EXECUTIVE SUMMARY

One Water Honolulu Plan

Collaborating for a thriving and climate resilient O‘ahu

CITY AND COUNTY OF HONOLULU





Executive Summary

The One Water Honolulu Plan is grounded in the idea that adapting to and reducing climate risks requires collaboration—no one City department can do this alone.

Climate resilience, the ability to withstand, recover from, and adapt to climate change impacts like extreme weather events, droughts, and rising temperatures, depends on City departments that have historically planned separately and are now planning together. The One Water Panel was formed to make that collaboration possible.

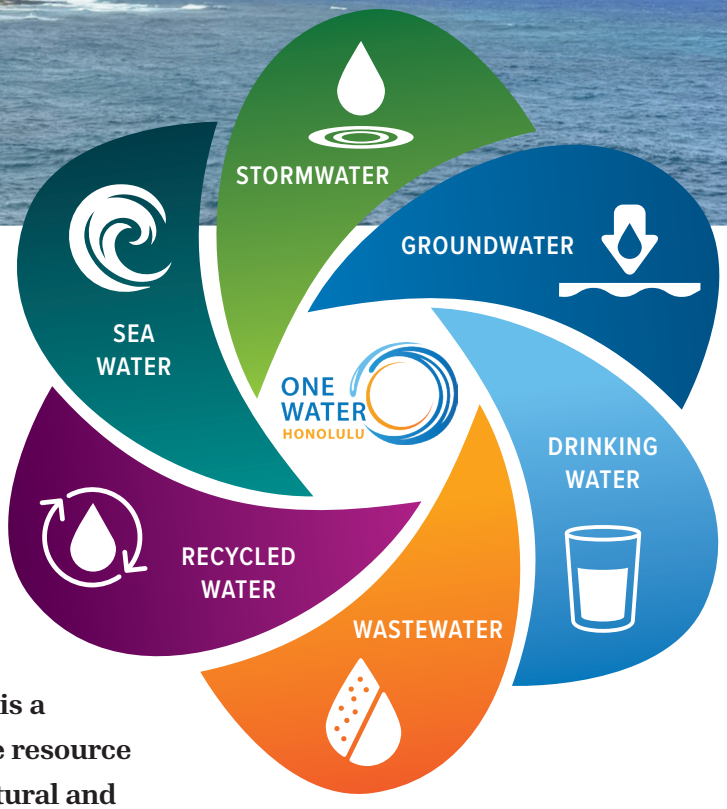
VISION

Collaborating for a thriving and climate resilient O‘ahu

MISSION

One Water Honolulu champions cost-effective and climate resilient infrastructure services and natural systems for the people, culture, and sustainability of O‘ahu through integration and innovation in planning, implementation, and maintenance.





WHY ONE WATER FOR CLIMATE ADAPTATION?

For an island community, water is at the center of planning and building for climate resilience. The City and County of Honolulu (City) is embracing a holistic approach to water and infrastructure management known as One Water to act on solutions for a Climate Ready O'ahu.

The One Water Honolulu Program (OWH Program) is a City climate adaptation initiative that aims to create resource and financial efficiencies in the face of changing natural and urban water cycles. It promotes the coordinated management of stormwater, wastewater, groundwater, seawater, drinking water, surface water, and recycled water as one integrated resource.

Elements of the OWH Program include:

- Ongoing One Water Panel efforts
- The One Water Honolulu Plan (Plan) as a living document
- Climate adaptation through a coordinated CIP
- Current and future stakeholder engagement
- Adaptive management and monitoring

The One Water Panel:

- Office of Climate Change, Sustainability and Resiliency
- Department of Planning and Permitting
- Department of Facility Maintenance
- Department of Environmental Services
- Department of Design and Construction
- Department of Parks and Recreation
- Department of Transportation Services
- Board of Water Supply

WHAT GUIDES THE ONE WATER HONOLULU PROGRAM?

One Water Honolulu builds on the City's climate resilience efforts, including the creation of the Office of Climate Change, Sustainability and Resiliency (CCSR) and the Ordinance 20-47. Ordinance 20-47, adopted in 2020, established a climate change adaptation One Water policy and an eight-agency One Water Panel (Panel) to carry out the policy. The policy helped formalize the need for coordinated action across City departments, partner agencies, the private sector, and community stakeholders. The One Water Panel advances collaboration towards aligning City projects, programs, and policies.

To this end, the Panel collaboratively developed the following objectives for the One Water Honolulu Program:

1. Practice a shared kuleana for a climate resilient O'ahu.
2. Enhance and sustain coordination to recognize interconnections and to co-create and implement projects and strategies.
3. Amplify the voices of O'ahu's people through meaningful stakeholder engagement.
4. Develop a unified roadmap and decision-making process under a One Water approach.
5. Streamline permitting processes to efficiently advance project implementation.
6. Work together to leverage resources and enable climate readiness.
7. Collectively advocate for and pursue funding to support multi-benefit projects.

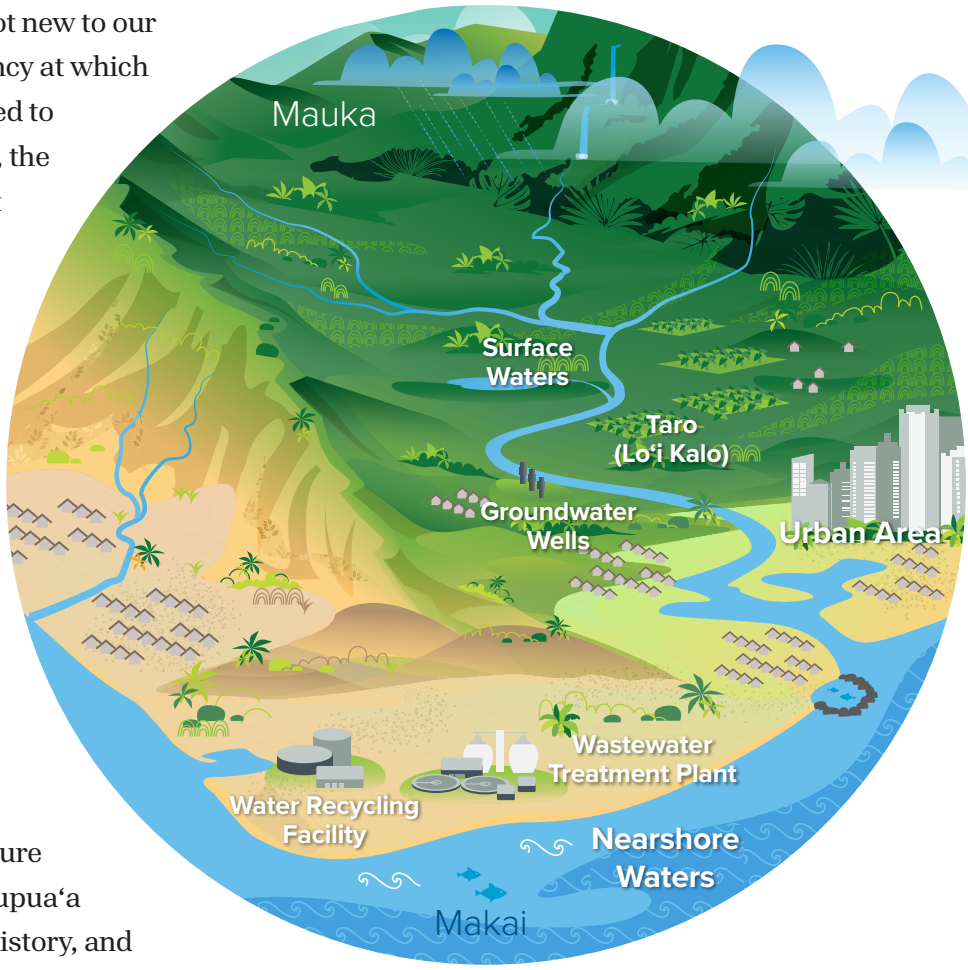
Progress to date includes an interagency coordination agreement, review of existing policies and projects to find opportunities for One Water benefits, funding and cost-sharing discussions, public outreach materials, and project and planning working groups.

Multiple efforts helped position Honolulu as a national leader in integrated water management. The One Water Honolulu Plan is the most recent step in advancing the OWH Program vision and mission.

Connecting Climate with ʻĀina and Wai

The OWH Program recognizes the holistic Hawaiian ahupuaʻa view of the natural world. Ahupuaʻa reflects a longstanding Hawaiian understanding of the relationship between ʻāina, wai, and people, from the uplands to the nearshore. Wai moves through and sustains this connected system, from the upland forest and streams to groundwater, coastal waters, and reefs. Climate change is affecting these relationships across the landscape in ways that do not follow modern jurisdictional or planning boundaries.

Although climate hazards are not new to our island, the intensity and frequency at which we experience them are expected to increase. From mauka to makai, the OWH Program is a shared effort to implement actionable steps to adapt, modernize, and maintain infrastructure, and to safeguard natural systems to enable our communities to withstand increasing climate-related impacts now and into the future.



One Water Honolulu advances projects to address climate impacts on freshwater, wastewater, and stormwater systems, integrating Native Hawaiian best practices into future adaptation. Grounded in the ahupuaʻa concept and Hawaiian values, history, and culture, this approach guides sustainable behaviors and water cycle investments to strengthen services for our communities.

WHY THE ONE WATER HONOLULU PLAN?

As a key component of the overall OWH Program, the Plan provides an adaptive management process and a set of defined projects.

The Plan is guided by the policy goals of the City's Climate Ready O'ahu strategy and takes further direction from the work of the Climate Change Commission. All City departments and agencies have been directed to use the Commission's Guidance in planning, programs, and capital improvement decisions.

The challenges we're facing in our watersheds and coastal ecosystems are inextricably linked to land use practices within City jurisdiction. Cooperation is key to addressing these issues. The City's jurisdiction covers drinking water, wastewater, stormwater, groundwater, surface water, and recycled water systems. Groundwater remains the island's only drinking water source. Wastewater and stormwater systems protect public health, nearshore waters, reefs, aquifers, roads, communities, and public safety.

Healthy watersheds, from mauka to makai, are also critical infrastructure because they regulate flows, protect water quality, reduce runoff, and buffer communities from climate impacts. Conservation of terrestrial and marine ecosystems falls primarily to State and federal agencies, however climate impacts cross boundaries at the places that matter most, shorelines and watersheds, where outcomes depend on land use practices under City jurisdiction. Cooperation among City agencies and across those lines is now fundamental to advancing resilience and building multi-benefit infrastructure.

The One Water Honolulu Plan provides a coordinated roadmap to increase resilience of City infrastructure. The Plan is intended to be a living, dynamic document that helps advance the OWH Program overarching vision, mission, and objectives.



Climate hazards can manifest as too much and too little water. Both extremes are considered within the priority hazards addressed in the Plan.

HAZARD	IMPACTS
Sea level rise	Coastal flooding, rising groundwater beneath inland neighborhoods, loss of shoreline and beach access
Heavy rain	Drainage systems capacity exceeded, stream flooding, runoff carrying sediment and pollutants to nearshore waters
Drought	Less aquifer recharge, greater irrigation demand, stressed streams and watersheds
Wildfire	Loss of watershed vegetation, followed by erosion and degraded water quality downstream
Extreme heat	Higher water demand, added stress on communities and infrastructure with the least shade and tree canopy
Hurricanes including storm surge	Combined wind, rainfall, and coastal flooding; power loss disabling pump stations and treatment plants
Tsunami	Rapid inundation of coastal infrastructure, treatment facilities, and evacuation routes

WHAT'S IN THE PLAN?

The Plan includes the following elements:

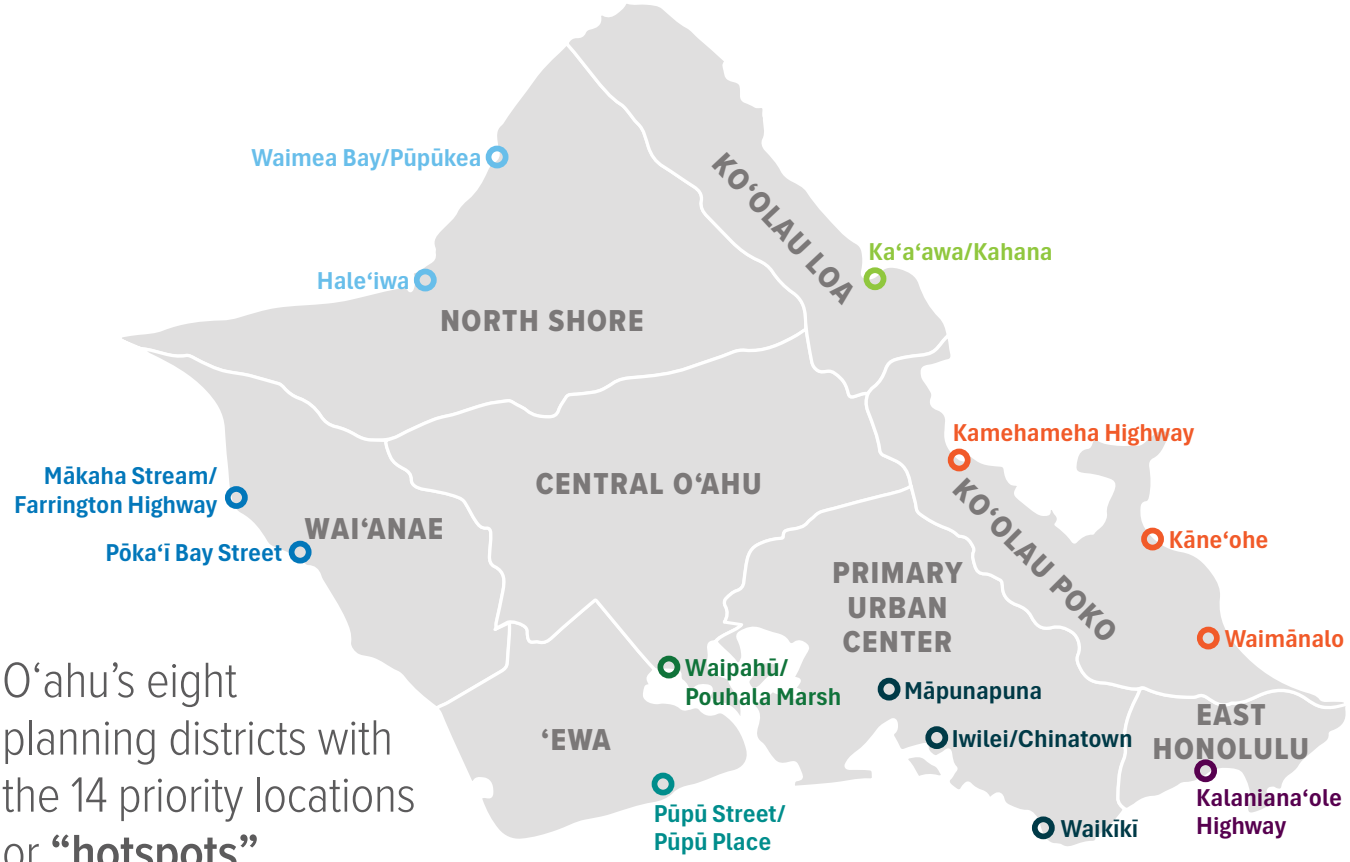
A Collaboration Framework	A set of recommendations and repeatable processes to identify who works together and how collaboration is sustained. • Recommended actions • Stakeholder identification & engagement strategies • Recommended processes
A Climate Change Adaptation Framework	A structured process that can be repeated to find where investment is needed most. • 14 priority locations- where climate risk to City water infrastructure and communities is highest, identified from an islandwide screening. • 49 recommended projects – organized into near-, mid-, and long-term timeframes, each with a proposed lead agency.
A Funding Strategy	Options to fund, sequence, and sustain project implementation
Implementation Guidance	Plan components that provide guidance for advancing the OWH Program and project implementation • Trigger-based Implementation Plan • Governance Strategies, Policies, and Recommended Actions • Private Development Guidelines

The Plan is an early step in connecting the people and the methods to advance the OWH vision. Outcomes from the above listed Plan components help answer: What needs to be done and when? Who needs to work together and how? And how can recommendations get funded and implemented? All essential pieces of a coordinated roadmap towards a climate resilient Oʻahu.

Regional Priorities and Place-Based Planning

Climate change reaches every part of O‘ahu, but it does not impact every region and community the same way. How climate hazards may impact Waikīkī is not necessarily how they impact Wai‘anae, and the solutions to overcome or avoid these impacts may not be the same.

However, there are opportunities to understand similarities across areas within regions that could enable implementing similar adaptation strategies depending on the climate hazard, land use, and area characteristics.



O‘ahu’s eight planning districts with the 14 priority locations or **“hotspots”**

Profiles were developed for each of O‘ahu’s eight districts: North Shore, Ko‘olau Loa, Ko‘olau Poko, East Honolulu, Primary Urban Center (PUC), Central O‘ahu, ‘Ewa, and Wai‘anae. These profiles connect One Water recommendations to the local land use patterns, infrastructure needs, cultural values, water conditions, and climate vulnerabilities for each region.

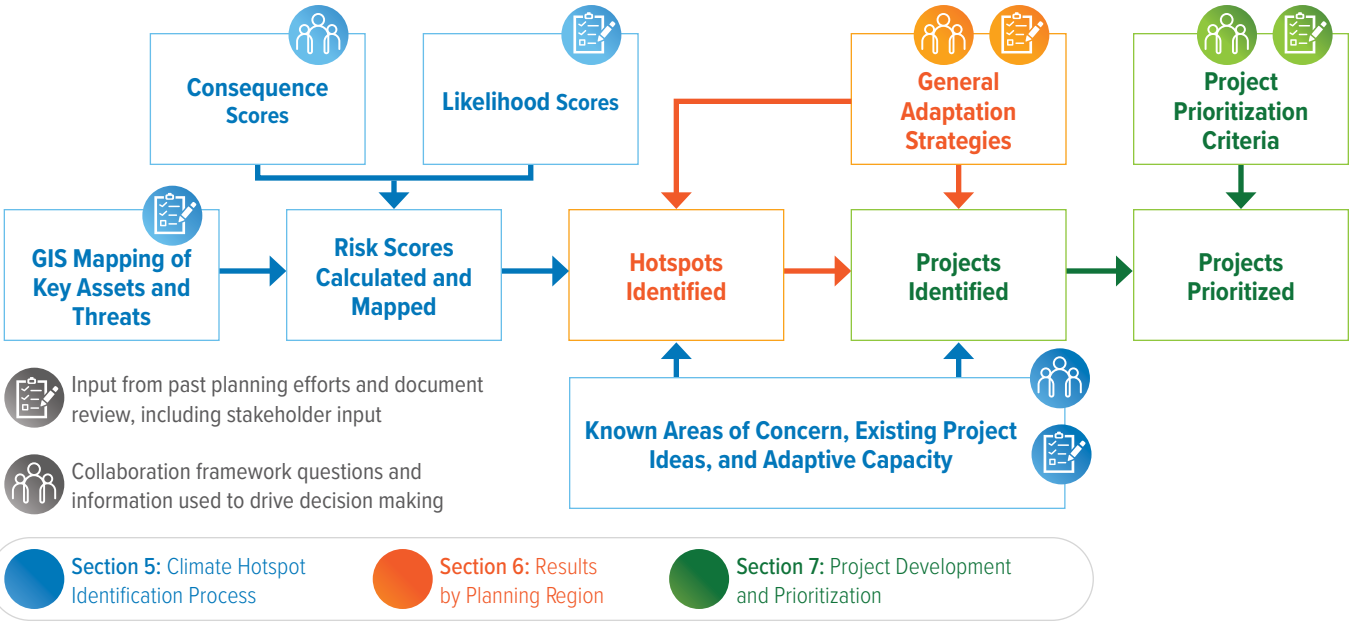
Regional differences matter for implementation, despite common islandwide needs. Densely developed urban areas face aging infrastructure, drainage built for milder rainfall patterns, urban heat, and sea level rise challenges. Rural and coastal areas face shoreline erosion that threatens the only road in or out, irrigation demand competing with limited fresh water, and stream and nearshore water quality shaped by agricultural and urban land uses upstream.



Collaboration and Climate Change Adaptation to Reduce Climate Risks

The Collaboration and Climate Change Adaptation Frameworks were developed to guide the City in how departments work together to identify and address climate risks across the regions.

The figure below summarizes the following process: To decide where to act first, more than 500,000 City assets (pipes, pumps, wells, treatment facilities, and roads) were screened for impacts from O'ahu's top climate hazards through GIS Mapping of Key Assets and Threats. Each asset received Likelihood Scores, reflecting how likely it is to be impacted, and Consequence Scores, reflecting how serious the effects would be if it failed. Together these produced Risk Scores that were calculated and mapped islandwide. Risk Scores were then combined with Known Areas of Concern, such as locations with recurring flooding, longstanding water quality issues, infrastructure gaps, and cultural resources at risk. These were also combined with efforts already underway to address climate risks identified through Existing Project Ideas and Adaptive Capacity. Analysis and collaborative decision making across City staff supported identification of Hotspots, from which projects were identified and prioritized. The project prioritization process involved identifying adaptation strategies and developing and applying prioritization criteria based on collaborative workshops and City discussions. Further details can be found in Sections 5, 6, and 7.



The guidance provided by these frameworks resulted in 92 areas of concern across the island, which were narrowed to 14 priority locations (Hotspots) where risk to infrastructure, community need, and City readiness converge most strongly:

REGION	PRIORITY LOCATION
North Shore	Haleʻiwa; Waimea Bay/Pūpūkea
Koʻolau Loa	Kaʻaʻawa/Kahana; Kamehameha Highway
Koʻolau Poko	Kāneʻohe; Waimānalo
East Honolulu	Kalanianaʻole Highway
Primary Urban Center	Waikīkī; Iwilei/Chinatown; Māpunapuna
Central Oʻahu	Waipahū/Pouhala Marsh
ʻEwa	Pūpū Street/Pūpū Place
Waiʻanae	Pōkaʻī Bay Street; Mākaha Stream/Farrington Highway

These locations provide the starting point where projects, policies, and actions can be developed to foster climate resilience across the City's departments and the communities they serve.

Outcomes: Recommended Projects

Every planning region has at least one project, and nine projects apply islandwide- most of these being near-term plans, studies, or programs.

Many near-term projects relate to ongoing City efforts, using this opportunity to build in collaboration and multiple benefits at the onset of projects and drawing the projects together under a single One Water framework. The full project list, with scores, timeframes, and proposed lead agencies, is in Section 7, and individual project factsheets are in Appendix H.

The Plan translates regional priorities and climate risk results into collaboratively developed goals, adaptation strategies, project concepts, policies, and actions for each priority location. Goals are organized around people (empowered and prepared people), ʻāina (safeguarded and stewarded ʻāina, including the management of wai), and safe and reliable infrastructure to ensure that project development reflects the resilience goals that are championed across City policies and programs.

Projects in this Plan were screened for alignment with Climate Ready Oʻahu strategies and One Water objectives, and scored based on criteria including the level of resilience, scale of impact, social vulnerability index, and community benefits. Details on the criteria and prioritization process can be found in Section 7.

The Plan recommends **49** projects

24 near-term projects to begin within the next **10** years

15 mid-term projects for the following **10** to **25** years

10 long-term projects



The recommended projects advance in part due to available funding and financing. Funding and financing strategies help determine the pace and sequence of implementation by identifying which projects can be advanced through existing programs and funding sources, which require external grants or partnerships and which may depend on future revenue sources, financing tools, or climate triggered capital investment.

The Plan connects recommended projects to existing and potential capital investments and uses regulatory, financial, and physical triggers (trigger-based implementation guidance) to help determine when actions should advance. This approach allows the City to act early where near-term benefits are clear while preparing for more transformative adaptation as conditions change. The OWH Panel and Leadership Group will need to discuss and agree upon suggested triggers that are sufficiently conservative, both currently and as conditions change, to help monitor when actions should be taken for OWH projects.

OUTCOMES: GOVERNANCE STRATEGIES, POLICIES, AND ACTIONS

Projects alone will not deliver resilience. A series of governance strategies, policies, and actions are also recommended in this Plan. These recommendations support project implementation and the progression of the OWH Program. The OWH Program is expected to mature through all of its components (listed on Page ES-2) to advance in planning, organizational culture, stakeholder engagement, informed actions, and monitoring. The full list of recommended governance strategies and actions can be found in Section 8.

The following tables provide an overview of the implementation plan elements summarized by hazard. Each of these elements is presented in more detail in Section 8.

SEA LEVEL RISE

Recommended Policy	Establish an institutional framework for sea level rise adaptation, incorporating forecasting, trigger-based actions, infrastructure hardening, flood control, and strategic retreat managed through innovative financing mechanisms under a unified One Water management model.	
Projects	**Near Term (2026-2035)**	• Road Raising Strategy (Islandwide) • Managed Retreat Legal and Policy Investigation Study (Islandwide) • Expand Tidal Groundwater Well Monitoring Network (Islandwide) • Adapt Waikīkī Phase 2 (PUC) • Iwilei Area Adaptation Plan (PUC) • Māpunapuna Area Adaptation Plan (PUC)
	Mid Term (2035-2050)	• Haleʻiwa Area Adaptation Plan (North Shore) • Beach Park Erosion and Flood Resilience (Koʻolau Loa) • Coastal Management Plan for Erosion and Flooding (Koʻolau Poko) • Māpunapuna Flood Improvements (PUC) • Kapālama Canal Linear Park (PUC) • Resilience Corridors and Road Raising (PUC)
	Long Term (Beyond 2050)	• Resilience Corridor and Pedestrian Accessibility Study (Koʻolau Poko) • Regional Shoreline Adaptation (East Honolulu) • Long-Range Post-Retreat Study (ʻEwa) • Raise Main Arterials Further Inland (ʻEwa) • Dry Flood Proof Waiʻanae High Risk Areas (Waiʻanae)
Suggested Triggers	**SLR Flooding**	• Greater than 4 inches of inundation occurring during king tides (6x per year) [Review trigger as part of OWH Project Road Raising Strategy] • Greater than 6 inches of inundation occurring during annual high-wave flooding [Review trigger as part of OWH Project Road Raising Strategy]
	Shallow and Emergent Groundwater	Groundwater levels indicate the groundwater table is less than 5 ft below grade surface [Review trigger as part of OWH Project Expand Tidal Groundwater Well Monitoring Network]
	Coastal Erosion	Increasing trend in reported damage incidents and cumulative repair costs exceeds agreed-upon threshold (to be determined)
Adaptation Strategy Checklist	Figure 8-4. Checklist for Sea Level Rise Hazard	

DROUGHT

Recommended Policy	Refine drought emergency response and preparedness plans and improve forecasting and monitoring systems. Support with diversified, climate resilient water infrastructure and expanded water conservation, reuse and watershed management programs.	
Projects	**Near Term (2026-2035)**	• Reuse Strategy for Redevelopment Areas (Islandwide) • Expand Non-Potable Water to Large Parks and Water Loss Control (Islandwide) • Waimānalo Effluent R-1 Reuse Feasibility Study (Koʻolau Poko) • New Aloha Stadium Entertainment District (NASED) Regulatory Requirements for Reuse (PUC) • Ala Wai Golf Course Non-Potable Irrigation Study (PUC) • Nuʻuanu Reservoir Hydro Managed Aquifer Recharge (PUC) • Reuse and Potable Water Services for Whitmore Agriculture (Central Oʻahu) • Central Oʻahu Water Recycling Facilities, Mililani (Central Oʻahu) • Potable Reuse Pilot at Honouliuli (ʻEwa)
	Mid Term (2035-2050)	• Stormwater Retention, Recharge, and Reuse in Mauka Lands (North Shore) • Marine Corps Base Hawaiʻi (MCBH) R-1 Recycled Water Upgrade (Koʻolau Poko) • Honouliuli R-1 Distribution System Expansion (Central Oʻahu)
	Long Term (Beyond 2050)	• State Agriculture Water System Connection to Future R-1 (Koʻolau Poko)
Suggested Triggers	Recurring Water Shortage Caution Conditions (Stage 1) Recurring Water Shortage Alert Conditions (Stage 2) Recurring Water Shortage Critical Conditions (Stage 3) 12 months with 12-month Standardized Precipitation Index (SPI) <-0.8 (D1-D2: Moderate to Severe Drought) 12 months with 12-month SPI <-1.6 (D3-D4: Extreme to Exceptional Drought) 24 months with 12-month SPI <0.8 (Persistent D1-D2: Moderate to Severe Drought)	
Adaptation Strategy Checklist	Figure 8-5. Checklist for Drought Hazard	

HEAVY RAIN

Recommended Policy		Develop and implement the Stormwater Master Plan to help improve and maintain the City's drainage infrastructure to protect life, public health, property and repetitive loss areas from flood hazards, and adopt the Stormwater Fee to finance drainage and stormwater green infrastructure projects.
Projects	**Near Term (2026-2035)**	• Stormwater Master Plan (Islandwide) • Green Infrastructure Implementation Plan (Islandwide) • Stormwater Utility Fee (Islandwide) • Onsite Stormwater Management Incentives (Islandwide) • Country Town Resilient Sidewalk & Path Improvements for Unimproved Roadways (Islandwide) • University Avenue Urban Complete Streets and Green Infrastructure (PUC) • Iwilei Area Adaptation Plan (PUC) • Māpunapuna Area Adaptation Plan (PUC) • Adapt Waikīkī Phase 2 (PUC) • Ala Wai Watershed Integrated Stormwater Management (PUC)
	Mid Term (2035-2050)	• Projects from the Integrated Plan (Islandwide) • Haleʻiwa Area Adaptation Plan (North Shore) • Stormwater Retention, Recharge, and Reuse in Mauka Lands (North Shore) • Stormwater Retention along Kamoʻoaliʻi Stream (Koʻolau Poko) • Waimānalo Roads Drainage Study and Improvements (Koʻolau Poko) • Kahawai Stream Restoration Strategy (Koʻolau Poko) • Stream Restoration and Rehabilitation (East Honolulu) • Pilot Floodable Spaces (PUC) • Iwilei Drainage Improvements (PUC) • Resilience Corridors and Road Raising (PUC)
	Long Term (Beyond 2050)	• Increase Green Infrastructure and Green Space (Waiʻanae) • Dry Flood Proof Waiʻanae High Risk Areas (Waiʻanae) • Mākaha Roads Drainage Study and Improvements (Waiʻanae) • Mākaha Stormwater Infrastructure (Waiʻanae)

Suggested Triggers	• Greater than 4 inches of inundation occurring on roadways more than 2x in 5 years. • More than 2 flooding events in 10 years exceeding the expected recurrence interval. • Observed rainfall events over 10 years exceed Atlas 14 precipitation intensities by 5% • Observed rainfall events over 10 years exceed Atlas 14 precipitation intensities by 15%
Adaptation Strategy Checklist	Figure 8-6. Checklist for Heavy Rain Hazard

EXTREME HEAT

Recommended Policy	Require major public facilities, transit areas, schools, parks, and affordable housing projects to analyze heat impacts to human health and infrastructure functionality, and to provide options for heat reduction by incorporating measures such as increasing shading of parking lots and streets, considering cooling solutions for roadway surfaces, and increasing tree planting and ground cover.	
Projects	**Near Term (2026-2035)**	• Green Infrastructure Implementation Plan (Islandwide) • Country Town Resilient Sidewalk & Path Improvements for Unimproved Roadways (Islandwide) • Iwilei Area Adaptation Plan (PUC) • Māpunapuna Area Adaptation Plan (PUC) • University Avenue Urban Complete Streets and Green Infrastructure (PUC)
	Mid Term (2035-2050)	• Hale‘iwa Area Adaptation Plan (North Shore) • Resilience Corridors and Road Raising (PUC)
	Long Term (Beyond 2050)	• Increase Green Infrastructure and Green Space (Wai‘anae)
Suggested Triggers	• More than 5 days/year with a Wet Bulb Globe Temperature (WBGT) above 80°F • One Heat Event or Greater than 3 days/year with WBGT above 85°F	
Adaptation Strategy Checklist	Figure 8-7. Checklist for Extreme Heat Hazard	

WILDFIRE

Recommended Policy	Develop, formalize and regularly update an action plan for proactive wildfire management, community planning, risk mitigation, emergency response, resilient infrastructure hardening, and community partnerships.	
Projects	**Near Term (2026-2035)**	• Develop Cooperative Fireshed Partnerships (Wai‘anae)
	Mid Term (2035-2050)	• Hale‘iwa Area Adaptation Plan (North Shore)
	Long Term (Beyond 2050)	• No current projects identified
Suggested Triggers	• New Very High Risk areas • New High Risk areas • New Medium Risk areas • Number of ignitions increases by 10%	
Adaptation Strategy Checklist	Figure 8-8. Checklist for Wildfire Hazard	

Funding and Financing

Implementation of the One Water Honolulu Plan in the near term will rely primarily on existing City capital planning and funding processes while building the governance, institutional capacity, and funding tools needed to support long-term climate resilience.

Although this Plan does not seek to establish a separate capital program, that remains an option to consider in future efforts and/or Plan revisions. For now, One Water projects will be programmed, prioritized, and funded through participating departments' existing Capital Improvement Programs (CIPs), budgets, and implementation processes in the near-term and perhaps mid-term. Climate resilience priorities must therefore be integrated into departmental planning, CIP development, and Citywide budgeting decisions if One Water goals are to be achieved.

A funding assessment was conducted as part of this Plan (further details in Section 8 and Appendix K) and identified several barriers to implementation:

- Funding and capital planning remain fragmented across departments, climate adaptation investments compete with other infrastructure and operational priorities, and multi-benefit resilience projects often span multiple agencies without fitting neatly into existing funding programs.
- Grant development efforts are decentralized, and the City currently lacks an established funding structure dedicated to coordinating cross-department resilience investments.

One Water projects generate benefits across multiple departments and infrastructure systems, creating challenges related to funding responsibility, cost sharing, ownership, and long-term operations and maintenance.

As a result, adaptation investments often compete with aging infrastructure replacement, regulatory requirements, and other community priorities.



FUNDING ENVIRONMENT: OPPORTUNITIES AND CHALLENGES

Honolulu faces interconnected challenges related to limited funding capacity, workforce constraints, fragmented responsibilities, and the absence of dedicated resilience funding sources for One Water projects. The good news is that many of the near-term projects identified in the Plan are already aligned with existing departmental priorities. The City is already investing in flood management, water supply reliability, watershed protection, infrastructure replacement, and adaptation planning projects that contribute to resilience objectives. The One Water Honolulu Plan builds upon these existing efforts by bringing them together under a coordinated framework that identifies shared benefits, strengthens collaboration, and supports long-term resilience outcomes.

The City may be able to access a diverse portfolio of external funding opportunities that align well with One Water priorities, including grants, low-interest financing, and technical assistance programs from EPA, FEMA, U.S. Bureau of Reclamation, USDA, NOAA, and the State of Hawai‘i. **Despite these opportunities, projected climate adaptation needs are anticipated to exceed currently available funding.**

Existing funding mechanisms, including General Fund appropriations, CIP funding, bond financing, utility revenues, state appropriations, grants, and loan programs, have successfully supported traditional infrastructure investments but were not designed to advance integrated, multi-agency resilience projects.

STRATEGIC FUNDING DIRECTION

While a variety of funding tools are available, stronger coordination, prioritization, grant management, and long-term investment planning are needed to address the scale of future climate resilience needs. The recommended strategy is to continue to advance near-term, priority resilience projects through existing funding mechanisms while building the institutional framework required for long-term implementation.

KEY ACTIONS INCLUDE:

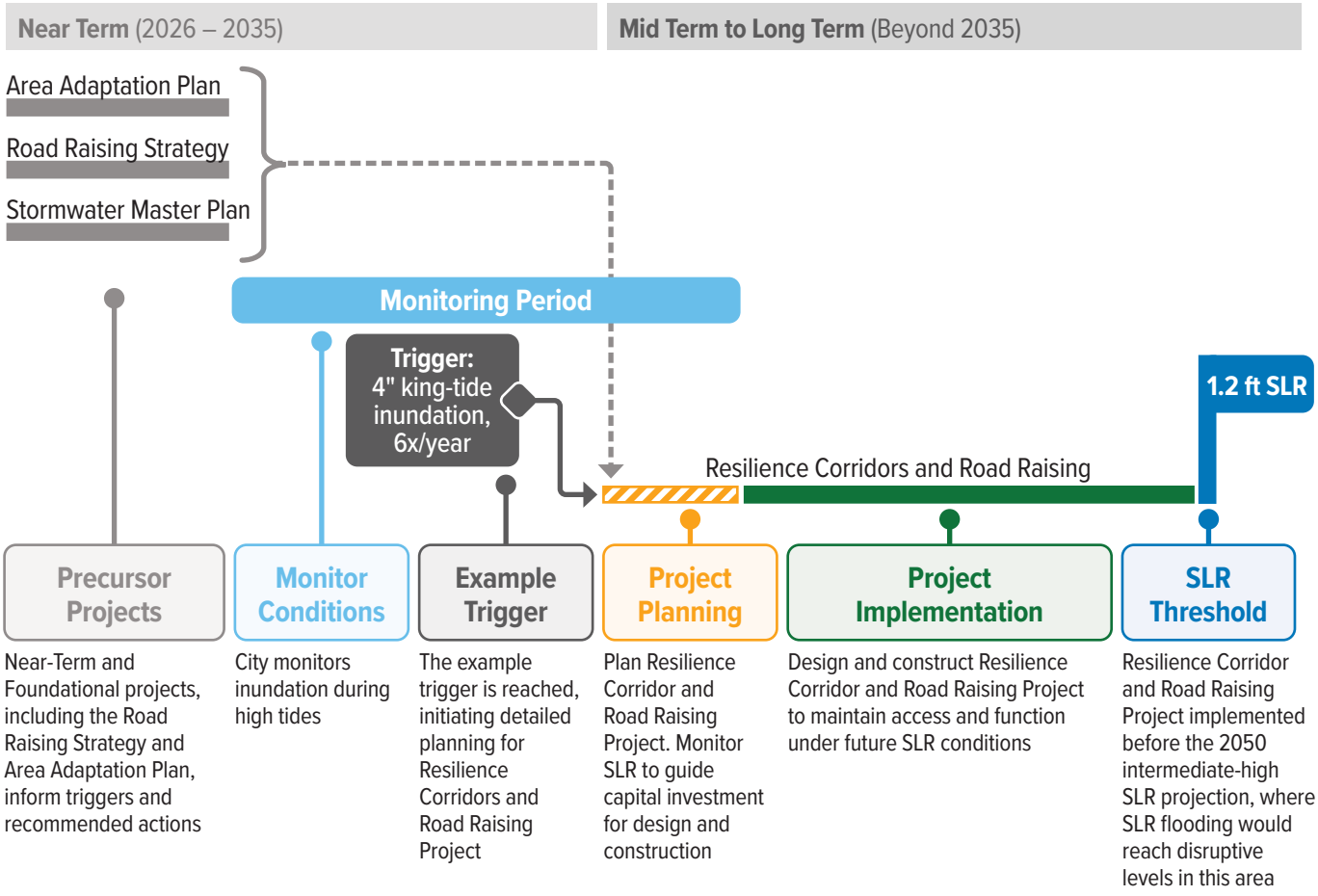
- Establishing a coordinated One Water funding and CIP working group.
- Integrating climate resilience screening and budget tagging into capital planning and budgeting processes.
- Improving project readiness, grant coordination, and prioritization of multi-benefit projects, while evaluating opportunities for project packaging.
- Strengthening cross-department cost-sharing, project ownership, and long-term operations and maintenance planning.
- Evaluating dedicated funding and financing mechanisms, including expanding the use of existing mechanisms, to support future resilience investments.



Moving from Plan to Action

By aligning City agencies, partner organizations, private development, and community concerns, the Plan provides a roadmap for coordinated projects, policies, actions, funding options, and adaptive decision-making that can strengthen O‘ahu’s long-term climate resilience. The projects, policies, and actions identified herein are a starting point for the City, with guidance provided for funding and implementation that can be replicated for future projects.

Understanding how to sequence projects and interconnected processes forms a key foundation of this roadmap. Below is an example of the implementation process where triggers are applied to adaptation projects to help identify when a project should be planned and implemented to avoid adverse climate change impacts. Moving forward, the Panel will need to discuss and decide on which triggers and thresholds should be used to enable proactive adaptation and a more climate resilient O‘ahu.



A sequence of projects for each regional planning district provides the collective roadmap and supports the collaboration and timing of project implementation. Further guidance is provided through checklists for adaptation strategies for each climate hazard to support a replicable process for future project development and to understand potential triggers that may require a shift in what kinds of actions are taken to adapt to climate risks. This Plan delivers the analysis, the project list, and the frameworks. The One Water Honolulu Program will carry out this Plan.

Advancing the recommended next steps is part of building a stronger One Water Honolulu Program. A stronger program, in turn, enables the City and its stakeholders to better work together towards a climate ready O‘ahu.



THE FOLLOWING ARE RECOMMENDED NEXT STEPS



PRESENT – 3 YEARS

- Review and decide on climate condition thresholds to avoid for (e.g., specific sea level to avoid) and agree on initial triggers to monitor these conditions.
- Establish and continuously carry out monitoring of triggers for specific areas and projects.
- Continue leveraging concurrent stakeholder engagement efforts and consider key themes from the community in the OWH Program and related efforts moving forward.
- Consider implementing and formalizing the recommended program-level and project-specific processes in Appendix A (Collaboration Framework).
- Consider the provided islandwide profile and Regional District Profiles in other near-term climate adaptation efforts and in near-term development of One Water projects.
- Consider the prioritized hotspots in other near-term relevant efforts.
- Consider the risk scores and known areas of concern information in other near-term relevant efforts.
- Implement Governance Strategies supporting actions recommended for the Present – 3 Years timeframe *(refer to Section 8.1 for the list of actions)*.

3 – 5 YEARS

- Implement Governance Strategies supporting actions recommended for the 3 – 5 Years timeframe *(refer to Section 8.1 for the list of actions)*.

5 – 10 YEARS

- Update the islandwide profile and Regional District Profiles as necessary based on changing conditions and in future Plan updates.
- Repeat the provided prioritization process for future prioritization of hotspots as needed.
- Repeat this project development and prioritization process as needed and in future Plan updates.
- Develop the 10-Year update of the OWH Plan.

ONGOING (PRESENT – 25+ YEARS)

- Implement near-term, mid-term, and long-term recommended OWH policies, projects, plans, studies, and programs.
  - Advance project implementation through funding, feasibility analysis, or further scoping.
- Update the islandwide profile and Regional District Profiles as necessary based on changing conditions and in future Plan updates.
- Utilize the One Water Implementation Plan guidance including triggers, project sequencing, checklists, and funding strategy to inform decisions and formalize an institutional framework.
- Throughout the One Water Honolulu Program, pursue timely engagement of stakeholder groups — informed by aligning major decisions and actions.
- Implement Governance Strategies supporting actions recommended as Ongoing *(refer to Section 8.1 for the list of actions)*.

Closing Perspective

The impacts of climate change on O‘ahu’s water infrastructure and our island community were the primary driver for this Plan. Climate impacts involve too much or too little water, and by managing water in all its forms through a One Water lens, we can collectively help strengthen O‘ahu’s resilience for future generations.

An important outcome of this effort was the development of a proposed and repeatable City framework for collaboration and adaptation.

This Plan is a key early step in advancing the OWH Program and bolstering program elements including:

- Ongoing One Water Panel efforts
- One Water Planning
- Climate adaptation through a coordinated CIP
- Current and future stakeholder engagement
- Adaptive management and monitoring

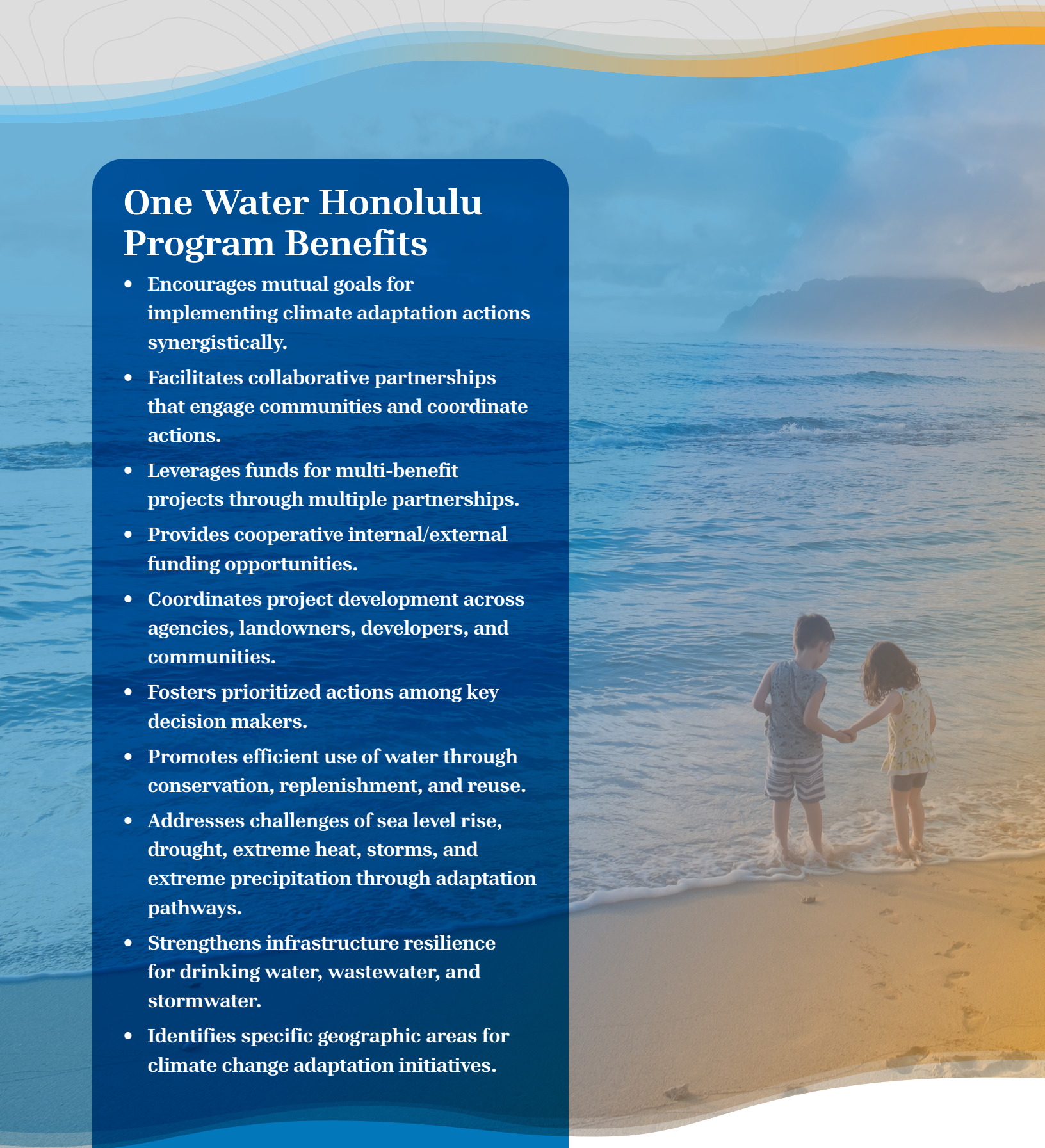
Success will depend on sustained collaboration, continued community engagement, reliable funding, coordinated decision-making, and the ability to adjust as climate conditions, community needs, and implementation opportunities evolve.

By working together to advance the City’s climate resilience strategy, One Water Honolulu supports the broader recognition that a climate ready O‘ahu is one where:

- all people are empowered with the knowledge, tools, and resources to prepare for climate impacts,
- connections between people and native ecosystems are cultivated so the ‘āina (land and natural systems, including water) is safeguarded for generations to come, and
- infrastructure works with natural systems to keep people safe from climate hazards at home, at work, and everywhere in between.

One Water Honolulu Program Benefits

- Encourages mutual goals for implementing climate adaptation actions synergistically.
- Facilitates collaborative partnerships that engage communities and coordinate actions.
- Leverages funds for multi-benefit projects through multiple partnerships.
- Provides cooperative internal/external funding opportunities.
- Coordinates project development across agencies, landowners, developers, and communities.
- Fosters prioritized actions among key decision makers.
- Promotes efficient use of water through conservation, replenishment, and reuse.
- Addresses challenges of sea level rise, drought, extreme heat, storms, and extreme precipitation through adaptation pathways.
- Strengthens infrastructure resilience for drinking water, wastewater, and stormwater.
- Identifies specific geographic areas for climate change adaptation initiatives.



READER'S GUIDE: HOW TO USE THE PLAN AND APPENDICES

The Plan provides concise narrative, key findings, recommended projects, policies, actions, and a roadmap for implementation. The appendices provide supporting documentation of technical methods, regional planning informational details, project development process, proposed sequence for project implementation, and funding options.

The table below shows what readers can find within each major part of the Plan.

PLAN SECTIONS	WHAT CAN YOU USE THIS FOR?	SUPPORTING APPENDICES
SECTIONS 1–2: Purpose, governance, and collaboration	Understand the One Water approach, coordination structure, recommended stakeholder engagement, and program- and project-level collaboration tools and processes.	Appendix A
SECTIONS 3–4: Climate, water systems, data, and regional context	Be able to trace islandwide and regional findings to the data review, data gaps, planning context, and detailed regional summaries.	Appendices B and C
SECTIONS 5–6: Risk screening, hotspot identification, and priority location goals	Find information on the climate risk screening methodology and approach, including incorporation of community themes and known areas of concern to identify hotspots and detailed priority location profiles.	Appendices D, E, and F
SECTION 7: Project development, prioritization, policies, and actions	See how identified hotspots (priority locations) and collaboratively developed goals guide the development of projects.	Appendices G and H
SECTION 8: Implementation, triggers, CIP alignment, and funding	See which policies and governance strategies can advance implementation. Understand how projects, policies, and actions move toward funding, delivery, monitoring, operations, maintenance, and long-term stewardship.	Appendices I and K

LEGEND: Collaboration Framework Climate Change Adaptation Framework Implementation Guidance

WHAT GUIDES OUR ACTIONS

Community | ʻĀina | Wai | Infrastructure

Our actions work toward a resilient natural and built environment for our communities and ʻāina. These actions enable us to advance projects to address climate impacts on City infrastructure, including water, wastewater, stormwater, roads, and facilities. The One Water Honolulu Plan is a holistic and collaborative approach to investing in infrastructure across our water cycle that will improve critical services for our communities.

Download the One Water Honolulu Plan and track our implementation progress at **www.onewaterhonolulu.org**.

One Water Honolulu Plan

www.onewaterhonolulu.org