draft CLUP/GP	$25,000	$50,126 (Contracted)		$75,126
Task 2 – Environmental Review (not part of grant)	--	$154,683 (Contracted)		$154,683
Task 3 – Adoption of the Final GP/CLUP & Submittal to CCC	$30,000			$30,000
Task 4 – Triggers & SLR Monitoring Program	$65,000			$65,000

[2] *All consultants must be selected pursuant to a bidding and procurement process that complies with all applicable laws.*

	CCC Grant Total	***Match/ Other Funds (City General Fund)***	***Match/ Other Funds (City In-Kind)***	***Total (LCP Grant Funds + Match/ Other Funds)***
Task 5 – Critical Infrastructure and Drainage Master Plan	$32,000			$32,000
Task 6 – Phase 1 Zoning Ordinance Update (not funded under grant)	--	*Amount to be determined*		--
Task 7 – Draft Zoning Ordinance Update	$115,000	$200,000		$315,000
Task 8 – Adoption of the Final Zoning Ordinance & Submittal to CCC	$30,000			$30,000
Total Direct Costs	**$297,000**	**$404,809**		**$701,809**
OVERHEAD/INDIRECT COSTS[3]				
Total County/City Staff Overhead/Indirect Costs				
TOTAL PROJECT COST	**$297,000**	**$404,809**	**$123,258**	**$825,067**

[3] *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."*

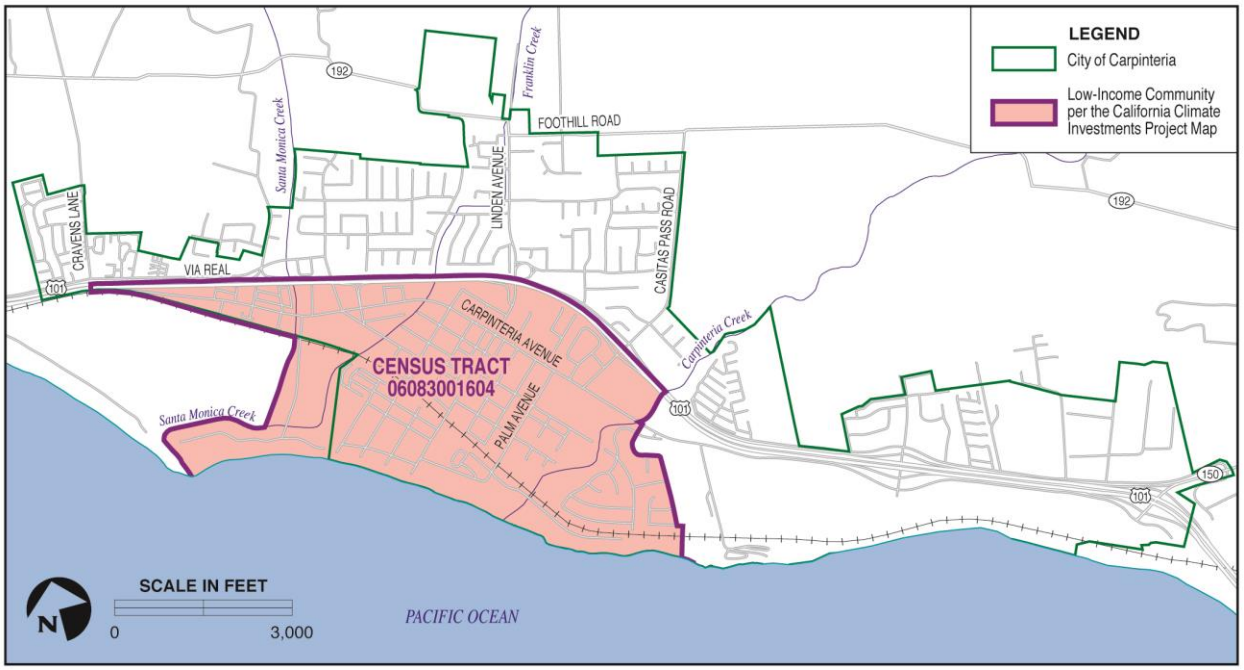

Figure 1
California Climate Investments Project Map
City of Carpinteria

California Climate Investments
2018 Funding Guidelines
Benefit Criteria Table

Project Type:
PLANNING

California Climate Investments are required to meet minimum levels of investments to projects that benefit residents of disadvantaged communities, low-income communities, and low-income households, collectively referred to as "priority populations."

All projects counting toward the statutory investment minimums must be located within an identified community and benefit individuals living within that community, or directly benefit residents of low-income households anywhere in the State. Administering agencies must determine if a project meets the criteria for providing direct, meaningful, and assured benefits to priority populations using the following evaluation approach:

Step 1: Identify the Priority Population(s). Be located within a census tract identified as a disadvantaged community or low-income community, or directly benefit residents of a low-income household;
Step 2: Address a Need. Meaningfully address an important community or household need for the disadvantaged community, low-income community, or low-income household; and
Step 3: Provide a Benefit. Using the evaluation criteria, identify at least one direct, meaningful, and assured benefit that the project provides to priority populations. The benefit provided must directly address the identified need.

Only investments that meet these criteria will be counted toward achieving the statutory investment minimums identified for priority populations. Administering agencies can fund projects that otherwise provide meaningful benefits, but do not meet these criteria; however, those projects will not be counted toward investment minimums.

The following table includes criteria for administering agencies to use to determine whether projects satisfy each of the three steps. The criteria are designed to enable administering agencies to readily make an objective "yes" or "no" decision about whether a particular project provides a benefit to a priority population.

Administering agencies must use the criteria table that is applicable to the specific project type(s) funded. For complex projects, there may be more than one applicable criteria table. A complete list of available criteria tables is available at: www.arb.ca.gov/cci-fundingguidelines.

Administering agencies must refer to CARB's Funding Guidelines for direction on how to use the criteria table in program design and implementation, project evaluation, project selection, and reporting (www.arb.ca.gov/cci-fundingguidelines).

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Evaluation Criteria for Providing Benefits To Priority Populations
PLANNING

Project Type: Projects directly benefits priority populations by increasing their capacity to develop plans that enhance access to funds or enable the implementation of projects that reduce vulnerability and/or improve response to climate hazards and other risks. Planning activities may be implemented as a standalone project or as part of a larger, more comprehensive California Climate Investments project.

Projects must satisfy the applicable criteria through Step 3 to be considered to provide direct, meaningful, and assured benefits to priority populations and count toward statutory investment minimums.

Step 1 – Identify the Priority Population(s).[1] *Evaluate the project against each of the following criteria. Check all boxes that apply.*

Note: For this project type, project location is the geographic boundaries of the region covered by a plan, partnership, or collaborative. For projects that comprise discrete events (e.g., outreach, workshops, seminars), project location is the location of the event.

- ❒ A. Is the project located within the boundaries of a **disadvantaged community census tract**?
- ☑ B. Is the project located within the boundaries of a **low-income community census tract**?
- ❒ C. Is the project located outside of a disadvantaged community, but **within ½-mile of a disadvantaged community and within a low-income community census tract**?
- ☑ D. Is the project located within the boundaries of a **low-income household**?

If a project does not meet at least one of the qualifying criteria in Step 1, the project does not count toward statutory investment minimums and no further evaluation is needed. If the project meets at least one Step 1 criterion, continue the evaluation in Step 2.

See Figure 1

[1] An online mapping tool of identified disadvantaged communities and low-income communities, and a "look-up" tool list of "low-income" thresholds by county and household size are available at: https://www.arb.ca.gov/cci-communityinvestments.

Step 2 – Address a Need. *Identify an important community or household need and evaluate whether the project provides a benefit that meaningfully addresses that need.*

To identify a need that the project will address, agencies and/or applicants can use a variety of approaches:

☑ A. ***Recommended Approach:*** Host community meetings, workshops, outreach efforts, or public meetings as part of the planning process to engage local residents and community groups for input on community or household needs, and document how the received input was or will be considered in the design and/or selection of projects to address those needs;

☐ B. ***Recommended Approach:*** Receive documentation of support from local community-based organizations and/or residents (e.g., letters, emails) identifying a need that the project addresses and demonstrating that the project has broad community support;

☑ C. ***Alternative Approach:*** Where direct engagement is infeasible, look at the individual factors in CalEnviroScreen that are most impacting an identified disadvantaged or low-income community (i.e., factors that score above the 75th percentile), and confirm that the project will reduce the impacts of at least one of those factors; or

☐ D. ***Alternative Approach:*** Where direct engagement is infeasible, refer to the list of common needs for priority populations in CARB's Funding Guidelines Table 5 and confirm that the project addresses at least one listed need.

Describe identified community or household need(s):

If the project addresses a community or household need as described in Step 2, proceed to Step 3. If the project does not address a community or household need, it will not count toward statutory investment minimums and no further evaluation is needed.

Sea level rise impacts in the City of Carpinteria could disproportionately affect disadvantage communities' access to needed services, resources, and recreational opportunities, with potential loss of publicly accessible beaches, parks, and campgrounds; bus lines; and public facilities. The loss of or damage to affordable housing and rental units from sea level rise may also result in disproportionate strains on lower income residents, who have a reduced ability to prepare, respond to, and recover from flood or storm events as well as in their ability to implement adaptation strategies on an individual basis. The project would include targeted public outreach regarding implementation of sea level rise adaptation strategies through the Zoning Code Update to ensure the City's adaptation strategies meet the needs of the City's diverse population.

Step 3 – Provide a Benefit. *Evaluate the project against each of the following criteria to determine if it provides direct, meaningful, and assured benefits to priority populations. The benefit provided must directly address the identified need.*

Project must meet at least one of the following benefit criteria:

- ❒ A. Project directly engages priority populations in developing actionable plans that address community needs, reduce environmental burdens, or improve public health in their community;
- ☑ B. Project or plan includes components that, when executed, reduce direct risk to priority populations from climate hazards such as: fire (e.g., defensible space); flooding, coastal inundation, wave impacts, or erosion;
- ☑ C. Project or plan includes components that, when executed, improve the ability of priority populations to respond to climate risk (e.g., emergency preparedness plan).
- ☑ D. Project or plan includes actionable components that, when executed, meets the criteria in benefit criteria table for the applicable project type.

If the project meets the criteria in Steps 1, 2, and 3, it will be considered as providing direct, meaningful, and assured benefits to priority populations and will be counted toward statutory investment minimums.

FINAL

City of Carpinteria

Sea Level Rise Vulnerability Assessment and Adaptation Project

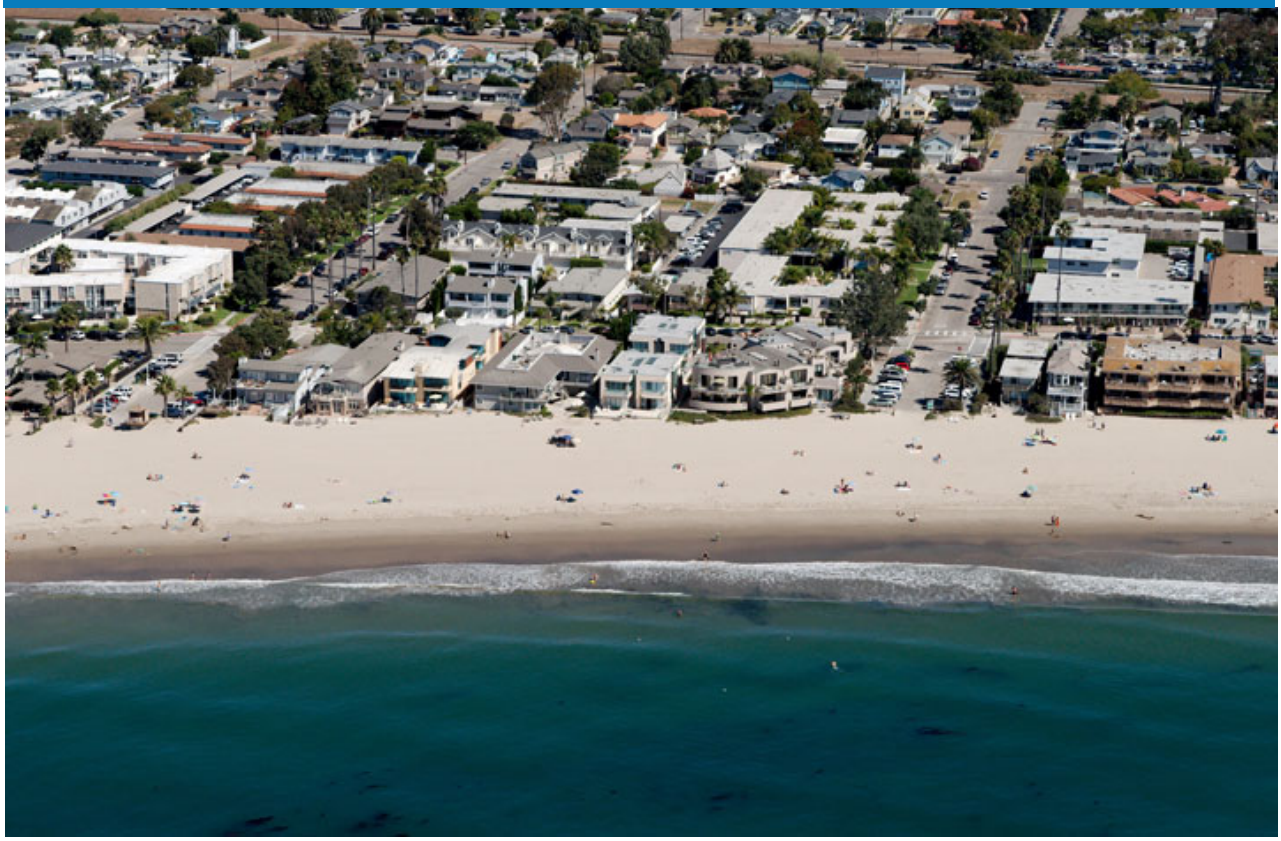


Photo courtesy of California Coastal Records

City of Carpinteria
5775 Carpinteria Avenue
Carpinteria, CA 93013

March 2019

Executive Summary

ES.1 Purpose

> This study examines coastal hazard vulnerabilities with approximately 5 feet of sea level rise by 2100. However, sea level rise projections for 2100 range from a low of 2 to 10 feet, with recent science identifying this higher level as the worst-case scenario.

Sea level rise rates in Carpinteria will be dependent on three factors – warming of the ocean, ice melt, and vertical land motion. Local oceanic and atmospheric circulation patterns and groundwater extractions do not have a significant direct influence upon sea level rise rates in the City of Carpinteria (City). Existing coastal hazards from severe storms cause erosion and wave flooding. Routine tidal inundation already affects community resources; sea level rise could exacerbate already difficult and often competing management challenges. Many of the affected areas were once historic wetlands before the development of Carpinteria. As the habitats have been altered and land uses expanded into flat low-lying areas, infrastructure, roads, and neighborhoods have been built in these areas. These habitats, land uses, and built infrastructure will need to adapt to rising sea levels. The process of examining existing and future vulnerabilities is the first step for a community to take in understanding the extent of the potential challenges and to begin discussing and formulating effective adaptation strategies over time to maintain the quality of life in Carpinteria.

This **2019 Sea Level Rise Vulnerability Assessment and Adaptation Project (Report)** provides the City, public service providers, interested members of the public, and community organizations with a comprehensive, science-based assessment of the vulnerabilities of City resources, structures, and infrastructure, as well as the potential for future damages to the City associated with various coastal hazards, including sea level rise. This Report will be used by the City to inform community discussions on the impacts from existing and future coastal hazards, identify a full range of potential future adaptation strategies that can be employed to reduce the risk of future damages, and identify thresholds of impacts that can guide long-term land use and planning goals, policies, and programs, including capital improvements and implementation measures related to citywide physical development. This Report's identified vulnerabilities will support adaptation planning to inform the update of the City's Coastal Land Use Plan and General Plan and (CLUP/General Plan), which will ultimately lead to enhanced community resilience.

Funding for this Report has been provided by the Local Coastal Program Planning Grant received from the California Coastal Commission (CCC) and the California Department of

Transportation (Caltrans) Adaptation Planning Grant (FY 2017-2018). The Report is prepared for the City of Carpinteria Community Development Department, with assistance from Wood Environment & Infrastructure Solutions, Inc. and Revell Coastal consultants.

ES.2 Report Overview

Chapter 1, *Sector Profiles*, summarizes the existing and future vulnerabilities of 11 key resource and infrastructure sectors to coastal hazards and sea level rise.

Chapter 2, *Background*, describes the planning process that was conducted as part of the preparation of the Report. This Report follows the steps outlined in the *Sea-Level Rise Policy Guidance* (CCC 2015) and the *State of California Sea-Level Rise Guidance* (California Ocean Protection Council [OPC] 2018) guidance for preparing local communities for sea level rise and an uncertain future. An overview of the efforts of other local jurisdictions to address coastal hazards, climate change, and sea level rise is also included in this section.

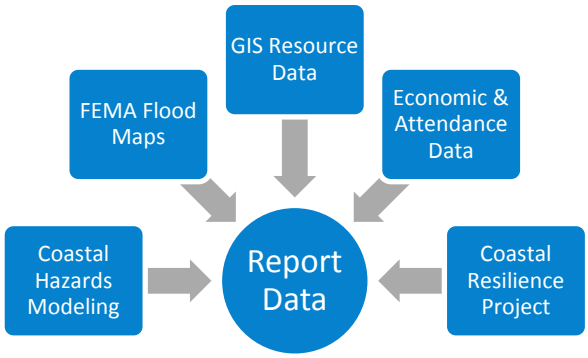
Chapter 3, *Existing Conditions & Physical Setting*, characterizes developed areas, natural resources, creeks, coastal and shoreline areas, and topography. Further details are provided in subsections that elaborate on the unique climate, geological, ecological, and coastal processes and hazards of the Carpinteria shoreline.

Chapter 4, *Climate & Sea Level Rise Science*, describes the current science on the topics of climate change and sea level rise. The scientific understanding of the natural climate cycles, human impacts, and feedback mechanisms within the earth systems continues to grow and evolve. A summary of the current state of the science in California is provided. In addition to the sea level rise projections used in the Report, a summary of the extreme worst-case scenario of up to 10 feet of sea level rise by 2100 (H++ scenario) is provided in Section 4.3 *Sea Level Rise*, of this Report. Table ES-1 shows the estimated elevations of sea level rise under the high emissions scenario and their associated probabilities by projected time in the future used in the Report. However, under the H++ worst-case scenario, the projected 5 feet of sea level rise could occur as early as 2070.

Table ES-1. Sea Level Rise Projections Used in the Carpinteria Vulnerability Assessment, with Associated Probabilities of Occurring in the Projected Year

Projected Horizon Year / Time	Sea Level Rise (inches/feet)	Probability of Occurring in Projected Year[1]
2030	10.2 in/~ 1 ft	<0.5%
2060	27.2 in/~ 2 ft	~2%
2100	60.2 in/~5 ft	~2%

Source: Revell Coastal and ESA 2016 and OPC 2018.
[1]The range of probabilities relate to scenarios in future greenhouse gas (GHG) emissions as well as sea level rise uncertainties largely associated with the rate of global ice sheet melt. The H++ scenario does not have a specific probability assigned and is presently considered the worst-case scenario.



Chapter 5, *Vulnerability Methodology*, provides an overview of methodologies used in assessing existing and projected vulnerabilities from coastal hazards. The City Community Development Department and consultant team evaluated a range of available coastal hazard models and sea level rise projections, with input from the CLUP/General Plan Update Committee and public. Input was also considered for key decisions including resource and service sectors to be included in the vulnerability assessment, during a public meeting in July 2017 (Appendix A). Based on comparative analysis and needs of the City, the hazard model selected is the County of Santa Barbara Coastal Resilience Project (Coastal Resilience), funded by the California State Coastal Conservancy (SCC) and the County of Santa Barbara (County) (Revell Coastal and Environmental Science Associates [ESA] 2016). Coastal Resilience modeling results are also used by the neighboring jurisdictions of Santa Barbara and Ventura Counties, and the Cities of Oxnard and Goleta.

Vulnerable assets, facilities, and infrastructure are identified by using Geographic Information System (GIS) data to determine the change between the existing (baseline) and each future hazard and sea level rise scenario. The results identify the potential effects of coastal hazards under a variety of future scenarios. The model does not consider the influence of existing development and/or future adaptation decisions.

Fiscal Land Use Impacts were assessed by:

1. Escalate County Assessors database to Fair Market Value (2017 $)
2. Estimate losses due to sea level rise/storms/ coastal erosion (2017 $)
    - Erosion impacts based on percent land and structure damage
    - Coastal flooding impacts based on depth of flooding and replacement
    - Tidal inundation based on “property (land and structure) at risk”

Economic analysis was conducted using County assessor data for land uses to fair market value to evaluate impacts to property, for both land and structures at risk. This included an evaluation of multi-unit structures such as apartments and condominiums as well as single parcels with multiple structures on them for each hazard type and sea level rise scenario. Recreation and camping data obtained from the California Department of Parks and Recreation (State Parks) and other local sources were used to estimate revenues associated with recreation. Additionally, replacement costs for key infrastructure was estimated based on readily available cost estimates from similar studies and City documents.

Chapter 6, *Sector Results*, provides an overview of potential risks to 11 resource sectors for three (3) sea level rise elevations (1 foot, 2 feet, and 5 feet of sea level rise) for the medium-high sea level rise scenario. Coastal hazards are presented and include the following:

- **Coastal Flooding:** Flooding caused by wave run-up and overtopping from a 1 percent annual chance storm.
- **Coastal Erosion:** Coastal erosion based on sea level rise and a 1 percent annual chance storm.
- **Tidal Inundation:** Tidal inundation based on a predicted monthly high tide.

For most of the resource sectors, the vulnerability assessment also includes an economic component to provide an initial estimate of fiscal impacts to the vulnerable resources. Further, information on potential vulnerabilities related to fluvial flooding and coastal confluence is included within Appendix C.

Chapter 7, *Adaptation Overview*, provides an overview of the process to identify potential adaptation strategies, followed by a discussion of possible strategies that may address Carpinteria-specific hazards and vulnerable assets. Tradeoffs of different adaptation strategies are presented to provide further context in the decision-making process. The focus is on the areas of protection, accommodation, and managed retreat, consistent with CCC policy guidance.

Chapter 8, *Adaptation and Resiliency Building Strategies,* identifies focused regional coordination needs, policy enhancements and specific sea level rise adaptation strategies that warrant additional analysis for the Carpinteria region as well as within three distinct areas in the City.

- Area 1: Beach Neighborhood
- Area 2: Carpinteria Salt Marsh
- Area 3: Carpinteria Bluffs

The adaptation strategies included within this Chapter are based on modeling of coastal hazards using the Coastal Resilience model, technical analysis within Chapter 6, *Sector Results*, and are intended to address impacts to known vulnerabilities within the City. In accordance with *Update to the Sea-Level Rise Policy Guidance* (CCC 2018), the adaptation strategies are based on best available science, known adaptation practices implemented in other regions, input from stakeholders, special districts, the CLUP/General Plan Update Committee, and the public. The below adaptation strategies were developed specifically with the intent of minimizing damage to the known vulnerabilities within Carpinteria and prioritizing the protection of assets valued most by the community.

ES.3 Key Findings of this Report

The future elevation and rates of sea level rise affect the extent of potential hazards and are projected estimates based on the best available science and modeling results. Rising sea levels alone are not anticipated to be the primary cause of vulnerabilities and potential damages to City resources and public infrastructure. Rather, impacts may be caused by existing severe storm coastal process-related hazards increasing in frequency and duration as a result of sea level rise. Initially, if sea level rise proceeds at the higher-level projections, episodic coastal erosion and coastal flooding impacts that already occur during large storm wave events could become more frequent as predictable high tides regularly inundate public beaches and City neighborhoods.

Figure ES-1. *Historic coastal erosion along Carpinteria City Beach, near Ash Avenue (Winter 1983).*

Coastal Hazards Expansion

Coastal hazards and sea level rise escalate potential damages from coastal flooding exposure, coastal erosion, and tidal inundation. Storm waves associated with a 1 percent annual chance storm have historically caused coastal flooding and coastal erosion in the Beach Neighborhood, Carpinteria State Beach, and along the Carpinteria Bluffs. Coastal confluence flooding, (creek flooding exacerbated by sea level rise), are also a future risk, however additional study is needed on this topic. Further information on coastal confluence and fluvial hazards is provided within Appendix C.

With approximately **1 foot of sea level rise**, coastal beach and dune erosion could increase the landward extent of coastal flooding, which in turn could raise the vulnerabilities of oceanfront dwellings and increase the likelihood of infrastructure damages in the Beach Neighborhood and Carpinteria State Beach. Salt Marsh Park could also be affected during storm events. Cliff erosion along Carpinteria Bluffs may affect the Union Pacific Railroad (UPRR) and recreational trails.

> Vulnerable residential dwellings exposed to coastal wave flooding within Carpinteria could increase from 86 today, to 237 by 2030, and up to 1,090 by 2100.

With approximately **2 feet of sea level rise**, more extensive coastal flooding and coastal beach erosion during storms could affect structures, land uses, and infrastructure between Ash and Linden Avenues north of UPRR, as well as in the Carpinteria State Beach campgrounds. Coastal bluff erosion could continue to impact UPRR, recreational trails, and habitats along the Carpinteria Bluffs. Coastal flooding may also begin to encroach the Carpinteria Salt Marsh and into the Beach Neighborhood. Routine high tides would largely be confined to existing creek channels and the Carpinteria Salt Marsh, but during rain events, the increased tide elevations would likely back up stormwater drains and could cause extensive stormwater flooding in low-lying neighborhoods.

With approximately **5 feet of sea level rise**, coastal beach erosion could extend through the first row of parcels to inland of Sandyland Road, and begin to affect dwellings and infrastructure in the Concha Loma Neighborhood. Coastal flooding during a large storm wave event could expand in depths and extend inland into the Downtown core along Linden Avenue, affecting portions inland of UPRR, Carpinteria Salt Marsh and areas along Franklin Creek. Coastal bluff erosion could continue to impact UPRR, recreational trails, and habitats along the Carpinteria Bluffs and potentially impact one commercial structure. Routine monthly high tides could inundate much of the Beach Neighborhood and Carpinteria State Beach inland to the Tomol Interpretative Park, even in areas not directly connected to the ocean due to daylighting (surfacing) of groundwater due to tidal inundations. While this Report used sea level rise scenarios and modeling data for approximately 5 feet of sea level rise occurring in 2100, under the worst-case H++ scenario, this could occur as early as 2070.

Key Vulnerabilities

The following is a summary of key community vulnerabilities, without adaptation in place. Please also refer to Chapter 1, *Sector Profiles,* and Chapter 6, *Sector Results*, for summaries of community resources and infrastructure vulnerabilities by time horizon, sea level rise elevation, and hazard type.

- **Residential Land Uses:** Residential dwellings are the most vulnerable land use exposed to coastal hazards and comprise over 90 percent of all parcels and structures at risk in the City today and in the future. Most of these impacts occur in the Beach Neighborhood. Multi-family units (apartments and condominiums) represent over 80 percent of these vulnerabilities, under both existing hazard conditions and in the future with increasing sea level rise. Many of these units are short-term (less than 30 days) rental properties; their loss may also impact transient occupancy tax (TOT) and sales tax revenues for the City.
- **Beaches and Dunes:** With approximately 5 feet of sea level rise by 2100, beaches and dunes would be severely eroded and frequently inundated. This would impact coastal recreation, Environmentally Sensitive Habitat Areas (ESHA), and expose landward development to coastal hazards and flooding. Transition of dry sandy beach and dunes over time to more frequently inundated intertidal or subtidal beach could impact City tax revenues and residents' quality of life if beaches narrow significantly or become largely intertidal/subtidal.
- **Coastal Access:** Today, during a 1 percent annual chance storm, all public coastal access points (vertical and lateral) are vulnerable to erosion and coastal flood hazards, especially when severe storms occur during high tides. Such a storm would affect beach visitation and recreational uses, and intertidal, dune, and reef habitats.
- **State Park Campground:** The Carpinteria State Beach and campground areas are vulnerable to coastal hazards with approximately 5 feet of sea level rise (2100). By 2100, 34 percent of the campground area may be damaged by coastal erosion; 31 percent may be vulnerable to tidal inundation; and 67 percent of the campground area may be flooded during large coastal storm events. Loss of the Carpinteria State Beach campground would result in the loss of low-cost overnight accommodations in the Coastal Zone, as well as a loss of open space and recreational opportunities.
- **State/City Beach Economic Revenues:** The total estimated spending for beach visitation is $48 million annually, generating $445,000 in sales taxes for the City, and just under $1.9 million in TOT for the City from overnight visitors who do not camp. Loss of the State and City Beaches could result in an economic impact associated with loss of beach visitation and associated spending. In addition to economic impacts, the State and City beaches are strongly associated with the community's identity and serve as important open space and recreation opportunities.

- **Structural Damage and Property Loss:** Overall, a total of 914 parcels and 627 structures (including many that are multi-unit residential) overlying 223.6 acres may be exposed to the combined threats of erosion loss, inundation exposure or flood damages with approximately 5 feet of sea level rise. While most of these properties are exposed to tidal inundation or coastal flooding, this vulnerability represents an estimated $439.9 million in total land use property *lost* to coastal erosion, $219.1 million in total flood *damages* to property from a single severe wave storm, and $651.1 million in potential property *exposure* to routine monthly high tides.
- **Railroad:** The UPRR corridor alignment along the Carpinteria Bluffs is highly vulnerable to coastal erosion; with approximately 5 feet of sea level rise, up to 1.4 miles of railroad could be damaged. This vulnerability may lead to pressure to repair existing seawalls or armor a significant portion of the City's shoreline, which could further impact coastal access, beach habitats, and sand supply. Coastal flooding could also impact UPRR in other parts of the City north of Carpinteria Salt Marsh and in the Downtown core. Disruption of UPRR could have substantial economic impacts to the region.
- **U.S. Highway 101:** U.S. Highway 101 (U.S. 101) would not be affected by any coastal hazard until ~5 feet of sea level rise. With ~5 feet of sea level rise, a nearly 1,500-foot section north of the Carpinteria Salt Marsh could be flooded during a large coastal storm event. This model does not take into account creek runoff, and the combined extent of flooding from a 1 percent annual chance storm and impacts could be greater when combined with increased rainfall and creek runoff from Santa Monica, Franklin, and Carpinteria Creeks. As noted above, under the H++ scenario, damage could occur earlier than 2100 and may be more frequent and severe.
- **Environmentally Sensitive Habitat Areas:** Coastal hazards and sea level rise could result in erosion or inundation of beaches and dunes, transition of high marsh ESHA to mudflat or subtidal habitats, transition of riparian habitat along Carpinteria Creek to estuarine wetlands, and substantial erosion of coastal bluff scrub and other terrestrial ESHAs along the Carpinteria Bluffs. With approximately 5 feet of sea level rise, more than 340 acres of ESHA may be impacted by dune or bluff erosion, tidal inundation or coastal flooding, with some ESHAs dependent upon landward migration to remain viable.
- **Bluffs:** With approximately 5 feet of sea level rise by 2100, Tar Pits Park and Carpinteria Bluffs are projected to erode 360-460 feet landward, damaging parks and trails, ESHA, and exposing the Concha Loma Neighborhood, commercial industrial development, and UPRR to severe erosion hazards. Armoring the shoreline would limit erosion damage but may in turn cause inundation and loss of beaches and intertidal habitats in these areas.
- **Affordable Housing:** Currently, no affordable units nor mobile home units are vulnerable to modeled coastal hazards (coastal erosion, coastal flooding, or tidal inundation). However, up to 41 of affordable housing units would vulnerable to coastal flooding and regular monthly tidal inundation with 5 feet of sea level rise.

Positive Findings

- No major emergency first response facilities (e.g., police, fire, or medical) would be exposed to coastal hazards with up to approximately 5 feet of sea level rise. However, three lifeguard towers are currently vulnerable to coastal flooding and coastal beach erosion on Carpinteria City Beach, and the Carpinteria State Beach Rangers Office/Visitors Center is vulnerable to coastal storm flooding with approximately 5 feet of sea level rise.
- No transit facilities (i.e., bus stops) would be subject to damage from erosion under any sea level rise scenario. Bus routes could be rerouted to avoid eroded or flooded roadways, though significant flooding associated with a coastal storm or tidal inundation combined with 5 feet of sea level rise could temporarily inhibit transit services.
- No hotels or motels would be vulnerable to coastal hazards with up to approximately 5 feet of sea level rise. However, many short-term rentals in the Beach Neighborhood could be exposed to the range of coastal hazards.
- Coastal erosion hazards associated with up to approximately 5 feet of sea level rise only affect three commercial parcels and one commercial structure within Carpinteria Bluffs.
- No municipal groundwater wells would be exposed to coastal hazards with up to approximately 5 feet of sea level rise.
- The City has minimal shoreline protection structures across its 2.5 miles of shoreline, largely as a result of its active seasonal winter storm berm program.[1] This creates an opportunity to plan for nature-based adaptation measures.
- Development within Bluff 0 would not be affected by coastal hazards with up to approximately 5 feet of sea level rise and represents an opportunity for future redevelopment when the site is remediated (refer to Figure 2-1).

Recommended Future Studies

This Report provides a comprehensive and programmatic analysis of potential hazards to the City associated with sea level rise. However, limitations and data gaps to the analysis have been identified. The following issues warrant further investigation. Additional studies are described within Section 8.6, *Recommendations and Next Steps*.

- **Coastal Confluence and Fluvial Hazard Modeling:** This Report provides partial analysis of potential fluvial and coastal confluence hazards in Appendix C. However, at the time of this analysis modeling data was limited. Improved modeling of coastal confluences and analysis of updated Federal Emergency Management Agency (FEMA)

[1] The City's seasonal winter storm berm program is not incorporated under modeling projections of future coastal hazards.

flood maps is recommended for a more comprehensive understanding of the extent of impacts.

- **Sediment Management:** Sediment debris basins in the Carpinteria Valley have had the negative effect of starving Carpinteria beaches of coarse grained materials which provide storm buffering capabilities. Further examination of sediment fluxes and the range of conditions that contribute sediment to the coast is warranted.
- **Future Redevelopment of Bluffs 0:** Bluffs 0 is located in a highly desirable area on the coast which could potentially be redeveloped following remediation of soil and groundwater resources with land uses that are subject to coastal hazards in other areas of the City.
- **Environmentally Sensitive Habitat Area (ESHA):** Additional study could be conducted to evaluate the potential impacts of the full suite of climate change variables (e.g. temperature, precipitation, drought, sea level rise, etc.) to provide a better understanding of the potential future impacts to ESHA.

ES.4 Adaptation Planning and Next Steps

A variety of cost and benefit tradeoffs between adaptation strategies exist and are essential to understand to help decision-makers determine the most effective policies and project-level adaptation strategies to implement. Adaptation planning is introduced in Chapter 7, *Adaptation Planning,* of this Report, with more specific adaptation strategies identified as a result of this analysis in Chapter 8, *Adaptation and Resiliency Building Strategies*. Adaptation planning requires considering each vulnerable sector and taking effective and timely actions to reduce the anticipated consequences.

Sea level rise adaptation generally falls into five main categories, consistent with CCC policy guidance:

- **Do nothing** or a policy of non-intervention is also considered an adaptation strategy, and often results in emergency response at the highest cost without consideration of the full range of tradeoffs and secondary impacts.
- **Protection strategies** employ engineered structures or other measures to protect existing development (or other resources) in its current location without changes to the development itself. Protection strategies can range from “grey” or “hard” engineered seawalls to “green” or “soft” natural dune defenses.
- **Accommodation strategies** employ methods that modify existing or design new developments or infrastructure to decrease hazard risks. On a community-scale, these strategies include changes in land use designations, zoning ordinances, or clustering development in less vulnerable areas. On an individual project scale, these accommodation strategies include actions such as elevating structures.

- **Managed retreat strategies** gradually realign infrastructure and development away from hazard areas and limit new construction in those same areas. These strategies can include a range of policies and programs that incentivize relocation such as repetitive loss programs, acquisition and buy-out programs, and transfer of development rights programs. The key to effectiveness is determining which, if any, of these policies fit the local community's goals and adaptation strategies, and then managing their implementation in a proactive, phased, and orderly manner to avoid expensive emergency responses.
- **Hybrid strategies** blend a variety of strategies to achieve different hazard reduction and resource protection goals across a range of time horizons. The effectiveness of different adaptation strategies varies across time and space. There is no single adaptation strategy that will effectively adapt to climate impacts; a hybrid approach that uses strategies from multiple categories will be necessary, and the suite of strategies will change over time.

Recommended Adaptation Strategies

The City has identified a range of adaptation strategies with consideration to the community's values and priorities, including maintaining the City's small beach town character and high quality of life, protection of public access to the beach and coastal recreational opportunities, and protecting or adapting vulnerable neighborhoods within the City's fiscal capabilities. A list of key adaptation strategies is provided in Table ES-2.

Table ES-2. Summary of Adaption Strategies for Carpinteria

Adaptation Strategy	Description & Approach
Winter Storm Berm Program	• Continue the existing winter storm beach berm program to protect the Beach Neighborhood from high energy wave events
Army Corps of Engineers Storm Damage and Shoreline Protection Feasibility Study	• USACE has an existing agreement with the City to conduct a coastal erosion feasibility study and fund a mitigation strategy as a result of construction of the Santa Barbara Harbor • Opportunity to identify project to address the coastal erosion issues, such as nourishment, cobbles, sediment management pier, using USACE funding
BEACON Projects	• BEACON projects and programs represent a valuable opportunity for the City to begin early coordination and/or collaboration with BEACON to optimize protection of City resources from coastal hazards

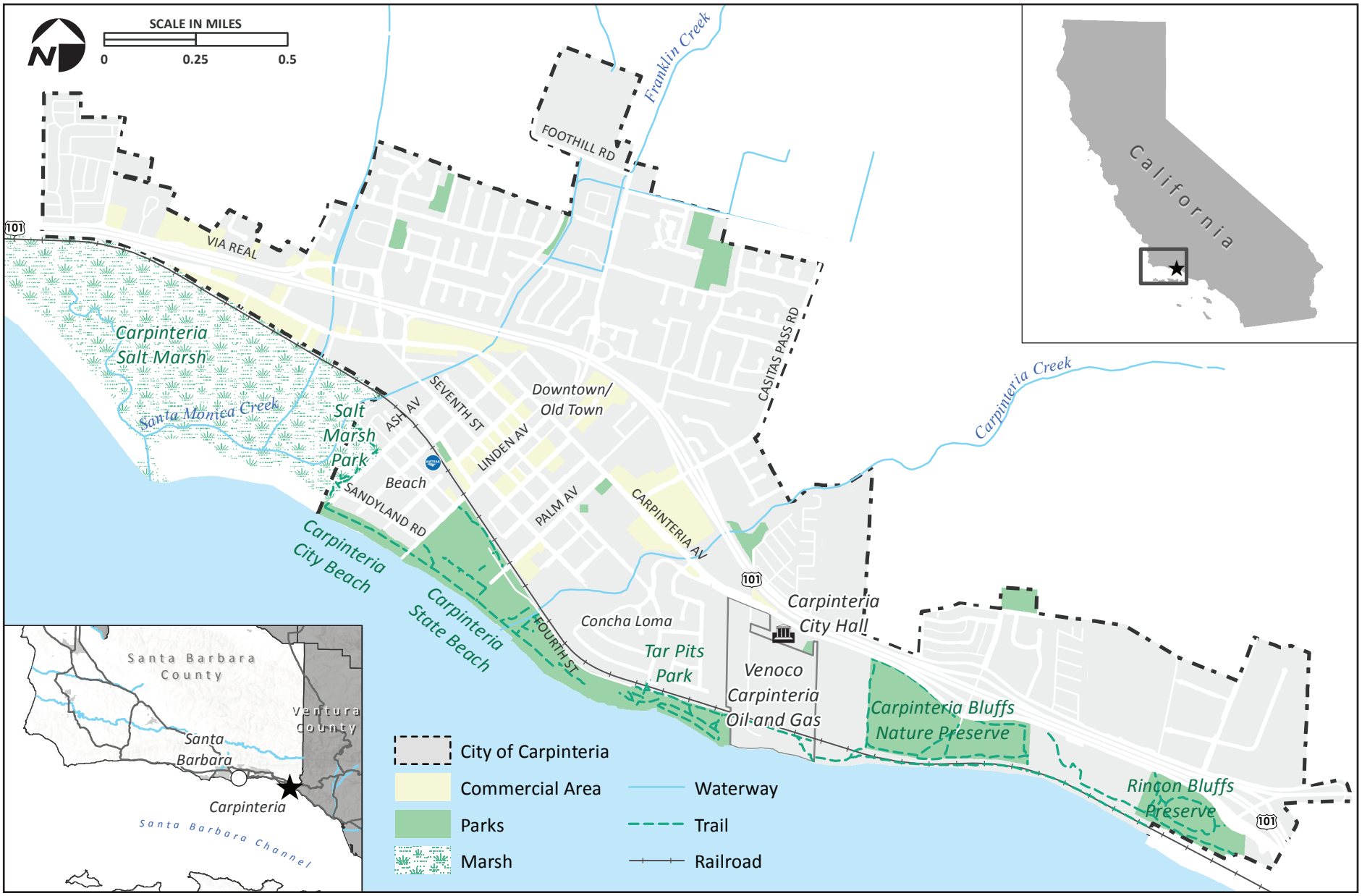
Table ES-2. Summary of Adaption Strategies for Carpinteria (Continued)

Adaptation Strategy	Description & Approach
Living Shoreline/ Dune Restoration	• Create a cobble and vegetative dune system along the City beach that would serve as the first line of defense during a large storm event, protecting landward development within the Beach Neighborhood
Sediment & Beach Nourishment	• Work with BEACON to develop a program that augments existing sand supply along the beaches and bluffs to provide additional natural defenses against wave attack by dissipating wave energy and buffering the bluffs and backshore from erosion • Opportunistic beach nourishment activities in coordination with Santa Barbara County Flood Control and BEACON
Sand Retention Structures	• Cross shore sand retention structures are designed to trap sand and are often used to widen beaches which provide more natural defenses to coastal wave hazards. Sand retention structures can take many forms, the most common is called a groin. Other examples include a recreational pier • Offshore structures dissipate high energy waves and result in less erosion and flooding. These can be designed as a nature-based solution such as a multi-purpose reef, a natural rock outcrop feature
Stormwater Infrastructure Improvements	• Beach Neighborhood: Rainfall events and high tides can create areas of ponded flood waters within the Beach Neighborhood. Modifications such as channel improvements along Franklin Creek, pumps, an floodgates could reduce flooding • Carpinteria Bluffs: Capital improvement to drainage outlets along the bluffs, which may accelerate the rate of bluff erosion
Coastal Adaptation Overlay	• Establish policy and program framework for adaptation such as a development standards for accommodation of sea level rise • Place a special zone district over properties within defined coastal hazard areas with provision of additional adaptation options to avoid the need for developers to seek costly variances for projects that are designed to avoid or accommodate sea level rise hazards but may not be consistent with existing zoning
Repetitive Loss Program	• In the long-term, relocate development subject to repetitive damage and highly vulnerable utility infrastructure
Union Pacific Railroad/LOSSAN Rail Corridor	• Downtown: Elevate the railroad to serve as flood protection for the Downtown area north of the tracks • Carpinteria Salt Marsh: Raise the railroad on a causeway to provide opening for tidal inundation to extend beyond the tracks and encourage wetland transgression • Carpinteria Bluffs: Armoring to slow erosion of the bluffs

Next Steps

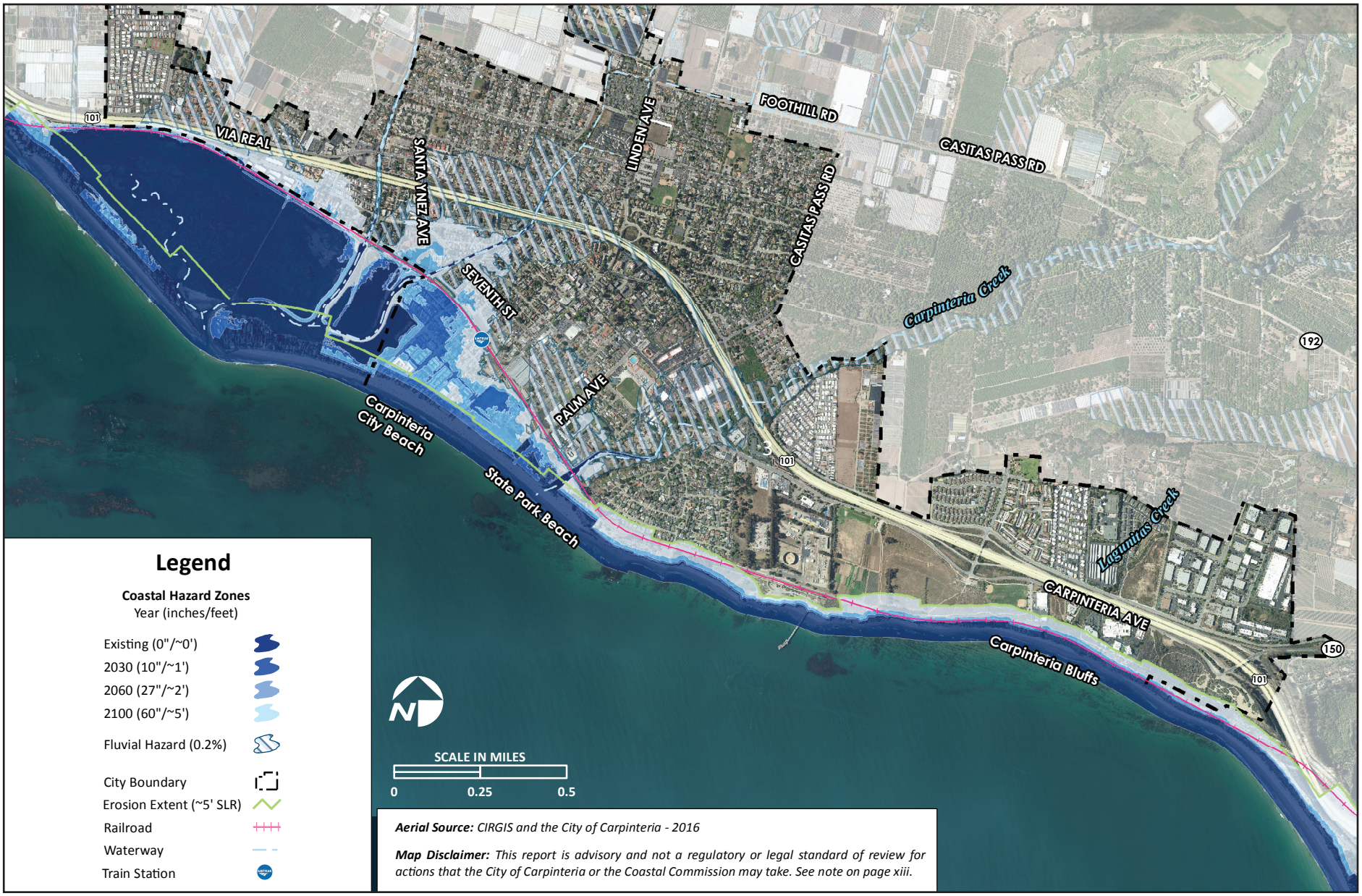
The next steps include developing the long-term vision for the coast of Carpinteria, discussing with the community and decision-makers the potential pros and cons of each adaptation strategy, and accepting a certain level of risk to guide the selection of future adaptation strategies. This work will be evolving and the City's adaptation strategy will be refined as the science continues to provide updated and more accurate data, continued dialog with the community, and coordination with local and state agencies. Additional analysis of the potential site-specific could better inform decision-making and adaptation planning.

- **Financing Strategy:** the City would identify, evaluate, and pursue all feasible potential sources of revenue for funding within Section 8.5, *Funding Mechanisms*. The costs of priority adaptation strategies would be allocated and shared in proportion to the benefits realized by the affected parties, including the public, the City, and the beachfront and bluff property owners, respectively.
- **Future Technical Study:** Given the significant vulnerabilities identified in this Report, the City may consider a more detailed analysis of certain hazards or site-specific study to inform implementation of an adaptation strategy. Therefore, this Report recommends additional study to support City adaptation planning efforts prior to implementation of any of adaptation measure.
- **Public Outreach:** The City will continue to solicit input, comments and feedback from the public, agencies, and interested parties on these proposed adaptation strategies. Successful implementation of any adaptation strategy requires communication of vulnerabilities, potential adaptation tradeoffs, costs, and alternatives.
- **Multi-Agency Coordination:** The City will need to address coastal hazards by establishing collaborative regional solutions and partnerships with adjacent and affected jurisdictions and entities.
- **Monitoring Sea Level Rise and Triggers:** The City will monitor sea level rise elevation data, storm frequency, and storm damages to determine when to implement adaptation measures, with sufficient time for coordination, planning, permitting, engineering, and financing.



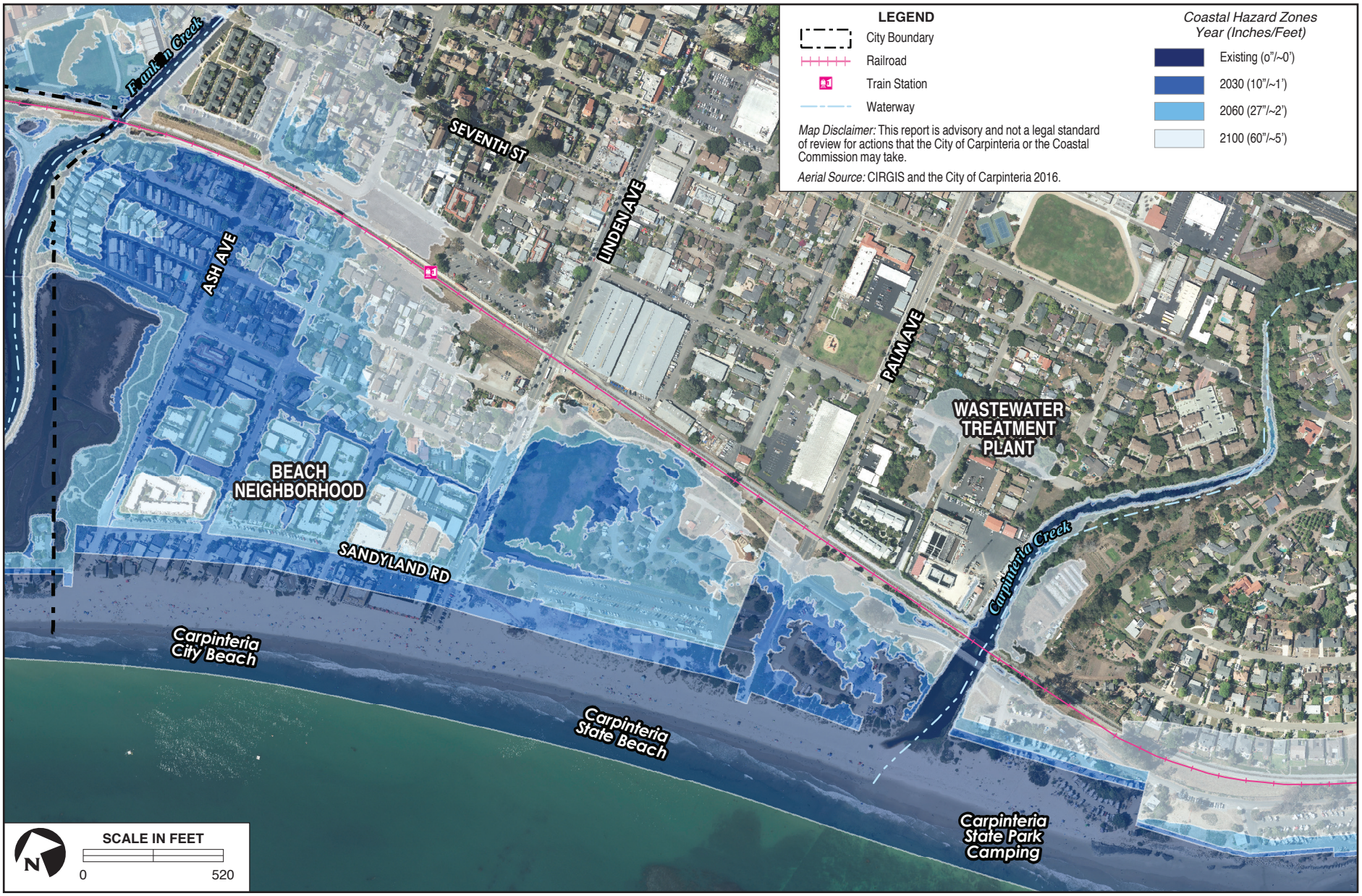
Regional Overview of the City of Carpinteria

FIGURE 1



Combined Coastal Hazards Considered in the Vulnerability Assessment

FIGURE 2



Area 1 – Beach Neighborhood

FIGURE 3