

Post Disaster Recovery and Reconstruction Plan



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What is a PDRRP?

- ▶ It is a *blueprint* for rebuilding that states redevelopment **vision**, goals and the policies, operational strategies, roles, responsibilities for the **actions** to be taken post disaster.
- ▶ The benefits of a PDRRP include:
 - ▶ Avoids ad hoc planning after a shock
 - ▶ Promotes stakeholder engagement in vision and plan
 - ▶ Maximizes funding sources
 - ▶ Allows for a faster recovery
 - ▶ Improves staff capacity to prepare, respond and recover



Key West Recovery Vision Statement

CITY OF KEY WEST'S VISION & MISSION

“A tropical island with unique character in harmony with the diversity of its people and with its environment” with a mission to “preserve and protect our island.”



RECOVERY & RECONSTRUCTION VISION

“Key West is a resilient, self-sustaining island community with modern infrastructure, a sustainable natural environment, and a prosperous economy for all.”



Flood and Sea Level Rise

Select a Region:
Florida Keys

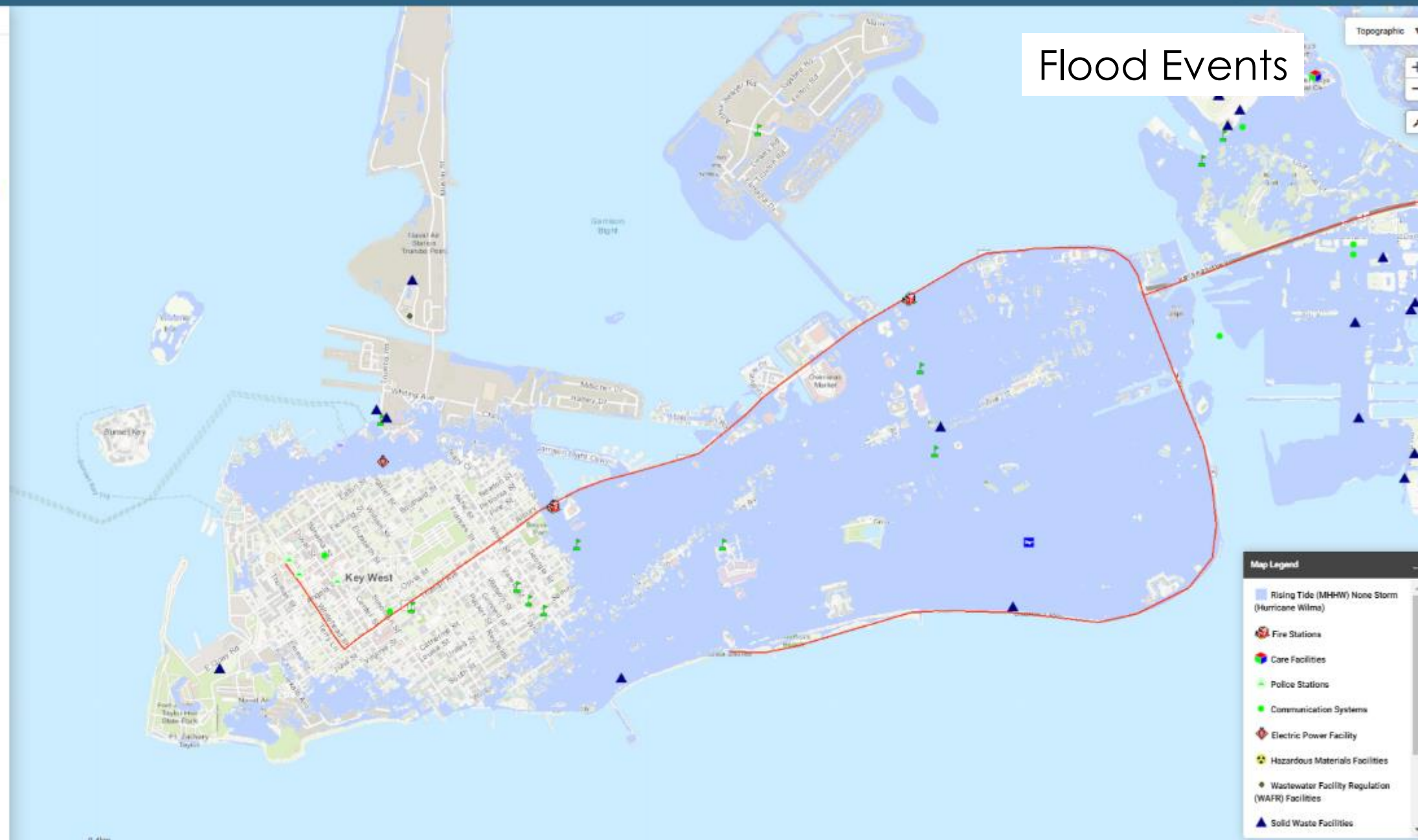
Select a Hazard:
Sea Level Rise

Select Storm Type:
None Hurricane Wilma

Sea Level Rise: 0ft 1ft 2ft 3ft 4ft

Opacity

Flood Events



Map Legend

- Rising Tide (MHW) None Storm (Hurricane Wilma)
- Fire Stations
- Care Facilities
- Police Stations
- Communication Systems
- Electric Power Facility
- Hazardous Materials Facilities
- Wastewater Facility Regulation (WAFR) Facilities
- Solid Waste Facilities

Wind Events





RED GARTER

RED GARTER
7
SALOON

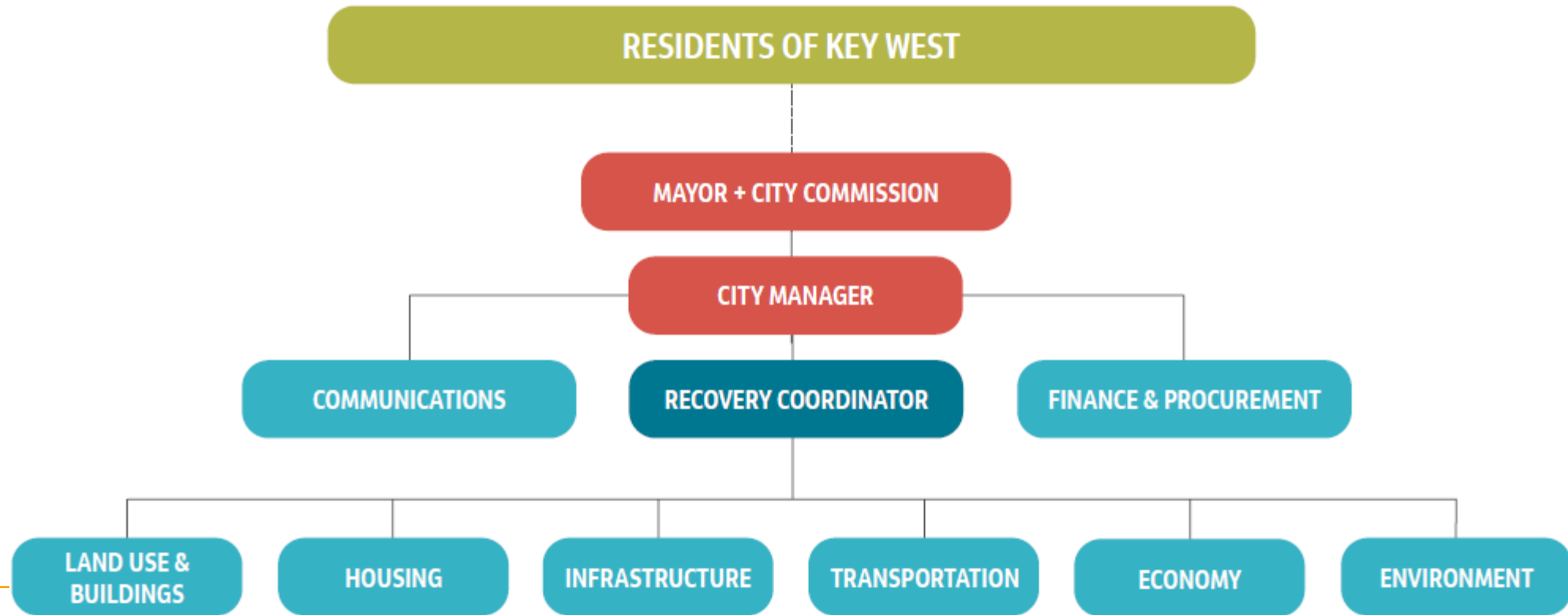
RED GARTER
7
SALOON

ENTRANCE

ENTRANCE
ADULT ENTERTAINMENT

Sorry... WE'RE
CLOTHED
UNTIL FURTHER NOTICE

Recovery Activation Chart



Land Use + Building

FOCUS AREA	OBJECTIVES	ACTIONS
Comp Planning	Modernize plan to incorporate resilience and climate adaptation	Amend the Comp Plan with recommendations provided by PDRRP consultant team, Jacobs Engineering Group Inc., in spring 2021.
Elevation & Height	Resolve conflicts between the need to elevate buildings and current height restrictions in the City Zoning Code	Amend City freeboard ordinance to allow flexibility for additional freeboard beyond the four feet currently allowed.
Historic Districts and Properties	Inventory historic districts and properties	Review current files and document any missing historic structures with detailed descriptions and photographs.
Conservation Areas	Identify conservation areas based on resilience and environmental standards	Identify conservation areas with high concentrations of repetitive loss properties, flood risk areas, wildlife protection areas, and other factors.
Redevelopment Areas	Prioritize redevelopment in key areas	Identify redevelopment areas based on vulnerability mapping, future land use planning, and other future development goals.
Redevelopment Permitting	Streamline planning/permitting process to expedite approvals for developments	Develop an ordinance for the City Commission to expedite the redevelopment process in line with the City's redevelopment vision and to ensure safety and promote resilience.
Redevelopment Permitting Staff Capacity	Consider augmenting permitting staff to account for higher demands	Identify and train potential internal and external personnel for augmenting permitting staff during post-disaster recovery processes.
Plans of Action	Prepare community for changes occurring post-hurricane	Enable and encourage appropriate plans of action before hurricanes, such as building awareness and preparing for increased costs of compliance.

Land Use + Building

FOCUS AREA	OBJECTIVES	ACTIONS
Build-back Standards	Establish build-back standards for resilient building design and efficient redevelopment processes	Develop build-back standards (regulations to govern and expedite reconstruction following disasters). Consider location of utilities infrastructure to minimize disruptions and standards required for areas based on vulnerability.
Flood-proofing	Mandate non-floodable materials	Mandate non-floodable materials to 2' NAVG – specifically drywall and flooring materials.
Incentivize Higher Standards	Encourage voluntary standard upgrades	Develop strategies for encouraging voluntary adherence to higher standards such as building for higher wind categories and not building on fill.
Incentivize Mitigation	Encourage flood- and wind-proofing between hurricanes	Partner with local businesses to educate, provide materials and labor, and create opportunities for economies of scale for flood- and wind-proofing processes.
Wind Hardening	Reduce building damage and safety risks associated with high wind events	Promote building updates to current through incentive programs. Set standards for roofing and window protection such as prohibiting asphalt shingles and increasing protections.
Design Guidelines	Establish resilient design guidelines to guide future character	Engage with the community to determine the preferred “style” for future development. Develop design guidelines to encourage development that supports a tourism economy and promotes a sense of place. Align design guidelines with build-back standards to ensure resilient redevelopment.
Non-conforming Uses	Enhance performance of building stock through risk reduction and resilience	Utilize APA model ordinance language to establish policies and plan to address non-conforming buildings/uses through enhanced standards and financial incentives.
Repetitive Loss	Update repetitive loss area analysis (RLAA) mitigation plans and incorporate outcomes into resilience strategies	Identify areas with several repetitive loss properties. Plan for mitigation solutions for individual buildings and areas. Update RLAA regularly for use in FEMA grant-funded mitigation solutions and review the list across all City agencies to develop recommendations for City Commission consideration.

Infrastructure

FOCUS AREA	OBJECTIVES	ACTIONS
Telecommunications	Introduce universal public access to emergency satellite-based phone and internet service. Invest in buried telecom lines resilient to wind and storm surge	Reach out to local telecom providers for the feasibility of fiber-optic phone and internet service. Contract satellite phone and internet provider for aid in emergency response plan. Purchase and install backup satellite voice/data equipment for City Hall.
Water Supply	Develop a resilient water supply system with reduced vulnerability to sea level rise at the source, in transmission to Key West and at the distribution points at J. Robert Dean Water Treatment Plant with increased potential for desalination	Develop a funding strategy to conduct further investment in desalination plants and technology run by renewable energy along with ensuring that these sites have low vulnerability to storm surge. The Stock Island Plant will be receiving \$30 million in state funding to renovate and upgrade the plant, which could be used to implement the addition of renewable power and storage systems. Includes lateral service lines.
Wastewater Collection	Harden lateral lines to residences	Identify budget and phasing to invest in hardening of lateral lines to residences, beginning in critical areas.
Water (StormSewer/Blue-Green Ways)	Develop a resilient storm water management and treatment system that allows for the reduction in storm surge and storm event flood levels through natural and built infrastructure	Assess current transportation grid and identify corridors that could be redesigned to convey storm surge and runoff away from critical areas. Reduce large-scale impermeable surfaces and implement green infrastructure to regulate stormwater conveyance and water quality. <i>Continued on the next slide.</i>
Coastal Defenses	Develop coastal defense solutions that address the matter holistically, adopting natural and built solutions	Develop a Coastal Defense Strategy and Design Guide based on the best practices of living shorelines and built infrastructure such as seawalls and levies to be used by local contractors.

Infrastructure

FOCUS AREA	OBJECTIVES	ACTIONS
Renewable Power Generation	Explore options to use renewable energy and similar solutions during emergencies	Investigate opportunities to incorporate generation and storage of renewable power sources, incorporation of cisterns, and other strategies for maintaining operations of critical facilities during and after an emergency event.
Power	Invest in climate-resilient subgrade electrical lines. Invest in self-sufficient electricity provision post-disaster with built-in redundancies based on renewable energy and storage	Invest in and develop an emergency solar microgrid that can collect, store, and distribute power safely to critical facilities and homes in addition to subgrade electrical lines and supporting facilities where applicable.
Underground Industrial Contamination		Analyze for possible industrial underground contamination likely to be released to near shore water given rising water table and develop and remediation plan including funding.

Housing

FOCUS AREA	OBJECTIVES	ACTIONS
Variety of Housing	Increase variety of housing typologies to provide various levels of affordability and attract funding for redevelopment	Identify key areas for zoning adjustments to encourage mixed-use development for affordable housing and other variety in housing stock appropriate for Key West. Define the level of density, level of affordability, and other requirements for future development in these areas. Incorporate these findings into local zoning maps and planning documents.
Housing Density and Elevation	Develop multi-family and higher density housing in resilient areas	Determine areas for investment in higher density housing development and supporting enhanced infrastructure systems. Consider zoning requirements for resilient infrastructure.
Landlord Incentives	Understand community vulnerabilities and incentivize landlords to address challenges for renters	Engage with the community to understand vulnerabilities for rent-burdened families. Incentivize landlords to increase resilience and better accommodate recovery needs of renters.
Housing Authority Properties	Build resilience for housing authority assets	Identify vulnerabilities in existing housing authority properties including emergency response systems. Identify and plan for future housing authority projects within redevelopment zones.
Long-term Housing Repair Assessment	Conduct a regular survey to assist in forming a long-term housing redevelopment strategy	Survey homeowners to understand interest in mitigation programs, voluntary buyout opportunities, and other strategies for redevelopment.
Temporary and Transitional Housing	Identify temporary sheltering options for use during disaster recovery	Identify available temporary housing options such as hotels and vacation rental properties. Compare temporary housing stock against projected demand for both displaced resident housing and emergency response housing. Align temporary housing plans with FEMA Disaster Housing guidance.
Disclosure Ordinances	Build awareness of deficiencies and mitigation actions	Ensure that all homebuyers are made aware of deficiencies and mitigation actions required for a property during the homebuying process.

Environment

FOCUS AREA	OBJECTIVES	ACTIONS
Record Ecosystem/Natural Resource Conditions	Develop an efficient, holistic environmental assessment to determine a baseline standard of ecological health in Key West that supports a balanced and regenerative ecosystem	This goal requires immediate action to be sewn into the portfolio of Key West's Environmental Practice.
Land-based Biodiversity	Invest in, increase public awareness of, support, and protect native flora/fauna found on the island of Key West through environmental studies and diverse conservation/restoration efforts	Increase native plantings in city projects as well as commercial and residential plantings. Identify and prioritize areas large enough to support large, migration important trees such as strangler fig. Provide guidance for planning for tree longevity and health. Conduct a population study for flora/fauna. Consider protection of migratory bird habitats. Consider increasing fines/penalties for poaching. Efforts such as this can be supported through eco-tourism. (E.g., Replant native tree initiatives)
Marine-based Biodiversity	Invest in, increase public awareness of, support, and protect marine flora/fauna found in the beautiful waters of Key West through environmental studies and diverse conservation/restoration efforts	Working closely with National Marine Sanctuary habitat restoration projects, conduct a population study for marine flora/fauna to gain understanding of what a healthy and balanced marine ecosystem on Key West looks like and how to maintain or recover that if it were affected by a storm. Consider increasing Marine Sanctuaries and No-Fishing Zones. Efforts such as this can be supported through ecotourism. (Mangrove and seagrass planting, coral restoration, beach erosion mitigation.)
Pollutant Mitigation	Invest in and increase awareness of pollutants in waters lining Key West, especially storms. Further, to develop increased primary treatment methods such as urban green infrastructure	Assess the existing streetscape and other areas to see what methods of primary treatment could be adopted to enhance the water quality of storm runoff to advance and supplement the stormwater management system and related City policies.

Transportation & Mobility

FOCUS AREA	OBJECTIVES	ACTIONS
Multi-modal Transportation	Increase marine transportation for both daily use and emergency evacuation	Study feasibility of increased shuttle and ferry capacities and routes to create a more robust marine transportation system.
Multi-modal Transportation	Reduce vehicle-only corridors and increase rights of way for pedestrians, bicycles, and other modes of transportation	Incorporate strategic multi-modal transportation projects into local transportation plans. Reduce vehicle-only corridors and increase rights of way for pedestrians, bicycles, and other modes of transportation.
Elevated Roads	Plan and fund the implementation of elevated roads	Determine areas appropriate for elevated road projects and funding sources for project development and ongoing maintenance.
Green Streets	Incorporate green streets to improve natural resilience, reduce infrastructure risk, and add to a sense of place	Evaluate the need for, design of, and implementation plan for green streets across Key West such as infiltration trenches, canopy trees, elevated streets, pervious pavers, and other solutions. Develop incentives for property owners to increase pervious surface area.
Integrated Stormwater Management	Maximize benefits	Consider all possible interventions (grey/green/blue) to manage stormwater as a system, both in the public and private realm.
Public Transportation	Continue utilizing the local bus system as an emergency evacuation option	Engage the community to understand evacuation needs. Outline routes and communication plans for emergency evacuation busing to the mainland.
Grid Adjustments	Use redevelopment opportunities to design the Key West grid system more strategically	Identify opportunities to adjust roadways to better accommodate efficient, multi-modal streets. Outline the process necessary to implement these changes as a post-disaster redevelopment project.
Proactive Substrate Management	Reduce undermining and pitting of roadways	Ensure all roadwork protects fine sand from washing away. Mandate strong repair guidelines for partner incursions into street surfaces.

Economy

FOCUS AREA	OBJECTIVES	ACTIONS
Small Business Engagement	Increase awareness and preparedness for small businesses to respond to an event	Develop a small business continuity of operations program. Host meetings with local businesses and organizations to understand challenges related to disaster recovery and tourism.
State and Local Resources	Identify and communicate state and local resources available to support business recovery	Coordinate with the Key West Chamber of Commerce, Key West Business Guild, Shop Mom & Pop, and other local business organizations to promote awareness of resources available for immediate and long-term recovery of businesses following a disaster.
Tourism District Infrastructure	Adjust tourism district infrastructure to enable faster storm clean-up and protect buildings/businesses from storm damage	Identify routes and infrastructure upgrades necessary for efficient emergency response and clean-up efforts.
Increase Economic Diversification	Engage the community to identify appropriate opportunities for adding diversity to the Key West economy	Determine markets or industries most appropriate for providing diversity to the local economy, such as higher education, varied tourism attractions, remote working, etc.
Post-disaster Public Relations	Develop outreach campaigns to signal the reopening of Key West	Work with business and tourism-related organizations to communicate readiness to reopen and resume tourism and hospitality services.
Unmet Needs Assessment	Survey and evaluate unmet needs following a disaster to identify funding and recovery opportunities	Develop an action plan based on unmet needs for businesses following a disaster. Utilize the action plan to advocate for businesses to receive funding and assistance through programs such as CDBG-DR.
Ecotourism/Green Tourism Development	Plan for long-term growth in ecotourism and carbon neutral vacations concepts	Develop an action and implementation plan for key projects to protect local ecological assets, increase multimodal transportation, and prepare for sustainable growth in local ecotourism. Identify and monitor vulnerable ecotourism sites. Promote carbon neutral vacations and green tourism through incentivizing businesses with green models.

Communications

FOCUS AREA	OBJECTIVES	ACTIONS
External Communications	Build resilience and redevelopment planning awareness	Engage local officials, key stakeholders, and the community to build awareness and understanding of the importance in planning for and funding resilience projects.
External Communications	Stakeholder engagement strategy	<p>Create a stakeholder engagement strategy for all phases of emergency management.</p> <ul style="list-style-type: none"> • Identify all audiences (residents, businesses, visitors, others) • State goals (inform, consult, involve, collaborate, or empower) • Develop tactics for each
External Communications	Online communication resource	Develop a user-friendly online communications tool for ongoing resilience planning and disaster preparedness updates. Spread information about the online resource and engage community groups in building awareness of the communication tool. Maintain website information and monitor efficacy of communicating with the community.
External Communications	PDRRP calendar	Create a calendar for one-way communications sharing.
External Communications	Two-way communication forum	Create forums for two-way communications based on the stakeholder engagement strategy.
External Communications	Displaced resident and tourism communications strategy	Align with business organizations and other local organizations to develop a communications strategy for displaced residents and tourists.
Internal Communications	Create a staff communications plan	Determine the preferred means to communicate and create a routine and commit to share information with staff.

Funding

FOCUS AREA	OBJECTIVES	ACTIONS
2020 CAFR Review	Align 2020 CAFF Review and resilience and recovery strategies	Review the 2020 CAFR for resilience and recovery items to be included in regular PDRRP updates.
Economic Development Strategy	Encourage revenue diversification	Include revenue diversification as part of the economic development strategy during future strategy updates.
Fund Balance Increase	Formalize process for increases to the fund balance	Formalize a plan and a process to begin to increase fund balance.
Capital Improvement Plan	Build a rolling five-year Capital Improvement Plan	Through this framework and a robust resilience planning process develop a strong capital improvement plan that identifies vulnerabilities and prioritizes projects that reduce risk. Include unfunded projects that will be “shovel” ready for grants post-disaster.
Collaborative Budgeting	Inform decision making with a collaborative budgeting process	Promote collaborative budgeting across departments to inform the decision-making process. For example, align annual priority projects across public works, utilizes, private development and transportation to maximize outcomes for city neighborhoods that need to adapt and reduce risk.
Partners Agreements	Partner with governments and organizations for fiscal recovery efforts	Identify and create partners agreements with county and any non-profits involved in fiscal recovery efforts.
FEMA Reimbursement	Build understanding of FEMA reimbursement process	Educate and update staff and partners in FEMA documentation and reimbursement procedures.

Procurement

FOCUS AREA	OBJECTIVES	ACTIONS
Procurement Policy Review	Review and amend existing policies	Review existing procurement policies that may restrict speedy recovery and reconstruction, and amend as required through City Commission action.
Quick contract availability	Preposition pre-qualified contracts to be accessed during recovery and reconstruction	Review role in recovery and work with the purchasing division to preposition pre-qualified contracts to be accessed during recovery and reconstruction. Contracts needed include, but are not limited to: <ul style="list-style-type: none"> • Damage assessment personnel and technology infrastructure • Temporary specialized personnel such as financial analysts familiar with emergency financing and FEMA requirements: <ul style="list-style-type: none"> • Building and zoning plan reviewers and field inspectors • Design consultants • Contractors
Annual Contract Review	Best outcome for City contracts	Contracts should be reviewed on an annual basis.
City Purchasing	City purchasing staff to align with NIGP	City purchasing staff should avail themselves of the service offerings of NIGP.
Procurement Access	Increase accessibility for procurement processes	Enhance procurement website, access, and online vending logistics.

Proposed Comp Plan Changes

Peril of Flood: A redevelopment component that **outlines the principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.**

Elimination of Substandard Housing Conditions:

Establishment of an Adaptation Action Area for the Historic District

Floodplain Management Policies:

PDRRP Centric

Proposed Comp Plan Changes

Peril of Flood: A redevelopment component that **outlines the principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.**

Elimination of Substandard Housing Conditions

Establishment of an Adaptation Action Area for the Historic District

Floodplain Management Policies

PDRRP Recommendations

Year 1

YEAR 1 ACTIONS

- External Communications (All)
- Internal Communications
- Tourism District Infrastructure
- Water Quality Protection
- Capital Improvement Plan
- Partners Agreement
- Housing Authority Projects
- Housing Czar
- Temporary & Transitional Housing
- Disclosure Notices

- Housing Density and Elevation
- Renewable Power Generation
- Telecommunications
- Water
- Redevelopment of Permitting Staff
- Repetitive Loss
- Design Guidelines
- Procurement Policy Review
- Pre-qualified Contracts
- City Purchasing
- Transportation Focus Areas (ALL)

Year 2

YEAR 2 ACTIONS

- State and Local Resources
- Increase Economic Diversification
- Small Business Engagement
- Climate Change Policies
- Increase Ecotourism and Green Practices
- Economic Development Strategy
- Long-term Housing Repair Assessment
- Variety of Housing
- Coastal Defences
- Industrial Sites
- Wind Hardening
- Procurement Access

Year 3

YEAR 3 ACTIONS

- Tracking Ecosystem Health
- Land-based Biodiversity
- Landlord Incentives
- Power
- Water Supply (Year 5)
- Redevelopment Permitting
- Build-back Standards

Annual Work

ALL YEARS

- External Comms - Resilience
- External Comms - Event Outreach
- Ecotourism/Green Tourism Development
- Marine-based Biodiversity
- Collaborative Budgeting
- Comp Planning
- Elevation & Height
- Redevelopment Areas
- Non-conforming Uses
- Annual Contract Review
- Multi-modal Transportation

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Questions/Comments?

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