City of Carmel-by-the-Sea Potential Adaptation Strategies

Background

Carmel-by-the-Sea (City) is currently experiencing, and will continue to experience, climate change impacts, including stronger storms, increased wildfire risk, sea level rise, extended drought conditions, and increased temperature. The City developed a Climate Adaptation Plan to increase resilience of the community and assets in Carmel-by-the-Sea. In September 2019, a Climate Committee was convened to develop and guide the preparation of the Climate Adaptation Plan. The City published a Climate Change Vulnerability Assessment in July 2021. The Vulnerability Assessment characterizes climate hazards that will impact the community and City-owned assets, describes the community's major climate vulnerabilities, and identifies work that has already been done by the City to improve resilience.

This workbook provides the City's Climate Adatpation Goals, Policies and Actions to take to improve the resilience of its community members, natural environment, infrastructure and built environment. The adaptation goals, policies, and actions were developed to address all priority assets at risk in the City's Vulnerability Assessment. The **All Goals, Policies & Actions** tab shows all adaptation goals, policies and actions to be completed in the near term, mid-term, and long-term, respectively (organized by goal and policy) to support implementation.

Definitions

Goals: Broad statements describing community desires. The Carmel-by-the-Sea adaptation goals are modeled after the Adaptation Vision and Principles developed by the California Governor's Office of Planning and Research (OPR) Integrated Climate Adaptation & Resiliency Program (ICARP). Each goal is focused on increasing the resilience of one of the following broad asset categories: community, natural assets, and infrastructure and the built environment.

Policies: Specific position statements that support the achievement of goals and serve as guides to City Council, Planning Commission, and city staff, when making decisions. Actions: Specific methods to implement and achieve policies and goals.

City of Carmel-by-the-Sea Adaptation Strategies

	Climate Hazard	Asset	Metric	Timeframe	Implementation Lead	l Cost	Source
Goal 1. A Healthy, Safe, and Resilient Community Policy 1.1. Provide effective emergency preparedness and response in anticipation of potential climate- related disasters				Near-term (1-2 years); Mid-term (3-5 years); Long-term (5- 10 years)		\$-Low (<\$50K); \$\$- Medium (\$50K - \$100K); \$\$\$-High (>\$100K)	Adapted f Plan and I
Action 1.1.1. Maintain and Update Evacuation Plan. Maintain and update an Evacuation Plan every 8 years at	t		Evacuation Plan				
a minimum to account for all types of emergencies. The plan should focus on the most vulnerable groups ncluding the elderly community and persons with disabilities.	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	updated every 8 years, with the first update by 2023	Near-term (by 2024) and Ongoing	Police & Fire	\$	Suggestee
Action 1.1.2. Update Emergency Preparedness. Incorporate climate change risk and impact considerations nto Carmel-by-the-Sea CERT programming and materials to promote emergency preparedness at a neighborhood block-by-block scale. CERT to promote block-by-block scale emergency preparedness by			Number of block captains formed, climate change risk			Ť	00550000
organizing City by blocks and recruiting Block Captains.	All	Residents, Local Businesses, Second Homes	incorporated into	Near-term (by 2024)	Police & Fire	Ś	<u>Adapted f</u> Adaptatio
Action 1.1.3. Collaborate with Monterey Fire. Collaborate with Monterey Fire on its inspection and outreach efforts to reduce fire risks. Continue to coordinate with the CERT program and reach out to new potential		,,				Ŧ	
outreach partners such as local businesses, community groups, and utilities to help distribute information to increase resident and homeowner awareness and knowledge of how to prepare for emergencies.			Number of meetings held with Monterey Fire and CERT				
Action 1.1.4. Publicize Local Evacuation Routes. Publicize both City and Monterey County evacuation routes	Wildfire	Residents, Local Businesses, Second Homes	program; educational materials distributed	Near-term (by 2024)	Police & Fire	\$	Carmel-by
for the community on the City's website, and in the newsletter and brochures. Target additional outreach to the most vulnerable such as the elderly and people with disabilities in the event of a wildfire or other disaster.		Elderly Population and People with	Educational materials				
Action 1.1.5. Evaluate Evacuation Route Capacity. Evaluate evacuation route capacity, safety, and viability	All	Disabilities, Residents	distributed	Near-term (by 2024)	Police & Fire	\$	Carmel-by
under a range of emergency scenarios and identify and implement mitigating actions in 2022, in accordance with Assembly Bill 747.	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	Analysis evaluating evacuation route	Mid-term (by 2027)	Police & Fire	\$\$	Assombly
Action 1.1.6. Evacuation Alternatives and Access. Identify neighborhoods that have single ingress/egress, bursuant to Senate Bill 99, and develop and employ evacuation alternatives, such as a gathering facility, and/or alternative emergency access routes in those neighborhoods. Evaluate potential congestion issues in the event of an evacuation and develop and maintain a list of residents who may have difficulty evacuating. Evaluate options to provide evacuation, such as a shuttle service, for residents with mobility challenges.	All	WUREIS	capacity completed Analysis identifying neighborhoods that have single ingress/ egress and evacuation alternatives completed;	ivitu-terini (by 2027)		~~	Assembly
	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	List of limited- mobility residents developed	Mid-term (by 2027)	Police & Fire	\$\$	Senate Bil
Action 1.1.7. Develop Local Partnerships to Increase Resistance to Wildfire Structural Damage. Work with local community groups to publicize the Firewise Community Certification program (e.g., on the City website and in the newsletter and brochures) and encourage resident involvement.			Number of meetings held to publicize Firewise Community				
Policy 1.2. Focus adaptation efforts and engagement on the most vulnerable populations.	Wildfire	Residents, Second Homes	Certification	Mid-term (by 2027)	Police & Fire	\$	<u>Carmel-by</u> Adapted f
Action 1.2.1. Establish a Resilience Hub. Formally designate a physical resilience hub, such as the Youth							<u>Plan and L</u>
Center or Public Library, and make it available during extreme heat events, poor air quality, severe weather events, and other highly hazardous conditions for use by the community. Provide the following essential resources in the resilience hub(s): health programming and resources, food, refrigeration, charging stations, basic medical supplies, and other emergency supplies. Electrified heating and cooling paired with backup power sources like battery storage provides redundancy and continues services in the event of a power outage. Designate a virtual resilience hub on the City website where residents can access information about the physical resilience hub and resilience efforts.		Elderly Population and People with Disabilities, Residents, Service Industry	Resilience Hub established; Existing facilities upgraded to provide		Public Works / Police		Adapted f
Action 1.2.2. Limit the Impacts of Climate Change on the Most Vulnerable Populations. Develop a framework to define equity in Carmel-by-the-Sea and develop adaptation approaches that are equitably	All	Workers Elderly Population and People with Disabilities, Residents, Service Industry	all essential resources Carmel-by-the-Sea Equity Framework	Near-term (by 2024)	& Fire / Library Community Planning	\$\$	<u>Adaptatio</u>
implemented. Action 1.2.3. Engage the Community. Develop educational materials notifying the community about the	All	Workers	developed	Mid-term (by 2027)	& Building	\$	Inspired b
resilience hub and how to access it by sharing updates across city and community channels. Partner with the CERT program and block captains, and community groups, to prioritize disadvantaged/marginalized communities including the elderly and individuals with disabilities.		Elderly Population and People with Disabilities, Residents, Service Industry	Community engagement plan		Library / City Hall /		Adapted f
	All	Workers	developed		Police Department		Adaptatio

d from the Southern California Adaptation Planning Guide, Appendix F - General d Local Coastal Plan Model Policies

ted by Climate Committee Members

ed from the Southern California Adaptation Planning Guide, Appendix B Matrix of ation Strategies and Actions

I-by-the-Sea Vulnerability Assessment (July 2021)

el-by-the-Sea Vulnerability Assessment (July 2021)

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ed by the City of Berkeley Existing Building Electrification Strategy

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organizations (e.g., Carmel Residents Association) to develop an inventory of locations with isolated elderly residents and people with disabilities and develop a plan for a social support network to increase resilience to climate change, for example by promoting home electrification. Action 1.2.5. Back-up Power for Vulnerable Populations. Coordinate with 3CE, PG&E, and emergency	All	Elderly Population and People with Disabilities	Social support network created; Inventory of locations created Number of	Mid-term (by 2027)	Police Department / CERT / Community Planning & Building	\$	<u>Adapted</u> <u>Adaptat</u>
management services to establish backup power and emergency grid shutdown protocols that protect the most vulnerable populations.		Elderly Population and People with	households with backup power		Police & Fire / Public		Adapted
	All	Disabilities	established	Long-term (by 2032)	Works	\$\$\$	Adaptat
Policy 1.3. Minimize health impacts of climate change.							<u>Adapteo</u> Plan and
Action 1.3.1. Partner with Monterey County Health Department. Coordinate with Monterey County Health Department to develop and enhance disaster and emergency early warning systems to incorporate objective data and information for potential health threats such as heat-illness, and illnesses complicated by low air quality due to climate change hazards. Include information on early warning systems and other resilience efforts on the City's virtual resilience hub (Action 1.2.1.)	All	Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers	Emergency early warning systems updated	Near-term (by 2024)	Police & Fire	\$	<u>Adaptec</u> Adaptat
Action 1.3.2. Initiate a Heat Pump Retrofit Program. Create a program to help fund property owners to convert HVAC units to heat pumps, which provide water heating and space heating in addition to cooling and can improve indoor air quality and community adaptation to extreme heat. Include a microgrid energy storage component to increase power reliability. Prioritize at-risk populations for retrofit incentives.	Wildfire, Increased	Elderly Population and People with Disabilities, Residents, Local Businesses,	Number of heat pumps installed; Number of heat pumps serving at risk		Community Planning		
Action 1.3.3. Invest in Improving Resilience in Critical Facilities. Invest in sustainable backup power sources to provide redundancy and continued services for critical facilities, including City Hall, Carmel Police	Temperature	Service Industry Workers Elderly Population and People with	residents Number of critical facilities with sustainable backup	Mid-term (by 2027)	& Building	\$\$	Inspired
Department, Carmel Fire Department, the Libraries, and assisted living facilities, in the event of a power outage triggered by a climate event. Action 1.3.4. Conduct a Feasibility Study for Existing Building Electrification and Back-up Power. Perform an electrification feasibility study/existing building analysis in order to understand the potential for, and associated costs of, electrification retrofitting, including heat pumps, along with on-site energy generation and battery storage to provide a more resilient back-up power supply. Establish a plan for reducing or	All	Disabilities, Residents	Feasibility Study for Existing Building Electrification and	Mid-term (by2027)	Public Works	\$\$\$	<u>Adapted</u> Adaptati
potential electrical grid shutoffs.	Wildfire, Increased Temp All	Elderly Population and People with Disabilities, Residents Elderly Population and People with Disabilities, Residents	Back-up Power completed Nubmer of retrofitted structures	Mid-term (by 2027) Long-term (by 2032)	Community Planning & Building	\$\$	Inspired Adapted Plan and Passive F
	All	Elderly Population and People with Disabilities, Residents, Local Businesses	Funding identified and promoted to community; Number of projects initiated with incentives		Community Planning and Building/Police and Fire/Public	¢	Inspired
Policy 1.4. Increase economic resilience.						÷	Adapted
Action 1.4.1. Develop Partnerhsips to Provide Support to Displaced Workers. Work in partnership with the Monterey County Workforce Development Board and the Carmel Chamber of Commerce to develop a plan to provide support for displaced workers that establishes education and training partnerships for workers displaced or workers negatively impacted by climate change or climate adaptation policies.	All	Service Industry Workers, Local Businesses	Commitment from business community to develop a plan to support displaced workers	Near-term (by 2024)	Community Planning & Building / City Hall	\$\$	<u>Adaptati</u> <u>Adapted</u> Plan and
Action 1.4.2. Establish Partnerships to Develop a Resilient Economy. Partner with the County of Monterey Economic Development Department, Carmel Chamber of Commerce, and the Monterey County Workforce Development Board, to develop more integrated strategies for protection of jobs, economic sustenance, and	,	Service mousely workers, Local Dusinesses	Number of meetings held to develop	(by 2024)		~~	
Action 1.4.3. Business Resilience Outreach Program. Collaborate with businesses in the city to better understand shared climate risks and identify opportunities to advance shared climate resilience priorities.	All	Service Industry Workers, Local Businesses		Mid-term (by 2027)	Community Planning & Building / City Hall	\$	<u>Adapted</u> <u>Plan and</u>
Partner with the Carmel Chamber of Commerce and Visit Carmel to pilot and implement a local business resilience initiative to build small business capacity before a time of crisis by increasing the awareness of, and preparedness for, business continuity risks faced by the city's local businesses, providing a toolkit of intervention to help local businesses manage risks and enhance business resilience, and conducting outreach campaigns to engage leaders from the business, government, and community sectors to enhance preparedness for economic resilience.	All	Sanuica Inductry Workare Local Pusiacasa	Toolkit of intervention developed to help support local businesses manage risks and enhance reciliance	Near-term (hu 2024)	Community Planning	¢¢	Adapted
	All	Service Industry Workers, Local Businesses	resilience	wear-term (by 2024)	& Building / City Hall	\$\$	<u>2018)</u>
Action 1.4.4. Hire a Grant Writer/Climate Coordinator. Hire a grant writer/Climate coordinator to pursue							
Action 1.4.4. Hire a Grant Writer/Climate Coordinator. Hire a grant writer/Climate coordinator to pursue available grants to fund climate adaptation implementation and track progress.	All	All	Grant writer/climate coordinator hired	Near-term (by 2024)	City Hall	\$\$\$	Suggeste

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ired by the City of Pacifica All-Electric Reach Code oted from the Southern California Adaptation Planning Guide, Appendix B Matrix of otation Strategies and Actions

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oted from Gateway Cities Climate Adaptation Model General Plan Language (December

sested at the 11/18/2021 public meeting

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 Action 2.1.1. Increase Funding for Climate Adaptation. Earmark Capital Improvement Program (CIP) funding for design, permitting, and implementation of adaptation projects and strategies, such as those in the 2021 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) and Integrated Regional Watershed Management Program (IRWMP). Action 2.1.2. Increase Urban Forest Resilience. Update and implement the Forest Management Plan to: 1. Beview and consider modifications to the preferred urbanized tree species that would result in improved resilience in the context of the expected climate of the second half of the century, reduce wildfire hazard, and that takes into account aesthetics and the ecological benefits of natives or near-native (e.g., native species from the Southwestern US or Mexico would likely be preferred to European species). 2. Enclude planting and maintenance guidelines to improve tree health, particularly in the public right-of-way 3. Encorporate tree species that have greater drought and wildfire resistance 4. En addition to drought-tolerant landscaping, include landscaping guidelines that reduce wildfire hazard on private property. 5. Enhance carbon sequestration potential Update of the Plan should include collaboration and engagement with stakeholders, such as the Monterey Pine Forest Watch, California State University, Monterey Bay, and vulnerable communities. 	All	Urban Forest, Mission Trail Nature Preserve, North Dunes, Carmel Beach, Water Supply	Number of adaptation projects funded through CIP	Near-term (by 2024)	Public Works	\$\$	<u>Carmel-by</u>
	Drought, Increased		Forest Management	Near-term (by 2024)	Public Works Forestry Division / Forest and		
Action 2.1.3. Increase Resilience of the Mission Trail Nature Preserve and Pescadero Canyon. Update and implement the Mission Trail Nature Preserve Master Plan to consider the potential impacts of climate change	Temp, Wildfire	Urban Forest	Plan Updated	and Ongoing	Beach Commission	\$\$	<u>Carmel-by</u>
and to reduce wildfire risk for neighboring private properties. Coordinate with CAL FIRE and the Monterey Fire Departments to incorporate Best Practices into an annual maintenance plan, including cost estimates for	2						
implementation and revenue sources for implementation. Continue to coordinate with CalFire and the Pebble Beach Community Services District on wildfire mitigation in Pescadero Canyon.			Mission Trail Nature Preserve Master Plan	Mid-term (by 2027)	Community Planning & Building and Public		
Action 2.1.4. Increase Resilience of the North Dunes. Continue to fund maintenance and monitoring at the	All	Mission Trail Nature Preserve	updated	and Ongoing	Works	\$\$	Carmel-by
North Dunes to determine how the changing climate will affect dune habitats. Implement enhancement efforts to improve resilience of the North Dunes.			Regular maintenance and monitoring occurring at North		Community Planning & Building and Public		
	All	North Dunes	Dunes	Ongoing	Works	\$\$	<u>Carmel-by</u>
Action 2.1.5. Increase Resilience to Stronger Storms. When designing projects in the city, including those recommended in the Mission Trail Stream Stability Study, size improvements to handle larger storms consistent with best available climate change projections.			Number of projects sizing improvements to handle larger				
Action 2.1.6. Beach Sand Monitoring Program. Reinstate beach sand monitoring program described in the Shoreline Management Plan.	Stronger Storms	Mission Trail Nature Preserve	storms. Active beach sand monitoring program	Near-term (by 2024)	Public Works	\$\$	Carmel-by
	Sea Level Rise	Carmel Beach	in place	Near-term (by 2024)	Public Works	\$\$	Carmel-by
Action 2.1.7. Carmel Cove Sand Supply. Partner with local researchers (e.g., California State University Monterey Bay) or other sources to conduct Carmel Cove sand supply dynamics analysis.			Carmel Cove sand supply dynamics		Community Planning & Building and Public		
Goal 3. Resilient Infrastructure and Built Environment	Sea Level Rise	Carmel Beach	analysis completed	Long-term (by 2032)	Works	\$\$	Carmel-by
Policy 3.1. Support greater resilience, redundancy, and reliability of local and regional infrastructure and the							Adapted f
built environment. Action 3.1.1. Underground Utilities in Fire Hazard Zones. Determine the feasibility of, and community							<u>Adaptatio</u>
support for, undergrounding power lines in the Mission Trail Nature Preserve, designated evacuation routes, and in other high priority areas in the Very High Fire Hazard Severity Zone. Develop a plan for undergrounding utilities based on results from the feasibility study and begin implementation in the most vulnerable communities.		Water Supply, Sanitary Sewer System, Power Grid, Overhead Communication, PG&E/Communication Underground Lines			Community Planning & Building and Public		
Action 3.1.2. Increase Green Infrastructure. Modify Capital Improvement Program (CIP) project design to	Wildfire	gas, cable	moved underground	Near-term (by 2024)	Works	\$\$\$	Carmel-by
consistently evaluate the potential for green infrastructure to be incorporated in CIP projects in the public right-of-way and on public lands. Identify and develop a green infrastructure pilot project that will reduce runoff volume and capture and infiltrate stormwater, based on projected changes in precipitation amounts due to climate change, and incorporates tree and shrub planting to increase carbon sequestration in the city.	Stronger Storms, Increased Temp,		Change in impervious				
Action 3.1.3. Public Building Electrification. Identify opportunities to incorporate electrification of City facilities and buildings, including solar photovoltaic power system and battery backup installation, into the	Wildfire	Urban Forest, Storm Drain System	surface coverage.	Near-term (by 2024)	Public Works	\$\$	Adapted f
Capital Improvement Program (CIP). As an initial step, identify and develop a pilot project to electrify a city building or facility, including the installation of a photovoltaic power system.	Stronger Storms, Wildfire	Power grid, City facilities	Public building electrification pilot project completed	Mid-term (by 2027)	Public Works	\$\$\$	Suggestee
Action 3.1.4. Reduce Stormwater Runoff. Reduce stormwater runoff through implementation of stormwater diversion and infiltration projects that reduce pollution problems caused by more frequent and intense storms and more extreme flooding events.	Stronger Storms	Storm Drain System, Carmel Beach	Stormwater diversion project implemented	Long-term (by 2032)	Public Works	\$\$\$	Suggestee

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Action 3.1.5. Storm Drain Repair Funding and Improvements. Earmark Capital Improvement Program (CIP)							
funding for design, permitting and implementation of storm drain repairs. Include strategies in the 2021 Multi	:i-						
Jurisdictional Hazard Mitigation Plan (MJHMP) for potential regional funding. Upsize Storm Drain Master Plar	1		Number of				
(SDMP) improvements, especially when making repairs in the lower reaches of watersheds, to handle larger			adaptation projects				
storms.	Stronger Storms	Storm Drain System	funded through CIP	Near-term (by 2024)	Public Works	\$\$\$	Carmel-by-
Action 3.1.6. Retrofit Existing Critical Buildings and Related Infrastructure. Conduct an evaluation of all first	-						
responder and municipal facilities to determine retrofits that may be needed for long-term resilience to							
climate change hazards including sea-level rise related flooding and erosion, increased wind/storm events, ar	1	Emergency Response Facilities – Fire	List of critical				
increase in high heat days, and/or wildfire depending upon location and risk factors. Develop a budget and schedule for retrofits based on the findings of the municipal facilities. Retrofit existing critical buildings as		station, EOC, PD, PW, City Hall, etc., Hospital and Emergency Medical Care	buildings and related infrastructure				Adapted fro
detailed in the program schedule.	All	Facilities	requiring retrofits	Near-term (by 2024)	Public Works	\$\$\$	Plan and Lo
Action 3.1.7. Water Conservation. Partner with the Monterey Peninsula Water Management District to		l'aclifices	requiring retronts	Neal-tern (by 2024)		ΥĻΥ	
reduce water demand and increase water recycling, such as stormwater capture and grey water reuse,			Water demand				
through education and outreach. Provide information and incentives for residential water use reduction,			reduced, incentives				
focusing engagement on vulnerable communities first.			for grey water reuse		Community Planning		
			developed and		& Building and Public		
	Drought	Water Supply	shared	Near-term (by 2024)	Works	\$	Carmel-by-
Action 3.1.8. Bluff Structural Monitoring Program. Implement bluff structural monitoring program and do							
follow-up monitoring post-storm to identify additional footing stability issues.			Bluff structural				
			monitoring program				
	Sea Level Rise	Carmel Beach	implemented	Mid-term (by 2027)	Public Works	\$\$	Carmel-by-
Action 3.1.9. Sea Level Rise Coastal Vulnerability Study. Hire coastal engineer with experience in planning for climate change to:	r						
1. Conduct research and prepare a Sea-Level Rise Vulnerability Study to further assess the risks to the city's							
coastal assets, including the beach, sea walls, revetments, bluffs, stairs and access, public bathrooms, parking	B						
areas, drainage infrastructure, and utilities.							
2. Determine adaptation measures and Local Coastal Program policy options, including but not limited to: a)							
Mostly natural, unarmored North Dunes area; b) mostly armored bluffs along Scenic Roach south of 8th							
Avenue; c) Unarmored dunes along private property between 8th Avenue and Del Mar Parking Lot; d) Armored private properties on the bluffs at the north end of the City (Pescadero Canyon area).							
3. Evaluate the use of thresholds for phasing adaptation projects based on changing coastal conditions.							
Consider applying an adaptive pathways approach which establishes trigger thresholds for different adaptive							
measures based on the severity of the impact from flooding and erosion associated with sea-level rise.			Sea-level rise				
, , , ,		Carmel Beach, Shoreline Access	vulnerability study				
	Sea Level Rise	Infrastructure, Seawall and Revetments	completed	Near-term (by 2024)	Public Works	\$\$\$	Carmel-by-
Action 3.1.10. Wastewater Treatment. Collaborate with the Carmel Area Wastewater District (CAWD) to			Number of				
increase the facility's resilience to sea level rise and stronger storms. Maintain staff/council personnel as			collaboration				
liaisons to CAWD.			meetings with CAWD		Community Planning		
	Sea Level Rise,		regarding facility's	Near-term (by 2024)	& Building and Public		
Dellar 2.2. Incompany elimete change administrative intervaluent along and standards	Stronger Storms	Water Supply, Storm Drain System	resilience	and Ongoing	Works	\$	Suggested I
Policy 3.2. Incorporate climate change adaptation into relevant plans and standards.							Adapted fro Adaptation
							Adaptation
			Number of projects				
Action 3.2.1. Development Standards. Evaluate City's development standards for consistency with best			implementing				
practices for reducing climate change risk (e.g., wildfire risk) for both new and existing development, includin	g		adaptation measures,				
but not limited to incorporating defensible space design in landscaping guidelines and permitting the use of			City development				
fire-resistant building materials that may conflict with current Design Guidelines. Develop a project checklist			standards consistent				
for building and site adaptation measures. The checklist, included with permit applications, should serve to			with best practices				
provide education to permit applicants on modifications to site plans and structures that can improve a project's resilience to existing and potential future climate change hazards.	All	Residents, Local Businesses, Second Homes	for reducing wildfire	Mid-term (by 2027)	Community Planning and Building	\$\$	Cormol by t
Action 3.2.2. Update City Planning Guidelines. Update the City's municipal code to maintain consistency wit		Acordento, Local Busillesses, Second Hollies	City municipal code	wind-territ (by 2027)		Ϋ́	Carmel-by-
current California codes (California Building Code Chapter 7 and California Residential Code R337) throughou			consistent with				
the City.	Wildfire, Stronger		current California		Community Planning		
	Storms, Wildfire	Residents, Local Businesses, Second Homes		Near-term (by 2024)	and Building	\$\$	Carmel-by-
Action 3.2.3. Incorporate Climate Change Adaptation into Local Plans. Prioritize the update of local plans,							
including the Climate Change Vulnerability Assessment, Local Coastal Program, General Plan, Mission Trails			Number plans				
Nature Reserve Master Plan, Del Mar Master Plan, Shoreline Management Plan, and drought planning to			updated to		Community Planning		
promote climate change resilience as new information is available.	A II	A11	incorporate	Mid torm (by 2027)	& Building / Public	ćć	Adapted fro
	All	All	adaptation	Mid-term (by 2027)	Works	\$\$	Plan and Lo

Action 3.2.4. Update Shoreline Management Plan. Update Shoreline Management Plan and Local Coastal Program based on results of Sea-level Rise Vulnerability Study.

Sea Level Rise

Carmel Beach

& Building and Public Long-term (by 2032) Works

Community Planning

\$\$

Shoreline

Management Plan

and Local Coastal

Program updated

d from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies

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Action 3.2.5. Multi-Jurisdictional Hazard Mitigation Plan. Maintain a comprehensive list of projects, based on existing plans and gaps identified in the Vulnerability Assessment, to provide to Monterey County during updates to the Monterey County Multi-Jurisdictional Hazard Mitigation Plan in 2022 and beyond.

All

All

Number of			
adaptation projects			
included in the Multi-		Community Planning	
Jurisdictional Hazard		& Building, Police,	
Mitigation Plan	Near-term (by 2024)	and Public Works	\$

Carmel-by-the-Sea Vulnerability Assessment (July 2021)

City of Carmel-by-the-Sea Near-Term/Ongoing Adaptation Strategies

Climate Hazard	Asset	Metric	Timeframe	Implementation Lead	Cost	Source	Status	Notes
				Lead				
			Near-term (1-2 years); Mid-term (3- years); Long-term (5 10 years)		\$-Low (<\$50K); \$\$- Medium (\$50K - \$100K); \$\$\$-High (>\$100K)	Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
unt ith All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	Evacuation Plan updated every 8 years, with the first update by 2023	Near-term (by 2024 and Ongoing) Police & Fire	\$	Suggested by Climate Committee Members		
All	Residents, Local Businesses, Second Homes	Number of block captains formed, climate change risk incorporated into Number of meeting) Police & Fire	\$	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Wildfire	Residents, Local Businesses, Second Homes	held with Monterey Fire and CERT program; education	Near-term (by 2024 al) Police & Fire	\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	5%	Monterey Fire and Fire Safety Council for Monterey County both attended Earth Day 2023, where they brought information for FireSafe Communities for residents
	Elderly Population and People with Disabilities, Residents	Educational materia distributed	ls Near-term (by 2024) Police & Fire	\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)		
se by All	Elderly Population and People with Disabilities, Residents, Service Industry Workers		2	Public Works / Polic) & Fire / Library	e \$\$	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions	0%	
	Elderly Population and People with Disabilities, Residents, Service Industry Workers	Community engagement plan developed	Near-term (by 2024	Library / City Hall / Police Department	\$	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions	0%	
						Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
eats All	Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers	Emergency early warning systems updated	Near-term (by 2024) Police & Fire	\$	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
All	Elderly Population and People with Disabilities, Residents, Local Businesses			and Building/Police	-	Inspired by the City of Pacifica All-Electric Reach Code	5%	Energy Efficiency Study (Willdan); Electric Heat Pumps in City Facilities; 3CE - sweeper (Rob); PG&E EV Chargers (Javier)
						Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of		
	Service Industry Workers, Local Businesse) Community Plannin & Building / City Hal	3 \$\$	Adaptation Strategies and Actions Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies	0%	Although not related to this specific topic, CCC helped organize our inaugural Earth Day event in 2023; this can be considered development of this partnership
t ^{sing} All	Service Industry Workers, Local Businesse	businesses manage risks and enhance	Near-term (by 2024	Community Plannin & Building / City Hal	3 1 \$\$	Adapted from Gateway Cities Climate Adaptation Model General Plan Language (December 2018)	0%	
All	All		² Near-term (by 2024) City Hall	\$\$\$	Suggested at the 11/18/2021 public meeting	0%	
						Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
g, All	Urban Forest, Mission Trail Nature Preserve, North Dunes, Carmel Beach, Water Supply) Public Works	\$\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	
	Urban Forest	Forest Managemen Plan Updated	t Near-term (by 2024 and Ongoing	1		<u>Carmel-by-the-Sea Vulnerability Assessment (July 2021)</u>	30%	Update of Urban Forest Master Plan in progress, community survey almost closed and draft is completed
	a All Ye Wildfire All All All All All All All Al	a All Residents, Local Businesses, Second Homes a All Residents, Local Businesses, Second Homes and All Elderly Population and People with Disabilities, Residents and All Elderly Population and People with Disabilities, Residents, Service Industry Workers a All Elderly Population and People with Disabilities, Residents, Service Industry Workers a All Elderly Population and People with Disabilities, Residents, Service Industry Workers a All Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers a All Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers a All Elderly Population and People with Disabilities, Residents, Local Businesses a All Service Industry Workers a All Service Industry Workers, Local Businesses a All All	All Disabilities, Residents, service industry years, with the first update by 2023 a All Residents, Local Businesses, Second Rendering intervention (charact charage risk incorporated into Number of meeting held with Montrey Fire and CERT re Multifire Residents, Local Businesses, Second Residents, incore businesses, Second and All Elderly Population and People with Disabilities, Residents, Service Industry Resilience Hub established; a All Elderly Population and People with Disabilities, Residents, Service Industry Resilience Hub established; a All Elderly Population and People with Disabilities, Residents, Service Industry Community engagement plan developed o All Elderly Population and People with Disabilities, Residents, Service Industry Community engagedet to provide all essential resource o All Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers Emergency early warning systems updated st hat All Elderly Population and People with Disabilities, Residents, Local Businesses Community, Number of projects initiated workers st hat All Service Industry Workers, Local Businesses Community, Number of projects initiated workers st hat All All Community Workers, Local Businesses Community of adoptingload workers a A	min Min Disabilities, Residents, Local Businesses, Second wers, with the first incorporated into Mumber of block captains formed, incorporated into Mumber of block Number of block captains formed, incorporated into Mumber of block re All Residents, Local Businesses, Second Number of block captains formed, incorporated into Mumber of block no All Residents, Local Businesses, Second Number of relentings ni All Elderly Population and People with Disabilities, Residents Educational material distributed na All Elderly Population and People with Workers Resilience Hub a All Disabilities, Residents, Service Industry Resilience Hub a All Disabilities, Residents, Local Businesses, second Ministry, Marter (by 2024) Near-term (by 2024) and All Disabilities, Residents, Service Industry Resilience Hub a All Disabilities, Residents, Local Businesses, Second Ministry, Marter (by 2024) Near-term (by 2024) and All Disabilities, Residents, Local Businesses, Second Ministry, Marter (by 2024) Near-term (by 2024) a All Disabilities, Residents, Local Businesses, Second Ministry, Marter (by 2024) Near-term (by 2024) a All Disabilities, Residents, Local Businesses Community waring system suppatient of oprupeets infige and promoted to community,	Init Displaying bit works Displaying bit works Point and Origoing works Point	a All Description Service Industry Workers a All Residents, Local Businesses, Second Hornes Number of block captuals for participation in the service industry Workers Number of block captuals for participation in the service industry Population and Poople with Disabilities, Residents, Service Industry Workers Number of block captuals for participation intervise databased intervise of the service industry Workers Number of block captuals for participation intervise databased databased databased Number of block intervise databased intervise databased intervise databased databa	Main Main	Main Main

Action 2.1.4. Increase Resilience of the North Dunes. Continue to fund maintenance and monitoring at the North Dunes to determine how the changing climate will affect dune habitats. Implement enhancement efforts to improve resilience of the North Dunes.	North Dunes	Regular maintenance Community Planning and monitoring Ongoing & Building and Public \$\$ occurring at North Works Dunes	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	80%	ND project has been onging since 2016 with CDP renewed til Aug. 2016; DD&A recently contracted to continue restoration work
Action 2.1.5. Increase Resilience to Stronger Storms. When designing projects in the city, including those recommended in the Mission Trail Stream Stability Study, size improvements to handle larger storms consistent with best available climate change Stronger Storms projections. Stronger Storms Stronger Storms	Mission Trail Nature Preserve	Number of projects sizing improvements to handle larger Near-term (by 2024) Public Works \$\$ storms.	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	5%	
Action 2.1.6. Beach Sand Monitoring Program. Reinstate beach sand monitoring program described in the Shoreline Management Plan. Sea Level Rise	Carmel Beach	Active beach sand monitoring program Near-term (by 2024) Public Works \$\$ in place	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	Coastal Engineering Adaptation Project underway
Goal 3. Resilient Infrastructure and Built Environment Policy 3.1. Support greater resilience, redundancy, and reliability of local and regional infrastructure and the built environment.			Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 3.1.1. Underground Utilities in Fire Hazard Zones. Determine the feasibility of, and community support for, undergrounding power lines in the Mission Trail Nature Preserve, designated evacuation routes, and in other high priority areas in the Very High Fire Hazard Severity Zone. Develop a plan for undergrounding utilities based on results from the feasibility study and begin implementation Wildfire in the most vulnerable communities.	Water Supply, Sanitary Sewer System, Power Grid, Overhead Communication, PG&E/Communication Underground Lin gas, cable	Feasibility Study completed; Plan Community Planning developed based on Near-term (by 2024) & Building and Public \$\$\$ ves- Feasibility Study; Works Number of utilities Works	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	
Action 3.1.2. Increase Green Infrastructure. Modify Capital Improvement Program (CIP) project design to consistently evaluate the potential for green infrastructure to be incorporated in CIP projects in the public right-of-way and on public lands. Identify and develop a green infrastructure pilot project that will reduce runoff volume and capture and infiltrate stormwater, based on projected changes in precipitation amounts due to climate change, and incorporates tree and shrub planting to increase carbon sequestration in the city.	Urban Forest, Storm Drain System	Change in impervious Near-term (by 2024) Public Works \$\$ surface coverage.	Adapted from the Carmel-by-the-Sea Vulnerability Assessment (July 2021)	5%	Prepared stormwater management plan Initiated stormwtaer projects
Action 3.1.4. Storm Drain Repair Funding and Improvements. Earmark Capital Improvement Program (CIP) funding for design, permitting and implementation of storm drain repairs. Include strategies in the 2021 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) for potential regional funding. Upsize Storm Drain Master Plan (SDMP) improvements, especially when making repairs in the lower reaches of watersheds, to handle larger storms.	Storm Drain System	Number of adaptation projects Near-term (by 2024) Public Works \$\$\$ funded through CIP	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	5%	Prepared stormwater management plan Initiated stormwtaer projects
Action 3.1.5. Retrofit Existing Critical Buildings and Related Infrastructure. Conduct an evaluation of all first-responder and municipal facilities to determine retrofits that may be needed for long-term resilience to climate change hazards including sea-level rise related flooding and erosion, increased wind/storm events, an increase in high heat days, and/or wildfire depending upon location and risk All factors. Develop a budget and schedule for retrofits based on the findings of the municipal facilities. Retrofit existing critical buildings as detailed in the program schedule.	Emergency Response Facilities – Fire station, EOC, PD, PW, City Hall, etc., Hospital and Emergency Medical Care Facilities	List of critical buildings and related infrastructure Near-term (by 2024) Public Works \$\$\$ requiring retrofits	Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies	0%	
Action 3.1.6. Water Conservation. Partner with the Monterey Peninsula Water Management District to reduce water demand and increase water recycling, such as stormwater capture and grey water reuse, through education and outreach. Provide information and Drought incentives for residential water use reduction, focusing engagement on vulnerable communities first.	Water Supply	Water demand Community Planning reduced, incentives Community Planning for grey water reuse Near-term (by 2024) & Building and Public \$ developed and Works shared	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	5%	MPWMD attended Earth Day 2023 and provided outreach to attendees
 Action 3.1.8. Sea Level Rise Coastal Vulnerability Study. Hire coastal engineer with experience in planning for climate change to: 1. Conduct research and prepare a Sea-Level Rise Vulnerability Study to further assess the risks to the city's coastal assets, including the beach, sea walls, revertments, bluffs, stairs and access, public bathrooms, parking areas, drainage infrastructure, and utilities. 2. Determine adaptation measures and Local Coastal Program policy options, including but not limited to: a) Mostly natural, unarmored North Dunes area; b) mostly armored bluffs along Scenic Roach south of 8th Avenue; c) Unarmored dunes along private property between 8th Avenue and Del Mar Parking Lot; d) Armored private properties on the bluffs at the north end of the City (Pescadero Canyon area). 3. Evaluate the use of thresholds for phasing adaptation projects based on changing coastal conditions. Consider applying an adaptive pathways approach which establishes trigger thresholds for different adaptive measures based on the severity of the impact from flooding and erosion associated with sea-level rise. 	Carmel Beach, Shoreline Access Infrastructure, Seawall and Revetments	Sea-level rise vulnerability study Near-term (by 2024) Public Works \$\$\$ completed	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	15%	Coastal Engineering Adaptation Project underway
Action 3.1.9. Wastewater Treatment. Collaborate with the Carmel Area Wastewater District (CAWD) to increase the facility's resilience Sea Level Rise, to sea level rise and stronger storms. Maintain staff/council personnel as liaisons to CAWD. Stronger Storms	Water Supply, Storm Drain System	Number of collaboration Near-term (by 2024) regarding facility's and Ongoing Works	Suggested by Climate Committee Members	30%	Pipe-bursting underway, CAWD sent 60% proposal and aim for 90% soon
Policy 3.2. Incorporate climate change adaptation into relevant plans and standards.			Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 3.2.2. Update City Planning Guidelines. Update the City's municipal code to maintain consistency with current California codes Wildfire, Stronger (California Building Code Chapter 7 and California Residential Code R337) throughout the City. Storms, Wildfire	Residents, Local Businesses, Second Homes	City municipal code consistent with current California Near-term (by 2024) codes	Carmel-by-the-Sea Vulnerability Assessment (July 2021)		
Action 3.2.5. Multi-Jurisdictional Hazard Mitigation Plan. Maintain a comprehensive list of projects, based on existing plans and gaps identified in the Vulnerability Assessment, to provide to Monterey County during updates to the Monterey County Multi-Jurisdictional All Hazard Mitigation Plan in 2022 and beyond.	All	Number of adaptation projects Community Planning included in the Multi- Near-term (by 2024) & Building, Police, \$ Jurisdictional Hazard and Public Works Mitigation Plan	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	

City of Carmel-by-the-Sea Mid-Term Adaptation Strategies

Goal/Policy/Action	Climate Hazard	Asset	Metric	Timeframe	Implementation Lead	i Cost	Source	Status	Notes
Goal 1. A Healthr, Safe, and Resilient Community Policy 1.1. Provide effective emergency preparedness and response in anticipation of potential climate-related disasters				Near-term (1-2 years); Mid-term (3-		\$-Low (<\$50K); \$\$- Medium (\$50K -	Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan		
				years); Long-term (5- 10 years)		\$100K); \$\$\$-High (>\$100K)	and Local Coastal Plan Model Policies		
ction 1.1.5. Evaluate Evacuation Route Capacity. Evaluate evacuation route capacity, safety, and viability under a range of emergency cenarios and identify and implement mitigating actions in 2022, in accordance with Assembly Bill 747.	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	Analysis evaluating evacuation route capacity completed	Mid-term (by 2027)	Police & Fire	\$\$	Assembly Bill 747 Requirement		
Action 1.1.6. Evacuation Alternatives and Access. Identify neighborhoods that have single ingress/egress, pursuant to Senate Bill 99, and develop and employ exacuation alternatives, such as a gathering facility, and/or alternative emergency access routes in those engliphorhoods. Full-altab potential congression issues in the evacu of an evacuation and develop and maintain a list of residents who may have difficulty evacuating. Evaluate options to provide evacuation, such as a shuttle service, for residents with mobility challenges.	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	Analysis identifying neighborhoods that have single ingress/ egress and evacuation alternatives completed; List of limited- mobility residents developed	Mid-term (by 2027)	Police & Fire	55	Senate Bill 99 Requirement		
ktion 1.17. Develop Local Partnerships to Increase Resistance to Wildlire Structural Damage. Work with local community groups to abilitize the Firewise Community Certification program (c.g., on the City website and in the newsletter and brochure) and encourage esdem throhement.	Wildfire	Residents, Second Homes	Number of meetings held to publicize Firewise Community Certification	Mid-term (by 2027)	Police & Fire	\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)		
Policy 1.2. Focus adaptation efforts and engagement on the most vulnerable populations.							Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
Action 1.2.2. Limit the Impacts of Climate Change on the Most Vulnerable Populations. Develop a framework to define equity in Carmel-by-the-Sea and develop adaptation approaches that are equitably implemented.	All	Elderly Population and People with Disabilities, Residents, Service Industry Workers	developed	Mid-term (by 2027)	Community Planning & Building	\$	Inspired by the City of Berkeley Existing Building Electrification Strategy		
Action 1.2.4. Social Support Network. Collaborate with the Carmel Foundation and other community-based organizations (e.g., Carmel Residents Association) to develop an inventory of locations with isolated elderly residents and people with disabilities and develop a Jain for a social support network to increase resilience to dimate change, for cample by promoting home electrifications	All	Elderly Population and People with Disabilities	Social support network created; Inventory of location created	Mid-term (by 2027)	Police Department / CERT / Community Planning & Building	s	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Policy 1.3. Minimize health impacts of climate change.							Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
Action 1.3.2. Initiate a Heat Pump Retrofit Program. Create a program to help fund property owners to convert HVAC units to heat pumps, which provide water heating and space heating in addition to cooling and can improve indoor air quality and community adaptation to externe heat. Include a microgrid energy storage component to increase power reliability. Prioritize at-risk populations for retrofit incentives.	Wildfire, Increased Temperature	Elderly Population and People with Disabilities, Residents, Local Businesses, Service Industry Workers	Number of heat pumps installed; Number of heat pumps serving at risk residents	Mid-term (by 2027)	Community Planning & Building	\$\$	Inspired by the City of Berkeley Existing Building Electrification Strategy	5%	We have promoted 3CE's electric heat pump reba programs but I don't believe we have created our own
assisted living facilities, in the event of a power outage triggered by a climate event.	All	Elderly Population and People with Disabilities, Residents	Number of critical facilities with sustainable backup power sources.	Mid-term (by2027)	Public Works	\$\$\$	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions	5%	Police building renovation proj has been initiated; City Hall improvements
Action 1.3.4. Conduct a reasability Study for Existing Building Electrification and Back-up Power. Perform an electrification feasibility study desisting building analysis in order to understand the potential for and associated costs of electrification reintofitting, including heat pumps, along with on-site energy generation and battery storage to provide a more resilient back-up power supply. Establish a plan for reducing or eliminating natural gas from existing buildings, potentially through a reach code, and building estilence to potential electrical get shutoffs.	Wildfire, Increased Temp	Elderly Population and People with Disabilities, Residents	Feasibility Study for Existing Building Electrification and Back-up Power completed	Mid-term (by 2027)	Public Works	\$\$	Inspired by the City of Berkeley Existing Building Electrification Strategy	5%	Wallace Group conducted energy efficiency study Heat pumps placed in PW, libraries, FD, City Hall
Policy 1.4. Increase economic resilience.							Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 1.4.2. Establish Partnerships to Develop a Resilient Economy. Partner with the County of Monterey Economic Development Department, Carmiel Chamber of Commerce, and the Monterey County Workforce Development Board, to develop more integrated strategies for protection of jobs, economic sustenance, and for the protection of vulnerable populations more at-risk of temporary or permanent job discustion due to climate change.	All	Service Industry Workers, Local Businesses	Number of meetings held to develop strategies for job protection	Mid-term (by 2027)	Community Planning & Building / City Hall	\$	Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
Goal 2. A Natural Environment Resilient to Climate Hazards							Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of		
Policy 2.1. Protect and restore climate-vulnerable habitat and ecosystems.							Adaptation Strategies and Actions		
plan, including cost estimates for implementation and revenue sources for implementation. Continue to coordinate with CalFire and the Pebble Beach Community Services District on wildfire mitigation in Pescadero Canyon.	Ali	Mission Trail Nature Preserve	Mission Trail Nature Preserve Master Plar updated	Mid-term (by 2027) and Ongoing	Community Planning & Building and Public Works	: \$\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	
Goal 3. Resilient infrastructure and Built Environment Policy 3.1. Support greater resilience, redundancy, and reliability of local and regional infrastructure and the built environment.	_		_	_	_	_	Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of	_	
Youry 3.1. Support greater resilience, resonancy, and reliacionny of occar and regional intrastructure and the built environment. Action 3.1. Public Building Electrification, Identify opportunities to incorporate electrification of City facilities, including including for a balance being being and the balance being in a balance of the called Bernard Personance Research (RD). A call balance in death			Public building				Adaptation Strategies and Actions		
Action 3.1.3. Funds building textmittation, identify opportunities to incorporate excitinitiation of Livi admites and building, funder build photovoltais power system and battery backup installation, into the Capital Improvement Porgram (CIP). As an initial step, identify and develop a pilot project to electrify a city building or facility, including the installation of a photovoltaic power system.	Stronger Storms, Wildfire	Power grid, City facilities		Mid-term (by 2027)	Public Works	\$\$\$	Suggested by City Council	0%	
Action 3.1.8. Bluff Structural Monitoring Program. Implement bluff structural monitoring program and do follow-up monitoring post- storm to identify additional footing stability issues.	Sea Level Rise	Carmel Beach	Bluff structural monitoring program implemented	Mid-term (by 2027)	Public Works	\$\$	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	30%	Coastal Engineering study related Phase I, Task I
Policy 3.2. Incorporate climate change adaptation into relevant plans and standards.							Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 3.2.1. Development Standards. Evaluate City's development standards for consistency with best practices for reducing climate change risk (e.g., widlfne risk) for both new and existing development, including but not limited to incorporating defemible gaze design in indiscationg usdelenses and permitting the use of free-resistant building materials that may conflict with current Design Guidelines. Develop a project Checklist for building and site adaptation messures. The checklist, included with permit applications, should serve to provide decultation to permit applications to site plans and structures that can improve a project's resilience to existing and potential future climate change hazards.	All	Residents, Local Businesses, Second Home	Number of projects implementing adaptation measures City development standards consistent with best practices for reducing wildfire risk	, Mid-term (by 2027)	Community Planning and Building	55	Carmel-by-the-Sea Vulnerability Assessment [July 2021]		
Action 3.2.3. hoorporate Climate Change Adaptation into Local Plane. Privillite the update of local plane, including the Climate Change Wilherability Assessment, Local Castal Program, General Plan, Mission Trails Nature Reserve Master Plan, Bol Mar Matter Plan, Shoreline Management Plane, and drought Jahaming to promote Climate Change realises as its midiration is svaliable.	All	All	Number plans updated to incorporate adaptation	Mid-term (by 2027)	Community Planning & Building / Public Works	\$\$	Adapted from the Southern California Adaptation Planning Guide. Appendix F General Plan and Local Coastal Plan Model Policies	10%	Coastal Engineering study related Phase II received CCC grant funding

City of Carmel-by-the-Sea Long-Term Adaptation Strategies

Goal/Policy/Action	Climate Hazard	Asset	Metric	Timeframe	Implementation Lead Cost	Source	Status	Notes
Goal 1. A Healthy, Safe, and Resilient Community								
Policy 1.2. Focus adaptation efforts and engagement on the most vulnerable populations.						Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan and Local Coastal Plan Model Policies		
Action 1.2.5. Back-up Power for Vulnerable Populations. Coordinate with 3CE, PG&E, and emergency management services to establish backup power and emergency grid shutdown protocols that protect the most vulnerable populations.	h All	Elderly Population and People with Disabilities	Number of households with backup power established	Long-term (by 2032)	Police & Fire / Public \$\$\$ Works	Adapted from the Southern California Adaptation Planning Guide, Appendix 8 Matrix of Adaptation Strategies and Actions	0%	
Policy 1.3. Minimize health impacts of climate change.						Adapted from the Southern California Adaptation Planning Guide, Appendix F - General Plan, and Local Coastal Plan Model Policies		
Action 1.3.5. Improve Resilience in Existing Building Stock. Develop a program for identifying funding and incentives to weatherize residential and commercial buildings that addresses severe weather protection, energy efficiency, indoor air quality improvements, and other housing improvements. Include an outreach campaign as part of this program to advertise the benefits of weatherizing and	All	Elderly Population and People with Disabilities, Residents	Nubmer of retrofitter structures	d Long-term (by 2032)	Community Planning & Building \$\$	Adapted from the Southern California Adaptation Planning Guide. Appendix F - General Plan. and Local Coastal Plan Model Policies (City of Placentia policy) Passive House Principles.	0% 0%	
Goal 2. A Natural Environment Resilient to Climate Hazards							0,0	
Policy 2.1. Protect and restore climate-vulnerable habitat and ecosystems.						Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 2.1.7. Carmel Cove Sand Supply, Partner with local researchers (e.g., California State University Monterey Bay) or other sources t conduct Carmel Cove Sand Supply dynamics analysis.	to Sea Level Rise	Carmel Beach	Carmel Cove sand supply dynamics analysis completed	Long-term (by 2032)	Community Planning & Building and Public \$\$ Works	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	
Goal 3. Resilient Infrastructure and Built Environment								
Policy 3.1. Support greater resilience, redundancy, and reliability of local and regional infrastructure and the built environment.						Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 3.1.3. Reduce Stormwater Runoff. Reduce stormwater runoff through implementation of stormwater diversion and infiltration projects that reduce pollution problems caused by more frequent and intense storms and more extreme flooding events.	Stronger Storms	Storm Drain System, Carmel Beach	Stormwater diversion project implemented	Long-term (by 2032)	Public Works \$\$\$	Suggested by Climate Committee Members	5%	
Policy 3.2. Incorporate climate change adaptation into relevant plans and standards.						Adapted from the Southern California Adaptation Planning Guide, Appendix B Matrix of Adaptation Strategies and Actions		
Action 3.2.4. Update Shoreline Management Plan. Update Shoreline Management Plan and Local Coastal Program based on results of Sea-level Rise Vulnerability Study.	Sea Level Rise	Carmel Beach	Shoreline Management Plan and Local Coastal Program updated	Long-term (by 2032)	Community Planning & Building and Public \$\$ Works	Carmel-by-the-Sea Vulnerability Assessment (July 2021)	0%	