

DRAFT

A Resilient West Cliff, Accessible to All Roadmap

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Table of Contents

Table of Contents.....	1
Executive Summary	2
Aligning Vision	2
A Dynamic Coast	4
West Cliff Adaptation Triggers and Thresholds	6
Introduction	6
Post-disaster Projects (0-3 years)	8
Introduction	8
Projects	8
Beyond Three Years: Projects by Triggers and Thresholds.....	12
Appendices	12

Executive Summary

To be developed.

Aligning Vision

The purpose of the *Resilient West Cliff, Accessible for All* (“Roadmap”) is to develop a shared narrative about West Cliff, defined here as the area between Natural Bridges State Beach and Lighthouse Point (see Figure 1-0 in the West Cliff Drive Adaptation and Management Plan). The Roadmap contains projects and policies related to West Cliff to generate a usable, useful resource to inform City decision-making and prioritization of projects and policies in the post-disaster time period (0-3 years). City staff accomplished this by leveraging existing city resources (plans and staff expertise) and mapping those assets against available resources (state, federal and philanthropic) to put, and keep, the City on a path away from the storm damage and disasters of January 2023 and toward a resilient West Cliff, accessible for all. The Roadmap also contains information about potential triggers and thresholds, and projects the City could pursue to build and maintain long-term resilience beyond the post-disaster period. The storms of January 2023 were a stark harbinger of the constant change our coastline experiences and a reminder of the potential for increased risks faced by communities. These storms also created a window of opportunity for the City to activate staff, resources, and community assets to advance projects and develop a coordinated vision for a *Resilient West Cliff, Accessible for All*.

On November 27, 2018 City Council passed an emergency resolution stating “an existential climate emergency threatens our cities, towns, region, state, nation, civilization, humanity and the natural world”. In the resolution the City committed to “consider revising its existing policy, priorities, processes, and distribution of resources to enable emergency climate action measures in the City”. Every recent report from the Intergovernmental Panel on Climate Change (“IPCC”) to California’s Climate Change Assessment tells us we are now at a point when climate mitigation action is insufficient. As reiterated in the City’s Climate Adaptation Plan (2018), to address the impacts of climate change, the City must be prepared to implement challenging climate adaptation and resilience strategies, which include new ways of building, maintaining, funding, and engaging with the built and natural environment.

Over the past decade departments from across the City including Parks and Recreation, Water, City Manager, Public Works, Planning and Community Development, and Economic Development and Housing have adopted plans and developed projects related to West Cliff. The number of plans and level of attention this area receives is a testament to its centrality to the City’s identity and the complex interactions between economic, environmental, and social values. City staff and Farallon Strategies reviewed these plans (see Appendix A) to develop the Roadmap. These plans represent hundreds of hours of public engagement meetings and skilled

evaluation and assessment by City staff and a variety of consultants using scientifically sound data, deep community knowledge, and lived expertise.

Weaving the West Cliff Plans Together

Achieving an aligned vision for West Cliff will require building on the environmental and social dynamism of the coast and City itself. Current City plans, including the City Parks Master Plan 2030, West Cliff Drive Adaptation and Management Plan, City Climate Action Plan 2030, City Active Transportation Plan, and the City's Local Hazard Mitigation Plan 2018-2023 Update highlight the need for:

- increased accessibility along the coastal bluffs of West Cliff (City Parks Master Plan 2030);
- integration of the parks and green spaces along West Cliff adding to benefits for people and nature (City Parks Master Plan 2030);
- recognizing coastal erosion as a natural process and one in which the City will need to balance its response between accommodating through community relocation and armoring against to preserve access and community safety (West Cliff Adaptation and Management Plan);
- recognizing that ongoing coastal erosion is a significant problem along West Cliff Drive and this will continue as sea levels continue to rise (City's Local Hazard Mitigation Plan 2018-2023 Update);
- creation of active transportation networks to facilitate residents and visitors traveling safely through the West Cliff area using non-motorized transportation methods (City Climate Action Plan 2030, City Active Transportation Plan);
- recognizing seawalls and jetties have finite life spans and may have adverse effects on other parts of the coast (City's Local Hazard Mitigation Plan 2018-2023 Update);
- recognizing climate change is accelerating impacts on the natural and built environment and establishing an adaptive management approach to all City planning and programming is necessary to respond quickly and nimbly to a dynamic and changing environment (City Climate Action Plan 2030, West Cliff Adaptation and Management Plan).

Planning By The People

The City has consistently approached its planning processes focused on community voices, expertise and experience. Specifically, the City has led robust community engagement to identify preferred options for adaptive management of the coast, including one-on-one interviews with community members, virtual meetings, in-person meetings, surveys, and focus groups. During the Resilient Coast Santa Cruz Initiative, the City hosted or participated in over 50 meetings and engaged in over 1,500 conversations with the community (City's "Synthesis Summary of Outreach and Engagement"). For example, the City engaged with focus groups of department heads, technical advisory committee members, and the community to identify preferred short- and longer-term transportation management strategies for West Cliff.

A Dynamic Coast

Recovery is no longer about assuming things should be the way they were.

Federal programs from the Federal Emergency Management Agency (FEMA), Housing and Urban Development (HUD), and Federal Highway Administration (FHWA) have created mechanisms to leverage disaster declarations and emergency events to advance more resilient solutions. For example projects like “X, Y, Z” are eligible through “ABC programs”. Whereas in the past disaster recovery mandated ‘putting things back the way they were,’ new FEMA guidelines allow for changes to the physical design of infrastructure. Furthermore, areas that have suffered disaster declarations now have access to funding that allow for strategic future planning including the Building Resilient Communities (BRIC) program.

“Cliff erosion occurs frequently and there is a long history of coastal erosion along this corridor. Erosion responses have been to either relocate or to armor the eroded areas. Currently, almost 50% of West Cliff is protected by seawalls and rip-rap, of varying age and in varying condition, which currently mitigates some of the existing erosion hazards but may not be sufficient to mitigate future sea level rise hazards” (West Cliff Adaptation and Management Plan, page 13)

Coastal management is prioritizing working with nature.

Coastal management and integrated planning that incorporates, and values, natural assets and access rather than limit and control them are a growing trend, in coastal zones and beyond. FEMA recently developed a guideline report entitled [Building Community Resilience With Nature-Based Solutions](#) that highlights where NBS fit into FEMA’s existing programs, such as hazard mitigation, source water protection, and risk management. Public-private funding opportunities like the National Fish and Wildlife Foundation and [National Oceanographic and Atmospheric Administration National Coastal Resilience Fund \(NCRF\)](#) demonstrates the willingness of federal agencies and foundations to pay for planning, design, and implementation of complex NBS projects. Databases, such as the [National Wildlife Foundation’s Natural Based Solutions Database](#), show the breadth of funding opportunities for projects that couple the prioritization of nature with human social dimensions.

“The coastal bluffs along West Cliff Drive are an additional feature, attracting visitors with coastal views and providing opportunities to walk, run, bicycle, watch wildlife, as well as access to beaches and surf breaks. (City of Santa Cruz Parks Master Plan 2030 page 2.2-1)

Economic resilience is not about serving a single bottom line.

Creating spaces and opportunities that are accessible for people of all income levels and providing a sense of belonging for people from all backgrounds are necessary to achieve positive economic outcomes while building climate resilience. Creative finance solutions, like environmental impact bonds valuing stormwater management (Milwaukee, WI) or restored coastal wetlands (coastal Louisiana) can create opportunities to build economic resilience through adaptive actions. Other innovations like competitions (Oceanside, CA) can bring in new

opportunities and investors eager to help address community challenges. California is allowing for more creative economic finance mechanisms to address climate change through the establishment of Climate Resilience Districts (released in 2023) and Resilience Bonds (forthcoming) which can serve to connect resilience goals across the City by linking economic opportunities to the social and environmental values of communities.

Transportation and mobility are about moving people not about moving cars.

Embracing multimodal forms of transportation, not as alternatives, but as the primary mechanism of movement is a growing trend and one which the City is well positioned to lead. Recovery dollars available from FHWA, including formula funds like the PROTECT Program, are increasingly designed to support pedestrians, cyclist, and other non-motorized transportation methods. Expanding safe spaces for pedestrians, cyclists, and others with limited mobility along West Cliff is an important priority in the short-term recovery period and for long term resilience and accessibility of the coastal zone. Proceeding through the disaster recovery process with an intention to study any impacts and assess benefits of limiting motorized vehicles from Lighthouse Point to Natural Bridges.

“The need to create a seamless and safe active transportation network; create a robust, decarbonized reliable public transportation system; establish more affordable, denser housing; promote food recovery and composting; and enhance regenerative landscapes while prioritizing measures with co-benefits.” (City Climate Action Plan 2030, page 3)

Parks space is about community.

Embracing park space and nature as venues for active engagement and recreation is integral to the City. Residents and visitors have close relationships with the water and coastline. Ensuring park accessibility for all and minimizing built infrastructure and intervention in park space is a way to preserve the natural coastline.

“Policy A - Continue to integrate, expand and improve the connective and accessible network of parks, open spaces, and trails. ACTION 3. Help develop and implement an integrated design, land-use, recreation, cliff stabilization, and landscape plan for West Cliff and East Cliff Drives to enhance public safety, access, connectivity, preservation, and recreational enjoyment along the coastline.” (City of Santa Cruz Parks Master Plan 2030)

Planning processes are not just about reaching a permanent solution.

Just as City planning on the coast must be aligned with dynamic coastal conditions, which are exacerbated by climate change-fueled storms, sea level rise, and in-land flooding, City planning must also align with social and political shifts which recognize community resources such as West Cliff must be accessible to all as a public amenity. It is necessary for the City and its residents to recognize planning processes, especially in the coastal zone, will require iteration, with ongoing engagement and updates.

“Land use and development along West Cliff are unique. The City owns most of the land along the seaward side of West Cliff Drive except for a few private parcels, including but not limited to a private residence and two hotels. California State Parks owns and operates

Lighthouse Field State Beach, on the landward side of West Cliff Drive lies Lighthouse Field, an open space with various habitat and recreational values, as well as portions of West Cliff Drive near the Lighthouse and Natural Bridges State Beach, with both sites having seabird roosting sites as well as monarch butterfly groves. The zoning along the ocean side of West Cliff Drive is Ocean Front Recreation, which limits most development potential. Along the shoreline are a variety of beaches, rocky intertidal, and cliff roosting habitat for a variety of sensitive bird and intertidal species. Just offshore are kelp beds and offshore rocks, which provide habitat for sea otters and a host of other marine mammals. During fall and spring, it is common to observe migratory whales moving between Alaska and Mexico.” (West Cliff Adaptation and Management Plan, page 15)

West Cliff Adaptation Triggers and Thresholds

Introduction

To prepare for current and future impacts of climate change and to stay abreast of dynamic social, economic, and ecological changes, the adoption of ‘triggers’ and ‘thresholds’ to guide the prioritization and implementation of projects and plans is needed. Climate adaptation triggers and thresholds play a prominent role in recent planning and community engagement activities in the city, including the Resilient Coast Santa Cruz Initiative, the West Cliff Drive Adaptation Management Plan, coastal monitoring network, and recent student engagements and NSF research collaborations between the City and University of California, Santa Cruz (UCSC).

The use of triggers and thresholds can support planning processes which happen under uncertain future conditions. By adopting triggers and thresholds as the decision-making framework for project planning and implementation, the City will be more able to respond to changing conditions as they come. The use of triggers can help to identify when planning and permitting processes should be initiated and when adaptation action should be implemented. This condition-based action is critical when dealing with the dynamic coast.

Triggers and thresholds can derive from a range of disciplines and factors. The West Cliff Drive Adaptation and Management Plan Adaptation Alternatives Analysis, includes a framework of triggers and thresholds that include temporal, environmental, structural, and fiscal conditions:

TEMPORAL	ENVIRONMENTAL	STRUCTURAL	FISCAL
DURATION OF TEMPORARY LOSS	SEA LEVEL RISE ELEVATION	REPETITIVE LOSS	COST/BENEFIT EXCEEDANCES
FUTURE TIME HORIZON	RATE OF SEA LEVEL RISE	BLUFF FAILURE	WILLINGNESS TO PAY
INFRASTRUCTURE RESILIENCY	SALT WATER INTRUSION	LOSS OR CONDITION OF PROTECTIVE STRUCTURES	
PAST PERMITTED USE	HABITAT IMPACTS OR RESPONSE	LOSS OF SERVICE OR USES	
CUMULATIVE LOSS OF USE OR ACCESS	BEACH WIDTH	PRESCRIPTIVE SETBACKS	
	HAZARDOUS CONDITIONS		
	LOSS OF PUBLIC USE OR ACCESS		

Figure 11-1. Example Triggers

During the Resilient Coast Santa Cruz Initiative community members, leaders, staff and experts provided feedback on the tipping points and thresholds they felt were most important or pressing, as decisions would be made along West Cliff using these thresholds (see page 11-4 Adaptation Alternatives Analysis).

Today, new triggers and thresholds are being considered by the City’s sustainability staff to expand the type of change or hazards to include social and ecological triggers. Examples of social triggers include:

- sense of preparedness to address a coastal hazard;
- decline in use of recreational areas; and
- rising costs of property insurance due to flood risks.

As with any triggers, these too will require a robust monitoring plan and committed administrative buy-in by multiple departments and stakeholders in the community, to translate from theory to planning to implemented practice.

Through effective revenue development via grants and strong partnerships with local universities and experts, the City is establishing a robust monitoring network that enables the use of adaptation triggers and thresholds. This monitoring network includes direct observation of the physical conditions of the West Cliff area via field observations, drone surveys and cameras and administrative management and monitoring tools including budget analysis to evaluate repeated loss, storm damage, infrastructure repair and management, and asset use and access including days public facilities closed due to storms and number of rescues performed by

emergency response crews. Furthermore, the City couples these efforts by making an annual inspection of the coastline that informs annual budgeting.

Connecting triggers and thresholds to additional planning and regulatory documents

The use of adaptation triggers and thresholds is relatively new in public planning and regulatory approaches. However, a growing recognition of the need to address climate impacts with flexibility and iteration is leading state and federal agencies to embrace the approach. By adopting an approach to coastal management based on triggers and thresholds the City presents a long-term vision for West Cliff. This long-term vision is needed to get approval from California Coastal Commission (CCC) for the City's Local Coastal Plan (LCP). The City's current list of proposed triggers from the adaptation and Management Plan for West Cliff would allow for the presentation of a LCP that articulates the City's vision for safe, accessible, resilient West Cliff and also has specific guidelines for areas of interest across the coast. Those areas would include areas where greater attention is needed because of physical conditions, like erosion and bluff failure and also social considerations like beach access and park use.

While the LCP serves as a guiding document for where the City is heading, another regulatory document, the Local Hazard Mitigation Plan (LMHP), exists as a document that is most often referenced in weeks and months following an acute hazard event. A City equipped with a strong monitoring program and administrative and community buy-in to its triggers and thresholds based LMHP is exceptionally well equipped to respond in a rapid and forward-looking manner to acute (and chronic) hazard events.

Post-disaster Projects (0-3 years)

Introduction

As outlined in the Dynamic Coast section, West Cliff has a long history of coastal erosion. Attempts to manage this erosion through hard armoring or other interventions have proven to be temporary and costly. Disasters regularly cause interruptions in access to West Cliff and limit the ability to allow for the important discussions needed to address long-term resilience and accessibility of West Cliff. Post-disaster recovery projects should address near term access while also positioning the City and infrastructure for projects that, using the language of California Governor's Office of Emergency Services (CalOES) and FEMA, "enhance the level of protection to disaster damaged facilities from similar damages in the future." Leveraging post disaster recovery efforts to implement mitigation measures to harden, modify, or relocate the damaged facility rather than repairing it to its pre-disaster design.

Projects

Geotechnical Study of Sea Cave on the West Side of Lighthouse Point

Zone 3 - Its Beach, Point Santa Cruz, and Steamer Lane: Conduct a geotechnical study of sea cave on west side of Lighthouse Point (AEC #37). Previous studies were conducted in 2006 and 2016 with little change in sea cave. Next scheduled study is in 2026. Although not anticipated, should the study reveal an imminent risk, the City will prioritize evaluation and design of an alternative or the feasibility of relocating the Lighthouse (retreat) in the medium to longer term.

West Cliff Drive Sea Cave Stabilization

Adopted in the West Cliff Drive Public Works Plan, this project includes the design and fill of a sea cave at Stockton Ave. The project will likely be funded through a combination of grant funding to be pursued, e.g., State grants, FEMA BRIC, State Shoreline Erosion Control Grant Program for Funding in Fiscal Year 2022-23, and pre/post mitigation funding (currently unfunded).

West Cliff Drive One Way Pilot and Neighborhood Traffic Calming and Emergency Preventative Work

West Cliff Drive between Columbia Drive and Woodrow Avenue continues to provide one-way westbound (towards Natural Bridges) vehicular traffic and a temporary on-street multi-use path outside the failed bluff sections. At Bethany Curve, the bridge is closed to vehicle traffic but allows pedestrian and bicycle access. The roadway between Almar Avenue and David Way is open for “local access only” as the roadway is closed at the culvert. A detour route is posted via Delaware Avenue to circumvent the culvert.

To study the conditions, identify neighborhood traffic calming treatments, and develop recommendations for the pilot, staff have retained a transportation engineering consultant and conducted neighborhood “garage” meetings to solicit public input. An initial traffic calming installation has been identified for Oxford Way at the request of the neighborhood and as supported by collected traffic data. Vehicular volume counts conducted in February showed that approximately 2100 cars per day were using Oxford Way, instead of the signed detour route for Delaware Ave. The adjacent parallel streets, Plateau Avenue and Alta Avenue, in contrast, experienced approximately 300 cars per day. The Public Works Transportation division identified volume reduction strategies and the neighborhood selected a cul-de-sac treatment at the Bethany Curve crosswalk with a vote. The cul-de-sac will be implemented at the end of May and remain in-place for the duration of the one-way pilot. Additionally, the City will place approximately 200 tons of rip-rap to prevent further erosion due to wave action at the failure opposite of 1016 West Cliff Drive.

West Cliff Stair Repair

The repair of two stairways along West Cliff Drive was completed in FY 2022, however the City anticipates additional stair repairs. Construction was contingent on favorable tide and weather conditions. Likely stair improvements include handrail improvements, replacement of degraded concrete treads and construction of new landings.

West Cliff Drive Stabilization

To prevent damage to the West Cliff path, roadway, and utilities, this project proposes to place additional engineered rock protection and infill walls in areas that have been damaged by King tides and atmospheric rivers in recent years, as needed. In FY 2016, funding was used to repair two locations near Woodrow and a sinkhole at a retaining wall near Woodrow.

With significant damages sustained from bomb cyclone events in Winter 2023, FY 2024 priority locations for stabilization include the 900 and 1000 block of West Cliff Drive. Infill walls instead of rock protection are being considered along the areas opposite of 920, 932, 1016, and 1030 West Cliff Drive as they may be a more cost-effective and robust solution, while making it easier for a potential future connection to a larger seawall. Infill wall design is also less likely to have fugitive material displaced over time on the beach or surf. These and other areas are identified in the West Cliff Drive Adaptation and Management Plan (2021). Bethany Curve Culvert repairs is a separate stand-alone project. In addition to General Fund requests, the City continues to seek grant funds from several sources to support this project, including but not limited to FHWA, FEMA, CalOES, and the Division of Boating of Waterways.

West Cliff Bethany Curve Culvert

The culvert retaining walls, roadway, and storm drain system sustained significant damages from the Winter 2023 storm events. This project includes developing plans to replace the Bethany Curve culvert in order to maintain storm water drainage system and restore vehicle access to West Cliff Drive. Work is anticipated to include removal of damaged walls and catch basins, rehabilitation or structural reinforcement around existing culvert pipe, and replacement of roadway, pathway, and inward and seaward walls. Given the existing culvert was in place for over 100 years it is anticipated the culvert structure replacement would be in place for many decades to come. In addition to General Fund requests as a local match, the City is seeking grant funding from FHWA.

West Cliff Resiliency and Accessibility

Created in response to the atmospheric river storms events in late December 2022 – January 2023, the West Cliff Resiliency and Accessibility project seeded reserve funds for repair and post-disaster projects, along with long range planning and alignment efforts for West Cliff. Initial project work focused on transportation and infrastructure engineering. Further use of funding will be detailed in West Cliff updates to Council.

West Cliff Intersection Improvements

The Beach/SOLA Plan, and subsequently the General Plan identified traffic circulation improvements at Bay/West Cliff to reduce congestion and improve safety. This is a Traffic Impact Fee intersection and mitigation for the General Plan buildout. A mini-roundabout was approved with the Dream Inn's 190 West Cliff Drive project, and development of the 190 West Cliff Drive project will pay its fair share of the intersection improvements and dedicated right-of-way.

West Cliff Drive Multi-Use Path Pavement Rehabilitation

This project will address some of the deferred maintenance of the path surface with patching, edge repair and slurry paving of the multi-use path. The first phase from Bay to Lighthouse Field was completed in FY 2012 and the second phase from Lighthouse to John Street was completed in FY 2015. The third phase is being developed for construction in FY 2024 following the storm damage repair near Chico Ave.

Corrugated Metal Pipe (CMP) Storm Drain Pipe Replacement

Corrugated Metal Pipe (CMP) storm drain pipe has a useful life of approximately 50 years. There are several of these storm drains citywide where the pipe has corroded and collapsed, necessitating replacement with plastic pipe which has a longer useful life. Engineering and Operations staff identified the highest priority locations for replacement, which includes West Cliff Drive CMPs.

Coastal Living Shoreline, Nature Based Solutions and Sand Management Feasibility Study

The City has identified potential sites for living shorelines and nature based coastal adaptation solutions through its Resilient Coast Santa Cruz coastal climate adaptation planning initiative (2019-2022). However, this assessment is not comprehensive and a full feasibility study to understand the technical, ecological, legal, regulatory and social feasibility of these solution options needs to be conducted to integrate into the City's ongoing coastal adaptation work.

The City is seeking funding from the California Coastal Conservancy to:

- (1) conduct a feasibility study of nature based solutions (NBS) and living shorelines (LS);
- (2) evaluate the potential for using sand management techniques to replenish sand on down coast beaches;
- (3) develop conceptual designs of feasible LS, NBS and sand management techniques;
- (4) prepare virtual reality visualizations of feasible concepts in the City's Sea Level Rise Explorer application for use in equitable engagement during the project; and
- (5) identify ecological triggers and thresholds to monitor coastal ecological change and potential LS and NBS performance as well as transition to solutions which enhance and protect ecosystems.

The City has requested \$500,000 to fund this work which it anticipates to complete by the end of 2024.

West Cliff Post Storm Recovery Resiliency

The bomb cyclone event in January 2023 caused substantial damage along West Cliff Drive. Protective riprap, portions of the bike pedestrian path and road failed during the storm, forcing the City to close a section to all vehicle traffic and install a one-way vehicle road. The City has developed a Post Storm Recovery Resiliency Strategy that involves addressing near term damage repair and transitioning to a durable, longer-term solution. However, federal emergency funding will only cover a portion of the recovery. Recovery includes repairing all failed damages to riprap, path and road as well as conducting community engagement and piloting one-way concepts along the corridor. While extensive planning and engagement has been conducted to

understand regulatory paths, community preferences, and costs for feasible medium to longer term adaptation solutions, the City requires project support, additional studies and engineering to advance community supported coastal resiliency beyond status quo recovery repairs. This work includes evaluation and design of grey-green and nature-based solutions, sand management and living shorelines, ongoing engagement and integrating betterment activities into post recovery resiliency, e.g., recreational amenities and ecosystem restoration. Funding will advance West Cliff resiliency beyond the recovery phase to ensure an accessible and free coastline for residents, visitors and wildlife.

West Cliff's Mitchell's Cove Seawall Design

The purpose of the Mitchell's Cove Seawall design project is to complete all portions of design, permitting and environmental review to deliver a shovel ready seawall construction project. The proposed seawall would protect 1,600 linear feet of cliff and bluff face, adjacent bike and pedestrian path, roadway, utilities and homes on the landward side of the bluff face and bolster access, recreation, ecosystem and education function. The objectives of the seawall design project are to (1) provide durable structural stability and protection to the Mitchell's Cove area, (2) ensure and enhance recreation and access opportunities, (3) increase ecological function, (4) sustain economic activity related to recreation and tourism, and (5) offer education opportunities for residents and visitors on the coast line, its indigenous history, unique natural features and wildlife and history.

Santa Cruz Coastal Adaptation Monitoring Program

The City is developing a smart coastal change monitoring program for incorporation into its Local Coastal Plan through a targeted amendment. The coastal change monitoring program will explore and integrate social and geophysical triggers for guiding the City's implementation of priority coastal adaptation pathways. The program will be developed with a cross disciplinary team through scientific assessment of existing and potential environmental and social data and methods; community engagement and communication focused on social vulnerability and equity; and integration of science and community concerns with the City's LCP policy and implementation framework related to coastal adaptation. The goal of the project is to develop, codify and initiate deployment of a coastal change monitoring program in order to implement the City's adaptation pathways approach to coastal management in the face of climate change. The City received a \$180,000 grant from the California Coastal Commission to advance this work.

Beyond Three Years: Projects by Triggers and Thresholds

To be developed.

Appendices

To be developed.